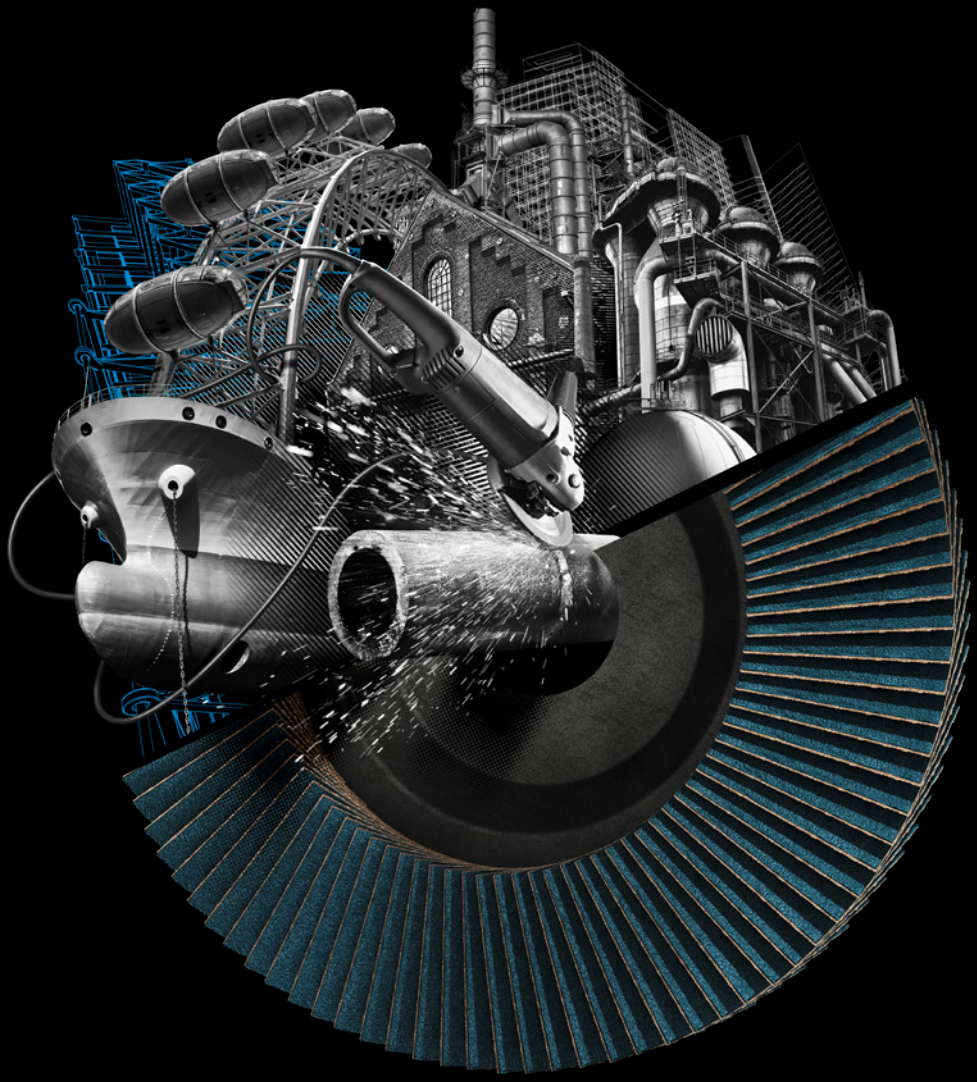
EN



Industrial supply
Tools catalogue

English | Catalogue no. 21

Premium grinding tools since 1919
www.tyrolit.com

Four steps to the **right product**

1. Select the application

e.g. cutting, grinding, etc.

2. Select the machine

e.g. angle grinder, straight grinder, etc.



3. Which material is being machined?

Each performance level is further subdivided into different materials, such as stainless steel, steel, etc.

4. Performance level

We offer 3 different performance levels: PREMIUM***, STANDARD** and BASIC*



Other search options

Index pages P. 552ff



The TYROLIT Group

TYROLIT is one of the world's leading manufacturers of grinding and dressing tools as well as a system provider for the construction industry.

Since 1919, our innovative tools have made an important contribution to the technological development in many industries. TYROLIT offers tailored grinding solutions for various applications, as well as a comprehensive assortment of standard tools for customers all over the world.

Headquartered in Schwaz (Austria), the family-owned business combines the strengths of being a part of the dynamic Swarovski Group with a century's worth of individual corporate and technological experience.



TYROLIT headquarters in Schwaz (Austria)

Facts & Figures

80,000+
products

29
production sites

4,600+
employees worldwide

37
sales locations

500+
worldwide patents

Sales companies in Argentina, Australia, Austria, Belgium, Brazil, Canada, China, Czechia, Denmark, Estonia, Finland, France, Germany, Hungary, India, Indonesia, Italy, the Netherlands, Norway, Poland, Portugal, Russia, South Africa, South Korea, Spain, Sweden, Switzerland, Thailand, the UAE, the UK and the USA. Distributors in 65 other countries.

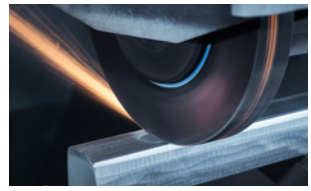
Business units

METAL INDUSTRIES



Automotive industry

Our leading grinding solutions are used for the production of automotive parts with highest precision.



Steel & Foundry

With many years of experience in the machining of high alloyed steel we are the market-leader in the steel industry.



Precision industries

The extensive field of precision industries includes tools and system solutions for various highly specialised applications.



Industrial trade

Our comprehensive assortment for cutting, grinding and surface treatment for professional end users is available worldwide.

CONSTRUCTION



Construction industry

The assortment of high efficency diamond tools is tailored for the specific needs of customers in the construction industry.



Trade & Rental

Our wide range of professional system solutions for construction-related applications is available worldwide.



Construction professionals

We impress users with extensive know-how in the creation of perfectly optimised machines and tools and a fast repair service.



Project services

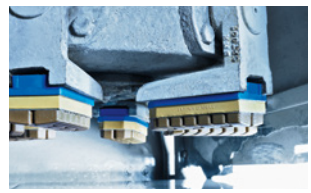
Our project services team develops individual system solutions for customer-specific special construction applications.

QUARTZ INDUSTRIES



Stone industry

With a wide assortment of diamond tools for the stone industry, we are a leading supplier in all processing steps from mining to final decorative elements.



Ceramic industry

Our customised diamond tools are used for applications in the ceramic industry – from cutting and squaring to profiling and polishing of ceramic tiles.



Glass industry

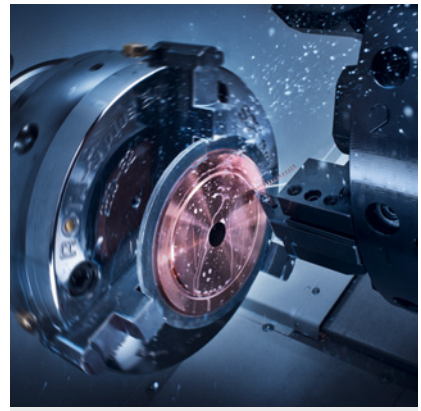
We offer diamond tools for drilling and edge processing of glass that is used to create components for the architectural and automotive industry.

100 years of advanced thinking

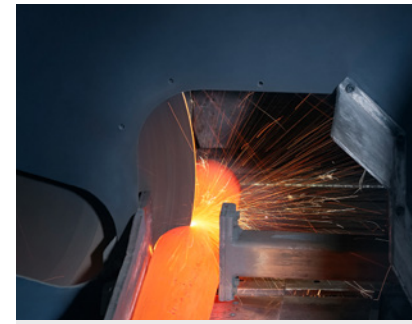
A passion for technology, many years of experience and a strong innovative spirit have been incorporated into the manufacture of outstanding grinding solutions.



Pioneer in the field of cut-off grinding — We created the first fibre-reinforced cut-off discs in Europe and invented the super-thin technology, which is today's global market standard for hiqh quality cut-off discs.



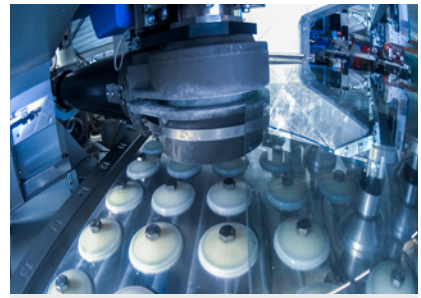
Technology leader in precision grinding — We are one of the worlds leading providers of high-precision grinding tools in the automotive, turbine and tooling industry as well as in various other precision industries.



Market leader in the steel industry — We are the most sought-after producer of the world's biggest cut-off wheels with diameters of up to 2,000 mm for cutting hot semi-finished steel products.



Leading solutions for construction professionals — Our innovative system solutions and the patented diamond technology (TGD®) set new standards in performance and comfort for applications in the construction industry.



Diamond tools for grinding of automotive glass — We were the first company to produce diamond tools for grinding automotive glass at 40 m/min and successfully established an industry-changing concept for edge grinding in the market.



Creator of innovative wire sawing technology — We strongly pursued the development of the wire sawing technology for applications in the stone and construction industry which is still the industry reference today.

International production and sales locations

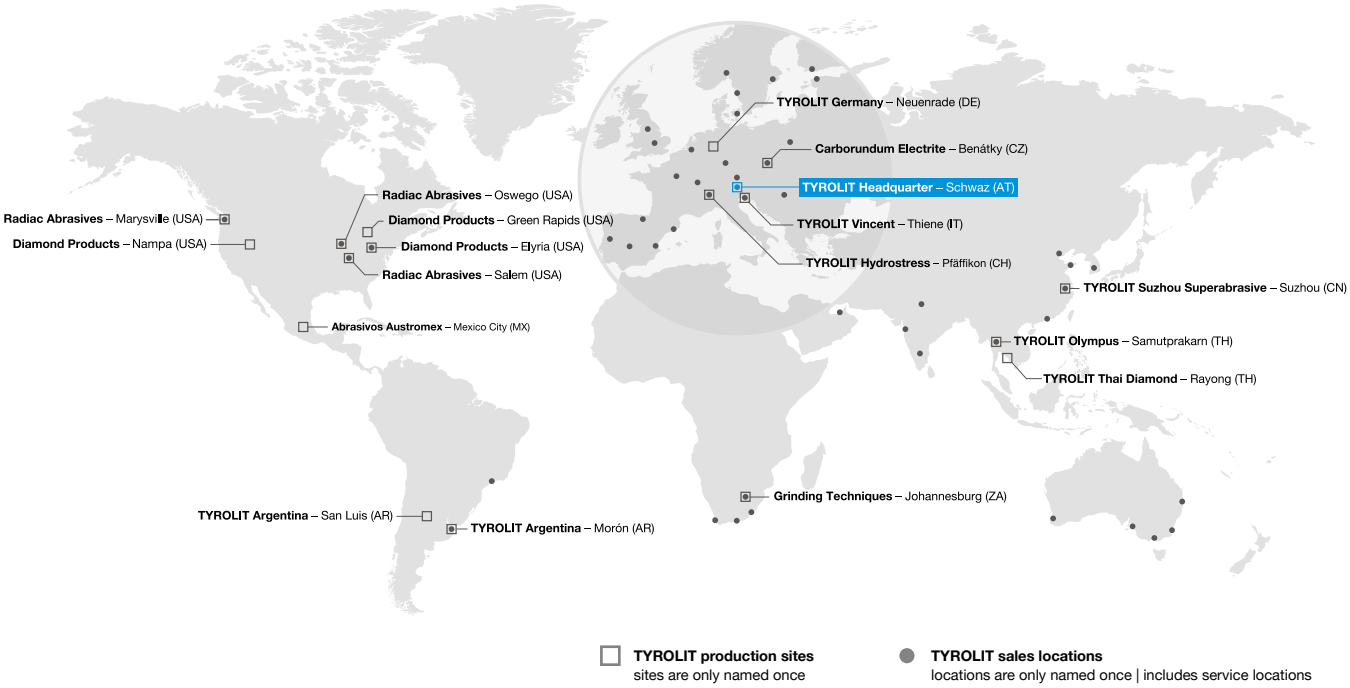
TYROLIT is represented in 29 countries through its own production and sales companies and cooperates in a further 65 countries with local partners.



Production location in Suzhou (China)



The European logistics centre in Benátky (Czechia)



The specialised trade for grinding tools at TYROLIT

TYROLIT offers professional users in different industries an extensive product range, whether for grinding, cutting or surface treatment.

TYROLIT is a global player in the specialised trade in grinding tools and is represented in more than 65 countries. Our products are used in a wide range of sectors – in metal-processing companies, in shipyards, in workshops and on building sites.

With an extensive network of dealers, a regional sales team and experienced application engineers on site, TYROLIT can quickly provide advice and assistance to customers worldwide if they have questions.



Product innovations at TYROLIT
From idea to industry standard



1982

TYROJet revolutionises diamond wheels

Laser welded segments have now enabled the use of diamond wheels for dry cutting and at high speeds.



2011

Natural Jute Disc for less environmental load

With the launch of the TYROLIT natural fibre disc of natural jute fibre, we can considerably reduce environmental load by using a biodegradable core.



2019

Cerabond X – the most powerful grinding disc

The CERABOND system combines high-quality ceramic abrasive grain with a unique bonding structure and makes Cerabond X the most powerful grinding disc on the market.



1957

SECUR sets new safety standard

Tyrolit is the first company in Europe to produce fibreglass-reinforced cut-off and rough grinding wheels.



1992

Higher productivity thanks to super-thin cut-off wheels

TYROLIT introduces the first super-thin cut-off wheels, from which customers are still benefiting today, with huge increases in productivity and performance.



2014

More comfort with the Comfort Start rough grinding wheel

The bevelled edge makes working more comfortable and considerably speeds up readiness for use.



2019

With X-Lock at the forefront of technology

TYROLIT is one of the first abrasives manufacturers to integrate the innovative X-Lock clamping system for a wide range of cutting, grinding and flap discs.

Quality lines

To make your search for the ideal tool easier, we have divided our range into three performance levels. This enables us to offer the perfect solution for every application!

Our PREMIUM quality line is for professionals using abrasives regularly. It offers the longest lifetime and the highest comfort in the industry.



★★★
PREMIUM

- Maximum cutting ability and stock removal rate
- Above-average lifetime
- The best work results
- Maximum economic efficiency
- Extensive product range – the perfect product for every application
- Use of innovative technologies and the best raw materials
- Maximum comfort for the user thanks to low vibration and noise levels

Our STANDARD quality line is for craftsmen looking for the perfect all-rounder. It offers excellent lifetime and comfort while delivering exceptional work results.



★★
STANDARD

- Excellent cutting ability and stock removal rate
- Excellent service life
- Exceptional work results
- High level of economic efficiency
- Large product range – for the most important applications

Our BASIC quality line is for craftsmen looking for excellent value. It offers good lifetime and comfort while delivering great work results.



★
BASIC

- Good cutting ability and stock removal rate
- Good service life
- Good work results

Symbols

Safety


Wear gloves


Wear protective clothing


Do not use damaged wheels



Free from Fe, S, Cl, F


Wear eye protection


Observe the instructions


Not permitted for side grinding


Wear ear protection


Only permitted for wet grinding


Off-hand and hand- guided grinding not permitted


Wear a mask


Not permitted for wet grinding



Free from Fe, S, Cl

Material


Steel


Carbide metal


Tiles



All in One


Abrasive materials



Plastic


Concrete



Stainless steel


Asphalt


Stone


Marble


Paint / lacquer


Gel coat


Composites



Titanium


Wood


Cast iron



High-speed steel



Nonferrous metals


Engineering bricks


Hard stone


Rails


Universal

Machines


Dry core drill


Joint cutter

Straight grinder


Hand held grinding

Wet core drill

Dual action sander

Stationary cutting machine

Tool grinding

Belt grinder

Portable belt grinder

Table saw

Saw sharpening

Floorstand grinder

Pneumatic angle grinder

Burnishing machine

Dressing and sharpening

Angle grinder with cup wheel

Petrol cutting saw

External-cylindrical grinding

Electrical hand saw

Angle grinder with brush

Mini belt grinder

Internal-cylindrical grinding

Pedestal / pendular grinding

Angle grinder

Hand-guided grinding

Surface grinding





Cutting

Cutting information
Angle grinders
Straight grinders
Petrol cutting saws
Stationary cutting machines

Grinding

Grinding information
Angle grinders
Straight grinders

Brushes

Brushes information
Angle grinder
Straight grinder
Floorstanding grinder
Hand-guided grinding

Coated abrasives

Grinding information
Angle grinder
Straight grinder
Belt grinder
Hand sanding and super finishing
Dual action sander
Burnishing machine
Floorstanding grinder

Precision grinding

Precision grinding information
External cylindrical grinding
Surface grinding
Rectification plane
Internal cylindrical grinding
Hand-guided grinding
Bench grinders
Saw sharpening
Tool grinding

Diamond tools

Information diamond tools
Angle grinder
Petrol saws
Table sawing
Floor sawing
Core drilling

Notes

Safety
Quick product search
General

Symbols

Safety
Material
Machines





Catalogue 21
Cutting

Grinding information	**14**
Explanation of labels	14
Specification	15
Machine pictograms	15
Angle grinders	**17**
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Accessories	39
Straight grinders	**41**
1.2 Cut-off wheels	42
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Petrol cutting saws	**47**
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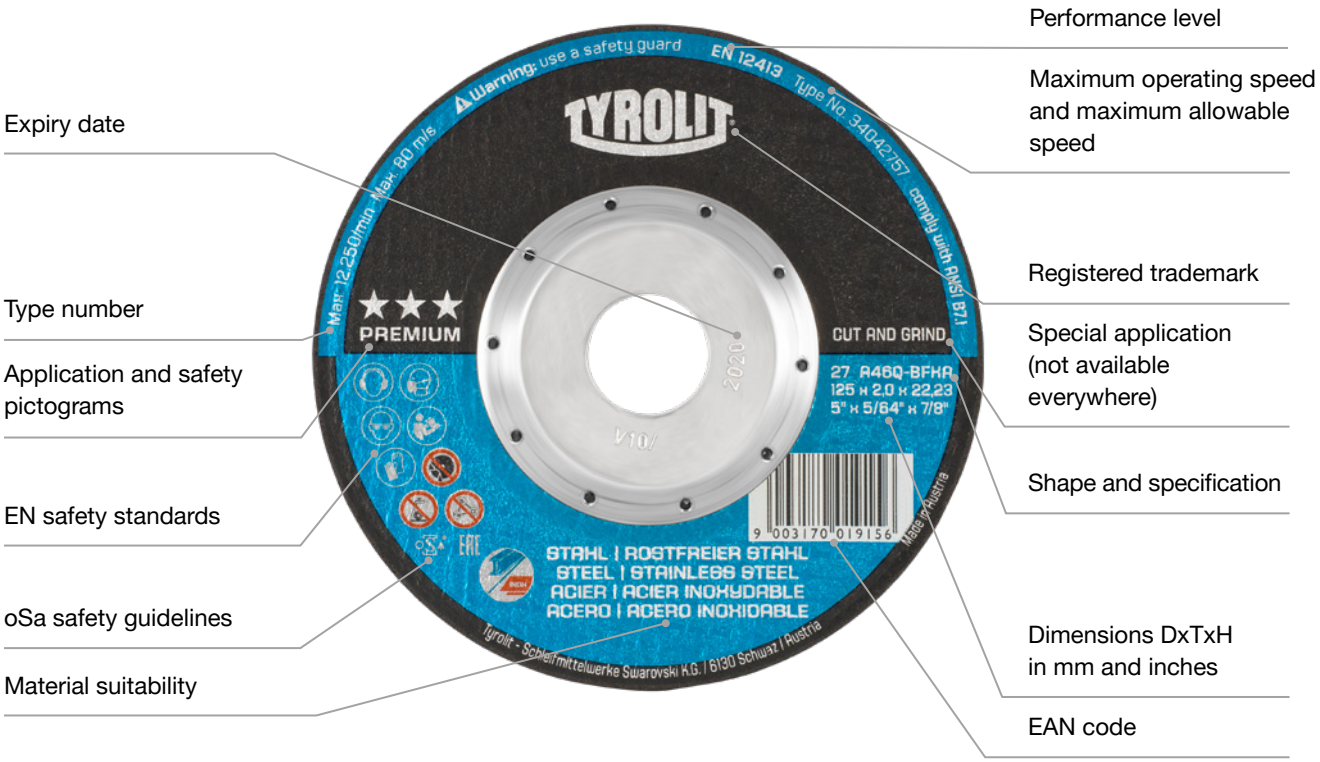
Stationary cutting machines	**55**
1.4 Stationary cut-off wheels	56
Non-reinforced stationary cut-off wheels	62

Specific information
Resin-bonded cut-off wheels

Cut-off wheels product label



Colour codes

						
Label	Steel	2in1/3in1	INOX	Nonferrous metals	Cast iron	Stone
Colour code	BLUE	BLUE	RED	ORANGE	PURPLE	GREEN
Material	Steel	2in1 = Steel and stainless steel, 3in1 = Steel, stainless steel and cast iron	Stainless steel	Aluminium, copper, zinc, brass, bronze, stone	Cast materials	Stone

Cut-off wheels specification

A 46 N-B F X A

A	External reinforcement: with external reinforcement	
X	TYROLIT internal designation	
F	Fibre-reinforced: fibre glass (safety, lateral load, operating speed)	
B	Bond: V = vitrified bonded, B = resin bonded, E = elastic bonded, G = galvanic bonded	
N	Designation of hardness: N = soft, T = hard	
46	Grit size indication in mesh (sieve size per inch)	grit size in mesh
	14–36	COARSE
	46–60	MEDIUM
	80–220	FINE
	800–1 200	VERY FINE
A	Abrasive: A = regular aluminium oxide, C = silicon carbide, ZA = zirconia alumina, CA = ceramic	

Machines



Angle grinder



Straight grinder



Petrol cutting saw



Stationary cutting machines


TYROLIT

1.1 Angle grinder
Cut-off wheels





Cut-off wheels **for angle grinders**

Working with an angle grinder is one of the most important processes in the handicraft and industrial sectors for machining all types of metals. TYROLIT offers the ideal cut-off wheels for convenient and quick use with small and large angle grinders.

The benefits of our cut-off wheels in terms of innovation and economy can be clearly seen when it comes to cutting thin metal sheets and profiles. Our PREMIUM products in particular offer you the ultimate performance and lifetime, very clean cutting areas and low thermal load. This means there is only a limited amount of rework required, saving you time and money.
However, the highest priority here at TYROLIT is the health of our customers. TYROLIT cut-off wheels therefore meet the highest safety standards and contribute significantly to improving your working conditions. Reduced vibration and noise considerably improve your level of comfort while working.
On the following pages you will find the perfect tool for your requirements thanks to the uniform colour code for all materials.

Shapes

41 Cut-off wheels
(straight design)

42 Cut-off wheel
(depressed-centre design)

27EC und 27CC
CUT AND GRIND
(depressed-centre design)

Application recommendation

Performance level	Design	Grain	Steel	Stainless steel	NF metals	Cast iron	Stone	Page	Aggressivenes	Lifetime	Performance* (0-100)
									Rating System		
★★★ PREMIUM	LONGLIFE & X-LOCK LONGLIFE	A	●					20, 21			100
	2in1 & X-LOCK 2in1	A	●	●				23, 24			78
	ACCU	A	●	●				28			72
	CERABOND	CA	●	●				26			100
	DEEP CUT PROTECTION	A	●	●				27, 28			89
	INOX & X-LOCK INOX	A		●				31, 32, 33			95
	ALU	A			●			35, 36			100
	SIC/ALU	A			●		●	36			94
	FOCUR EXTRA	A				●		38			50
	FOCUR SA	A				●		38			100
★★ STANDARD	STEEL	A	●					22			69
	2in1	A	●	●				29			61
	STONE	C					●	37			70
	INOX	A		●				33, 34			67
★ BASIC	2in1	A	●	●				30			53
	STONE	C					●	37			55
	INOX	A		●				34			53

**The performance indicates the overall performance of the product in comparison to products with the same material suitability.*

★★★
PREMIUM

LONGLIFE cut-off wheels

for steel

+ Maximum lifetime thanks to LONGLIFE technology

+ Extremely short working times thanks to excellent cutting ability and a low thermal load on the workpiece (heat build-up)



+ No reworking, such as cleaning or deburring, required

Application:

+ For machining different steel grades
+ For cutting metal sheets, profiles, pipes, rods and solid material

We recommend:

+ 1.0 to 1.9 mm for fastest cutting and minimum burr formation
+ 2.0 to 3.0 mm for longest lifetime and maximum stability

★★★
PREMIUM

LONGLIFE cut-off wheels
for steel

	Shape		Type no.	Dimension	Specification	PU
	▬	41	34332576	115x1.0x22.23	A60S-BFP	25
			34332755	115x1.6x22.23	A46S-BFP	25
			637066	115x2.0x22.23	A30S-BFXA	25
			34332754	125x1.0x22.23	A60S-BFP	25

▶

◀

	Shape		Type no. new	Dimension	Specification	PU
		41	34332756	125x1.6x22.23	A46S-BFP	25
			637067	125x2.0x22.23	A30S-BFXA	25
			34332757	150x1.2x22.23	A46S-BFP	25
			34332758	150x1.6x22.23	A46S-BFP	25
			637068	150x2.0x22.23	A30S-BFXA	25
			34332759	178x1.6x22.23	A46S-BFP	25
			785339	178x2.0x22.23	A30S-BFXA	25
			637069	178x2.5x22.23	A30S-BFXA	25
			34332760	230x1.9x22.23	A46S-BFP	25
			34332771	230x2.0x22.23	A30S-BFP	25
			637070	230x2.5x22.23	A30S-BFXA	25
		42	637071	115x2.5x22.23	A30S-BFXA	25
			637072	125x2.5x22.23	A30S-BFXA	25
			637073	178x3.0x22.23	A30S-BFXA	25
			637074	230x3.0x22.23	A30S-BFXA	25

★★★
PREMIUM

X-LOCK LONGLIFE cut-off wheels
for steel





Application
+ For machining different steel grades
+ For cutting metal sheets, profiles, pipes, rods and solid material

Advantage
+ TYROLIT integrates X-LOCK, the new clamping system from BOSCH, for a wide assortment of cut-off wheels, roughing wheels and flap discs
+ The product offers easy handling and the highest safety
+ Maximum lifetime thanks to LONGLIFE technology

	Shape		Type no.	Dimension	Specification	PU
		41	34411637	115x1.0x22.23/XL	A60S-BFP	25
			34411638	115x1.6x22.23/XL	A46S-BFP	25
			34411639	125x1.0x22.23/XL	A60S-BFP	25
			34411640	125x1.6x22.23/XL	A46S-BFP	25

★★ STANDARD

Cut-off wheels
for steel

Application
+ For machining different steel grades
+ For cutting metal sheets, profiles, pipes, rods and solid material

We recommend
+ 1.0 to 1.9 mm for fastest cutting and minimum burr formation
+ 2.0 to 3.0 mm for long lifetime and maximum stability

Advantage
+ Convenient cutting with excellent lifetime
+ Short working times thanks to very good cutting ability and a low thermal load on the workpiece (heat build-up)
+ No reworking, such as cleaning or deburring, required



Shape		Type no.	Dimension	Specification	PU
	41	34332840	115x1.0x22.23	A60S-BFS	25
		34332852	115x1.6x22.23	A46S-BFS	25
		367565	115x2.5x22.23	A30S-BF	25
		34332851	125x2.0x22.23	A60S-BFS	25
		34332853	125x1.6x22.23	A46S-BFS	25
		367569	125x2.5x22.23	A30S-BF	25
		34332854	150x1.6x22.23	A46S-BFS	25
		367574	150x2.5x22.23	A30S-BF	25
		34332892	178x1.6x22.23	A46S-BFS	25
		367578	178x3.0x22.23	A30S-BF	25
		34332856	230x1.9x22.23	A46S-BFS	25
		34332857	230x2.0x22.23	A30S-BFS	25
		367583	230x3.0x22.23	A30S-BF	25
	42	367781	115x2.5x22.23	A30S-BF	25
		367785	115x3.0x22.23	A30S-BF	25
		367786	125x2.5x22.23	A30S-BF	25
		367789	125x3.0x22.23	A30S-BF	25
		367800	178x3.0x22.23	A30S-BF	25
		367803	230x3.0x22.23	A30S-BF	25

★★★
PREMIUM

X-LOCK cut-off wheels

for steel and stainless steel

+ The product offers easy handling and the highest safety

+ TYROLIT integrates X-LOCK, the new clamping system from BOSCH, for a wide assortment of cut-off wheels, roughing wheels and flap discs



+ No loose parts

Application:

+ For machining different steel and stainless steel grades
+ For cutting metal sheets, profiles, pipes, rods and solid material

★★★
PREMIUM

X-LOCK cut-off wheels
for steel and stainless steel

	Shape		Type no.	Dimension	Specification	PU
	▬▬	41	34411628	115x1.0x22.23/XL	A60Q-BFP	25
			34411629	115x1.6x22.23/XL	A46Q-BFP	25
			34411630	125x1.0x22.23/XL	A60Q-BFP	25
			34411632	125x1.6x22.23/XL	A46Q-BFP	25

★★★
PREMIUM

2in1 cut-off wheels

for steel and stainless steel

+ The chemical purity of the product prevents corrosion, pitting corrosion and reduction in fatigue strength for the best results even on stainless steel



+ High level of comfort thanks to easy-cutting specification

+ Extremely short working times thanks to excellent cutting ability and a low thermal load on the workpiece (heat build-up)

Application:

+ For machining different steel and stainless steel grades
+ For cutting metal sheets, profiles, pipes, rods and solid material

We recommend:

+ 1.0 to 1.9 mm for fastest cutting and minimum burr formation
+ 2.0 to 3.5 mm for maximum lifetime and stability

★★★
PREMIUM

2in1 cut-off wheels
for steel and stainless steel

	Shape		Type no.	Dimension	Specification	PU
		41	34424279	115x1.0x22.23	A60Q-BFP	10
			34424280	125x1.0x22.23	A60Q-BFP	10

▶

◀



Shape		Type no.	Dimension	Specification	PU
	41	34332791	115x1.0x22.23	A60Q-BFP	25
		34472855	115x1.2x22.23	A46Q-BFP	25
		34332793	115x1.6x22.23	A46Q-BFP	25
		872338	115x2.5x22.23	A30Q-BFXA	25
		34332792	125x1.0x22.23	A60Q-BFP	25
		34472851	125x1.2x22.23	A46Q-BFP	25
		34332794	125x1.6x22.23	A46Q-BFP	25
		872339	125x2.5x22.23	A30Q-BFXA	25
		34332795	150x1.2x22.23	A46Q-BFP	25
		34332796	150x1.6x22.23	A46Q-BFP	25
		872340	150x2.5x22.23	A30Q-BFXA	25
		34332797	178x1.6x22.23	A46Q-BFP	25
		872341	178x2.5x22.23	A30Q-BFXA	25
		872342	178x3.0x22.23	A30Q-BFXA	25
		34332798	230x1.9x22.23	A46Q-BFP	25
		34332799	230x2.0x22.23	A30Q-BFP	25
		872343	230x2.5x22.23	A30Q-BFXA	25
		872344	230x3.0x22.23	A30Q-BFXA	25
	42	872346	115x2.5x22.23	A30Q-BFXA	25
		872347	125x2.5x22.23	A30Q-BFXA	25
		872348	125x3.0x22.23	A30Q-BFXA	25
		872350	178x3.0x22.23	A30Q-BFXA	25
		121878	230x2.5x22.23	A30Q-BFXA	25
		872351	230x3.0x22.23	A30Q-BFXA	25
		872352	230x3.5x22.23	A30Q-BFXA	25

★★★
PREMIUM

CERABOND cut-off wheels

for steel and stainless steel

+ Highest cutting ability thanks to the used ceramic grain
+ Consistent abrasiveness through the combination of the new bonding system and the ceramic grain



+ Longest lifetime and therefore less wheel changes for the user

Application:

+ For machining different steel and stainless steel grades
+ For cutting very hard, challenging workpieces and solid materials

We recommend:

+ 1.0 to 1.9 mm for fastest cutting and minimum burr formation
+ 2.0 to 3.0 mm for long lifetime and maximum stability

★★★
PREMIUM

CERABOND cut-off wheels

for steel and stainless steel

	Shape	Type no.	Dimension	Specification	PU
		34241344	115x1.0x22.23	CA60Q-BFKA	15
		34256272	115x1.3x22.23	CA60Q-BFKA	15
		34256157	115x1.6x22.23	CA46Q-BFKA	15
		34241345	125x1.0x22.23	CA60Q-BFKA	15

▶

◀

	Shape		Type no.	Dimension	Specification	PU
		41	34256273	125x1.3x22.23	CA60Q-BFKA	15
			34256266	125x1.6x22.23	CA46Q-BFKA	15
			34256281	125x2.0x22.23	CA30Q-BFKA	15
			34256274	150x1.3x22.23	CA60Q-BFKA	15
			34256268	150x1.6x22.23	CA46Q-BFKA	15
			34256275	178x1.6x22.23	CA46Q-BFKA	15
			34256276	230x2.0x22.23	CA30Q-BFKA	15
		42	34256270	125x1.6x22.23	CA46Q-BFKA	15
			34256271	150x1.6x22.23	CA46Q-BFKA	15

★★★
PREMIUM

DEEP CUT PROTECTION cut-off wheels

for steel and stainless steel

+ The metal bushing with DEEP CUT PROTECTION prevents bore breakout

+ DEEP CUT PROTECTION is a further step towards operator safety



+ Maximum insertion depths into the workpiece and contact with sharp workpiece edges possible without damaging the wheel

+ High level of comfort thanks to easy-cutting specification

Application:

+ For machining different steel and stainless steel grades
+ For cutting metal sheets, profiles, pipes, rods and solid material

▶

◀

PREMIUM

DEEP CUT PROTECTION cut-off wheels
for steel and stainless steel



Shape		Type no.	Dimension	Specification	PU
	42	34472853	115x1.2x22.23	A46Q-BFP	25
		34472852	125x1.2x22.23	A46Q-BFP	25
		34472854	150x1.2x22.23	A46Q-BFP	25

PREMIUM

ACCU cut-off wheels
for steel and stainless steel

Application

+ These products have been optimised for battery-powered angle grinders and are ideal for cutting thin-walled metal sheets, profiles and pipes made of steel and stainless steel

Advantage

+ Work on smaller tasks in hard-to-reach areas without the need for a power source, while still benefiting from the usual TYROLIT quality
+ Tool can be used for a wide variety of applications on steel and stainless steel
+ Also makes light work of small cross-sections, rods and reinforced steel



Shape		Type no.	Dimension	Specification	PU
	41	34022958	115x1.0x22.23	A60Q-BFKA	25
		34022959	125x1.0x22.23	A60Q-BFKA	25

★★
STANDARD

2in1 cut-off wheels
for steel and stainless steel

Application
+ For machining different steel and stainless steel grades
+ For cutting metal sheets, profiles, pipes, rods and solid material

Advantage
+ The product offers very good lifetime and stability
+ Quick and convenient to use



Shape		Type no.	Dimension	Specification	PU
	41	34332859	115x1.0x22.23	A60Q-BFS	25
		34332860	125x1.0x22.23	A60Q-BFS	25
		34332861	115x1.6x22.23	A46Q-BFS	25
		34332862	125x1.6x22.23	A46Q-BFS	25
		34332863	150x1.6x22.23	A46Q-BFS	25
		34332893	178x1.6x22.23	A46Q-BFS	25
		34332865	230x1.9x22.23	A46Q-BFS	25
		34332866	230x2.0x22.23	A30Q-BFS	25

★★★
PREMIUM

CUT AND GRIND
for steel and stainless steel

Application
+ For machining different steel and stainless steel grades

Advantage
+ Thanks to CUT AND GRIND, applications such as grinding, deburring and shaping as well as cutting and plunging are possible with only one tool
+ Thinner width of 2.0 mm with DEEP CUT PROTECTION offers additional safety for the operator and prevents bore breakout in the event of contact with sharp-edged workpieces



Shape		Type no.	Dimension	Specification	PU
	27EC	34042756*	115x2.0x22.23	A46Q-BFXA	25
		34042757*	125x2.0x22.23	A46Q-BFXA	25
		743946	150x3.0x22.23	A30Q-BFXA	25
		743947	178x3.5x22.23	A30Q-BFXA	25

**With DEEP CUT PROTECTION*

CUT AND GRIND
for steel and stainless steel

BASIC

Application
+ For machining different steel and stainless steel grades

Advantage
+ Thanks to CUT AND GRIND, applications such as grinding, deburring and shaping as well as cutting and plunging are possible with only one tool
+ The product offers good performance with the highest safety standards

	Shape	Type no.	Dimension	Specification	PU
	27CC	743942	115x2.5x22.23	A30Q-BF	25
		757089	125x2.8x22.23	A30Q-BF	25
		743944	178x3.5x22.23	A30Q-BF	25

2in1 cut-off wheels
for steel and stainless steel

BASIC

Application
+ For machining different steel and stainless steel grades
+ For cutting metal sheets, profiles, pipes, rods and solid material

We recommend
+ 1.0 to 1.9 mm for fastest cutting and minimum burr formation
+ 2.0 to 3.0 mm for long lifetime and maximum stability

Advantage
+ The chemical purity makes it possible to work on steel and stainless steel
+ Convenient and low-burr cutting with good wheel life
+ Short working times thanks to good cutting ability

	Shape	Type no.	Dimension	Specification	PU
	41	34332870	115x1.0x22.23	A60Q-BFB	25
		34332872	115x1.6x22.23	A46Q-BFB	25
		222997	115x2.5x22.23	A30Q-BF	25
		34332871	125x1.0x22.23	A60Q-BFB	25
		34332873	125x1.6x22.23	A46Q-BFB	25
		222998	125x2.5x22.23	A30Q-BF	25
		34354703	150x1.2x22.23	A60Q-BF	25
		34332874	150x1.6x22.23	A46Q-BFB	25
		34476855	150 x 2.0 x 22.23	A30Q-BF	25
		222999	150x2.5x22.23	A30Q-BF	25
		34332875	178x1.6x22.23	A46Q-BFB	25
		250165	178x2.5x22.23	A30Q-BF	25
		223000	178x3.0x22.23	A30Q-BF	25
		34332876	230x1.9x22.23	A46Q-BFB	25
		34332877	230x2.0x22.23	A30Q-BFB	25
		250169	230x2.5x22.23	A30Q-BF	25
		223002	230x3.0x22.23	A30Q-BF	25

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	Shape		Type no.	Dimension	Specification	PU
		42	223021	115x2.5x22.23	A30Q-BF	25
			223022	125x2.5x22.23	A30Q-BF	25
			291948	125x3.0x22.23	A30Q-BF	25
			223023	178x3.0x22.23	A30Q-BF	25
			222044	230x3.0x22.23	A30Q-BF	25

★★★
PREMIUM

Cut-off wheels

for stainless steel

+ The chemical purity of the product prevents corrosion, pitting corrosion and reduction in fatigue strength for the best results on stainless steel

+ Extremely short working times thanks to excellent cutting ability and a low thermal load on the workpiece (heat build-up)



+ Specially for rust-resistant and acid-resistant steels

Application:

+ For machining different stainless steel grades
+ For cutting metal sheets, profiles, pipes, rods and solid material

We recommend:

+ 0.75 to 1.9 mm for fastest cutting and minimum burr formation
+ 2.0 to 3.0 mm for maximum lifetime and stability

▶

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★★★ PREMIUM

Cut-off wheels
for stainless steel





Shape		Type no.	Dimension	Specification	PU
	41	34424276	115x1.0x22.23	A60R-BFP	10
		34424278	125x1.0x22.23	A60R-BFP	10
		34332800	115x0.75x22.23	A60R-BFP	25
		34332802	115x1.0x22.23	A60R-BFP	25
		34332804	115x1.6x22.23	A46R-BFP	25
		41489	115x2.0x22.23	A30R-BFXA	25
		41491	115x2.5x22.23	A30R-BFXA	25
		34332801	125x0.75x22.23	A60R-BFP	25
		34332803	125x1.0x22.23	A60R-BFP	25
		34332805	125x1.6x22.23	A46R-BFP	25
		41492	125x2.0x22.23	A30R-BFXA	25
		41493	125x2.5x22.23	A30R-BFXA	25
		41494	125x3.0x22.23	A30R-BFXA	25
		34332807	150x1.6x22.23	A46R-BFP	25
		41495	150x2.0x22.23	A30R-BFXA	25
		34332808	178x1.6x22.23	A46R-BFP	25
		41499	178x2.0x22.23	A30R-BFXA	25
		35946	178x2.5x22.23	A30R-BFXA	25
		34332809	230x1.9x22.23	A46R-BFP	25
		34332810	230x2.0x22.23	A30R-BFP	25
		35950	230x2.5x22.23	A30R-BFXA	25
		41501	230x3.0x22.23	A30R-BFXA	25
	42	282149	115x0.75x22.23	A60R-BFXA	25
		35937	115x2.0x22.23	A30R-BFXA	25
		41504	115x2.5x22.23	A30R-BFXA	25
		282150	125x0.75x22.23	A60R-BFXA	25
		35944	125x2.0x22.23	A30R-BFXA	25
		41505	125x2.5x22.23	A30R-BFXA	25
		41506	125x3.0x22.23	A30R-BFXA	25
		291587	150x1.6x22.23	A46R-BFXA	25
		41507	150x2.0x22.23	A30R-BFXA	25
		41508	150x3.0x22.23	A30R-BFXA	25
		291588	178x1.6x22.23	A46R-BFXA	25
		41509	178x2.5x22.23	A30R-BFXA	25
		41511	230x2.5x22.23	A30R-BFXA	25

★★★ PREMIUM

X-LOCK cut-off wheels
for stainless steel

Application
+ For machining different stainless steel grades
+ For cutting metal sheets, profiles, pipes, rods and solid material

Advantage
+ TYROLIT integrates X-LOCK, the new clamping system from BOSCH, for a wide assortment of cut-off wheels, roughing wheels and flap discs
+ The product offers easy handling and the highest safety
+ The chemical purity of the product prevents corrosion, pitting corrosion and reduction in fatigue strength for the best results even on stainless steel



Shape		Type no.	Dimension	Specification	PU
	41	34411623	115x1.0x22.23/XL	A60R-BFP	25
		34411624	115x1.6x22.23/XL	A46R-BFP	25
		34411625	125x1.0x22.23/XL	A60R-BFP	25
		34411626	125x1.6x22.23/XL	A46R-BFP	25

★★ STANDARD

Cut-off wheels
for stainless steel

Application
+ For machining different stainless steel grades
+ For cutting metal sheets, profiles, pipes, rods and solid material

We recommend
+ 1.0 to 1.9 mm for fastest cutting and minimum burr formation
+ 2.0 to 3.0 mm for long lifetime and maximum stability

Advantage
+ The chemical purity of the product prevents corrosion, pitting corrosion and reduction in fatigue strength for very good results on stainless steel
+ Convenient cutting with excellent lifetime
+ Short working times thanks to very good cutting ability and a low thermal load on the workpiece (heat build-up)



Shape		Type no.	Dimension	Specification	PU
	41	34332830	115x1.0x22.23	A60R-BFS	25
		34332833	115x1.6x22.23	A46R-BFS	25
		34332832	125x1.0x22.23	A60R-BFS	25
		34332834	125x1.6x22.23	A30R-BFS	25
		408496	125x2.0x22.23	A46R-BFINOX	25
		34332835	150x1.6x22.23	A46R-BFS	25
		367776	150x2.0x22.23	A30R-BFINOX	25
		367575	150x2.5x22.23	A30R-BFINOX	25
		34332891	178x1.6x22.23	A46R-BFS	25

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★★ STANDARD Cut-off wheels
for stainless steel

	Shape		Type no.	Dimension	Specification	PU
		41	367777	178x2.0x22.23	A30R-BFINOX	25
			367577	178x2.5x22.23	A30R-BFINOX	25
			34332838	230x1.9x22.23	A46R-BFS	25
			34332839	230x2.0x22.23	A30R-BFS	25
			367582	230x2.5x22.23	A30R-BFINOX	25
		42	367783	115x2.0x22.23	A30R-BFINOX	25
			367788	125x2.0x22.23	A30R-BFINOX	25
			367791	178x2.5x22.23	A30R-BFINOX	25
			367802	230x2.5x22.23	A30R-BFINOX	25

★ BASIC Cut-off wheels
for stainless steel

Application

+ For machining different stainless steel grades
+ For cutting metal sheets, profiles, pipes, rods and solid material

Advantage

+ The chemical purity of the product prevents corrosion, pitting corrosion and reduction in fatigue strength for good results on stainless steel
+ Convenient and low-burr cutting with good wheel life
+ The thickness of just 1.0 mm enables speed and precision when working

	Shape		Type no.	Dimension	Specification	PU
		41	34332868	115x1.0x22.23	A60R-BFB	25
			34332869	125x1.0x22.23	A60R-BFB	25

★★★
PREMIUM

Cut-off wheels

for nonferrous metals

+ New specifications prevent clogging and dulling of the wheel



+ Specification and manufacturing method enable the shortest cutting times

Application:

+ For machining different types of nonferrous metals such as aluminium, aluminium bronze, aluminium base alloys, copper, bronze, brass, nickel silver and titanium

We recommend:

+ 1.0 to 1.9 mm for fastest cutting and minimum burr formation
+ 2.0 to 3.0 mm for maximum lifetime and stability

★★★
PREMIUM

Cut-off wheels
for nonferrous metals





	Shape		Type no.	Dimension	Specification	PU
	▬▬	41	34332821	115x1.0x22.23	A60N-BFP	25
			34332823	115x1.6x22.23	A46N-BFP	25
			39624	115x2.5x22.23	A30N-BFXA	25
			34332822	125x1.0x22.23	A60N-BFP	25
			34332824	125x1.6x22.23	A46N-BFP	25

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★★★ PREMIUM

Cut-off wheels
for nonferrous metals



Shape		Type no.	Dimension	Specification	PU
		39321	125x2.5x22.23	A30N-BFXA	25
		525355	178x2.0x22.23	A30N-BFXA	25
		32141	178x2.5x22.23	A30N-BFXA	25
		34332825	230x2.0x22.23	A30N-BFP	25
		32142	230x2.5x22.23	A30N-BFXA	25
	42	82646	115x2.5x22.23	A30N-BFXA	25
		366888	125x2.5x22.23	A30N-BFXA	25
		5485	178x3.0x22.23	A30N-BFXA	25
		30741	230x3.0x22.23	A30N-BFXA	25

★★★ PREMIUM

Cut-off wheels
for nonferrous metals and stone

Application

+ For machining tiles, ceramics, clinker and nonferrous metals
+ Small cutting tasks on natural stone and concrete

Advantage

+ Perfect surface finish without any edge chipping
+ Reduced cutting waste and cutting dust generation thanks to small wheel thickness



Shape		Type no.	Dimension	Specification	PU
	41	34332827	115x1.0x22.23	C46S-BFP	25
		34332828	125x1.0x22.23	C46S-BFP	25

★★ STANDARD

Cut-off wheels
for stone

Application

+ For machining different stone materials

Advantage

+ Clean cutting edges and very good cutting quality
+ Fast and convenient work with minimal exertion
+ Silicon carbide ensures very good lifetime and stability when cutting stone and concrete



Shape		Type no.	Dimension	Specification	PU
	41	367566	115x2.5x22.23	C30S-BF	25
		367572	125x2.5x22.23	C30S-BF	25
		367580	178x3.0x22.23	C30S-BF	25
		367585	230x3.0x22.23	C30S-BF	25
	42	367782	115x2.5x22.23	C30S-BF	25
		367787	125x2.5x22.23	C30S-BF	25
		367801	178x3.0x22.23	C30S-BF	25
		367804	230x3.0x22.23	C30S-BF	25

★ BASIC

Cut-off wheels
for stone

Application

+ For machining different stone materials

Advantage

+ Good cutting ability reduces the operator's work
+ Quick and convenient to use
+ Good lifetime and stability



Shape		Type no.	Dimension	Specification	PU
	41	223012	115x2.5x22.23	C30S-BF	25
		223015	125x2.5x22.23	C30S-BF	25
		222042	178x3.0x22.23	C30S-BF	25
		223019	230x3.0x22.23	C30S-BF	25
	42	223025	115x2.5x22.23	C30S-BF	25
		223027	125x2.5x22.23	C30S-BF	25
		223029	178x3.0x22.23	C30S-BF	25
		223031	230x3.0x22.23	C30S-BF	25

★★★ PREMIUM

FOCUR SA Cut-off wheels
for cast iron

Application
+ For machining cast iron

Advantage
+ DIN 13236 safety norm
+ Highest aggressiveness with unbelievable lifetime thanks to an innovative production technology and the use of diamond grains
+ Up to 25 times higher lifetime compared to vitrified bonded tools

	Shape		Type no.	Dimension	Specification	PU
		UC3	102813	230x3.0x22.23	DC CI	1

★★★ PREMIUM

FOCUR EXTRA Cut-off wheels
for cast iron

Application
+ For machining cast materials

Advantage
+ Maximum abrasiveness coupled with the best wheel life thanks to innovative manufacturing technology
+ New bond system combined with high-quality zirconium aluminium oxide for maximum stock removal

	Shape		Type no.	Dimension	Specification	PU
		42	929887	178x3.5x22.23	ZA30R-BFXA	25
			635268	230x3.0x22.23	ZA30P-BFXA*	25
			855818	230x3.5x22.23	ZA30P-BFXA*	25
			929889	230x3.5x22.23	ZA30R-BFXA	25

** Fe, S, Cl free.*

Wheel flange - accessory
for cut-off wheels

Application
+ Developed to improve the stability of thin cut-off wheels with diameters of 178 mm and 230 mm

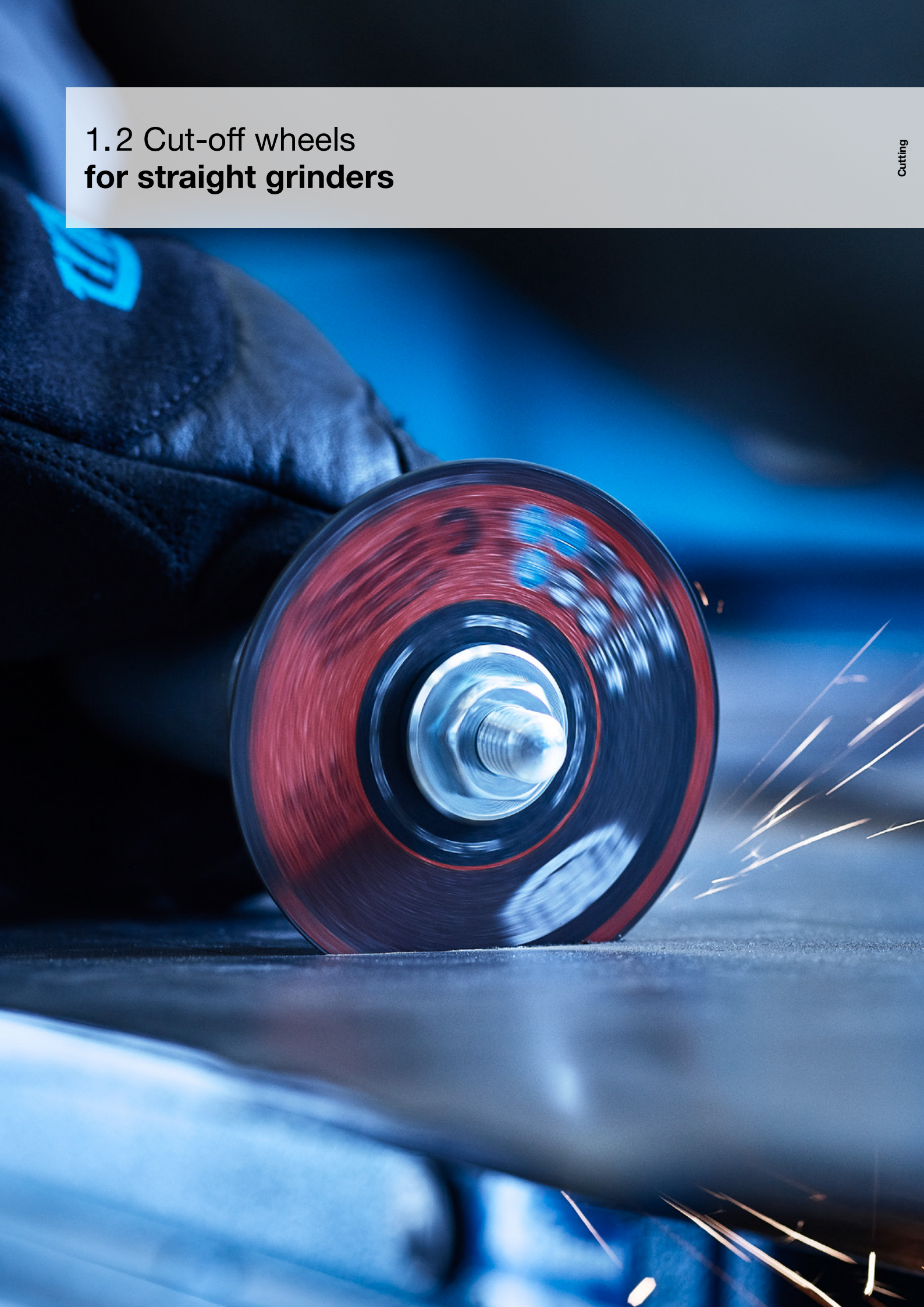
We recommend
+ For cut-off wheels up to 2.0 mm in a straight design and a diameter of 178 mm or 230 mm

Advantage
+ Significantly increases lateral stability
+ Made of tempered tool steel for angle grinders with an M14 drive screw
+ Enables even more precise cutting guidance and improves first-cut performance

	Shape	Type no.	Dimension	PU
	100SFL	614644	76 mm	1



1.2 Cut-off wheels **for straight grinders**





Cut-off wheels **for straight grinders**

Straight grinders are always in high demand when precise results are required on difficult-to-access areas. Their versatile application options make straight grinders a popular tool.

In order to fulfil the high standards it sets for itself, TYROLIT has developed wheels for particularly quick low-burr cutting with maximum lifetimes. These high-performance tools are perfect for cutting metal sheets, profiles, pipes and rods even in difficult-to access locations. For TYROLIT, the most stringent safety standards for our cut-off wheels - as with all of our products - are of the highest priority. Reduced vibration and noise considerably improve your level of comfort while working.

On the following pages you will find the perfect tool for your requirements thanks to the uniform colour code for all materials.

Shapes

41 Cut-off wheels
(straight design)

Application recommendation

Performance level	Specification	Steel	Stainless steel	Page
★★★ PREMIUM	A100-BFM	●		44
	A60R-BFXA		●	44, 45
	A46R-BFXA		●	44, 45

★★★ PREMIUM

Cut-off wheels
for steel

Application
+ For machining different steel grades
+ For cutting thin-walled metal sheets, profiles, pipes, rods and solid material

Advantage
+ Particularly thin and fine-grained wheels allow short cutting times and fatigue-free working
+ Ideal for machining hard-to-reach areas
+ Particularly impressive because of their long lifetime and simple, accurate handling
+ Grit size 100 enables particularly low-burr cutting



Shape		Type no.	Dimension	Specification	PU
	41	699330	63x1.0x10	A100-BFM	100
		704198	63x2.0x10	A100-BFM	100
		325212	75x1.0x10	A100-BFM	100

★★★ PREMIUM

Cut-off wheels
for stainless steel

Application
+ For machining different stainless steel grades
+ For cutting thin-walled metal sheets, profiles, pipes, rods and solid material

Advantage
+ The chemical purity of the product prevents corrosion, pitting corrosion and reduction in fatigue strength for the best results on stainless steel
+ Particularly thin and fine-grained wheels allow short cutting times and fatigue-free working
+ Ideal for machining hard-to-reach areas
+ Particularly impressive because of their long lifetime and simple, accurate handling



Shape		Type no.	Dimension	Specification	PU
	41	323976	50x1.0x6	A60R-BFKA	100
		323978	50x1.0x10	A60R-BFXA	100
		323970	50x2.0x6	A46R-BFXA	100
		299269	63x1.0x10	A60R-BFXA	100
		324404	63x1.6x10	A46R-BFXA	100
		324402	63x2.0x6	A46R-BFXA	100

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	Shape	Type no.	Dimension	Specification	PU
		324303	63x2.0x10	A46R-BFXA	100
		325228	75x1.0x8	A60R-BFXA	100
		299270	75x1.0x10	A60R-BFXA	100
		325222	75x1.6x10	A46R-BFXA	100
		325224	75x2.0x8	A46R-BFXA	100
		325219	75x2.0x10	A46R-BFXA	100

Clamping spike

for cut-off wheels with a small diameter

Application

+ Developed for the straight grinder for clamping cut-off wheels with small diameters

We recommend

+ Note the maximum permissible speed during use

Advantage

+ Easy handling and the highest possible levels of safety for the operator
+ Made of tempered tool steel for straight grinders and flexible shafts

	Type no.	Dimension	Specification	PU
	803404	S6/H10/M10	SS171	1
	846442	S6/H6/M6	SS174	1



1.3 Cut-off wheels
for petrol cutting saws





Cut-off wheels
for petrol cutting saws

Cutting materials on building sites with no electricity or limited infrastructure is a common challenge. Whether the material is reinforced steel, pipes or rails, a petrol-powered cut-off grinder provides a quick and efficient solution. Petrol cutting saws are particularly popular machines for cutting large cross-sections and are frequently used tools.

TYROLIT offers the perfect tools for these varied cutting tasks. Whether for use on steel, stainless steel, stone or rails, thanks to the clear colour coding and application tips, you will always be able to find the right product for your application and the material to be cut. TYROLIT guarantees optimum cutting results and maximum levels of safety in all situations.

Shapes

41H Cut-off wheels (straight design)

Application recommendation

Performance level	Specification	Steel	Rails	Stone	Page
★★★ PREMIUM	A30O-BF02A2	●			50
	A30P5BF71A2	●			50
	A30Q-BF02A2	●			50
	M85A30P4BF91A2	●			50
	A24Q-BF100		●		51
	ZZA24R-BF 100		●		52
★★ STANDARD	A30S-BF	●			50
	A30S-BF100	●			50
	A30S-BF RAIL		●		53
	A30S-BF RAIL100		●		53
	C30S-BF			●	54
	C30S-BF100			●	54
★ BASIC	A30S-BF	●			51
	A30S-BF100	●			51
	C30S-BF			●	54
	C30S-BF100			●	54

★★★ PREMIUM

Cut-off wheels
for steel

Application
- For machining different steel grades
- For cutting workpieces with large diameters
- Developed for use on manual cut-off machines with electric or petrol engines

Advantage
- Optimised for maximum cutting ability and lifetime
- Suitable for pure off-hand and guided off-hand applications



Shape	Type no.	Dimension	Specification	PU
41H	255451	300x3.5x20	A30O-BF02A2	10
	75020	300x3.5x20	A30P5BF71A2	10
	307876	300x3.5x20	A30Q-BF02A2	10
	141512	300x3.5x22.23	A30Q-BF02A2	10
	514745	300x3.5x22.23	M85A30P4BF91A2	10
	363478	300x3.5x25.4	A30O-BF02A2	10

★★ STANDARD

Cut-off wheels
for steel

Application
- For machining different kinds of steel
- For cutting workpieces with large cross-sections
- Developed for use on manual cut-off machines with electric or petrol engines

Advantage
- Suitable for pure off-hand and guided off-hand applications
- Very good lifetime and stability
- Also suitable for powerful (over 5 kW) stationary machines



Shape	Type no.	Dimension	Specification	PU
41H	384753	300x3.5x20	A30S-BF	10
	384754	300x3.5x22.23	A30S-BF	10
	384755	300x3.5x25.4	A30S-BF	10
	384756	350x4.0x20	A30S-BF100	10
	384757	350x4.0x22.23	A30S-BF100	10
	384758	350x4.0x25.4	A30S-BF100	10
	386002	400x4.5x20	A30S-BF100	10

★
BASIC

Cut-off wheels
for steel

Application

+ For machining steel
+ For cutting profiles, solid material and large cross-sections
+ Developed for use on manual cut-off machines with electric or petrol engines

Advantage

+ The product offers shortened cutting times with minimal exertion
+ Good lifetime and stability
+ Also suitable for powerful (over 5 kW) stationary machines



Shape		Type no.	Dimension	Specification	PU
	41H	223035	300x3.5x20	A30S-BF	10
		223037	300x3.5x22.23	A30S-BF	10
		223039	300x3.5x25.4	A30S-BF	10
		223040	300x3.5x32	A30S-BF	10
		223042	350x4.0x20	A30S-BF100	10
		223043	350x4.0x22.23	A30S-BF100	10
		222045	350x4.0x25.4	A30S-BF100	10

★★★
PREMIUM

Cut-off wheels
for steel

Application

+ For cutting rails
+ Developed for use on manual cut-off machines with electric or petrol engines

Advantage

+ The product offers the shortest cutting times with minimal exertion: even with humidity, cold and temperature fluctuations
+ Cleanest surfaces without any discolouration reduce rework and working times
+ Maximum lifetime and stability
+ Also suitable for powerful (over 5 kW) stationary machines



Shape		Type no.	Dimension	Specification	PU
	41H	676423	300x3.5x22.23	A24Q-BF100	10
		671093	350x3.8x22.23	A24Q-BF100	10
		671108	350x3.8x25.4	A24Q-BF100	10
		671090	400x4.3x22.23	A24Q-BF100	10
		676428	400x4.3x25.4	A24Q-BF100	10

★★★
PREMIUM

Cut-off wheels

for rails for guided off-hand cutting

+ Maximum abrasiveness and lifetime



+ The zirconium aluminium oxide grain gives the wheel especially good cutting ability and improves performance for the operator

Application:

+ For guided off-hand cutting on rails

We recommend:

+ Rail cut-off wheels must be fixed to the rail using a suitable clamping device for guided off-hand cutting

★★★
PREMIUM

Cut-off wheels

for rails for guided off-hand cutting

	Shape	Type no.	Dimension	Specification	PU
	41	34202534	350x3.8x20	ZZA24R-BF 100	10
		34202550	350x3.8x25.4	ZZA24R-BF 100	10
		34202561	400x4.3x25.4	ZZA24R-BF 100	10

★★ STANDARD

Cut-off wheels

For rails

Application

+ For cutting rails
+ Developed for use on manual cut-off machines with electric or petrol engines

Advantage

+ The product offers shortened cutting times with minimal exertion: even with humidity, cold and temperature fluctuations
+ Clean surfaces without any discolouration reduce rework and working times
+ Very good lifetime and stability
+ Also suitable for powerful (over 5 kW) stationary machines

	Shape		Type no.	Dimension	Specification	PU
	▬▬	41H	75937	300x3.5x20	A30S-BFRAIL	10
			75938	300x3.5x22.23	A30S-BFRAIL	10
			75934	350x4.0x20	A30S-BFRAIL100	10
			75935	350x4.0x22.23	A30S-BFRAIL100	10
			75936	350x4.0x25.4	A30S-BFRAIL100	10
			355251	400x4.3x25.4	A30S-BFRAIL100	10

★★ STANDARD

Cut-off wheels
For stone

Application

+ For machining stone
+ For cutting solid material and large cross-sections
+ Developed for use on manual cut-off machines with electric or petrol engines

Advantage

+ High cutting ability reduces the operator's work while still delivering the best results
+ Suitable for pure off-hand and guided off-hand applications
+ Very good lifetime and stability
+ Also suitable for powerful (over 5 kW) stationary machines

	Shape	Type no.	Dimension	Specification	PU
	41H	384759	300x3.5x20	C30S-BF	10
		384764	350x4.0x25.4	C30S-BF100	10

★ BASIC

Cut-off wheels
For stone

Application

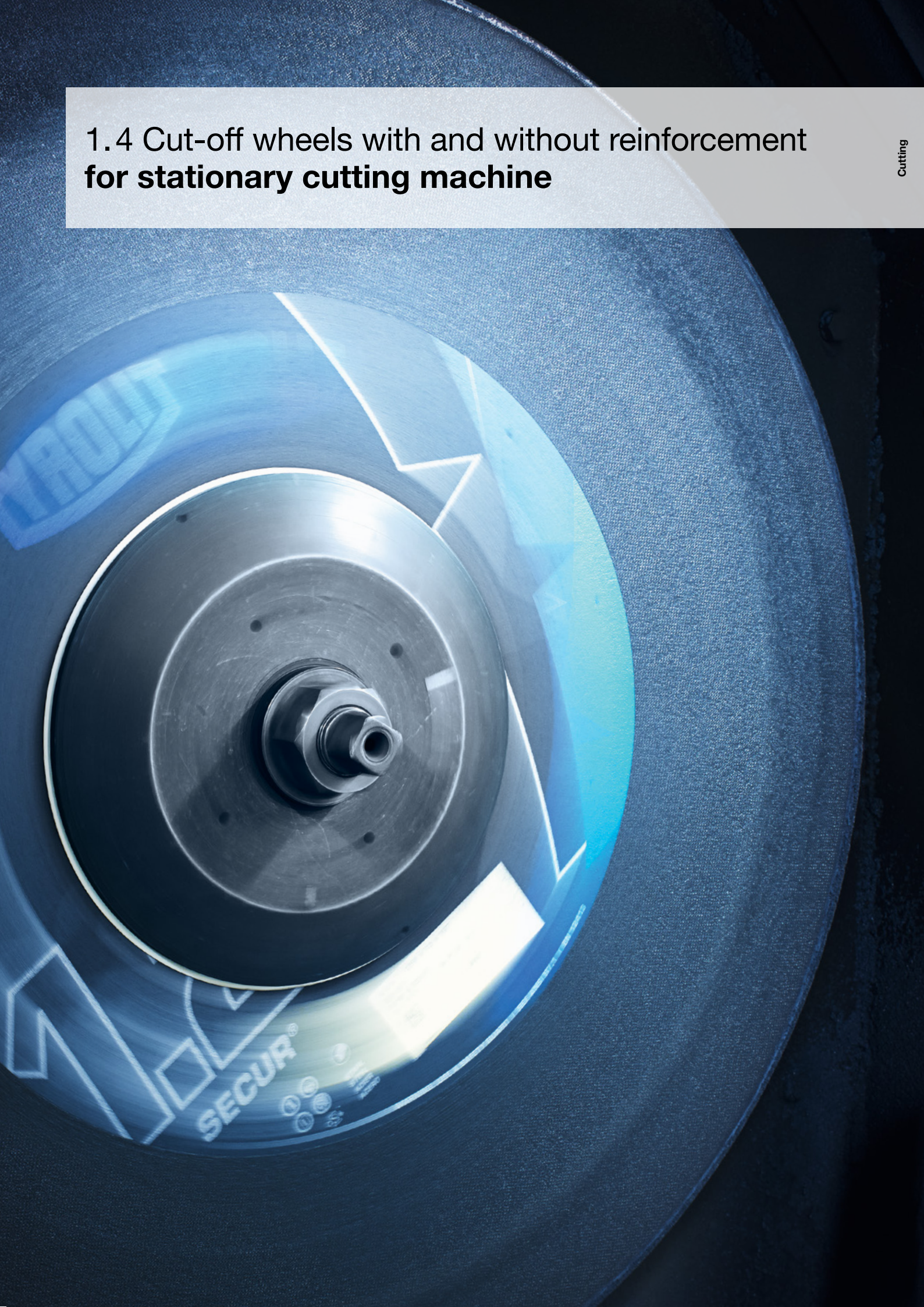
+ For machining stone
+ For cutting solid material and large cross-sections
+ Developed for use on manual cut-off machines with electric or petrol engines

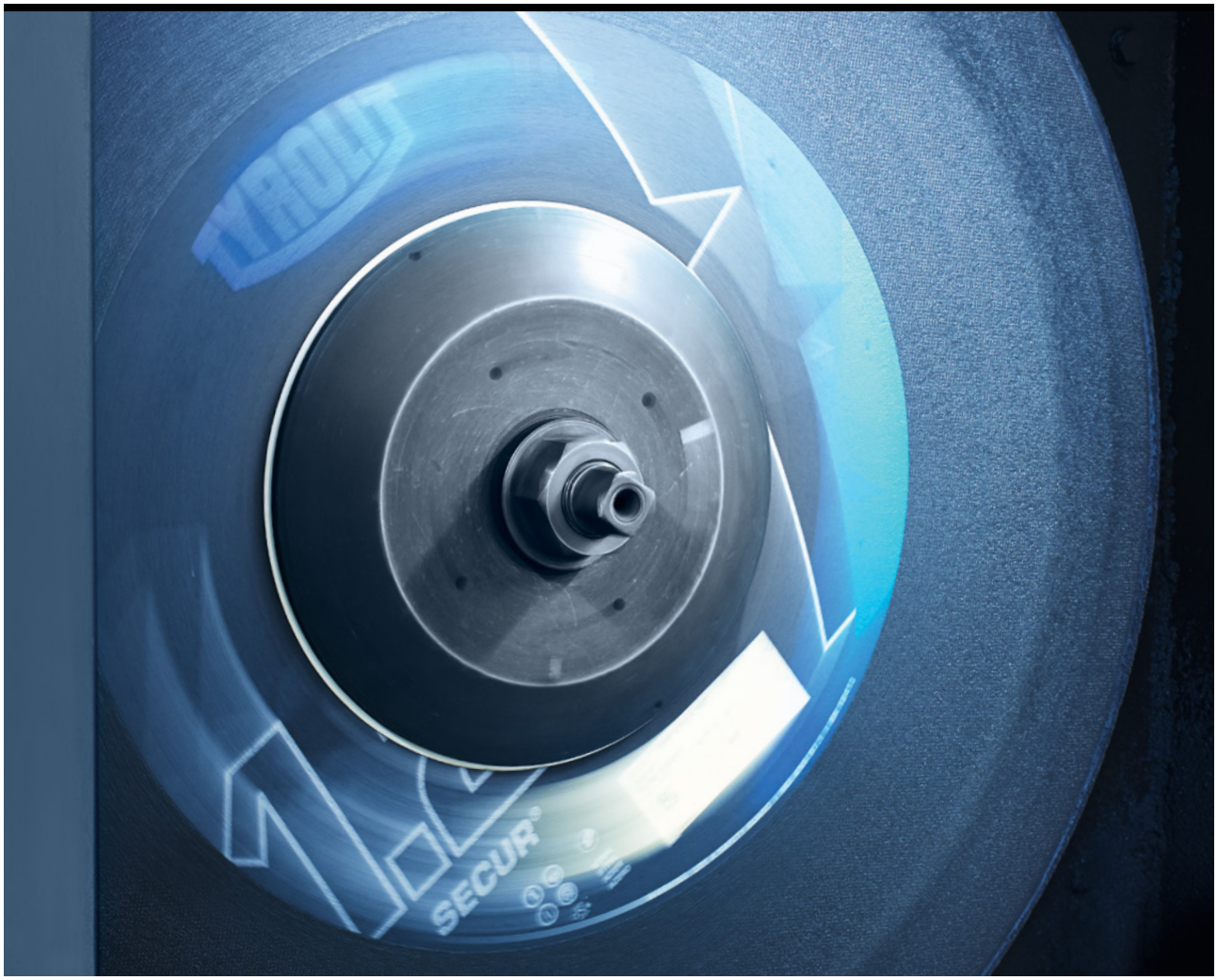
Advantage

+ Good cutting ability reduces the operator's work
+ Suitable for pure off-hand and guided off-hand applications
+ Good lifetime and stability

	Shape	Type no.	Dimension	Specification	PU
	41H	223129	300x3.5x20	C30S-BF	10
		223132	300x3.5x25.4	C30S-BF	10
		223134	350x4.0x20	C30S-BF100	10
		223136	350x4.0x25.4	C30S-BF100	10

1.4 Cut-off wheels with and without reinforcement **for stationary cutting machine**





Cut-off wheels
for stationary cutting machines

Stationary cutting machines are most commonly used in workshops. They ensure precision cutting of all materials, regardless of diameter.

TYROLIT offers two types of cut-off wheel for this application. Firstly, cut-off wheels with reinforcement that can be used to cut profiles, pipes and solid material. Secondly, non-reinforced cut-off wheels for laboratory cutting, for cutting and saw sharpening, and for cutting high speed steel.

Whether for use on steel, stainless steel, stone or rails, thanks to the clear colour coding and application tips, you will always be able to find the right product for your application and the material to be cut. TYROLIT guarantees optimum cutting results and maximum levels of safety in all situations.

Shape

41H Cut-off wheels (straight design)

42 Cut-off wheel (depressed-centre design)

1A1R Cut-off wheels with continuous rim

41N non-reinforced cut-off wheel

Application recommendation

Performance level	Specification	Steel	Stainless steel	NF metals	Stone	Cast iron	Page
★★★ PREMIUM	… BF71 …	●					58
	… BF02 …	●					58
	… BF97 …		●				60
	… BF68 …		●				60
	… BFXM …		●				60
	… BF98 …		●				60
	… BF59 …			●			61
	… BF33 …				●		61
	DC CI					●	61
★★ STANDARD	A46S-BF	●					59
★ BASIC	A46S-BF	●					59

★★★ PREMIUM

Cut-off wheels
for steel

Application

+ For machining different steel grades
+ For cutting workpieces with large cross-sections, solid material and profiles
+ Perfect for use for traverse and chop cuts on stationary cutting machines

We recommend

+ Note maximum permissible peripheral speed (80 m/s and 100 m/s)

Advantage

+ Especially rough side surfaces thanks to a special pressing process, as a result low lateral friction and no discolouration on the workpiece
+ The product offers maximum lifetime and cutting ability



Shape		Type no.	Dimension	Specification	PU
	41	779426	300x2.5x25.4	A36N4BF71A2	10
		643371	300x3.5x25.4	A30N-BF02M	10
		140022	300x3.5x30	A30Q-BF02M	10
		151301	300x3.5x32	A30Q-BF02M	10
		615549	350x2.5x25.4	A46N4BF71M	10
		779428	350x2.5x25.4	A36N4BF71A2	10
		408229	350x3.5x25.4	A30N-BF02M	10
		309469	350x3.5x25.4	A24P-BF02M	10
		633286	350x4.0x25.4	A30N-BF02M	10
		780938	400x3.5x25.4	A36N5BF71M	10
		639076	400x4.0x25.4	A30N-BF02M	10
		396678	400x4.0x40	A30N-BF02M	10
		196324	400x4.0x32	A30Q-BF02M	10
		136777	400x4.0x40	A30Q-BF02M	10
		272894	400x4.0x40	A24P-BF02M	10
		630537	400x4.0x51	A30P5BF71M100	10
		514338	500x5.5x40	A24O4BF71M100	10
		722981	500x5.0x25.4	A24Q4BF71M	10
		647259	500x5.0x40	M101A24O4BF71M	10
		647260	600x6.0x60	M101A24O4BF71M2	10

★★ STANDARD

Cut-off wheels
for steel

Application

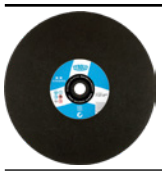
+ For machining different steel grades
+ For cutting workpieces with large cross-sections, solid material and profiles
+ Perfect for use for chop cuts on stationary cutting machines

We recommend

+ Note maximum permissible peripheral speed (80 m/s and 100 m/s)

Advantage

+ Especially rough side surfaces thanks to a special pressing process, as a result low lateral friction and no discolouration on the workpiece
+ The product offers very good cutting ability and lifetime



Shape		Type no.	Dimension	Specification	PU
	41	390531	300x2.5x25.4	A46S-BF	10
		390532	350x2.8x25.4	A46S-BF	10

★ BASIC

Cut-off wheels
for steel

Application

+ For machining different steel grades
+ For cutting workpieces with large cross-sections, solid material and profiles

Advantage

+ Especially rough side surfaces thanks to a special pressing process, as a result low lateral friction and no discolouration on the workpiece
+ The product offers good cutting ability and lifetime



Shape		Type no.	Dimension	Specification	PU
	41	223032	300x2.5x25.4	A46S-BF	10
		223033	350x2.8x25.4	A46S-BF	10

★★★ PREMIUM

Cut-off wheels
for stainless steel

Application

+ For machining different stainless steel grades
+ For cutting workpieces with large cross-sections, solid material and profiles
+ Perfect for use for traverse and chop cuts on stationary cutting machines

We recommend

+ Note maximum permissible peripheral speed (80 m/s and 100 m/s)

Advantage

+ Especially rough side surfaces thanks to a special pressing process, as a result low lateral friction and no discolouration on the workpiece
+ The product offers maximum cutting ability and lifetime
+ The chemical purity of the product prevents corrosion for the best results on stainless steel



Shape		Type no.	Dimension	Specification	PU
	41	559743	300x2.5x25.4	A46N4BF68M	10
		66490	300x3.0x25.4	A24O-BFXM	10
		519232	350x2.5x25.4	A46N4BF68M	10
		66491	350x3.5x25.4	A24O-BFXM	10
		538503	400x2.5x25.4	A46N4BF68M	10
		551616	400x3.0x25.4	A46N4BF68M	10
		66493	400x4.0x40	A24O-BFXM	10
		460744*	500x5.0x40	A24P4-BF97M	10
		793077*	500x5.5x25.4	A241P4-BF98M	10
	42	647389*	500x6.0x60	A24P4-BF97M	10
		647377*	600x7.0x60	A24O4-BF97M2	10

★★★ PREMIUM

Cut-off wheels
for nonferrous metals

Application

+ For cutting different grades of nonferrous metals such as aluminium, aluminium bronze, aluminium base alloys, copper, bronze, brass, nickel silver and titanium
+ For workpieces with large cross-sections, solid material and profiles
+ Perfect for use for traverse and chop cuts on stationary cutting machines

We recommend

+ Note maximum permissible peripheral speed (80 m/s and 100 m/s)

Advantage

+ New specifications prevent clogging of the grinding wheel
+ Especially rough side surfaces thanks to a special pressing process, as a result low lateral friction and very low heat build-up on the workpiece
+ The product offers maximum cutting ability and lifetime

▶

◀

	Shape		Type no.	Dimension	Specification	PU
		41	58157	300x3.5x25.4	A30P4BF59M	10
			309471	350x3.5x25.4	A30O4BF59M	10
			800035	400x4.0x40	A30O4BF59M	10
			422374	500x5.5x40	A24N5BF59M2	10

★★★ PREMIUM

Cut-off wheels
for stone



Application

+ For machining stone and common building materials
+ Perfect for use for traverse and chop cuts on stationary cutting machines

We recommend

+ Note maximum permissible peripheral speed (80 m/s and 100 m/s)

Advantage

+ The product reduces the operator's work while still delivering the best results on large cross-sections
+ Maximum cutting ability and lifetime

	Shape		Type no.	Dimension	Specification	PU
		41	1649	350x4.0x25.4	C20O4BF33M	10
			28692	400x4.0x30	C20O4BF33M	10

FOCUR SA Cut-off wheels
for cast iron



Application

+ For machining cast iron

Advantage

+ DIN 13236 safety norm
+ Highest aggressiveness with unbelievable lifetime thanks to an innovative production technology and the use of diamond grains
+ Up to 25 times higher lifetime compared to vitrified bonded tools

	Shape		Type no.	Dimension	Specification	PU
		UC3	102814	300x3.0x40	DC CI	1
			102831	350x3.5x40	DC CI	1
			102850	400x4.0x60	DC CI	1
			102859	600x5.0x60	DC CI	1

★★★ PREMIUM

Laboratory cut-off wheels
for steel and stainless steel

Application
+ For machining different steel and stainless steel grades
+ For wet cutting laboratory samples using traverse and chop cuts

We recommend
+ The workpiece must be fixed during machining and the wheel must not be exposed to lateral load
+ Soft for 60.5-72.3 HRC
+ Medium for 22.0-60.5 HRC
+ Hard for 22.0 HRC
+ Note maximum operating speed of 50 m/s

Advantage
+ Cuts samples in a laboratory without structural alterations, workpiece deformation or cracks
+ Maximum performance with greatly reduced tool wear
+ Clean cutting quality



Shape	Type no.	Dimension	Specification	Classification	PU
41N	167215	230x1.5x32	A80-BM50	Medium	10
	167207	250x1.5x32	A80-BH50	Hard	10
	167205	250x1.5x32	A80-BM50	Medium	10
	165940	250x1.5x32	A80-BS50	Soft	10
	596848	250x1.8x32	89A60L5B17/50	Very easy cutting	10
	167226	300x2.0x32	A80-BM50	Medium	10
	597041	300x2.0x32	89A60L5B17/50	Very easy cutting	10
	167334	350x2.5x32	A80-BM50	Medium	10
	167333	350x2.5x32	A80-BS50	Soft	10
	597383	350x2.5x32	89A60J5B17/50	Very easy cutting	10
	167339	400x3.0x32	A80-BM50	Medium	10

★★★ PREMIUM

Laboratory cut-off wheels
for steel and HSS

Application
+ For steel and HSS applications
+ For dry cutting on stationary machines and automatic saw sharpening machines

We recommend
+ The workpiece must be fixed during machining and the wheel must not be exposed to lateral load
+ Note maximum operating speed of 63 m/s

Advantage
+ Maximum performance with greatly reduced tool wear



Shape		Type no.	Dimension	Specification	PU
	41N	529392	100x1.0x20	A80N4B2	10
		202159	100x1.0x20	A80N4B68	10
		46633	100x1.0x20	A80O4B43	10
		1197	120x2.0x51	A60O5B43	10
		25590	125x1.0x20	A60O5B43	10
		282079	125x1.0x20	A60N5B68	10
		282110	150x1.0x20	A60N5B68	10
		1211	150x1.0x20	A60O5B43	10
		591103	150x1.0x20	A60O5B68	10
		282111	150x1.0x20	A80N5B68	10
		13695	150x1.0x20	A80O5B43	10
		594360	150x1.0x20	A80O5B68	10
		75306	150x1.0x30	97A54P5B71	10
		39110	150x1.0x32	A80O5B43	10
		8833	150x1.5x20	A60O5B43	10
		282085	150x1.5x20	A60N5B68	10
		591104	150x1.5x20	A60O5B68	10
		79957	150x1.5x20	A80O5B43	10
		662430	150x1.5x32	A80N5B68	10
		42808	150x1.6x20	A60P4B43	10
		227165	150x1.6x32	A60O5B43	10
		58158	150x1.6x32	A60P4B43	10
		15685	150x2.0x20	A60O5B43	10
		594362	150x2.0x20	A60O5B68	10
		675283	180x1.0x32	A60O5B43	10
		493199	180x1.6x32	A60O5B68	10
		282113	200x1.5x20	A60N5B68	10
		1254	200x1.5x20	A60O5B43	10

▶

★★★ PREMIUM

Laboratory cut-off wheels
for steel and HSS



	Shape		Type no.	Dimension	Specification	PU
		41N	282114	200x1.5x32	A60N5B68	10
			6718	200x1.5x32	A60O4B43	10
			42809	200x1.6x25.4	A60P4B43	10
			230691	200x1.6x32	A60M4B43	10
			205822	200x1.6x32	A60P4B43	10
			6710*	200x2.0x20	A60N4B2	10
			96205*	200x2.0x32	A60N4B2	10
			62874	200x2.0x32	A60N4B43	10
			12970*	200x3.0x32	A60N4B2	10
			863284	200x3.0x32	A60P4B68	10
			599666	230x1.5x22.2	89A60N4B68	10
			373520	250x1.5x25.4	A60O5B71	10
			834839	250x1.6x32	89A80L4B43	10
			549002	300x2.0x31.75	89A80L4B43	10
			60572	300x2.0x32	A80O5B71	10
			220394	400x2.8x25.4	89A60L4B59	10

Cutting rotating tools
for HSS



Application
+ CBN high-performance cut-off wheel for HSS applications
+ For wet cutting on stationary machines

We recommend
+ Maximum operating speed of 50 m/s with manual or automatic feed

Advantage
+ Perfect cutting performance thanks to innovative bond system and appropriate grain quality

	Shape		Type no.	Dimension	U-X	Specification	PU
		1A1R	788700	125x1.0x20	1–5	B126 C75 B	1
			164485	125x1.0x20	1–5	B151 C100 B	1
			494701	150x1.0x20	1–5	B151 C100 B	1

**For saw sharpening only.*

Cutting rotating tools
for tungsten carbide

Application

+ Diamond high-performance cut-off wheel for tungsten carbide applications
+ For wet cutting on stationary machines

We recommend

+ Maximum operating speed of 50 m/s with manual or automatic feed

Advantage

+ Perfect cutting performance thanks to innovative bond system and appropriate grain quality



Shape		Type no.	Dimension	U-X	Specification	PU
	1A1R	157800	75x0.8x20	0.8-5	D126 C75 B	1
		119395	100x0.8x20	0.8-5	D126 C100 B	1
		100660	100x1.0x20	1-5	D126 C100 B	1
		101000	125x1.0x20	1-5	D126 C100 B	1
		148132	150x1.0x20	1-5	D126 C100 B	1
		278979	150x1.0x20	1-5	D151 C100 B	1
		667995	200x1.0x22	1-5	D126 C100 B	1
		603284	200x1.2x30	1.2-7	D151 C100 B	1





Catalogue 21
Grinding

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Specific information
Resin-bonded grinding wheels

Grinding wheels product label



Maximum operating speed and maximum allowable speed

Performance level

Application and safety pictograms

EN safety standards

oSa safety guidelines

Type number

Material suitability

Registered trademark

Expiry date

Special application (not available everywhere)

Shape and specification

Dimensions DxTxH in mm and inches

EAN code

Colour codes

						
Label	Steel	2in1 / 3in1	INOX	Nonferrous metals	Cast iron	Stone
Colour code	BLUE	BLUE	RED	ORANGE	PURPLE	GREEN
Material	Steel	2in1 = Steel and stainless steel, 3in1 = Steel, stainless steel and cast iron	Stainless steel	Aluminium, copper, zinc, brass, bronze, stone	Cast materials	Stone

Specification

A 24 Q - B F X

X	TYROLIT internal designation	
F	Fibre-reinforced: fibre glass (safety, lateral load, operating speed)	
B	Bond: V = vitrified bonded, B = resin bonded, E = elastic bonded, G = galvanic bonded	
Q	Designation of hardness: N = soft, T = hard	
24	Grit size indication in mesh (sieve size per inch)	grit size in mesh
	14–36	coarse
	46–60	medium
	80–220	fine
	800–1 200	very fine
A	Abrasive: A = regular aluminium oxide, C = silicon carbide, ZA = zirconia alumina, CA = ceramic	

Machines



Angle grinder



Pneumatic angle grinder



Angle grinder with cup wheel



Straight grinder



2.1 Rough grinding wheels **for angle grinders**





Rough grinding wheels **for angle grinders**

Working with an angle grinder is one of the most important processes in the handicraft and industrial sectors for machining all types of metals. TYROLIT offers the perfect rough grinding wheels for convenient and quick use with small and large angle grinders.

The TYROLIT range of rough grinding wheels meets the most stringent demands for cost-effective working, high stock removal rates, simple handling and above-average lifetimes. Our high-performance rough grinding wheels deliver the best results in both standard and special applications.

Continuous developments, such as the introduction of the “Comfort Start” edge, with which every user can achieve optimum results right from the start, make our rough grinding wheels one of the most advanced tools in the sector.

Working safety and comfort, provided for example by the vibration-damped VIBSTAR rough grinding wheel and the noise reducing SILENTIO, are also of great importance to us.

All TYROLIT rough grinding wheels are manufactured and tested in accordance with EN12413. Uniform colour coding helps you to find the appropriate product for your application.

Shapes



27 rough grinding wheel



27V rough grinding wheel (VIBSTAR vibration-damped)



27SI rough grinding wheel (SILENTIO noise-reduced)

Application recommendation

Shapeance Level	Design	Grain	Steel	Stainless steel	NF metals	Cast iron	Stone	Pages	Rating System: Aggressivenes	Lifetime	Performance* (0-100)
★★★ PREMIUM	LONGLIFE Z-MAX	ZA	●					74, 75			80
	CERABOND X	CA	●	●				76			100
	2in1	A	●	●				77			55
	X-LOCK 2in1	A	●	●				78			55
	FASTCUT	A	●	●				79			55
	ATOMIC GRIND	ZA	●	●		●		81			50
	INOX	A		●				81			65
	VIBSTAR	A		●				82			65
	SILENTIO	A		●				83			65
	ALU N	A			●			84, 85			75
	ALU L	A			●			85			75
	T-GRIND	ZA	●			●		85			50
	FOCUR EXTRA	ZA				●		86			
	FOCUR EXTRA VIBSTAR	ZA				●		87			
★★ STANDARD	STEEL	A	●					75			35
	INOX	A		●				84			40
	STONE	C					●	88, 89			
★ BASIC	2in1	A	●	●				79, 80			25
	FASTCUT	A	●	●				80			25
	PIPELINER	A	●	●				80			25
	STONE	C					●	89			
	TOUCH	WA		●	●			89			20

The performance indicates the overall performance of the product in comparison to products with the same material suitability.

★★★
PREMIUM

LONGLIFE Z-MAX rough grinding wheels

for steel

+ High-performance rough grinding wheel with LONGLIFE technology for maximum lifetime



+ Comfort Start ensures a comfortable start when grinding and increases the level of working comfort

+ Combination of zirconia alumina and innovative bond system offers unprecedented abrasiveness

Application:

+ For surface and edge grinding and for welding in demanding applications on different steel grades

We recommend:

+ 4 mm thickness for peripheral grinding
+ 7 mm thickness for rough grinding
+ 8 mm and 10 mm thickness for rough grinding with enhanced lifetime
+ Best results when used on powerful angle grinders

★★★
PREMIUM

LONGLIFE Z-MAX rough grinding wheels

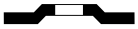
for steel

Shape		Type no.	Dimension	Specification	PU
	27	34353701	115x4.0x22.23	ZA24S-BFX	10
		34353683*	115x7.0x22.23	ZA24S-BFX	10
		34353702	125x4.0x22.23	ZA24S-BFX	10
		34353684*	125x7.0x22.23	ZA24S-BFX	10
		34353704	150x4.0x22.23	ZA24S-BFX	10

▶

** With Comfort Start edge*

◀

	Shape		Type no.	Dimension	Specification	PU
		27	34353686*	150x7.0x22.23	ZA24S-BFX	10
			34353705	178x4.0x22.23	ZA24S-BFX	10
			34353687*	178x7.0x22.23	ZA24S-BFX	10
			34353688*	178x8.0x22.23	ZA24S-BFX	10
			34353706	230x4.0x22.23	ZA24S-BFX	10
			34353689*	230x7.0x22.23	ZA24S-BFX	10
			34353690	230x8.0x22.23	ZA24S-BFX	10

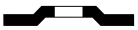
★★ STANDARD

Rough grinding wheels
for steel




Application
+ For surface and edge grinding on different steel grades

Advantage
+ Bond system tailored to steel with very good abrasiveness and lifetime
+ Comfort Start ensures a comfortable start when grinding and increases the level of working comfort

	Shape		Type no.	Dimension	Specification	PU
		27	367377*	115x6.0x22.23	A24S-BF	10
			367771*	125x6.0x22.23	A24S-BF	10
			367772*	150x6.0x22.23	A24S-BF	10
			367773*	178x6.0x22.23	A24S-BF	10
			367775*	230x6.0x22.23	A24S-BF	10

** With Comfort Start edge*

★★★
PREMIUM

CERABOND X rough grinding wheels

for steel and stainless steel

+ Fastest grinding thanks to the structure of the ceramic grain used

+ Consistent abrasiveness thanks to the combination of the new bond system and ceramic grain



+ Maximum lifetime and therefore fewer wheel changes for the operator

Application:

+ Ideal for grinding hard steel and stainless steel surfaces, for example edge grinding, surface grinding or removing welding seams

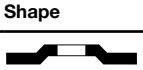
We recommend:

+ 4 mm thickness for peripheral grinding
+ 7 mm thickness for rough grinding

★★★
PREMIUM

CERABOND X rough grinding wheel

For steel and stainless steel

	Shape		Type no.	Dimension	Specification	PU
		27	34401827	115x4.0x22.23	CA24Q-BFP	5
			34401830	115x7.0x22.23	CA24Q-BFP	5
			34401841	125x4.0x22.23	CA24Q-BFP	5
			34387126	125x7.0x22.23	CA24Q-BFP	5
			34401843	150x4.0x22.23	CA24Q-BFP	5
			34401847	150x7.0x22.23	CA24Q-BFP	5
			34401849	178x4.0x22.23	CA24Q-BFP	5
			34401850	178x7.0x22.23	CA24Q-BFP	5
			34401852	230x4.0x22.23	CA24Q-BFP	5
			34387127	230x7.0x22.23	CA24Q-BFP	5

★★★ PREMIUM

2in1 rough grinding wheels
for steel and stainless steel

Application
+ For demanding applications on different steel and stainless steel grades

We recommend
+ 4 mm thickness for peripheral grinding
+ 6 and 7 mm thickness for rough grinding
+ 8 mm thickness for rough grinding with enhanced lifetime

Advantage
+ Bond with coarse grain and a new layer composition enables quick and convenient use with minimal exertion
+ Comfort Start ensures a comfortable start when grinding and increases the level of working comfort
+ Maximum abrasiveness and lifetime



Shape		Type no.	Dimension	Specification	PU
	27	5270	75x6.0x9.5	A30Q-BFX	10
		23875	100x4.0x16	A30Q-BFX	10
		5287	115x4.0x22.23	A30Q-BFX	10
		34046120*	115x7.0x22.23	A24Q-BFX	10
		5308	125x4.0x22.23	A30Q-BFX	10
		34046131*	125x7.0x22.23	A24Q-BFX	10
		734378	150x4.0x22.23	A30Q-BFX	10
		34046132*	150x7.0x22.23	A24Q-BFX	10
		5349	178x4.0x22.23	A30Q-BFX	10
		34046133*	178x7.0x22.23	A24Q-BFX	10
		34046135*	178x8.0x22.23	A24Q-BFX	10
		5406	230x4.0x22.23	A30Q-BFX	10
		34046134*	230x7.0x22.23	A24Q-BFX	10
		34046136*	230x8.0x22.23	A24Q-BFX	10

** With Comfort Start edge*

★★★
PREMIUM

X-LOCK rough grinding wheels

for steel and stainless steel

+ New X-LOCK clamping system for fast wheel changes
+ Secure mounting thanks to click noise during clamping



+ Maximum abrasiveness and lifetime
+ Comfort Start ensures a comfortable start when grinding and increases the level of working comfort

Application:

+ For demanding applications on different steel and stainless steel grades with new Bosch angle grinders

★★★
PREMIUM

X-LOCK rough grinding wheels

for steel and stainless steel

	Shape		Type no.	Dimension	Specification	PU
		27	34428030	115x7.0x22.23/XL	A30Q-BFP	10
			34428041	125x7.0x22.23/XL	A30Q-BFP	10

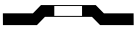
★★★ PREMIUM

FASTCUT rough grinding wheels
for steel and stainless steel

Application
+ For demanding applications on different steel and stainless steel grades

We recommend
+ 7 mm thickness for rough grinding
+ 8 mm and 10 mm thickness for rough grinding with enhanced lifetime

Advantage
+ FASTCUT technology for maximum cutting ability and stock removal
+ Comfort Start ensures a comfortable start when grinding and increases the level of working comfort
+ Universal use

	Shape		Type no.	Dimension	Specification	PU
		27	5293*	115x7.0x22.23	A30P-BFX	10
			5313*	125x7.0x22.23	A30P-BFX	10
			5330*	150x7.0x22.23	A30P-BFX	10
			1421*	178x7.0x22.23	A30P-BFX	10
			5382*	178x8.0x22.23	A30P-BFX	10
			5412*	230x7.0x22.23	A30P-BFX	10
			5428*	230x8.0x22.23	A30P-BFX	10

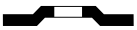
★ BASIC

2in1 rough grinding wheels
for steel and stainless steel

Application
+ For surface and edge grinding on different steel and stainless steel grades, especially in pipeline construction and peripheral grinding.

We recommend
+ 4 mm thickness for peripheral grinding
+ 6 mm thickness for rough grinding
+ 8 mm thickness for rough grinding with enhanced lifetime

Advantage
+ Fast and convenient work with minimal exertion
+ Universal use
+ Comfort Start ensures a comfortable start when grinding and increases the level of working comfort

	Shape		Type no.	Dimension	Specification	PU
		27	34257184	115x4.0x22.23	A30Q-BF	10
			222858*	115x6.0x22.23	A30Q-BF	10
			34257187	125x4.0x22.23	A30Q-BF	10
			222860*	125x6.0x22.23	A30Q-BF	10
			34176633	150x4.0x22.23	A30Q-BF	10
			222861*	150x6.0x22.23	A30Q-BF	10

▶

** With Comfort Start edge*

2in1 rough grinding wheels
for steel and stainless steel

BASIC



Shape	Type no.	Dimension	Specification	PU
27	34257201	178x4.3x22.23	A30Q-BF	10
	222863*	178x6.0x22.23	A30Q-BF	10
	222868*	178x8.0x22.23	A30Q-BF	10
	34257206	230x4.3x22.23	A30Q-BF	10
	222865*	230x6.0x22.23	A30Q-BF	10
	222870*	230x8.0x22.23	A30Q-BF	10

FASTCUT rough grinding wheels
for steel and stainless steel

BASIC

Application
+ For surface and edge grinding on different steel and stainless steel grades

Advantage
+ FASTCUT technology for high stock removal in a short time
+ Universal use
+ Long lifetime



Shape	Type no.	Dimension	Specification	PU
27	34468716*	115x6.0x22.23	A30P-BFB	10
	34468717*	125x6.0x22.23	A30P-BFB	10
	34468718*	150x6.0x22.23	A30P-BFB	10
	34468719*	178x6.0x22.23	A30P-BFB	10
	34468771*	230x6.0x22.23	A30P-BFB	10

PIPELINER rough grinding wheels
for steel and stainless steel

BASIC

Application
+ For use on different steel and stainless steel grades
+ Developed for welding applications in pipeline construction

Advantage
+ Rough grinding wheels consist of only a single layer of coarse grain, and therefore ensure even wear on the workpiece
+ Good stock removal and lifetime



Shape	Type no.	Dimension	Specification	PU
27	734693	178x7.0x22.23	A30Q-BF PIPE	10
	34307835	230x7.0x22.23	A30Q-BF PIPE	10

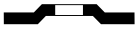
** With Comfort Start edge*

★★★ PREMIUM

3in1 rough grinding wheels
for steel, stainless steel and cast iron

Application
+ For demanding applications on steel, stainless steel and cast iron
+ Chemically pure and therefore especially suited to use in nuclear power stations

Advantage
+ This tool does not contain iron, sulphur, chlorine or fluorine, and leaves workpiece surfaces in a neutral condition
+ Maximum abrasiveness enables high stock removal rates in the shortest time
+ Above-average lifetime

	Shape		Type no.	Dimension	Specification	PU
		27	466744*	115x7.0x22.23	ZA30Q-BFR	10
			466749*	125x7.0x22.23	ZA30Q-BFR	10
			466754*	178x7.0x22.23	ZA30Q-BFR	10
			466762*	230x7.0x22.23	ZA30Q-BFR	10

★★★ PREMIUM

Rough grinding wheels
for stainless steel

Application
+ For a host of grinding applications on different stainless steel grades

We recommend
+ 4 mm thickness for peripheral grinding
+ 7 mm thickness for rough grinding

Advantage
+ Special bond system for stainless steel with good abrasiveness and long lifetime
+ The chemical purity of the product prevents corrosion, pitting corrosion and reduction in fatigue strength for the best results on stainless steel
+ Comfort Start ensures a comfortable start when grinding and increases the level of working comfort

	Shape		Type no.	Dimension	Specification	PU
		27	117064	115x4.0x22.23	A30R-BFX	10
			117065*	115x7.0x22.23	A30R-BFX	10
			117068	125x4.0x22.23	A30R-BFX	10
			117070*	125x7.0x22.23	A30R-BFX	10
			117071	178x4.0x22.23	A30R-BFX	10
			117072*	178x7.0x22.23	A30R-BFX	10
			117073	230x4.0x22.23	A30R-BFX	10
			117074*	230x7.0x22.23	A30R-BFX	10

** With Comfort Start edge*

★★★
PREMIUM

VIBSTAR rough grinding wheels

for stainless steel

+ VIBSTAR vibration damping developed and patented by TYROLIT reduces vibrations by up to 50%

+ Vibration damping ensures a longer machine lifetime



+ VIBSTAR technology helps to prevent occupational illnesses such as muscular and skeletal damage, neurological illnesses and circulatory problems

Application:

+ For demanding applications on different stainless steel grades

★★★
PREMIUM

VIBSTAR rough grinding wheels
for stainless steel

	Shape		Type no.	Dimension	Specification	PU
		27V	474524*	178x7.0x22.23	A30R-BFX	10
			474526*	230x7.0x22.23	A30R-BFX	10

** With Comfort Start edge*

★★★
PREMIUM

SILENTIO rough grinding wheels

for stainless steel

+ SILENTIO technology reduces noise generation by 10 decibels, thereby cutting the perceived noise by 50%

+ Noise reduction prevents lasting physical harm and increases comfort while working



+ Maximum stock removal and long lifetime

Application:

+ For surface and edge grinding on different stainless steel grades

★★★
PREMIUM

SILENTIO rough grinding wheels

for stainless steel

	Shape		Type no.	Dimension	Specification	PU
		27SI	515988*	178x7.0x22.23	A30R-BFX	10
			515989*	230x8.0x22.23	A30R-BFX	10

** With Comfort Start edge*

★★ STANDARD

Rough grinding wheels
for stainless steel

Application
+ For a host of grinding applications on different stainless steel grades

We recommend
+ 6 mm thickness for rough grinding
+ 8 mm thickness for rough grinding with enhanced lifetime

Advantage
+ Bond system specially tailored to stainless steel with very good abrasiveness and lifetime
+ The chemical purity of the product prevents corrosion, pitting corrosion and reduction in fatigue strength for very good results on stainless steel
+ Comfort Start ensures a comfortable start when grinding and increases the level of working comfort



Shape		Type no.	Dimension	Specification	PU
27		367545*	115x6.0x22.23	A30R-BFINOX	10
		367548*	125x6.0x22.23	A30R-BFINOX	10
		367550*	150x6.0x22.23	A30R-BFINOX	10
		367551*	178x6.0x22.23	A30R-BFINOX	10
		367554*	230x6.0x22.23	A30R-BFINOX	10
		367556*	230x8.0x22.23	A30R-BFINOX	10

★★★ PREMIUM

Rough grinding wheels
for nonferrous metals

Application
+ For demanding applications on nonferrous metals such as aluminium, aluminium bronze, aluminium base alloys, copper, bronze, brass, nickel silver and titanium

We recommend
+ Hard N grade for edge grinding
+ Softer cutting L grade for surface grinding
+ 4 mm thickness for peripheral grinding
+ 7 mm thickness for rough grinding

Advantage
+ No clogging of the wheel thanks to specially developed bond for sustained abrasiveness and minimal heat generation
+ Even at low pressure, the wheel achieves extremely high abrasiveness



Shape		Type no.	Dimension	Specification	PU
27		5289	115x4.0x22.23	A36N-BFX	10
		5295*	115x7.0x22.23	A36N-BFX	10
		636789	125x4.0x22.23	A36N-BFX	10
		5316*	125x7.0x22.23	A36N-BFX	10

▶

** With Comfort Start edge*

◀



Shape		Type no.	Dimension	Specification	PU
	27	5365*	178x7,0x22,23	A36N-BFX	10
		46586	230x4,0x22,23	A36N-BFX	10
		5416*	230x7,0x22,23	A36N-BFX	10
		576049*	115x7,0x22,23	A36L-BFX	10
		647549*	125x7,0x22,23	A36L-BFX	10
		576050*	178x7,0x22,23	A36L-BFX	10
		647550*	230x7,0x22,23	A36L-BFX	10

★★★
PREMIUM

T-GRIND rough grinding wheels
for steel and cast iron



Application
+ For demanding applications on steel and cast iron
+ For use on pneumatic and high-frequency grinders

Advantage
+ Specially developed to meet the demanding requirements of turbine and vane-type pneumatic grinders
+ Maximum lifetime and cutting ability
+ Comfort Start ensures a comfortable start when grinding and increases the level of working comfort



Shape		Type no.	Dimension	Specification	PU
	27	701518*	125x7.0x22.23	ZZA24T-BFK	10
		701439*	178x7.0x22.23	ZZA24T-BFK	10
		701515*	230x7.0x22.23	ZZA24T-BFK	10

** With Comfort Start edge*

★★★ PREMIUM

FOCUR EXTRA rough grinding wheels

for cast iron

Application

+ For demanding applications on cast iron and all cast materials, for both surface grinding as well as deburring and smoothing work

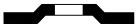
We recommend

+ ZA24N-BFX: for surface grinding
+ ZA24P-BFX: the universal type
+ ZZA24R-BFX: the deburring specialist
+ ZZA24S-BFX: for long lifetimes
+ 4 mm thickness for peripheral grinding
+ 7 mm thickness for rough grinding

Advantage

+ High-quality zirconia alumina for maximum stock removal
+ Bond specially tailored to cast iron enables maximum lifetime



Shape		Type no.	Dimension	Specification	PU
	27	233756*	125x7.0x22.23	ZA24N-BFX	10
		233757	178x4.0x22.23	ZA24N-BFX	10
		233759*	178x7.0x22.23	ZA24N-BFX	10
		233762*	230x7.0x22.23	ZA24N-BFX	10
		233765*	125x7.0x22.23	ZA24P-BFX	10
		233768*	178x7.0x22.23	ZA24P-BFX	10
		233771*	230x7.0x22.23	ZA24P-BFX	10
		233773*	125x7.0x22.23	ZZA24R-BFX	10
		233774	178x4.0x22.23	ZZA24R-BFX	10
		233776*	178x7.0x22.23	ZZA24R-BFX	10
		233777	230x4.0x22.23	ZZA24R-BFX	10
		233778*	230x7.0x22.23	ZZA24R-BFX	10
		929017	178x4.0x22.23	ZZA24S-BFX	10
		929020*	230x7.0x22.23	ZZA24S-BFX	10

** With Comfort Start edge*

★★★
PREMIUM

FOCUR EXTRA VIBSTAR rough grinding wheels

for cast iron

+ VIBSTAR vibration damping developed and patented by TYROLIT enables especially gentle grinding

+ Multi-layer composition and the permanently attached plastic flange reduce vibrations by up to 50%



+ VIBSTAR technology helps to prevent occupational illnesses such as muscular and skeletal damage, neurological illnesses and circulatory problems

Application:

+ For demanding applications on cast iron and all cast materials, for surface grinding as well as for deburring and smoothing work

We recommend:

+ ZA24N-BFX: for surface grinding
+ ZA24P-BFX: the universal type
+ ZZA24R-BFX: the deburring specialist
+ ZZA24S-BFX: for long lifetimes

★★★
PREMIUM

FOCUR EXTRA VIBSTAR rough grinding wheels

for cast iron



Shape		Type no.	Dimension	Specification	PU
	27V	474527*	178x7.0x22.23	ZA24N-BFX	10
		474532*	230x7.0x22.23	ZA24N-BFX	10
		474533*	230x7.0x22.23	ZA24P-BFX	10
		474534*	230x7.0x22.23	ZZA24R-BFX	10
		474531*	178x7.0x22.23	ZZA24S-BFX	10
		474535*	230x7.0x22.23	ZZA24S-BFX	10

** With Comfort Start edge*

★★ STANDARD

FOCUR rough grinding wheels
for cast iron

Application
+ For demanding applications on cast iron and all cast materials, for both surface grinding as well as deburring and smoothing work

Advantage
+ Very good balance between cutting ability and lifetime
+ Even with low pressure, the wheel is abrasive and easy to handle



Shape		Type no.	Dimension	Specification	PU
	27	154544*	178x7.0x22.23	ZA30O-BF	10
		154545*	230x7.0x22.23	ZA30O-BF	10

★ BASIC

Rough grinding wheels
for cast iron

Application
+ Suitable for use on all cast materials, especially for smoothing cast materials

Advantage
+ Good balance between cutting ability and lifetime
+ Even with low pressure, the wheel is abrasive and easy to handle



Shape		Type no.	Dimension	Specification	PU
	27	567352*	178x8.0x22.23	AC30N-BF	10
		567353*	230x8.0x22.23	AC30N-BF	10

★★ STANDARD

Rough grinding wheels
for stone

Application
+ For surface and edge grinding on all stone hardnesses, natural and artificial stone as well as concrete

Advantage
+ Fast and convenient work with minimal exertion
+ Silicon carbide makes it especially suitable for stone and short-chipping materials
+ Very good lifetime and abrasiveness

▶

** With Comfort Start edge*

◀

	Shape		Type no.	Dimension	Specification	PU
		27	367549*	125x6,0x22,23	C30S-BF	10
			367552*	178x6,0x22,23	C30S-BF	10
			367557*	230x6,0x22,23	C30S-BF	10

★ BASIC

Rough grinding wheels
for stone




Application
+ For edge and surface grinding on all stone hardnesses, natural and artificial stone as well as concrete

Advantage
+ Fast and convenient work with minimal exertion
+ Silicon carbide makes it especially suitable for stone and short-chipping materials

	Shape		Type no.	Dimension	Specification	PU
		27	222873*	115x6.0x22.23	C30S-BF	10
			222889*	125x6.0x22.23	C30S-BF	10
			222043*	178x6.0x22.23	C30S-BF	10
			222898*	230x6.0x22.23	C30S-BF	10

★ BASIC

TOUCH grinding wheels
for stainless steel and nonferrous metals





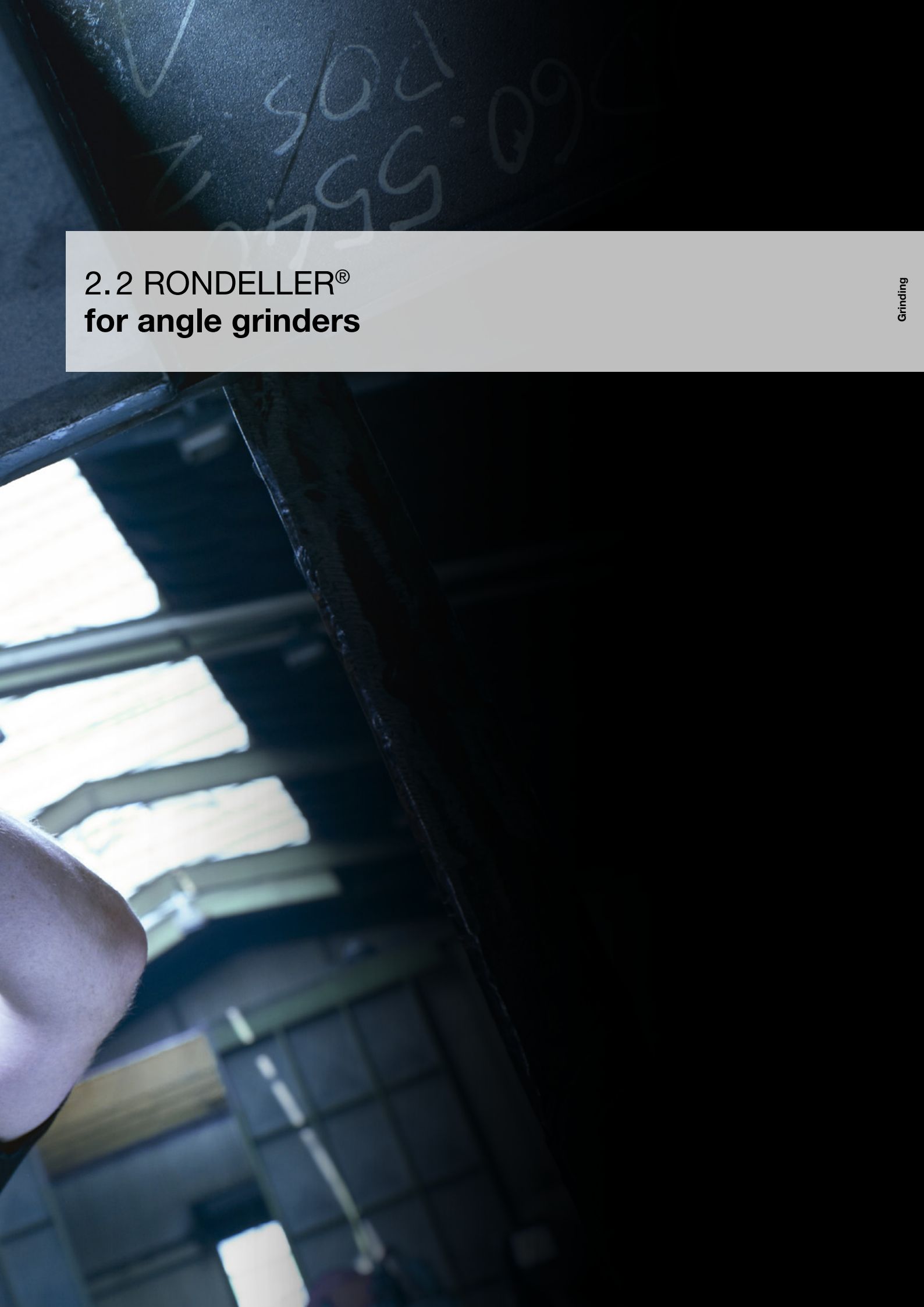

Application
+ For grinding, deburring and forming work as well as for cutting stainless steel and nonferrous metals

Advantage
+ The waffle-type structure enables cool grinding with good chip transport, and thus prevents material discolouration
+ Low vibration thanks to low weight and special structure – this guarantees quiet operation and reduced noise

	Shape		Type no.	Dimension	Specification	PU
		27	236318	115x22.23	WA46R-BF	25
			236319	125x22.23	WA46R-BF	25
			236320	178x22.23	WA46R-BF	25

** With Comfort Start edge*





2.2 RONDELLER®
for angle grinders



RONDELLER®
for angle grinders

Working with an angle grinder is one of the most important processes in the handicraft and industrial sectors for machining all types of metals. TYROLIT has developed a special tool for use on an angle grinder that combines the product advantages of different grinding tools. It is not necessary to use any special accessories with the RONDELLER®, so simple handling is guaranteed.

Its unique geometry and stud pattern enable outstanding stock removal, cool, material-protecting grinding and ergonomic working. Vibration-free working and perfect adaptation to the workpiece is guaranteed when grinding, deburring and shaping curved surfaces.

Shapes

29 RON
RONDELLER®

Application recommendation

Performance Level	Specification	Steel	Stainless steel	Stone	Plastic	NF metals	Pages
★★★ PREMIUM	A...Q-BF	●	●				93
	C...S-BF			●	●		94
	A...N-BF					●	94

★★★
PREMIUM

2in1 RONDELLER®

for steel and stainless steel

+ Easy assembly without the use of special accessories such as back up pads and clamping nuts

+ Outstanding chip transport as well as cool grinding that is gentle on the material thanks to the unique geometry and stud pattern



+ Vibration-free and ergonomic use as well as optimum adaptation to the workpiece

Application:

+ For demanding work on different steel and stainless steel grades
+ Ideal for grinding, deburring and forming work on curved surfaces

We recommend:

+ Grit size 24/36 for high stock removal
+ Grit size 60 for a finer surface result

★★★
PREMIUM

2in1 RONDELLER®

for steel and stainless steel



Shape		Type no.	Dimension	Specification	PU
	29RON	57004	115x22,23	A24Q-BF	25
		908225	115x22,23	A36Q-BF	25
		908226	115x22,23	A60Q-BF	25
		57005	125x22,23	A24Q-BF	25
		908227	125x22,23	A36Q-BF	25
		908229	125x22,23	A60Q-BF	25
		170599	150x22,23	A36Q-BF	25
		57006	178x22,23	A24Q-BF	25
		908230	178x22,23	A36Q-BF	25
		908231	178x22,23	A60Q-BF	25

★★★ PREMIUM

RONDELLER®
for stone

Application
+ For demanding work on universal stone materials as well as PVC
+ Ideal for grinding, deburring and forming work on curved surfaces

We recommend
+ Grit size 36/60 for high stock removal
+ Grit size 100/180 for fine work

Advantage
+ Easy assembly without the use of special accessories such as back up pads and clamping nuts
+ Outstanding chip transport as well as cool grinding that is gentle on the material thanks to the unique geometry and stud pattern
+ Vibration-free and ergonomic use as well as optimum adaptation to the workpiece

	Shape	Type no.	Dimension	Specification	PU
	29RON	908233	115x22.23	C36S-BF	25
		908220	178x22.23	C36S-BF	25
		908221	178x22.23	C60S-BF	25
		908223	178x22.23	C100S-BF	25
		908224	178x22.23	C180S-BF	25

★★★ PREMIUM

RONDELLER®
for nonferrous metals

Application
+ For demanding applications on nonferrous metals such as aluminium, copper, brass and bronze
+ Ideal for grinding, deburring and forming work on curved surfaces

Advantage
+ Easy assembly without the use of special accessories such as back up pads and clamping nuts
+ Outstanding chip transport as well as cool grinding that is gentle on the material thanks to the unique geometry and stud pattern
+ Vibration-free and ergonomic use as well as optimum adaptation to the workpiece
+ No clogging of the wheel thanks to specially developed bond for sustained abrasiveness and longer lifetime

	Shape	Type no.	Dimension	Specification	PU
	29RON	34300411	115x22.23	A36N-BF	25
		34300412	125x22.23	A36N-BF	25
		34300416	178x22,23	A36N-BF	25

2.3 Cup wheels
for angle grinders





Cup wheels
for angle grinders

Working with an angle grinder is one of the most important processes in the handicraft and industrial sectors for machining all types of metals. The use of cup wheels is recommended when grinding large and heavy components in particular, as they are exceptionally robust and durable.

It is particularly important to ensure that cup wheels are only used on angle grinders for 178 mm diameters. Smaller machines rotate too quickly, while larger ones rotate too slowly. In addition, a special protection cover is required to ensure sufficient levels of working safety.

With cup wheels from TYROLIT you can achieve high stock removal rates and long lifetime. The composition of the cup wheels makes them suitable for large-area machining of welding seams or for grinding imperfections on concrete surfaces. TYROLIT cup wheels can not only be used for metal machining, but also on marble, slate and granite.
Uniform colour coding helps you to find the appropriate product for your application.

Shapes



11BT Cup wheel



11ZB Cup wheel



11ZT Cup wheel



6ZB Cup wheel

Application recommendation

Performance Level	Specification	Steel	Stainless steel	Stone	Pages
★★★ PREMIUM	A...P4B84	●			98
	A...O4B84	●			98
	A...M4B2		●		99
	1C...L4B2			●	99
	1C...K4B2			●	99
	1C...J4B2			●	99
	1C...J4B0			●	99
★★ STANDARD	A...P-B	●			98
	C...J-B			●	100

★★★ PREMIUM

Resin cup wheels
for steel

Application
+ For demanding applications on different steel grades
+ For edge grinding, cleaning surfaces, bevelling and grinding welding seams

Advantage
+ Maximum stock removal for grinding jobs on large areas
+ Robust and extremely durable

We recommend
+ Grit size 16 and 36 for rough grinding
+ Use special protection for cup wheels
+ Note operating speed of max. 50 m/s



Shape	Type no.	Dimension	Specification	PU	Max. speed
11BT	310183	110/90x55x22.23	A16P4B84	2	8 680
	311096	110/90x55x22.23	A36O4B84	2	8 680
	351386	130/90x55x22.23	A16P4B84	2	7 340
	310997	130/90x55x22.23	A36O4B84	2	7 340
11ZB	321395	110/90x55xM14	A16P4B84	2	8 680
	310184	110/90x55xM14	A36O4B84	2	8 680
	377664	130/90x55xM14	A36O4B84	2	7 340
11ZT	241413	102/76x51x5/8"	A16P4B84	2	9 360
	23525	152/120x51x5/8"	A16P4B84	2	6 280

★★ STANDARD

Resin cup wheels
for steel

Application
+ For demanding applications on different steel grades
+ For edge grinding, cleaning surfaces, bevelling and grinding welding seams

Advantage
+ Very good stock removal for grinding jobs on large areas
+ Robust and durable

We recommend
+ Grit size 16 and 36 for rough grinding
+ Use special protection for cup wheels
+ Note operating speed of max. 50 m/s



Shape	Type no.	Dimension	Specification	PU	Max. speed
11BT	895678	110/90x55x22.23	A16P-B	2	8 680
	895669	110/90x55x22.23	A36P-B	2	8 680

★★★ PREMIUM

Resin cup wheels
for stainless steel

Application
+ For demanding applications on different stainless steel grades
+ For edge grinding, cleaning surfaces, bevelling and grinding welding seams

We recommend
+ Grit size 20 for rough grinding
+ Use special protection for cup wheels
+ Note operating speed of max. 50 m/s

Advantage
+ Maximum stock removal for grinding jobs on large areas
+ Robust and extremely durable
+ The chemical purity of the product prevents corrosion, pitting corrosion and reduction in fatigue strength for the best results on stainless steel



Shape	Type no.	Dimension	Specification	PU	Max. speed
11ZT	23509	127/94x51x⅝"	A20M4B2	2	7 510
	275634	152/120x51x⅝"	A20M4B2	2	6 280

★★★ PREMIUM

Resin cup wheels
for stone

Application
+ For demanding applications on stone
+ For grinding imperfections on visible concrete surfaces, bevelling and pre-grinding artificial stone and patio flags as well as surface grinding on marble, slate and granite

We recommend
+ Grit size 16 – 46 for rough grinding
+ Grit size 60 – 220 for fine grinding
+ Use special protection for cup wheels
+ Note operating speed of max. 50 m/s

Advantage
+ Maximum stock removal for grinding jobs on large areas
+ Robust and extremely durable
+ Silicon carbide for the best results on stone and short-chipping materials



Shape	Type no.	Dimension	Specification	PU	Max. speed
11BT	310980	110/90x55x22.23	1C16L4B2	2	8 680
	318070	110/90x55x22.23	1C24L4B2	2	8 680
	342583	110/90x55x22.23	1C46K4B2	2	8 680
	314463	110/90x55x22.23	1C60J4B2	2	8 680
	317307	110/90x55x22.23	1C120J4B0	2	8 680
6ZB	89383	100x45xM14	1C24L4B2	2	9 540
	83585	100x45xM14	1C60J4B2	2	9 540
	56895	100x45xM14	1C120J4B2	2	9 540
	553403	100x45xM14	1C220J4B0	2	9 540

▶

★★★ PREMIUM Resin cup wheels
for stone



Shape		Type no.	Dimension	Specification	PU	Max. speed
	11ZB	310992	110/90x55xM14	1C16L4B2	2	8 680
		310993	110/90x55xM14	1C24L4B2	2	8 680
		321211	110/90x55xM14	1C60J4B2	2	8 680
		320074	110/90x55xM14	1C120J4B0	2	8 680
		326214	110/90x55xM14	1C220J4B0	2	8 680
		310994	130/90x55xM14	1C16L4B2	2	7 340
		310995	130/90x55xM14	1C24L4B2	2	7 340
		320075	130/90x55xM14	1C60J4B2	2	7 340
		424846	130/90x55xM14	1C120J4B0	2	7 340
		336499	130/90x55xM14	1C220J4B0	2	7 340

★★ STANDARD Resin cup wheels
for stone

Application

+ For demanding applications on stone
+ For grinding imperfections on visible concrete surfaces, bevelling and pre-grinding artificial stone and patio flags as well as surface grinding on marble, slate and granite

We recommend

+ Grit size 16/36 for rough grinding
+ Grit size 60 for fine grinding
+ Use special protection for cup wheels
+ Note operating speed of max. 50 m/s

Advantage

+ Very good stock removal for grinding jobs on large areas
+ Robust and durable
+ Silicon carbide for outstanding results on stone and short-chipping materials



Shape		Type no.	Dimension	Specification	PU	Max. speed
	11BT	895679	110/90x55x22.23	C16J-B	2	8 680
		895670	110/90x55x22.23	C36J-B	2	8 680
		895671	110/90x55x22.23	C60J-B	2	8 680
	11ZB	895676	110/90x55xM14	C16J-B	2	8 680
		895677	110/90x55xM14	C60J-B	2	8 680

2.4 Grinding wheels **for straight grinders**



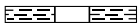


Grinding wheels **for straight grinders**

Straight grinders are always in high demand when precise results are required on difficult-to-access areas. Their versatile application options make them a popular tool. In order to fulfil the high standards TYROLIT sets for itself, great importance was attached to the low-vibration grinding properties of the products during their design.

The range easily meets the general demands of economic efficiency, high stock removal rates, simple handling and above-average lifetimes.
All TYROLIT rough grinding wheels are manufactured and tested in accordance with EN12413. Uniform colour coding helps you to find the appropriate product for your application.

Shapes



1F80
Rough grinding wheel

Application recommendation

Performance level	Specification	Steel	Stainless steel	NF metals	Cast iron	Pages
★★★ PREMIUM	A30S-BFX80	●				104
	A30R-BFX80		●			104
	A36N-BFX80			●		105
	ZA24P-BFX80				●	105

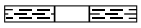
★★★ PREMIUM

1F80 grinding wheels
for steel

Application
+ For demanding work on different steel grades in difficult-to-reach places
+ For adding flutes and notches, for deburring gears, for maintaining turbine blades, for rough grinding curved surfaces in cavities and for welding

Advantage
+ Bond system tailored to steel with maximum abrasiveness and long lifetime

We recommend
+ Use a protection cover for diameters above 80 mm

	Shape		Type no.	Dimension	Specification	PU
		1F80	439061	50x6.0x6	A30S-BFX80	100
			441231	50x10.0x6	A30S-BFX80	100
			441207	50x10.0x10	A30S-BFX80	100
			441219	60x10.0x10	A30S-BFX80	100
			441233	70x10.0x10	A30S-BFX80	100
			441223	75x6.0x10	A30S-BFX80	100

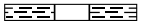
★★★ PREMIUM

1F80 grinding wheels
for stainless steel

Application
+ For demanding work on different stainless steel grades in difficult-to-reach places
+ For adding flutes and notches, for deburring gears, for maintaining turbine blades and for rough grinding curved surfaces in cavities

Advantage
+ Special bond system for stainless steel with maximum abrasiveness and long lifetime
+ The chemical purity of the product prevents corrosion, pitting corrosion and reduction in fatigue strength for the best results on stainless steel

We recommend
+ Use a protection cover for diameters above 80 mm

	Shape		Type no.	Dimension	Specification	PU
		1F80	439059	50x6.0x6	A30R-BFX80	100
			441206	50x10.0x10	A30R-BFX80	100
			441245	50x19.0x10	A30R-BFX80	100
			441224	75x15.0x10	A30R-BFX80	100
			441203	100x25.0x25	A30R-BFX80	25
			441204	125x25.0x25	A30R-BFX80	20
			441241	150x25.0x25	A30R-BFX80	20

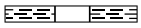
★★★ PREMIUM

1F80 grinding wheels
for nonferrous metals

Application
+ For demanding applications on nonferrous metals such as aluminium, aluminium bronze, aluminium base alloys, copper, bronze, brass, nickel silver and titanium in difficult-to-reach places
+ Ideal for adding flutes and notches, for deburring gears, for maintaining turbine blades and for rough grinding curved surfaces in cavities

Advantage
+ No clogging of the wheel thanks to specially developed bond for sustained abrasiveness and longer lifetime
+ Even at very low pressure, the wheel achieves extremely high abrasiveness

We recommend
+ Use a protection cover for diameters above 80 mm

	Shape		Type no.	Dimension	Specification	PU
		1F80	441248	75x6,0x10	A36N-BFX80	100
			441250	100x20,0x20	A36N-BFX80	25

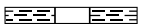
★★★ PREMIUM

1F80 grinding wheels
for cast iron

Application
+ For demanding work on cast iron in difficult-to-reach places
+ Ideal for adding flutes and notches, for deburring gears, for maintaining turbine blades, for rough grinding curved surfaces in cavities and for welding

Advantage
+ Bond system tailored to cast iron with maximum abrasiveness and lifetime

We recommend
+ Use a protection cover for diameters above 80 mm

	Shape		Type no.	Dimension	Specification	PU
		1F80	441353	150x25.0x25	ZA24P-BFX80	20

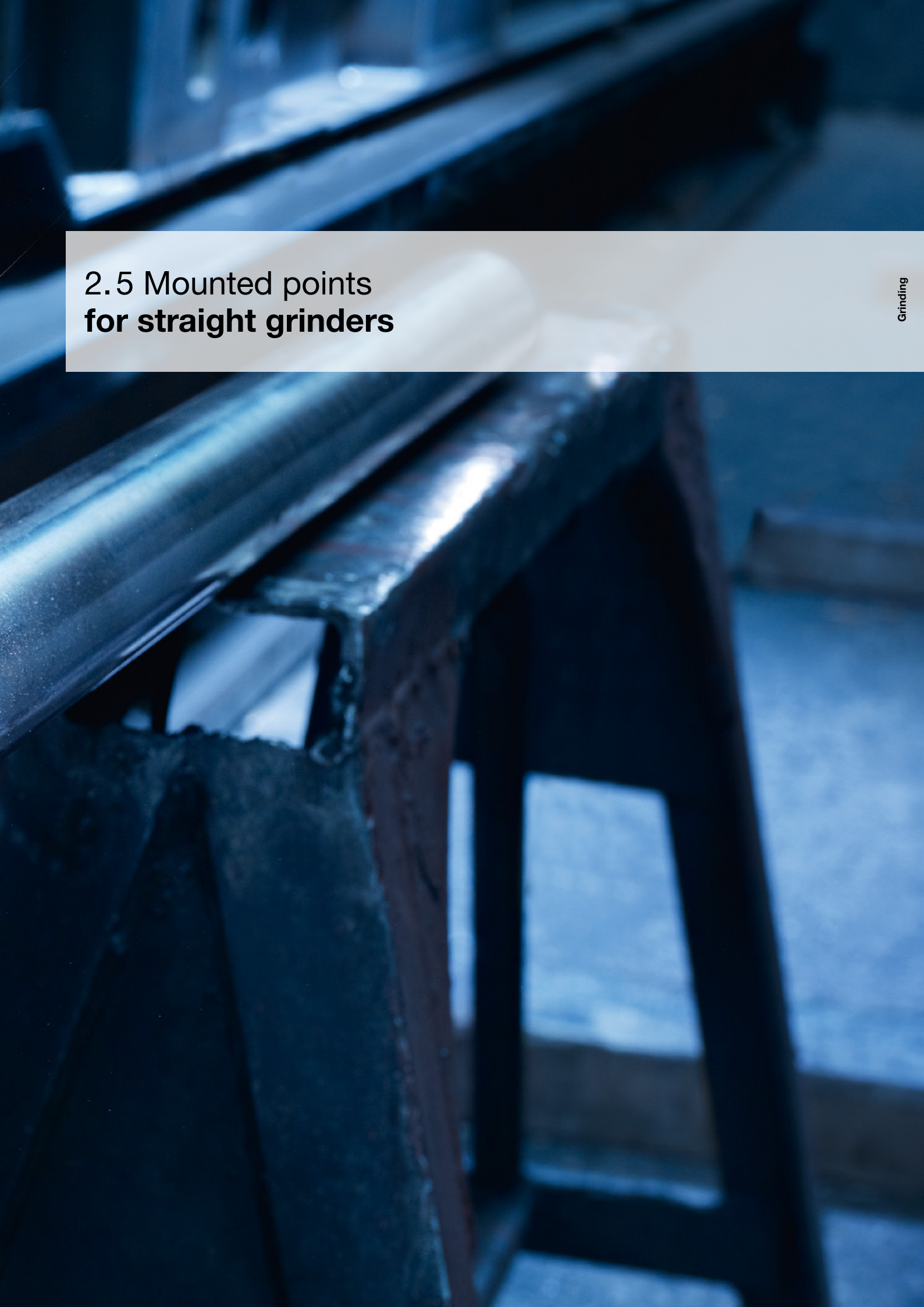
Accessories
for 1F80 rough grinding wheels

Application
+ For use on straight grinders

We recommend
+ Note maximum permissible speed

Advantage
+ Suitable for clamping all rough grinding wheels available in the TYROLIT assortment for straight grinders

		Type no.	Dimension	Specification	PU
	100SS	803404	S6/H10/M10	SS171	1
		846442	S6/H6/M6	SS174	1



2.5 Mounted points **for straight grinders**



Mounted points **for straight grinders**

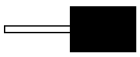
Straight grinders are always in high demand when precise results are required on difficult-to-access areas. Their versatile application options make straight grinders a popular tool. In order that there is always a solution at hand for the numerous applications, TYROLIT offers a wide range of mounted point shapes.

Our resin-bonded points offer you vibration-reducing solutions for the highest quality requirements. The wide range of applications also requires ceramic points that strike a perfect balance in terms of chip performance, surface finish and lifetime.

Ceramic points are often used in foundries and in mould making.

For fine machining, our range also includes elastic and polishing points tailored to your needs.

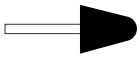
Shapes



52ZY / 52W Mounted point



52TO Mounted point



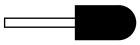
52KE Mounted point



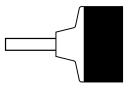
52KU Mounted point



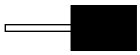
52SP Mounted point



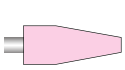
52WR Mounted point



52MS Mounted point



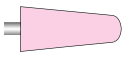
52W Mounted point



52A-1 Mounted point



52A-2 Mounted point



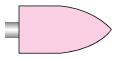
52A-3 Mounted point



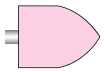
52A-4 Mounted point



52A-5 Mounted point



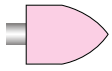
52A-8 Mounted point



52A-9 Mounted point



52A-11 Mounted point



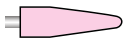
52A-12 Mounted point



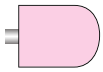
52A-13 Mounted point



52A-14 Mounted point



52A-15 Mounted point



52A-19 Mounted point



52A-24 Mounted point



52A-25 Mounted point



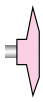
52A-26 Mounted point



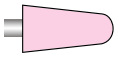
52A-32 Mounted point



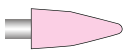
52A-36 Mounted point



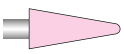
52A-37 Mounted point



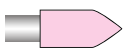
52B-44 Mounted point



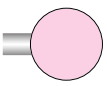
52B-52 Mounted point



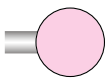
52B-53 Mounted point



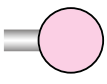
52B-54 Mounted point



52B-121 Mounted point



52B-122 Mounted point



52B-123 Mounted point



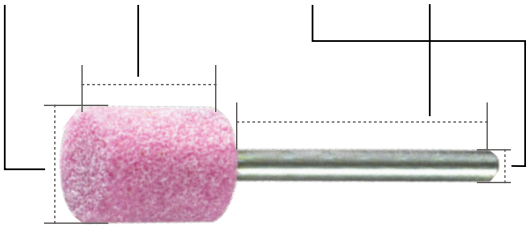
52B-135 Mounted point

Application recommendation

Performance level	Specification	Steel	Stainless steel	NF metals	Cast iron	HSS	PVC	Pages
★★★ PREMIUM	**Resin points**							
	… B0		●					111
	… B84				●			112
	Ceramic points							
	88A …	●						113, 114, 115
	89A …					●		117
	Elastic mounted points							
	… BE15	●	●	●			●	117

Mounted point dimensions

16 x 20 – 6 x 40



★★★ PREMIUM

Resin-bonded mounted points
for stainless steel

Application
+ For work such as deburring, bevelling and edge breaking on different stainless steel grades

We recommend
+ Grit size 36 for rough grinding
+ Note operating speed of max. 50 m/s

Advantage
+ Resin-mounted points have a vibration reducing effect due to their composition and therefore boast low impact sensitivity
+ Specially suited to stainless steel materials due to their chemically pure bond
+ Particularly suitable for difficult-to-reach places

	Shape		Type no.	Dimension	Specification	PU
		52ZY	682101	8x16-6x40	A36Q4B0	25
			682103	10x20-6x40	A36Q4B0	25
			34053928	10x32-6x40	A36Q4B0	25
			682104	13x25-6x40	A36Q4B0	25
			682105	16x32-6x40	A36Q4B0	25
			682106	20x32-6x40	A36Q4B0	25
			682107	20x40-6x40	A36Q4B0	25
			34053929	25x13-6x40	A36Q4B0	25
			682110	25x32-6x40	A36Q4B0	25
			34053930	32x16-6x40	A36Q4B0	25
			104962	32x40-6x40	A36Q4B0	25
			104968	40x10-6x40	A36Q4B0	25
			682111	40x20-6x40	A36Q4B0	25
			34053942	50x13-6x40	A36Q4B0	25
			682112	50x25-6x40	A36Q4B0	25

★★★ PREMIUM

Resin-bonded mounted points
for cast iron

Application

+ For work such as deburring, bevelling and edge breaking on cast iron

We recommend

+ Grit size 20–46 for rough grinding
+ Note different grades according to specification:
  + P: high aggressiveness
  + Q: universal use
  + S: long lifetime
+ Note operating speed of max. 50 m/s

Advantage

+ Resin-mounted points have a vibration reducing effect due to their composition and therefore boast low impact sensitivity
+ Particularly suitable for difficult-to-reach places



Shape		Type no.	Dimension	Specification	PU
	52ZY	108261	10x25-6x40	A36Q4B84	25
		2111	13x25-6x40	A36Q4B84	25
		108262	15x25-6x40	A36Q4B84	25
		104604	16x32-6x40	A36Q4B84	25
		105367	20x25-6x40	A36Q4B84	25
		2211	25x32-6x40	A36Q4B84	25
		2249	32x40-6x40	A36Q4B84	25
		2258	40x20-6x40	A36Q4B84	25
		123696	40x25-6x40	A36Q4B84	25
		2284	50x25-6x40	A36Q4B84	25
	52W	21094	10x32-6x40	A46S4B84	25
		21125	13x40-6x40	A46S4B84	25
		21137	16x25-6x40	A46S4B84	25
		310504	16x50-6x40	A46S4B84	25
		21160	20x25-6x40	A46S4B84	25
		21166	20x40-6x40	A46S4B84	25
		21192	25x25-6x40	A46S4B84	25
		21202	25x40-6x40	A46S4B84	25
		169543	32x20-6x40	A46P4B84	25
		123644	32x32-6x40	A46P4B84	25
		21232	32x64-8x40	A20Q4B84	25
		21233	40x6-6x40	A46S4B84	25
		21239	40x13-6x40	A46S4B84	25
	52A-1	803833	20x63-6x40	A46P4B84	25
	52A-11	126460	22x50-6x40	A46P4B84	25
	52A-3	129260	25x70-6x40	A46P4B84	25

★★★ PREMIUM

Ceramic points
for steel

Application

+ For demanding work such as deburring, bevelling and edge breaking on different steel grades

We recommend

+ Grit size 24–46 for rough grinding
+ Grit size 60–90 for fine grinding
+ Note different grades according to specification:
  + O: high aggressiveness
  + P: universal use
+ Note operating speed of max. 50 m/s

Advantage

+ Strikes a perfect balance in terms of chip performance and the intended surface finish
+ Particularly suitable for difficult-to-reach places
+ Ideal for unalloyed steels thanks to vitrified bond with pink aluminium oxide



Shape		Type no.	Dimension	Specification	PU
	52ZY	2010	3x6-3x30	88A90O5V38	25
		169096	3x9-3x30	88A90O5V38	25
		2017	4x8-3x30	88A90O5V38	25
		100758	4x8-6x40	88A60P5V38	25
		2026	5x10-3x30	88A60P5V38	25
		2027	5x10-3x30	88A90O5V38	25
		2031	5x10-6x40	88A60P5V38	25
		11362	6x10-3x30	88A60P5V38	25
		2039	6x10-6x40	88A60P5V38	25
		2046	6x13-3x30	88A60P5V38	25
		2048	6x13-6x40	88A60P5V38	25
		227450	6x20-3x30	88A60P5V38	25
		116725	6x20-6x40	88A60P5V38	25
		2055	8x10-3x30	88A60P5V38	25
		2058	8x10-6x40	88A60P5V38	25
		2062	8x16-6x40	88A60P5V38	25
		120033	10x10-3x30	88A60P5V38	25
		6879	10x10-6x40	88A60P5V38	25
		88905	10x13-3x30	88A60P5V38	25
		2072	10x13-6x40	88A60P5V38	25
		2081	10x20-6x40	88A60P5V38	25
		14364	10x25-6x40	88A60P5V38	25
		2090	10x32-6x40	88A60P5V38	25
		6896	13x16-6x40	88A60P5V38	25
		6898	13x20-6x40	88A60P5V38	25
		6899	13x25-6x40	88A60P5V38	25
		112542	13x40-6x40	88A60P5V38	25

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★★★ PREMIUM

Ceramic points
for steel



Form		Typennummer	Abmessung	Spezifikation	VP
	52ZY	6920	16x20-6x40	88A60P5V38	25
		2125	16x25-6x40	88A60P5V38	25
		2133	16x32-6x40	88A36P5V38	25
		2134	16x32-6x40	88A60P5V38	25
		6928	16x50-6x40	88A60P5V38	25
		2145	20x10-6x40	88A60P5V38	25
		2148	20x20-6x40	88A60P5V38	25
		2163	20x25-6x40	88A36P5V38	25
		6932	20x25-6x40	88A46P5V38	25
		2165	20x25-6x40	88A60P5V38	25
		105009	20x32-6x40	88A60P5V38	25
		12836	20x40-6x40	88A36P5V38	25
		2189	20x40-6x40	88A60P5V38	25
		122868	25x10-6x40	88A60P5V38	25
		130009	25x25-6x40	88A36P5V38	25
		2201	25x25-6x40	88A46P5V38	25
		2202	25x25-6x40	88A60P5V38	25
		2209	25x32-6x40	88A46P5V38	25
		548169	25x40-6x40	88A36P5V38	25
		2238	32x8-6x40	88A60P5V38	25
		131231	32x10-6x40	88A60P5V38	25
		6959	32x16-6x40	88A46P5V38	25
		6961	32x20-6x40	88A46P5V38	25
		116973	32x32-6x40	88A36P5V38	25
		103394	32x32-6x40	88A46P5V38	25
		2248	32x40-6x40	88A46P5V38	25
		101508	40x6-6x40	88A60P5V38	25
		2256	40x10-6x40	88A60P5V38	25
		15383	40x20-6x40	88A60P5V38	25
		150085	40x25-6x40	88A46P5V38	25
		828192	40x40-6x40	88A36P5V38	25
		6974	50x25-6x40	88A46P5V38	25
	52B-44	169	6x10-3x30	88A60P5V38	25
	52B-53	39128	8x16-3x30	88A90O5V38	25
	52KE	6400	13x13-6x40. R=2	88A60P5V38	25
		6401	16x16-6x40. R=2.5	88A60P5V38	25
		6402	20x20-6x40. R=3	88A60P5V38	25
	52A-5	11481	20x29-6x40	88A36P5V38	25
		20023	20x29-6x40	88A60P5V38	25

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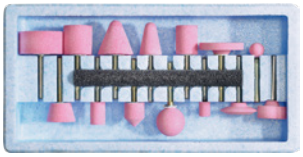
	Form		Typennummer	Abmessung	Spezifikation	VP
		52KE	330772	20x32-6x40. R=3	88A60P5V38	25
			892	25x25-6x40. R=4	88A60P5V38	25
		52A-3	11480	25x70-6x40	88A36P5V38	25
			6207	25x70-6x40	88A46P5V38	25
			104894	25x70-6x40	88A60P5V38	25
		52A-4	113	32x32-6x40	88A46P5V38	25
			20020	32x32-6x40	88A60P5V38	25
		52A-32	131	25x16-6x40	88A60P5V38	25
		52TO	1175	32x25-6x40	88A60P5V38	25
		52A-15	97785	6x27-6x40	88A60P5V38	25
			89504	6x27-6x40	88A90O5V38	25
		52B-52	174	10x20-3x30	88A60P5V38	25
			75647	10x20-6x40	88A60P5V38	25
		52SP	6660	13x20-6x40. R=22	88A60P5V38	25
		52A-14	45422	18x22-6x40	88A60P5V38	25
		52A-12	121	18x32-6x40	88A46P5V38	25
			20037	18x32-6x40	88A60P5V38	25
		52SP	6661	20x32-6x40. R=36	88A60P5V38	25
		52A-8	146601	20x51-6x40	88A36P5V38	25
		52A-1	106372	20x63-6x40	88A36P5V38	25
			108	20x63-6x40	88A46P5V38	25
			109	20x63-6x40	88A60P5V38	25
		52A-11	148517	22x50-6x40	88A36P5V38	25
			118	22x50-6x40	88A46P5V38	25
			20031	22x50-6x40	88A60P5V38	25
		52A-13	45421	32x32-6x40	88A60P5V38	25
		52A-9	127775	32x51-6x40	88A36P5V38	25
		52KU	6404	5-3x30	88A90O5V38	25
			6405	8-6x30	88A60P5V38	25
		52B-122	191	10-3x30	88A60P5V38	25
		52B-121	62694	13-6x40	88A60P5V38	25
			190	13-3x30	88A60P5V38	25
		52A-26	130	16-6x40	88A60P5V38	25
		52KU	917	20-6x40	88A60P5V38	25
		52A-25	20047	25-6x40	88A60P5V38	25
		52KU	921	32-6x40	88A46P5V38	25
		52A-24	128	6x20-6x40	88A60P5V38	25
		52A-19	135853	32x51-6x40	88A36P5V38	25
		52A-37	139	32x6-6x40	88A60P5V38	25
		52A-36	138	40x10-6x40	88A60P5V38	25

★★★ PREMIUM

Ceramic points set
for steel

Application
+ For demanding work such as deburring, bevelling and edge breaking on different steel grades

Advantage
+ Set contains all the common mounted points for working on steel, including a roughing stone
+ Longest possible lifetime for deburring, bevelling and edge breaking
+ Points strike a perfect balance in terms of chip performance and the intended surface finish

SET	Type no.	Shape	Typen-Nr.	Dimension	PU
	74499	52ZY-W228	6961	32x20-6x40	
		52ZY-W220	2201	25x25-6x40	
		52A-4	113	32x32-6x40	
		52A-5	20023	20x29-6x40	
		52ZY-W205	2165	20x25-6x40	
		52ZY-W236	101508	40x6-6x40	
		52B-121	62694	13x6-6x40	
		52A-32	131	25x16-6x40	1
		52ZY-W186	6898	13x20-6x40	
		52A-14	45422	18x22-6x40	
		52A-25	20047	25x6-6x40	
		52ZY-W176	2072	10x13-6x40	
		52A-37	139	32x6-6x40	
		52ZY-W217	122868	25x10-6x40	
		9011	54222	16x150-6x40	

★★★ PREMIUM

Ceramic points
for HSS

Application
+ For demanding work such as deburring, bevelling and edge breaking on high-alloyed steels and HSS

We recommend
+ Grit size 46 for rough grinding
+ Grit size 60–120 for fine grinding
+ Note operating speed of max. 35 m/s

Advantage
+ Enables workpieces to be machined down to the lowest tolerance ranges
+ Strikes a perfect balance in terms of chip performance and the intended surface finish
+ Vitrified bond with white aluminium oxide specially for high-alloyed steels and HSS

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	Shape		Type no.	Dimension	Specification	PU
		52ZY	2020	4x8-3x30	89A120M5V38	25
			2030	5x10-3x30	89A80M5V38	25
			13529	6x13-6x40	89A80M5V38	25
			113299	8x16-3x30	89A80M5V38	25
			6886	10x20-6x40	89A80M5V38	25
		52KE	441033	30x40-6x40. R=5	89A60M5V38	25

★★★ PREMIUM

ELASTIC mounted points

for nonferrous metals, PVC, steel and stainless steel

Application

+ For demanding work on nonferrous metals, PVC, steel and stainless steel

We recommend

+ Mottling points (shape MS) for mottling surfaces
+ Note maximum operating speed of 20 m/s

Advantage

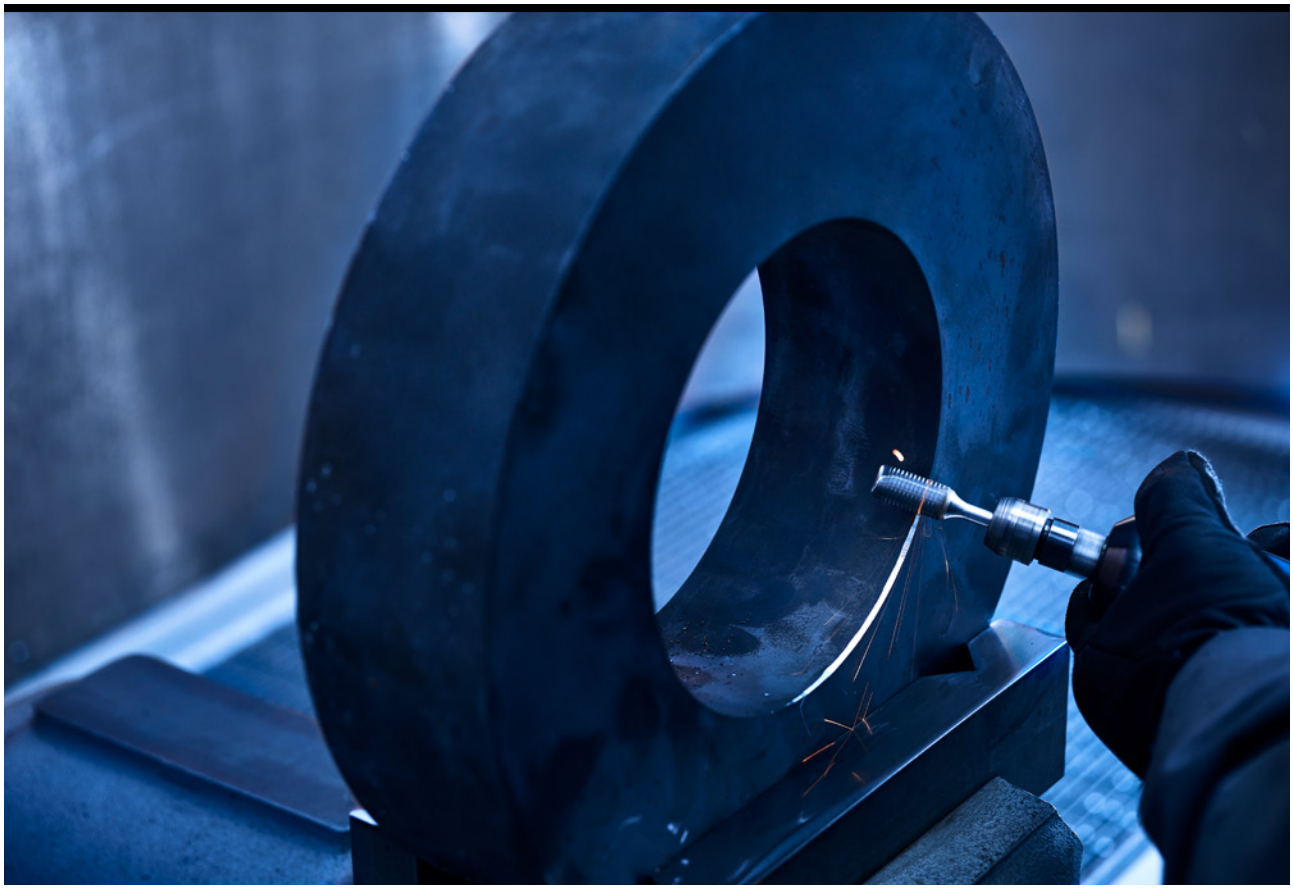
+ Coordinated light grey bond systems enable the ELASTIC mounted points to be put to universal use
+ Assortment also includes fewer elastic points for working at higher speeds and mottling points for mottling surfaces

	Shape		Type no.	Dimension	Specification	PU
		52ZY	6884	10x20-6x40	C240-BE15	10
			2155	20x20-6x40	C150-BE15	10
			2224	30x30-6x40	C150-BE15	10
			2221	30x30-6x40	C46-BE15	10
		52MS	923	30x30-6x40	C46-BE15	1
			925	40x30-6x40	C46-BE15	1
			929	50x30-6x40	C46-BE15	1



2.6 Tungsten carbide burrs **for straight grinders**





Tungsten carbide burrs **for straight grinders**

Straight grinders are always in high demand when precise results are required on difficult-to-access areas. Their versatile application options make straight grinders a popular tool. In order that there is always a solution at hand for the full spectrum of applications, TYROLIT offers a wide range of PREMIUM*** quality tungsten carbide burr shapes.

TYROLIT burrs are made from tried-and-tested, high-quality cemented carbide types on the most modern CNC grinding machines. Our tungsten carbide burrs are then used on a wide range of handheld, pneumatic and electronic machines, as well as on industrial robots. Thanks to their versatility, the cutters can be used on a variety of materials.

Application recommendation

Performance level	Specification	Steel	Stainless steel	NF metals	Cast iron	HSS	Tooth shape	Pages
★★★ PREMIUM	MY	●	●		●	●		126,127,128,129
	MX	●	●		●	●		126,127,128,129
	MXX	●	●		●	●		126,127,128,129
	MXC	●	●		●	●		127
	ALU			●				130
	SC	●						124
	IC		●					125

Segmentations:

ALU: For aluminium machining (standard with 8 cutting edges)

ALU6: For aluminium machining (especially coarse with 6 cutting edges)

MXC: For cast steel, welding seams, hardened and cured steels (chip breaker)

MX: For high-alloyed steels, rust, acid and heat-resistant cast metals and plastics (diamond)

MXX: For high-alloyed steels, rust, acid and heat-resistant cast metals and plastics (fine diamond)

MY: For cast steel, welding seams, high-strength hardened and unhardened steels (standard)

SC: For cast steel, welding seams, high-strength hardened and unhardened steels (standard)

IC: For stainless steel

Shapes



52FLH Flame



52TRE Drop



52KEL Rounded cone



52WRC Ball cylinder



52KSK Conical countersink



52ZYA Cylinder



52KUD Ball



52ZYA-S Cylinder with face toothwork



52RBF Tree



52ZYA-R Cylinder with corner radius



52SKM Pointed cone



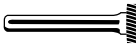
52SKM-N Pointed cone
Combined angled milling point and pointed cone



52SPG Bullet



52WKN Cone

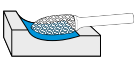


52RND Grooves



52KUD-N Cone/Ball

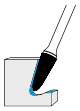
Areas of application



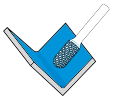
52FLH Flame



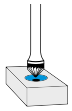
52TRE Drop



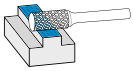
52KEL Rounded cone



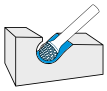
52WRC Ball cylinder



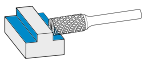
52KSK Conical countersink



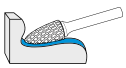
52ZYA Cylinder



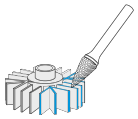
52KUD Ball



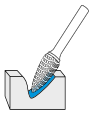
52ZYA-S Cylinder with face toothwork



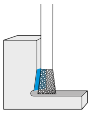
52RBF Tree



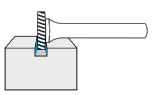
52SKM Pointed cone



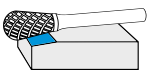
52SPG Bullet



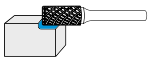
52WKN Cone



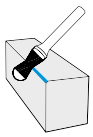
52RND Grooves



52KUD-N
Cone/ball



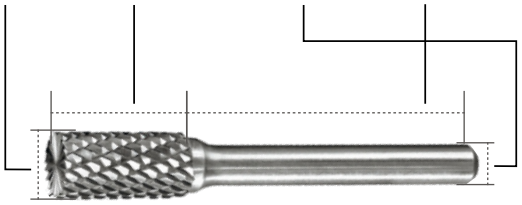
52ZYA-R Cylinder with corner radius



52SKM-N Pointed cone
Combined angled milling point and pointed cone

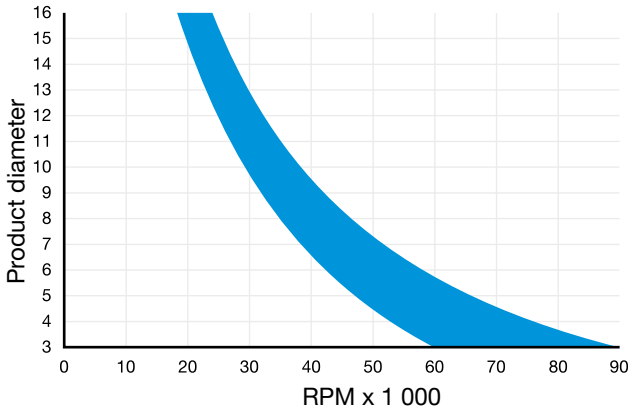
Tungsten carbide burr dimensions

16 x 20 – 6 x 70

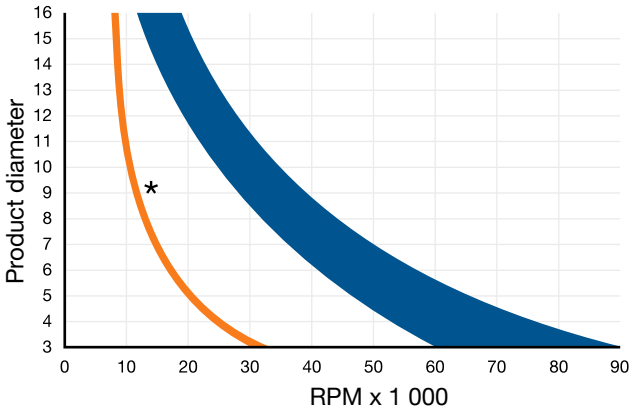


Recommended speeds

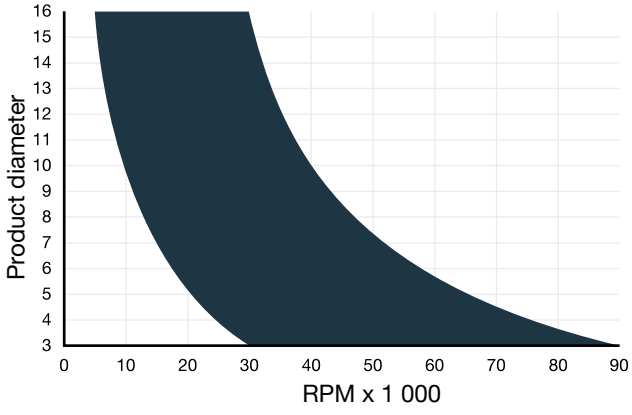
Unhardened steel



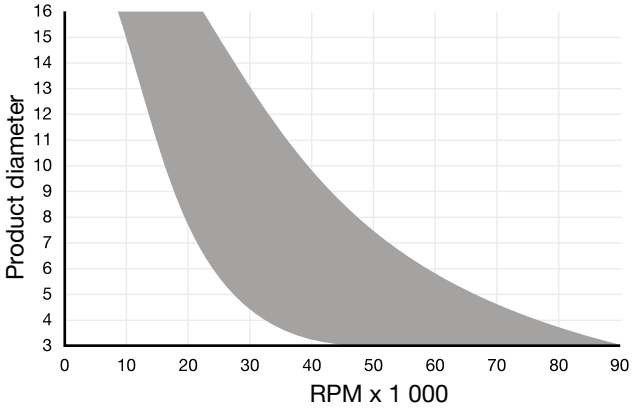
Ceramics, hardened steels, stainless steels, nickel-based alloy, titanium



Soft long-chipping materials, aluminium, fibre-glass-reinforced plastic, plastics, zinc-based alloy



Brass, cast iron, copper, bronze



★★★
PREMIUM

Tungsten carbide burrs

for steel

+ Maximum lifetime thanks to specially developed cutting edge geometry

+ Abrasive cutter profile is especially long-chipping and delivers maximum stock removal



+ Reduced generation of heat protects the cutter and workpiece

Application:

+ For demanding work on different steel grades
+ For universal grinding tasks with hand-operated pneumatic or electric machines and industrial robots in difficult-to-reach places

We recommend:

+ Choice of appropriate machine for perfect results
+ Note right RPM and working speed as well as suitable burr- and tooth shape

★★★
PREMIUM

Tungsten carbide burrs
for steel

	Shape		Type no.	Dimension	Specification	PU
		52ZYAS	34213557	6x18-6x50	SC	1
			34213558	8x19-6x64	SC	1
			34213559	10x19-6x64	SC	1
			34213560	13x25-6x70	SC	1
		52WRC	34213581	6x18-6x50	SC	1
			34213583	8x19-6x64	SC	1
			34213584	10x19-6x64	SC	1
			34213585	13x25-6x70	SC	1
		52RBF	34213588	6x18-6x50	SC	1
			34213589	8x19-6x64	SC	1
			34213590	10x19-6x64	SC	1
			34213601	13x25-6x70	SC	1

★★★
PREMIUM

Tungsten carbide burrs

for stainless steel

+ Maximum lifetime thanks to specially developed cutting edge geometry

+ Abrasive cutter profile is especially long-chipping and delivers maximum stock removal



+ Reduced generation of heat protects the cutter and workpiece

Application:

+ For demanding work on different stainless steel grades
+ For universal grinding tasks with hand-operated pneumatic or electric machines and industrial robots in difficult-to-reach places

We recommend:

+ Choice of appropriate machine for perfect results
+ Note right RPM and working speed as well as suitable burr- and tooth shape

★★★
PREMIUM

Tungsten carbide burrs
for stainless steel

	Shape		Type no.	Dimension	Specification	PU
		52ZYA	34213606	6x18-6x50	IC	1
			34213607	8x19-6x64	IC	1
			34213608	10x19-6x64	IC	1
			34213609	13x25-6x70	IC	1
		52WRC	34213610	6x18-6x50	IC	1
			34213621	8x19-6x64	IC	1
			34213622	10x19-6x64	IC	1
			34213623	13x25-6x70	IC	1
		52RBF	34213624	6x18-6x50	IC	1
			34213625	8x19-6x64	IC	1
			34213626	10x19-6x64	IC	1
			34213627	13x25-6x70	IC	1

★★★ PREMIUM

Tungsten carbide burrs

for cast iron, steel and stainless steel

Application

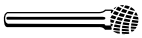
+ For demanding work on cast iron, steel and stainless steel
+ For universal grinding tasks with hand-operated pneumatic or electric machines and industrial robots in difficult-to-reach places

We recommend

+ Choice of appropriate machine for perfect results
+ Note right RPM and working speed as well as suitable burr- and tooth shape

Advantage

+ Maximum lifetime thanks to specially developed cutting edge geometry
+ Abrasive cutter profile is especially long-chipping and delivers maximum stock removal on almost all materials
+ Reduced generation of heat protects the cutter and workpiece

	Shape		Type no.	Dimension	Specification	PU
		52FLH	801351	6x14-6x50	MX	1
			765996	8x19-6x65	MX	1
			768898	12x32-6x77	MX	1
			766046	12x32-8x77	MX	1
		52KEL	766932	3x8-3x38	MX	1
			801354	6x13-3x45	MX	1
			766934	6x16-6x50	MX	1
			902732	8x22-6x69	MX	1
			766068	10x19-6x65	MX	1
			766936	10x27-6x75	MX	1
			768894	12x30-6x75	MX	1
			766072	12x30-8x75	MX	1
			801355	16x33-8x78	MXX	1
		52KSK	769680	10x5-6x55	MY	1
			769683	16x8-6x60	MY	1
		52KUD	766050	3x2.7-3x38	MX	1
			766051	6x5.4-3x38	MX	1
			768821	6x5.4-6x50	MX	1
			768824	8x7.2-6x52	MX	1
			768828	10x9-6x53	MX	1
			768832	12x10.8-6x55	MX	1
			768833	13x11.7-6x55	MXX	1
			768835	16x14.4-6x60	MX	1
			768838	16x14.4-8x60	MX	1
			766062	19x17.1-8x63	MX	1
		52RBF	766155	3x13-3x38	MX	1
			766156	6x13-3x45	MX	1
			768841	6x16-6x50	MX	1

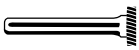
▶

	Shape		Type no.	Dimension	Specification	PU
		52RBF	902700	8x22-6x67	MX	1
			768843	10x19-6x65	MX	1
			768846	12x25-6x70	MX	1
			768847	12x25-6x70	MXX	1
			766160	12x25-8x70	MX	1
			766929	16x25-8x70	MX	1
		52SKM	801365	3x11-3x38	MX	1
			766091	3x13-3x38	MX	1
			766092	6x13-3x45	MX	1
			902737	6x13-3x45	MY	1
			768913	6x19-6x50	MX	1
			768916	10x16-6x65	MX	1
			766937	12x19-6x65	MX	1
			768919	12x22-6x70	MX	1
			768918	12x22-6x70	MY	1
		52SPG	766139	3x13-3x38	MX	1
			766140	6x13-3x45	MX	1
			768941	6x16-6x50	MX	1
			768944	10x19-6x65	MX	1
			766942	12x19-6x65	MX	1
			768948	12x25-6x70	MX	1
			768949	12x25-6x70	MXX	1
			766145	13x25-8x70	MX	1
			768951	16x25-6x70	MX	1
			766147	16x25-8x70	MX	1
		52TRE	766939	3x6-3x38	MX	1
			768924	8x13-6x58	MX	1
			768926	10x16-6x60	MX	1
			768929	12x22-6x67	MX	1
			766154	16x25-6x70	MX	1
		52WRC	766126	3x13-3x38	MX	1
			766127	6x13-3x45	MX	1
			768874	6x19-6x50	MX	1
			910766	6x19-6x50	MXC	1
			768878	8x19-6x65	MX	1
			768880	8x19-6x65	MXX	1
			768881	10x19-6x65	MX	1
			766930	12x25-6x70	MX	1
			766133	12x25-6x70	MXX	1
			766131	12x25-6x70	MY	1
			768887	12x25-8x70	MX	1
			768888	12x25-8x70	MXX	1

★★★ PREMIUM

Tungsten carbide burrs

for cast iron, steel and stainless steel

	Shape		Type no.	Dimension	Specification	PU
		52WRC	801349	13x19-6x65	MX	1
			768891	16x25-6x70	MX	1
			766134	16x25-8x70	MX	1
		52ZYA	766099	3x13-3x38	MX	1
			766100	6x13-3x45	MX	1
			768747	6x19-6x50	MX	1
			768750	8x19-6x65	MX	1
			766108	10x19-6x65	MX	1
			768752	10x19-6x65	MXX	1
			766945	12x25-6x70	MX	1
			768754	16x25-6x70	MX	1
			766111	16x25-8x70	MX	1
		52ZYA-S	766112	3x13-3x38	MX	1
			766113	6x13-3x45	MX	1
			768710	6x19-6x50	MX	1
			768712	8x19-6x65	MX	1
			766116	10x19-6x65	MX	1
			766949	12x19-6x65	MX	1
			766121	12x25-6x70	MX	1
			766117	12x25-6x70	MXX	1
			768718	12x25-8x70	MX	1
			768721	16x25-6x70	MX	1
			766119	16x25-8x70	MX	1
		52RND	801529	10x1.6-3x34	MY	1
			801530	12x2.6-6x48	MY	1
			801531	25x5.2-8x50	MY	1
		52SKM-N	20487	12x25-6x70	MY	1
		52KUD-N	34022392	12x20-6x63	MX	1
		52ZYA-R	20555	6x16-6x50	MX	1
			20557	8x19-6x65	MX	1
			20565	10x19-6x65	MX	1
			20587	12x25-6x70	MX	1
			20590	16x25-6x70	MX	1

★★★ PREMIUM

Tungsten carbide burr set

for cast iron, steel and stainless steel

Application

+ Common cutters for demanding work on cast iron, steel and stainless steel
+ For universal grinding tasks with hand-operated pneumatic or electric machines and industrial robots in difficult-to-reach places

We recommend

+ Choice of appropriate machine for perfect results
+ Note right RPM and working speed as well as suitable burr- and tooth shape

Advantage

+ Highly efficient precision tools produced on modern CNC grinding machines
+ Abrasive cutter profile is especially long-chipping and delivers maximum stock removal on almost all materials
+ Includes the most common cutter profiles and dimensions in one set



Type no.	Shape	Dimension	Specification	PU
822725	52WRC	12x25	Cemented carbide milling point set: 5 parts with shaft S6 x 40	1
	52KEL	12x30		1
	52RBF	12x25		1
	52SPG	12x25		1
	52KUD	12x11.7		1
845416	52FLH	8x19	Cemented carbide milling point set: 10 parts with shaft S6 x 40	1
	52KEL	10x19		1
	52SPG	6x16		1
	52SPG	10x19		1
	52TRE	8x13		1
	52WRC	6x19		1
	52WRC	8x19		1
	52WRC	10x19		1
	52ZYA	8x19		1
	52ZYA-S	10x19		1
822718	52KEL	12x30	Cemented carbide milling point set: 5 parts with shaft S6 x 40	1
	52WRC	12x25		1
	52SPG	12x25		1
	52SKM	12x22		1
	52KUD	12x11.7		1
	52ZYA-S	10x19		1
	52WRC	8x19		1
	52RBF	10x19		1
	52SPG	6x16		1
	52KUD	8x7.2		1
34022430	52SKM-N	12x25	Cemented carbide milling point set: 5 parts with shaft S6 x 40	1
	52KUD-N	12x20		1
	52ZYA-R	12x25		1
	52ZYA-R	10x19		1
	52ZYA-R	6x16		1

★★★ PREMIUM

Tungsten carbide burrs
for nonferrous metals

Application

+ For demanding work on nonferrous metals such as aluminium, aluminium bronze, aluminium base alloys, copper, bronze, brass, nickel silver and titanium
+ Particularly suitable for grinding tasks with hand-operated pneumatic or electric machines and industrial robots in difficult-to-reach places

We recommend

+ Choice of appropriate machine for perfect results
+ Note right RPM and working speed as well as suitable burr- and tooth shape

Advantage

+ Highly efficient precision tool produced on modern CNC grinding machines
+ The tool achieves the longest lifetimes and maximum abrasiveness on nonferrous metals

	Shape		Type no.	Dimension	Specification	PU
		52KEL	766935	10x27-6x75	ALU	1
			768896	12x30-6x75	ALU	1
		52RBF	768845	10x19-6x65	ALU	1
			768848	12x25-6x70	ALU	1
			801524	16x25-8x70	ALU	1
		52WRC	768884	10x19-6x65	ALU	1
			768885	12x25-6x70	ALU	1
			801528	16x25-8x70	ALU	1
		52ZYA	806824	10x19-6x65	ALU	1
			806826	12x25-6x70	ALU	1
		52ZYA-S	768715	10x19-6x65	ALU	1
			768717	12x25-6x70	ALU	1

★★★ PREMIUM

Tungsten carbide burr set
for nonferrous metals

Application

+ Common cutters for demanding applications on nonferrous metals such as aluminium, aluminium bronze, aluminium base alloys, copper, bronze, brass, nickel silver and titanium
+ Particularly suitable for grinding tasks with hand-operated pneumatic or electric machines and industrial robots in difficult-to-reach places

We recommend

+ Choice of appropriate machine for perfect results
+ Note right RPM and working speed as well as suitable burr- and tooth shape

Advantage

+ Highly efficient precision tool produced on modern CNC grinding machines
+ The tool achieves the longest lifetimes when used on practically any material
+ Includes the most common cutter profiles and dimensions in one set

	Type no.	Shape	Dimension	Specification	PU
	822728	52WRC	10x19	Cemented carbide milling point set: 5 parts with shaft S6x40	1
		52WRC	12x25		1
		52RBF	10x19		1
		52RBF	12x25		1
		52KEL	12x30		1


TYROLIT



Catalogue 21
Brushes

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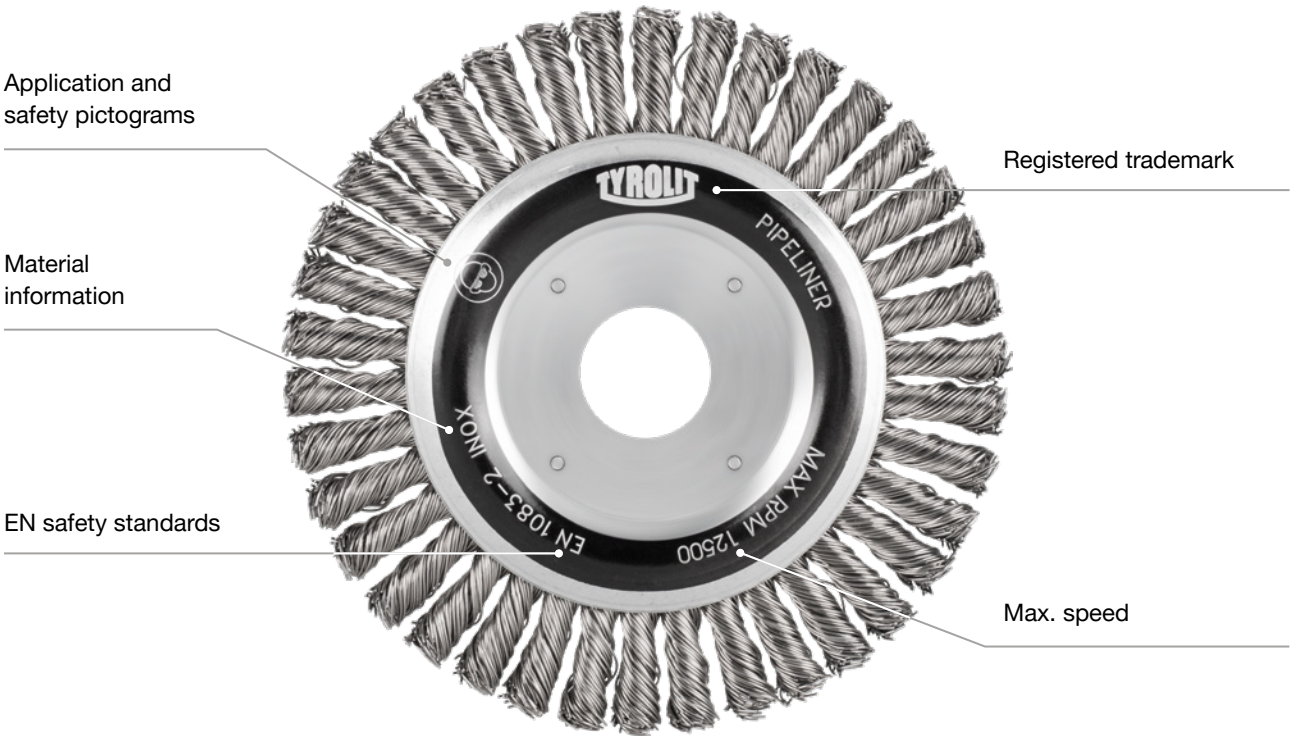
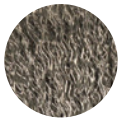
Specific information
Tool brushes

Brushes product label



Wire types

	Abbreviation	Description	Application
	DW	Knotted wire	Suitable for soft materials such as nonferrous metals, sensitive surfaces and slight impurities
	DZ	Twisted wire	Suitable for heavy work, severe dirt and removing layers of paint or varnish

	Abbreviation	Description	Application
	DK	Wire with grain	Suitable for deburring gears, valve parts, cutting edges of aluminium profiles and pipes
	DG	Straight wire	For cleaning workpieces with hand tools

Pictograms Machines


Angle grinder


Straight grinder


Floorstand grinder


Hand-guided grinding

Specification

6T DZ SH 0.5

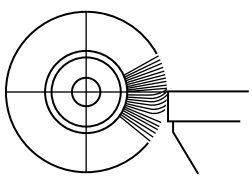
0.5	Thickness
SH	Specification (wire type)
DZ	Wire type
6T	Shape

S	Steel wire	**E**	Stainless steel wire	**M**	Brass wire	**PP**	Synthetic bristles
SH	Hardened steel wire	**EA**	Stainless, acid-resistant steel wire			**PA**	Plastic wire with abrasive grain
SZ	Hardened and tough steel wire					**C**	Wire with silicon carbide grain
SM	Brassed steel wire					**A**	Wire with aluminium oxide grain

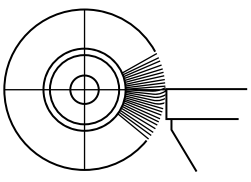
Pressure

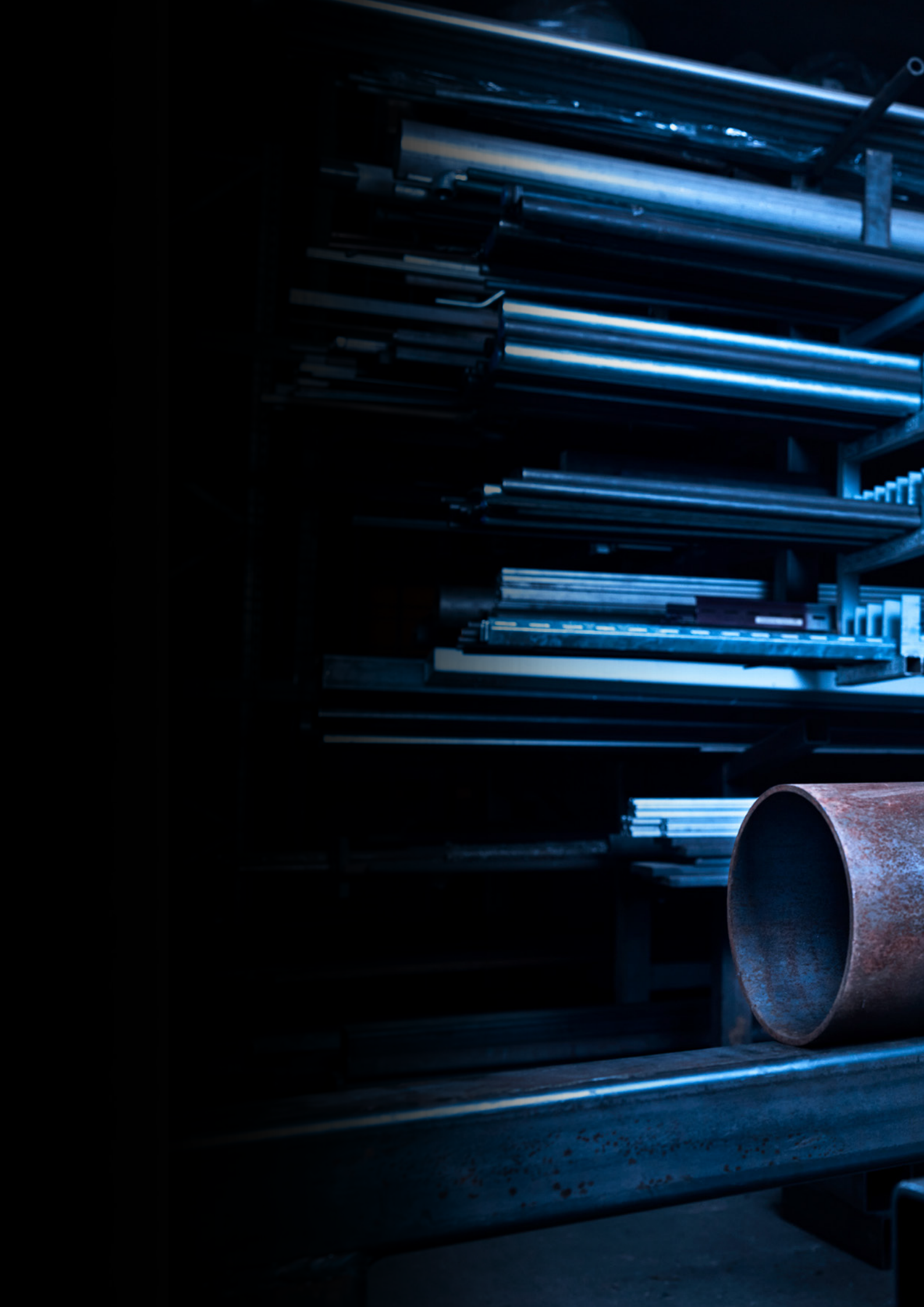
Brushes need only light pressure, as the wire tips do all the work.
Heavy pressure does not improve the brushing result.
Heavy pressure shortens the lifetime and requires more force.

Excessive pressure



Correct pressure







3.1 Brushes
Angle grinder



Brushes
for angle grinders

Working with an angle grinder is one of the most important processes in the trade and industrial sectors for processing all types of metals. TYROLIT offers a comprehensive assortment of brushes for angle grinders.

Brushes are generally very versatile and can be used for a wide range of applications such as deburring, cleaning welding seams or the surfaces of virtually any material. he wide assortment of TYROLIT tool brushes has the right shape, wire type and specification for every job.

Shapes



11TDW/6TDW Cup brush
For removing rust, paint and dirt and for smooth finishing



11TDZ Cup brush
Ideal for preparing surfaces before painting, removing slag, rust, scale and concrete residues



6TDZ Cup brush
For heavy work and removal of rust, paint, dirt or scale



28KDW Tapered brush
For hard-to-reach areas, for removal of rust, paint, dirt and for smooth finishing



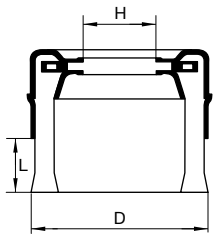
28KDZ Tapered brush
For hard-to-reach areas, for removal of slag, rust and scale

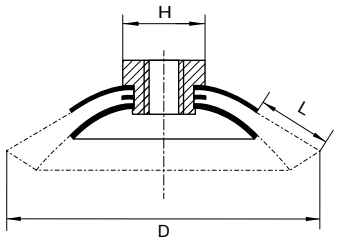
1RDZ Round brush
For welding and for removal of scale and paint

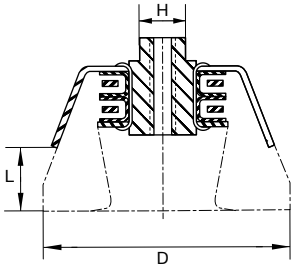
Application recommendations

Performance level	Specification	Design	Steel	Stainless steel	NF-metals	Pages
★★★ PREMIUM	SM..		●			141, 146, 147
	S...		●			141, 142, 143, 146, 147
	SH...					142, 143, 147, 149
	SH...	PIPELINER	●			151, 152
	SZ...		●			
	E... INOX					144, 145, 148, 149, 150
	E... INOX	PIPELINER		●		152
	M...				●	145
★ BASIC	S...		●			143
	SM...		●			143
	SH...		●			147, 150

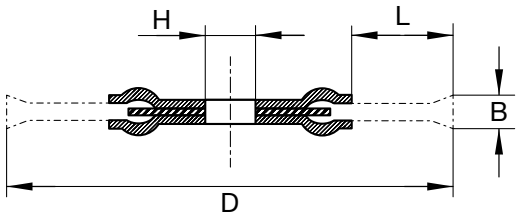
Dimensions cup and tapered brushes







Dimensions round brushes



Maximum speeds

The max. rpm is the speed at which the brushes can be safely used. This must not be exceeded.
In most cases it is advantageous to use a lower speed in order to achieve better results.

Caution: Before each use, compare the speeds of the tool and of the machine.

Ø	60	65	75	80	90	100	115	125	150	178	200
Round brush, twisted						11 000	11 000	9 000	9 000	8 500	6 500
Cup brush, knotted	11 000		11 000	9 000				6 500	6 500		
Cup brush, twisted shape 11		11 000	11 000	11 000	11 000	6–8 500		6 500			
Cup brush, twisted shape 6				6–8 500		6–8 500		6 500			
Tapered brush, knotted						11 000					
Tapered brush, twisted						11 000	11 000				

Optimum peripheral speed

Application	Peripheral speed in m/s							
	5	15	20	25	30	35	40	45
Deburring								
Processing of welding seams								
Descaling								
Polishing								
Processing of plastic								
Cleaning								
Rust removal								

★★★
PREMIUM

SHIELD cup brushes
for steel

+ Transparent protection for maximum safety with an unrestricted view of the workpiece being ground
+ The flexibility of the plastic flaps means that hard-to-reach places can also be ground with ease



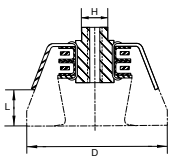
+ Universal tool with maximum brush life
+ Brass-plated steel wire SM prevents corrosion

Application:
+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of steel

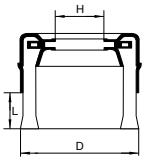
We recommend:
+ Knotted wire DW for soft materials, delicate surfaces and slight impurities
+ Twisted wire DZ for heavy work, severe contamination and for removing paint and lacquer

★★★
PREMIUM

SHIELD cup brushes
for steel



Shape 11TDW

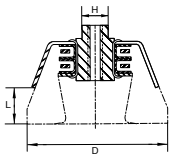


Shape 6TDW, 6TDZ

	Shape		Type no.	Dimension	Specification	PU	Max. RPM
		11TDW	34023780	75x20xM14–2	SM0.3	1	13 000
			34023778	65x20xM14–2	S0.5	1	15 000
		6TDW	34023827	80x30xM14–2	SM0.3	1	8 500
			34023828	100x30xM14–2	SM0.3	1	8 500
		6TDZ	34023823	80x25xM14–2	S0.5	1	8 500
			34023824	100x25xM14–2	S0.5	1	8 500

★★★ PREMIUM

Cup brushes
for steel



Shape 11TDW, 11TDZ

Application
+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of steel
+ Cup brushes specially for grinding large surfaces
+

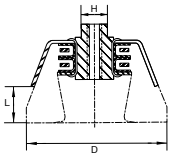
We recommend
+ Knotted wire DW for soft materials, delicate surfaces and slight impurities
+ Twisted wire DZ for heavy work, severe contamination and for removing paint and lacquer

Advantage
+ Universal tool with maximum brush life
+ Hardened steel wire SH for additional brush life available
+ Highest quality

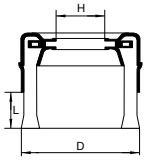
	Shape		Type no.	Dimension	Specification	PU	Max. RPM
		11TDW	896157	60x16xM14	S0.3	1	11 000
			896158	60x16xM14	S0.5	1	11 000
			896160	75x20xM14	S0.3	1	9 000
			896161	75x20xM14	S0.5	1	9 000
			896164	100x30xM14	S0.3	1	8 500
			896165	100x30xM14	S0.5	1	8 500
			896250	125x35xM14	S0.3	1	6 500
		6TDZ	890860	65x20xM14	SH0.35	1	12 000
			890862	65x20xM14	SH0.5	1	12 000
			890863	80x25xM14	SH0.35	1	8 500
			890864	80x25xM14	SH0.5	1	8 500
			890866	100x25xM14	SH0.35	1	8 500
			896289	100x25xM14	SH0.5	1	8 500
			896291	120x25xM14	SH0.35	1	6 500
			896290	120x25xM14	SH0.5	1	6 500

BASIC

Cup brushes
for steel



Shape 11TDW



Shape, 6TDZ

Application

+ Twisted wire DZ for heavy work, severe contamination and for removing paint and lacquer
+ Cup brushes for grinding large surfaces

We recommend

+ Knotted wire DW for removing rust and paint, as well as for finishing
+ Twisted wire DZ for heavy work, severe contamination and for removing paint and lacquer

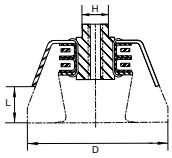
Advantage

+ Universal tool with good brush life
+ Hardened steel wire SH for additional brush life
+ Brass-plated steel wire SM prevents corrosion

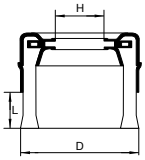
	Shape		Type no.	Dimension	Specification	PU	Max. RPM
		11TDW	34275595	60x16xM14	S0.5	1	12 500
			34275596	75x20xM14	S0.5	1	12 500
			34275599	100x30xM14	S0.5	1	8 500
			34275869	60x16xM14	SM0.3	1	12 500
			34275870	75x20xM14	SM0.3	1	12 500
			34275961	100x30xM14	SM0.3	1	8 500
		6TDZ	34275965	65x20xM14	SH0.5	1	12 500
			34275966	80x25xM14	SH0.5	1	8 500
			34275967	100x25xM14	SH0.5	1	8 500

★★★ PREMIUM

SHIELD cup brushes
for stainless steel



Shape 11TDW, 11TDZ



Shape 6TDW, 6TDZ

Application

+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of stainless steel

We recommend

+ Knotted wire DW for soft materials, delicate surfaces and slight impurities
+ Twisted wire DZ for heavy work, severe contamination and for removing paint and lacquer

Advantage

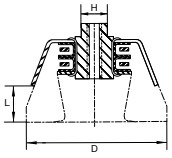
+ Transparent protection for maximum safety with an unrestricted view of the workpiece being ground
+ The flexibility of the plastic flaps means that hard-to-reach places can also be ground with ease
+ Universal tool with maximum brush life
+ High-quality stainless steel wire prevents rusting of the workpiece



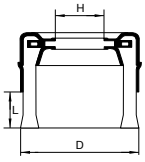
Shape	Type no.	DxLxH	Specification	PU	Max. RPM
	11TDW	34023812	75x20xM14-2	E0.3INOX	1	13 000
	11TDZ	34023813	65x20xM14-2	E0.5INOX	1	15 000
	6TDZ	34023825	80x25xM14-2	E0.5INOX	1	8 500

★★★ PREMIUM

Cup brushes
for stainless steel



Shape 11TDW



Shape 6TDZ

Application

+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of stainless steel
+ Cup brushes specially for grinding large surfaces

We recommend

+ Knotted wire DW for soft materials, delicate surfaces and slight impurities
+ Twisted wire DZ for heavy work, severe contamination and for removing paint and lacquer

Advantage

+ High-quality stainless steel wire prevents rusting of the workpiece
+ Universal tool with maximum brush life

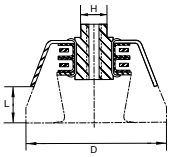
▶

◀

	Shape		Type no.	DxLxH	Specification	PU	Max. RPM
		11TDW	896167	60x16xM14	E0.3INOX	1	11 000
			896170	75x20xM14	E0.3INOX	1	9 000
			896174	100x30xM14	E0.3INOX	1	8 500
		6TDZ	890851	65x20xM14	E0.35INOX	1	12 000
			890852	65x20xM14	E0.5INOX	1	12 000
			890854	80x25xM14	E0.5INOX	1	8 500

★★★ PREMIUM

Cup brushes
for nonferrous metals



Shape 11TDW

Application

+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of nonferrous metals
+ Cup brushes specially for grinding large surfaces

We recommend

+ Knotted wire DW for soft materials, delicate surfaces and slight impurities

Advantage

+ Brass wire achieves the best results on workpieces made of nonferrous metals
+ Universal tool with maximum brush life

	Shape		Type no.	DxLxH	Specification	PU	Max. RPM
		11TDW	34042515	80x25xM14	M0.3	1	8 500

★★★
PREMIUM

SHIELD tapered brushes

for steel

+ Especially suitable for hard-to-reach places due to their shape and the flexibility of the plastic flaps



+ Transparent protection for maximum safety with an unrestricted view of the work-piece being ground

+ Brass-plated steel wire SM prevents corrosion

Application:

+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of steel

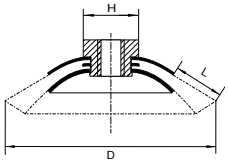
We recommend:

+ Knotted wire DW for soft materials, delicate surfaces and slight impurities

★★★
PREMIUM

SHIELD tapered brushes

for steel

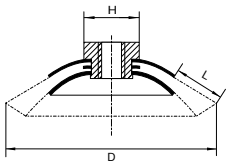


Shape 28KDW, 28KDZ

	Shape		Type no.	DxLxH	Specification	PU	Max. RPM
		28KDW	34023819	100x20xM14-2	SM0.3	1	13 000
		28KDZ	34023817	100x20xM14-2	S0.5	1	15 000

★★★ PREMIUM

Tapered brushes
for steel



Shape 28KDW, 28KDZR

Application

+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of steel

We recommend

+ Knotted wire DW for soft materials, delicate surfaces and slight impurities
+ Twisted wire DZ for heavy work, severe contamination and for removing paint and lacque

Advantage

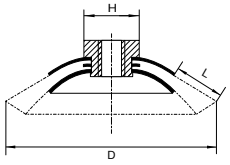
+ Suitable for hard-to-reach places due to their shape
+ Universal tool with maximum brush life
+ Hardened steel wire SH for additional brush life



Shape		Type no.	DxLxH	Specification	PU	Max. RPM
	28KDW	829306	100x20xM14	S0.3	1	12 500
	28KDZR	896294	100x20xM14	SH0.35	1	12 500
		894595	100x20xM14	SH0.5	1	12 500
		34042520	115x27.5xM14	SH0.35	1	12 500
		894598	115x27.5xM14	SH0.5	1	12 500

★ BASIC

Tapered brushes
For steel



Shape 28KDW, 28KDZR

Application

+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of steel

We recommend

+ Knotted wire DW for soft materials, delicate surfaces and slight impurities
+ Twisted wire DZ for heavy work, severe contamination and for removing paint and lacquer

Advantage

+ Suitable for hard-to-reach places due to their shape
+ Universal tool with good brush life
+ Hardened steel wire SH for additional brush life
+ Brass-plated steel wire SM prevents corrosion



Shape		Type no.	DxLxH	Specification	PU	Max. RPM
	28KDZR	34276004	100x20xM14	SH0.5	1	12 500
		34276005	115x27.5xM14	SH0.5	1	12 500
	28KDW	34276006	100x20xM14	SM0.3	1	12 500
		34276007	115x27.5xM14	SM0.3	1	12 500

★★★
PREMIUM

SHIELD tapered brushes

for stainless steel

+ Especially suitable for hard-to-reach places due to their shape and the flexibility of the plastic flaps



+ High-quality stainless steel wire prevents rusting of the workpiece

+ Transparent protection for maximum safety with an unrestricted view of the surface being ground

Application:

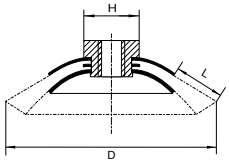
+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of stainless steel

We recommend:

+ Knotted wire DW for soft materials, delicate surfaces and slight impurities
+ Twisted wire DZ for heavy work, severe contamination and for removing paint and lacque

★★★
PREMIUM

SHIELD tapered brushes
for stainless steel

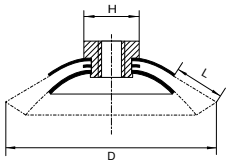


Shape 28KDW, 28KDZ

	Shape		Type no.	DxLxH	Specification	PU	Max. RPM
		28KDW	34023822	100x20xM14-2	E0.3INOX	1	13 000
		28KDZ	34023818	100x20xM14-2	E0.5INOX	1	15 000

Tapered brushes
For stainless steel

★★★ PREMIUM



Shape 28KDW, 28KDZR

Application

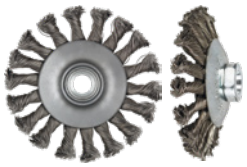
+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of stainless steel

We recommend

+ Knotted wire DW for soft materials, delicate surfaces and slight impurities
+ Twisted wire DZ for heavy work, severe contamination and for removing paint and lacquer

Advantage

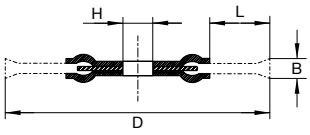
+ Especially suitable for hard-to-reach places due to their shape
+ Universal tool with maximum brush life
+ High-quality stainless steel wire prevents rusting of the workpiece



Shape		Type no.	DxLxH	Specification	PU	Max. RPM
	28KDW	896260	100x20xM14	E0.3INOX	1	12 500
	28KDZR	894602	100x20xM14	E0.5INOX	1	12 500
		938642	115x27.5xM14	E0.35INOX	1	12 500
		938646	115x27.5xM14	E0.5INOX	1	12 500

Round brushes
for steel

★★★ PREMIUM



Shape 1RDZ

Application

+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of steel
+ Especially suitable for grinding welding seams

We recommend

+ Twisted wire DZ for heavy work, severe contamination and for removing paint and lacquer

Advantage

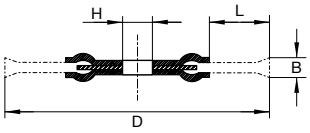
+ Universal tool with maximum brush life
+ Hardened steel wire SH for additional brush life



Shape		Type no.	DxBxLxH	Specification	PU	Max. RPM
	1RDZ	310303	115x11x23x22.2	SH0.35	1	11 000
		894085	115x11x23x22.2	SH0.5	1	11 000
		960324	115x11x23xM14	S0.35	1	11 000
		938680	115x11x23xM14	SH0.5	1	11 000
		903406	125x12x25x22.2	SH0.35	1	12 000
		947205	125x12x25x22.2	SH0.5	1	12 000
		34042522	125x12x25xM14	SH0.35	1	12 000
		603818	125x12x25xM14	SH0.5	1	12 000
		829026	178x13x38x22.2	SH0.5	1	9 000

★ BASIC

Round brushes
for steel



Shape 1RDZ

Application

+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of steel
+ Especially suitable for grinding welding seams

We recommend

+ Twisted wire DZ for preparing surfaces and for removing rust, scale and concrete residue

Advantage

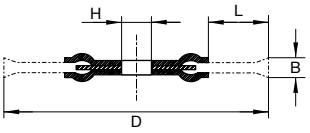
+ Universal tool with good brush life
+ Hardened steel wire SH for additional brush life



Shape	Type no.	DxBxLxH	Specification	PU	Max. RPM
1RDZ	34275969	100x11x22x16	SH0.5	1	12 500
	34276001	115x11x23x22.2	SH0.5	1	12 500
	34276002	125x12x25x22.2	SH0.5	1	12 500
	34276003	178x15x44xM14	SH0.5	1	9 000

★★★ PREMIUM

Round brushes
for stainless steel



Shape 1RDZ

Application

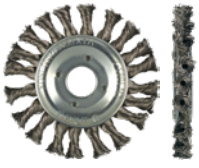
+ For removing rust, paint and lacquer, for deburring and for surface preparation and finishing of stainless steel

We recommend

+ Twisted wire DZ for preparing surfaces and for removing rust, scale and concrete residue

Advantage

+ Universal tool with maximum brush life
+ High-quality stainless steel wire prevents rusting of the workpiece
+ Highest quality



Shape	Type no.	DxBxLxH	Specification	PU	Max. RPM
1RDZ	310305	115x11x23x22.2	E0.35INOX	1	11 000
	890608	115x11x23x22.2	E0.5INOX	1	11 000
	16422	115x11x23xM14	E0.35INOX	1	11 000
	890626	115x11x23xM14	E0.5INOX	1	11 000
	890635	125x12x25x22.2	E0.35INOX	1	12 000
	34042526	125x12x25x22.2	E0.5INOX	1	12 000
	34042528	125x12x25xM14	E0.35INOX	1	12 000
	16425	178x15x44xM14	E0.35INOX	1	9 000

★★★
PREMIUM

PIPELINER round brush

for steel



+ Ideal for cleaning individual welding seams in pipeline construction

+ Hardened steel wire SH for additional brush life

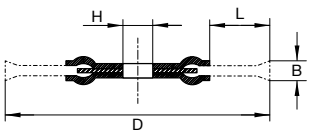
+ Very reliable and durable tool

Application:

+ Brushes specially developed for pipeline construction
+ For quick cleaning of steel pipe connections

★★★
PREMIUM

PIPELINER round brush
for steel

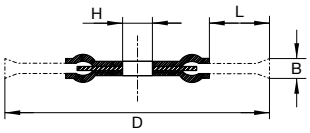


Shape 1RDZ

	Shape	Type no.	DxBxLxH	Specification	PU	Max. RPM
	1RDZ	34313968	115x6.0x26x22.2	SH0.5	1	15 000
		34202827	125x6.0x21x22.2	SH0.5	1	12 500
		34371697	150x6.0x25x22.2	SH0.5	1	12 500
		34313969	178x6.0x29x22.2	SH0.5	1	9 000

★★★ PREMIUM

PIPELINER PLUS round brushes
for steel



Shape 1RDZ

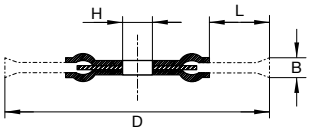
Application
+ Brushes specially developed for pipeline construction
+ For quick cleaning of steel pipe connections

Advantage
+ Ideal for cleaning individual welding seams in pipeline construction
+ Very reliable and durable tool
+ Hardened steel wire SH for additional brush life
+ Increased lifetime due to higher amount of knots

	Shape	Type no.	DxBxLxH	Specification	PU	Max. RPM
	1RDZ	34447913	178x6.0x29x22.2	SH 0.5	1	9 000

★★★ PREMIUM

PIPELINER round brushes
for stainless steel



Shape 1RDZ

Application
+ Brushes specially developed for pipeline construction
+ For quick cleaning of stainless steel pipe connections

Advantage
+ Ideal for cleaning individual welding seams in pipeline construction
+ Very reliable and durable tool
+ High-quality stainless steel wire prevents rusting of the workpiece

	Shape	Type no.	DxBxLxH	Specification	PU	Max. RPM
	1RDZ	34370855	115x6x26x22.2	E0.5INOX	1	15 000
		34202829	125x6x21x22.2	E0.5INOX	1	12 500
		34371698	150x6x25x22.2	E0.5INOX	1	12 500
		34370856	178x6x29x22.2	E0.5INOX	1	9 000
		34202829	125x6.0x21x22.2	E0.5INOX	1	12 500
		34371698	150x6.0x25x22.2	E0.5INOX	1	12 500



3.2 Brushes
Straight grinder



Brushes
Straight grinder

Straight grinders are needed when precise results are required in hard-to-reach areas such as the inside of pipes. Their versatility makes them a popular tool.

That's why TYROLIT offers a comprehensive assortment of cup, round and wire brushes which can also be used on other machines, such as drilling machines.

The range of applications is very wide. Shaft mounted brushes are used for surface treatment such as cleaning rust, deburring, texturing and removing layers such as paint or rubber.

Application recommendations

Performance level	Specification	Steel	Stainless steel	NF-metals	All in One	Pages
★★★ PREMIUM	S…	●				157, 160, 162
	SM…	●				158, 160
	SH…	●				162
	SZ…	●				157, 158
	E… INOX		●			158, 159, 161, 163, 164
	EA... INOX		●			164
	M…			●		159, 161, 165
	C…				●	159, 162, 165
★ BASIC	S...	●				163
	SM...	●				163
	SZ...	●				158
	SM...	●				163
	E...INOX		●			164

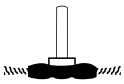
Shapes



52TDW Cup brushes
Suitable for cleaning work, such as removing paint or rust or for deburring



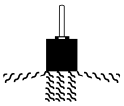
52RDW Round brushes
For removing rust, cleaning, smoothing, polishing, matting and roughening



52RDZ Round brushes
Designed for welding and removing scale and paint

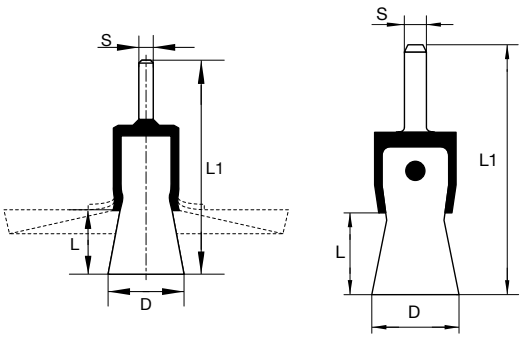


52RDK Round brushes
For matting and glazing, coated with grain

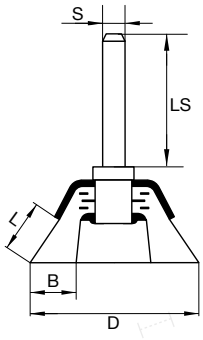


52PDZ Wire brushes
Suitable for roughening, deburring, descaling, matting and cleaning. These wire brushes are characterised by their high level of flexibility. The wire brush opens due to centrifugal force. They are also particularly suitable for cleaning the inside of pipes.

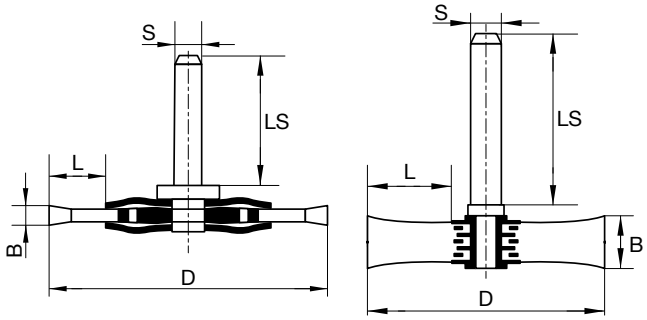
Dimensions wire brushes



Dimensions shaft mounted cup brushes



Dimensions shaft mounted round brushes

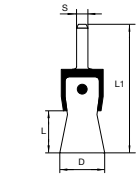


Optimum peripheral speed

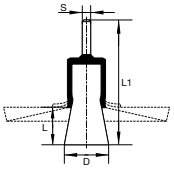
Application	Peripheral speed in m/s							
	5	15	20	25	30	35	40	45
Deburring				■	■	■		
Processing of welding seams						■	■	■
Descaling						■	■	■
Polishing					■	■	■	
Processing of plastic		■	■					
Cleaning	■	■	■	■				
Rust removal	■	■	■	■				

★★★ PREMIUM

Wire brushes
for steel



Shape 52PDW

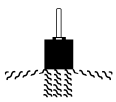


Shape 52PDZ

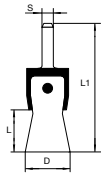
Application
+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of steel
+ Specifically for cleaning the inside of tubes

We recommend
+ Knotted wire DW for soft materials, delicate surfaces and slight impurities
+ Twisted wire DZ for heavy work, severe contamination and for removing paint and lacquer

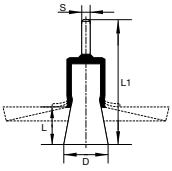
Advantage
+ Especially suitable for hard-to-reach places due to their shape
+ Universal tool with maximum brush life
+ Wire type DZ splays as a function of speed and thus can be used on different bore diameters
+ Hardened and tough steel wire SZ for additional brush life and robustness

	Shape		Type no.	DxL-SxL1	Specification	PU	Max. RPM
		52PDW	903431	12x20-6x60	S0.2	25	20 000
			890719	12x20-6x60	S0.3	25	20 000
			903432	12x20-6x60	S0.5	25	20 000
			34043179	17x22-6x65	S0.2	25	18 000
			890721	17x22-6x65	S0.3	25	18 000
			903429	24x25-6x68	S0.2	25	18 000
			903430	24x25-6x68	S0.3	25	18 000
			890722	24x25-6x68	S0.5	25	18 000
			58293	30x25-6x68	S0.2	25	15 000
			19012	30x25-6x68	S0.3	25	15 000
			890723	30x25-6x68	S0.5	25	15 000
		52PDZ	903357	19x28-6x68	SZ0.35	25	20 000
			34043542	22x28-6x68	SZ0.25	25	20 000
			34043543	22x28-6x68	SZ0.35	25	20 000
			939968	28x28-6x68	SZ0.25	25	20 000
			34043545	28x28-6x68	SZ0.35	25	20 000
			936422	28x28-6x68	SZ0.5	25	20 000

★ BASIC Wire brushes
for steel



Shape 52PDW

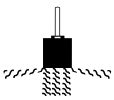


Shape 52PDZ

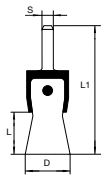
Application
+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of steel
+ Specifically for cleaning the inside of tubes

We recommend
+ Knotted wire DW for removing burrs, rust, rubber and other impurities in hard-to-reach places
+ Twisted wire DZ for preparing surfaces and for removing rust, scale and concrete residue

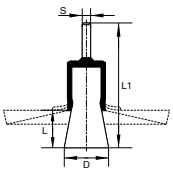
Advantage
+ Especially suitable for hard-to-reach places due to their shape
+ Universal tool with good brush life
+ Wire type DZ plays as a function of speed and thus can be used on different bore diameters
+ Hardened and tough steel wire SZ for additional brush life and robustness
+ Brass-plated steel wire SM prevents corrosion

	Shape		Type no.	DxL-SxL1	Specification	PU	Max. RPM
		52PDW	34276009	24x25-6x68	S0.3	1	4 500
			34276012	24x25-6x68	SM0.3	1	4 500
		52PDZ	34276015	28x28-6x68	SZ0.25	1	20 000

★★★ PREMIUM Wire brushes
for stainless steel



Shape 52PDW



Shape 52PDZ

Application
+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of stainless steel
+ Specifically for cleaning the inside of tubes

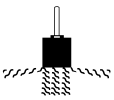
We recommend
+ Knotted wire DW for soft materials, delicate surfaces and slight impurities
+ Twisted wire DZ for heavy work, severe contamination and for removing paint and lacquer

Advantage
+ Especially suitable for hard-to-reach places due to their shape
+ Universal tool with maximum brush life
+ Wire type DZ splays as a function of speed and thus can be used on different bore diameters
+ High-quality stainless steel wire prevents rusting of the workpiece

	Shape		Type no.	DxL-SxL1	Specification	PU	Max. RPM
		52PDW	897357	12x20-6x60	E0.3INOX	25	20 000
			890707	17x22-6x65	E0.3INOX	25	18 000
			890709	24x25-6x68	E0.3INOX	25	18 000
			903340	30x25-6x68	E0.3INOX	25	15 000

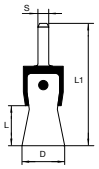
▶

◀

	Shape		Type no.	DxL-SxL1	Specification	PU	Max. RPM
		52PDZ	890652	19x28-6x68	E0.25INOX	25	20 000
			890654	19x28-6x68	E0.35INOX	25	20 000
			890653	22x28-6x68	E0.25INOX	25	20 000
			890655	22x28-6x68	E0.35INOX	25	20 000
			934433	28x28-6x68	E0.25INOX	25	20 000

★★★ PREMIUM

Wire brushes
for nonferrous metals



Shape 52PDW

Application

+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of nonferrous metal
+ Specifically for cleaning the inside of tubes

We recommend

+ Knotted wire DW for soft materials, delicate surfaces and slight impurities

Advantage

+ Especially suitable for hard-to-reach places due to their shape
+ Universal tool with maximum brush life
+ The brush plays as a function of speed and thus can be used on different bore diameters
+ Brass wire achieves the best results on workpieces made of nonferrous metal

	Shape		Type no.	DxL-SxL1	Specification	PU	Max. RPM
		52PDW	890658	12x20-6x60	M0.2	25	20 000
			903343	12x20-6x60	M0.3	25	20 000
			890717	24x25-6x68	M0.3	25	18 000

★★★ PREMIUM

Wire brushes
for universal use

Application

+ For use on almost all materials such as steel, stainless steel, aluminium, copper, brass or wood
+ Specifically for cleaning the inside of tubes

We recommend

+ Wire with grain DK for deburring gears, valve parts, cutting edges of profiles and tubes

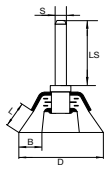
Advantage

+ Especially suitable for use in hard-to-reach places
+ Universal tool with maximum brush life
+ Wire brushes with silicon carbide are very hard and thus enable very high stock removal rates

	Shape		Type no.	Dimension	Specification	PU	Max. RPM
		52PDK	34043547	17x22-6x65	C180	25	18 000
			34043549	24x25-6x68	C180	25	18 000
			34043552	30x25-6x68	C180	25	15 000

★★★ PREMIUM

Shaft mounted cup brushes
for steel



Shape 52TDW

Application

+ For removing rust, cleaning welding seams and for surface preparation and finishing of steel

We recommend

+ Knotted wire DW for cleaning work such as removing paint, rust, scale and crusts or for deburring

Advantage

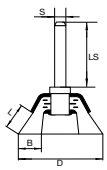
+ Especially suitable for hard-to-reach places due to their shape
+ Universal tool with maximum brush life



Shape		Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
	52TDW	890753	40x10x15-6x30	S0.2	25	10 500
		890756	40x10x15-6x30	S0.3	25	10 500
		34043171	50x10x20-6x30	S0.2	25	10 500
		903359	50x10x20-6x30	S0.3	25	10 500
		890764	60x15x20-6x30	S0.2	25	4 500
		890763	60x15x20-6x30	S0.3	25	4 500
		890774	70x15x25-6x30	S0.3	25	4 500

★ BASIC

Shaft mounted cup brushes
for steel



Shape 52TDW

Application

+ For removing rust, cleaning welding seams and for surface preparation and finishing of steel

We recommend

+ Knotted wire DW for cleaning work such as removing paint, rust, scale and crusts or for deburring

Advantage

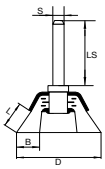
+ Universal tool with good brush life
+ Especially suitable for hard-to-reach places due to their shape
+ Brass-plated steel wire SM prevents corrosion



Shape		Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
	52TDW	34276010	70x15x25-6x30	S0.3	1	12 000
		34276013	70x15x25-6x30	SM0.3	1	12 000

★★★ PREMIUM

Shaft mounted cup brushes
for stainless steel



Shape 52TDW

Application

+ For removing rust, cleaning welding seams and for surface preparation and finishing of stainless steel

We recommend

+ Knotted wire DW for cleaning work such as removing paint, rust, scale and crusts or for deburring

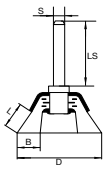
Advantage

+ Universal tool with maximum brush life
+ Especially suitable for hard-to-reach places due to their shape
+ High-quality stainless steel wire prevents rusting of the workpiece

	Shape		Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
		52TDW	890757	40x10x15-6x30	E0.2INOX	25	10 500
			890758	40x10x15-6x30	E0.3INOX	25	10 500
			34038259	50x10x20-6x30	E0.2INOX	25	10 500
			903877	50x10x20-6x30	E0.3INOX	25	10 500
			890762	60x15x20-6x30	E0.2INOX	25	4 500
			890761	60x15x20-6x30	E0.3INOX	25	4 500
			890771	70x15x25-6x30	E0.3INOX	25	4 500

★★★ PREMIUM

Shaft mounted cup brushes
for nonferrous metals



Shape 52TDW

Application

+ For removing rust, cleaning welding seams and for surface preparation and finishing of nonferrous metals

We recommend

+ Knotted wire DW for cleaning work such as removing paint, rust, scale and crusts or for deburrin

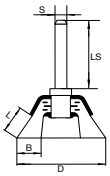
Advantage

+ Universal tool with maximum brush life
+ Especially suitable for hard-to-reach places due to their shape
+ Brass wire achieves the best results on workpieces made of nonferrous metals

	Shape		Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
		52TDW	23470	50x10x20-6x30	M0.3	25	10 500
			23469	60x15x20-6x30	M0.3	25	4 500

★★★ PREMIUM

Shaft mounted cup brushes
for universal use



Shape 52TDK

Application

+ For use on almost all materials such as steel, stainless steel, aluminium, copper, brass or wood

We recommend

+ Wire with grain DK for deburring gears, valve parts, cutting edges of profiles and tubes

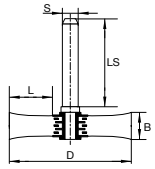
Advantage

+ Especially suitable for use in hard-to-reach places
+ Universal tool with maximum brush life
+ Shaft mounted cup brushes with silicon carbide are very hard and thus enable very high stock removal rates

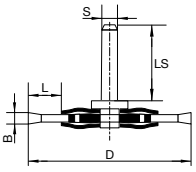
	Shape	Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
	 52TDK	34043177	50x10x20-6x30	C180	25	10 500
		34043178	60x15x20-6x30	C180	25	4 500
		34043546	70x15x25-6x30	C180	25	4 500

★★★ PREMIUM

Shaft mounted round brushes
for steel



Shape 52RDW



Shape 52RDZ

Application

+ For removing rust, cleaning welding seams and for surface preparation and finishing

We recommend

+ Knotted wire DW for removing rust, cleaning, smoothing, polishing, matting and roughening
+ Twisted wire DZ for welding and for removing scale and lacquer

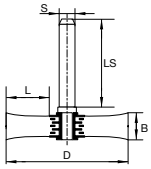
Advantage

+ Particularly suitable for hard-to-reach places
+ Universal tool with maximum brush life
+ Hardened steel wire SH for additional brush life

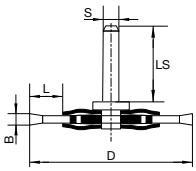
	Shape	Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
	 52RDW	890840	20x4x3-6x30	S0.2	25	20 000
		890841	30x6x6.5-6x30	S0.2	25	20 000
		890843	40x9x9-6x30	S0.3	25	18 000
		890844	50x15x12.5-6x30	S0.2	25	15 000
		890845	50x15x12.5-6x30	S0.3	25	15 000
		890846	60x10x17.5-6x30	S0.3	25	15 000
		890847	60x15x17.5-6x30	S0.2	25	15 000
		890848	70x15x19-6x30	S0.3	25	15 000
		890849	80x15x19-6x30	S0.3	25	12 000
	 52RDZ	890810	70x6x15-6x30	SH0.3	25	20 000

★ BASIC

Shaft mounted round brushes
for steel



Shape 52RDW



Shape 52RDZ

Application

+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of steel

We recommend

+ Twisted wire DZ for treating welding seams and for removing scale and lacquer
+ Knotted wire DW for removing rust, cleaning, smoothing, polishing, matting and roughening

Advantage

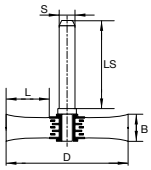
+ Especially suitable for hard-to-reach places due to their shape
+ Hardened steel wire SH for additional brush life
+ Brass-plated steel wire SM prevents corrosion



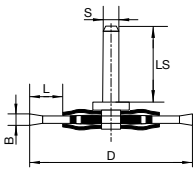
Shape		Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
	52RDW	34276008	70x15x19-6x30	S0.3	1	15 000
		34276011	70x15x19-6x30	SM0.3	1	15 000
	52RDZ	34276016	70x6.0x15-6x30	SH0.3	1	12 500

★★★ PREMIUM

Shaft mounted round brushes
for stainless steel



Shape 52RDW



Shape 52RDZ

Application

+ For removing rust, cleaning welding seams and for surface preparation and finishing of stainless steel

We recommend

+ Knotted wire DW for removing rust, cleaning, smoothing, polishing, matting and roughening
+ Twisted wire DZ for welding and for removing scale and lacquer

Advantage

+ Suitable for hard-to-reach places due to their shape
+ Universal tool with maximum brush life
+ Stainless, acid-resistant steel wire EA



Shape		Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
	52RDW	890813	30x6x6.5-6x30	E0.2INOX	25	20 000
		890814	40x9x9-6x30	E0.2INOX	25	18 000
		890815	40x9x9-6x30	E0.3INOX	25	18 000
		890817	40x13.5x9-6x30	E0.3INOX	25	18 000
		890819	50x10x12.5-6x30	E0.3INOX	25	15 000
		890820	50x15x12.5-6x30	E0.2INOX	25	15 000
		890821	50x15x12.5-6x30	E0.3INOX	25	15 000

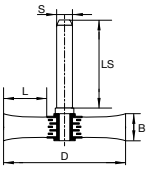
★★★ PREMIUM

Shaft mounted round brushes
for stainless steel

	Shape		Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
		52RDW	890822	60x10x17.5-6x30	E0.2INOX	25	15 000
			890823	60x10x17.5-6x30	E0.3INOX	25	15 000
			890827	60x15x17.5-6x30	E0.2INOX	25	15 000
			890828	60x15x17.5-6x30	E0.3INOX	25	15 000
			895521	70x15x19-6x30	E0.2INOX	25	15 000
			890831	70x15x19-6x30	E0.3INOX	25	15 000
			890832	80x10x19-6x30	E0.3INOX	25	12 000
			890835	80x15x19-6x30	E0.3INOX	25	12 000
			917186	50x15x12.5-6x30	EA0.3INOX	25	15 000
			917189	70x15x19-6x30	EA0.3INOX	25	15 000
		52RDZ	890811	70x6x15-6x30	E0.35INOX	25	20 000

★ BASIC

Shaft mounted round brushes
for stainless steel



Shape 52RDW

Application
+ For removing rust, cleaning welding seams and for surface preparation and finishing of stainless steel

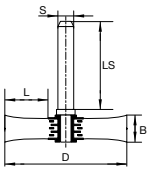
We recommend
+ Knotted wire DW for removing rust, cleaning, smoothing, polishing, matting and roughening

Advantage
+ Especially suitable for hard-to-reach places due to their shape
+ Universal tool with good brush life

	Shape		Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
		52RDW	34276014	70x15x19-6x30	E0.3INOX	1	15 000

PREMIUM

Shaft mounted round brushes
for nonferrous metals



Shape 52RDW

Application

+ For removing rust, cleaning welding seams and for surface preparation and finishing of nonferrous metals

We recommend

+ Knotted wire DW for removing rust, cleaning, smoothing, polishing, matting and roughening

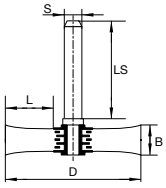
Advantage

+ Suitable for hard-to-reach places due to their shape
+ Universal tool with maximum brush life
+ Brass wire achieves the best results on workpieces made of nonferrous metals

	Shape		Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
		52RDW	23472	40x9x9-6x30	M0.3	25	18 000
			23473	50x10x12.5-6x30	M0.3	25	15 000
			23474	60x10x17.5-6x30	M0.3	25	15 000
			903339	70x15x19-6x30	M0.3	25	15 000

PREMIUM

Shaft mounted round brushes
for universal use



Shape 52RDK

Application

+ For use on almost all materials such as steel, stainless steel, aluminium, copper, brass or wood

We recommend

+ Wire with grain DK for deburring gears, valve parts, cutting edges of profiles and tubes

Advantage

+ Especially suitable for hard-to-reach places due to their shape
+ Universal tool with maximum brush life
+ Shaft mounted round brushes with silicon carbide are very hard and thus enable maximum stock removal rates

	Shape		Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
		52RDK	34043572	50x20x12.5-6x30	C180	25	15 000
			908264	70x20x19-6x30	C180	25	15 000





3.3 Brushes
Floorstanding grinder



Brushes
for floorstanding grinders

A floorstanding grinder is a versatile machine used in many workshops to work on different materials. The wide assortment of TYROLIT tool brushes therefore has the right shape, wire type and specification for every application.

Knotted round brushes, with and without grain, are ideal for removing rust, cleaning, smoothing, polishing, matting and roughening. Twisted round brushes, on the other hand, are suitable for rough work such as welding and removing scale and paint.

Shapes



1RDW Round brushes
For removing rust, cleaning, smoothing, polishing, matting and roughening



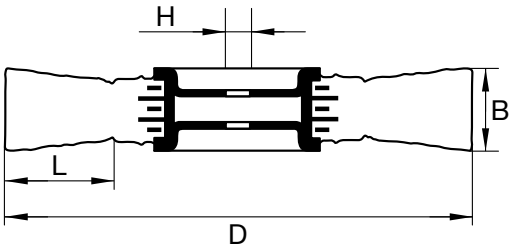
1RDK Round brushes
For matting and glazing, coated with grain

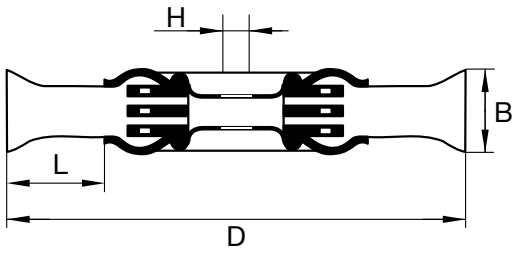
1RDZ Round brushes
For welding and for removal of scale and paint

Application recommendations

Performance level	Specification	Steel	Stainless steel	All in One	Pages
★★★ PREMIUM	S...	●			170
	E... INOX		●		171
	C...			●	171

Dimensions round brushes



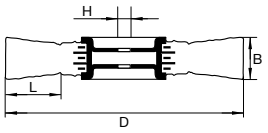


Optimum peripheral speed

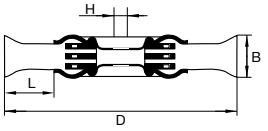
Application	Peripheral speed in m/s							
	5	15	20	25	30	35	40	45
Deburring				■	■	■		
Processing of welding seams						■	■	■
Descaling						■	■	■
Polishing					■	■	■	
Processing of plastic		■	■					
Cleaning	■	■	■	■				
Rust removal	■	■	■	■				

★★★ PREMIUM

Round brushes
for steel



Shape 1RDW



Shape 1RDZ

Application
+ For removing rust, paint and lacquer, for deburring and for surface preparation and finishing of steel

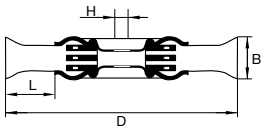
We recommend
+ Knotted wire DW for slight impurities and for finishing

Advantage
+ Universal tool with maximum brush life

	Shape	Type no.	DxBxLxH	Specification	PU	Max. RPM
	 1RDW	896109	100x20x24x20	S0.3	1	6 000
		896111	125x24x36x20	S0.3	1	6 000
		896238	125x24x36x20	S0.5	1	6 000
		896115	150x18x27x32	S0.3	1	6 000
		896239	150x18x27x32	S0.5	1	6 000
		896241	180x22x42x32	S0.3	1	6 000
		896243	180x22x42x32	S0.5	1	6 000
		894770	200x26x40x32	S0.3	1	4 500
		896244	200x26x40x32	S0.5	1	4 500
		896121	200x36x40x32	S0.3	1	4 500
		896245	200x36x40x32	S0.5	1	4 500
		896246	250x38x50x32	S0.3	1	3 600
		896247	250x38x50x32	S0.5	1	3 600
		920436	250x42x50x100	S0.3	1	3 600

★★★ PREMIUM

Round brushes
for stainless steel



Shape 1RDW

Application

+ For removing rust, paint and lacquer, for cleaning welding seams and for surface preparation and finishing of stainless steel
+ Especially suitable for grinding welding seams

We recommend

+ Twisted wire DZ for heavy work, severe contamination and for removing paint and lacquer

Advantage

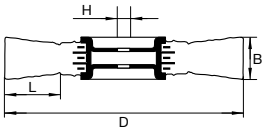
+ Universal tool with maximum brush life
+ High-quality stainless steel wire prevents rusting of the workpiece



Shape	Type no.	DxBxLxH	Specification	PU	Max. RPM
1RDW	896110	100x20x24x20	E0.3INOX	1	6 000
	896113	125x24x36x20	E0.3INOX	1	6 000
	896116	150x18x27x32	E0.3INOX	1	6 000
	128345	180x22x42x32	E0.3INOX	1	6 000
	896119	200x26x40x32	E0.3INOX	1	4 500
	896122	200x36x40x32	E0.3INOX	1	4 500
	896124	200x45x40x32	E0.3INOX	1	4 500

★★★ PREMIUM

Round brushes
for universal use



Shape 1RDK

Application

+ For use on almost all materials such as steel, stainless steel, aluminium, copper, brass or wood

We recommend

+ Round brushes with silicon carbide for deburring work on various workpieces made of practically any material such as steel, aluminium, stainless steel, copper or brass

Advantage

+ Universal tool with maximum brush life
+ Round brushes with silicon carbide are very hard and thus enable maximum stock removal rates



Shape	Type no.	DxBxLxH	Specification	PU	Max. RPM
1RDK	34043577	125x13x22x20	C320	1	10 000
	34043578	150x13x34x32	C320	1	8 000
	916720	150x15x29x40	C320	1	8 000
	227435	200x13x43x50.8	C320	1	6 000

Accessory wire brushes for floorstand grinder

Reduction bushes

Application

+ Reduction of the bore diameter

Advantage

+ Minimises tool diversity and saves on storage space

		Type no.	Application
	100RR	109381	(51 to 40)
		638253	(51 to 35)
		911408	(51 to 32)
		822769	(32 to 30)
		76253	(32 to 25,4)
		822767	(32 to 25)
		822766	(32 to 20)
		76628	(20 to 16)
		76618	(20 to 13)
		79292	(20 to 10)
		261732	(32 to 12)
		76648	(20 to 12)



3.4 Brushes
Hand-guided grinding



Hand-operated tool brushes

Brushes are suitable for universal use and can be employed in a very wide range of applications: deburring, cleaning welding seams or the surfaces of virtually any material.

With a large selection of shapes, it is possible to clean and work on hard-to-reach areas. Our range even includes a suitable hand brush for cleaning spark plugs. The TYROLIT range of brushes offers the right wire type and specification for every application.

Application recommendations

Performance level	Specification	Steel	Stainless steel	Aluminium	All in One	Pages
★★★ PREMIUM	S...	●				176, 177, 178, 179, 180, 181, 183, 185
	E... INOX		●			176, 178, 179, 181, 182
	M...			●		177, 179, 180, 181, 182, 183
	PP...				●	182
	PA...				●	184
	C...				●	184

Shapes



90HDG Hand brush
Hand brush for universal use



90SDW Hand brush
For smooth finishing of profiled surfaces



90ZKDW Hand brush
Specially for cleaning spark plugs



90HKDG Hand brush
V-shaped, for cleaning hard-to-reach welding seams and fillet welds



90HFDW Hand brush
File brush for cleaning sensitive surfaces

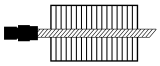
90FDG Hand brush
File brush for cleaning metal and wood files



90HBSDG Hand brush
Brushes for cleaning brake calipers



90HBDG Duster
For easy cleaning of all surfaces



18ROGDG Tube brush
Tube brush with drilling machine attachment

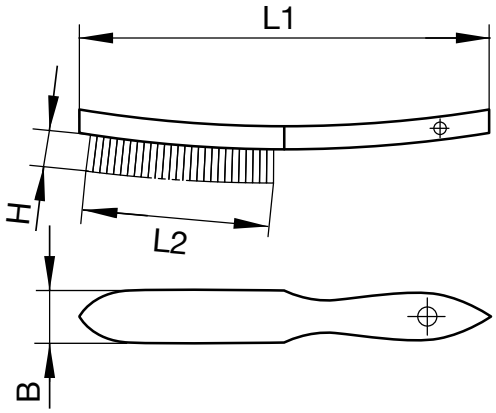


18ROODW/18ROODG
Cylindrical tube brush
For the manual cleaning of pipes and bores

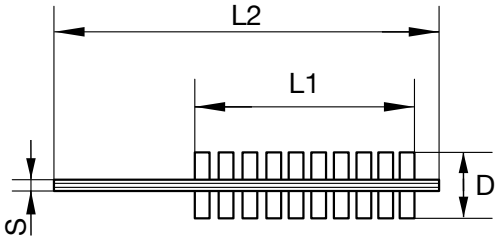


18RODK
Cylindrical tube brush
Tube brush with abrasive grain for cleaning bores

Dimensions hand brushes

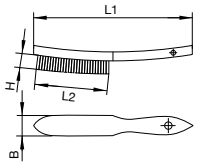


Dimensions tube brushes



★★★ PREMIUM

Universal hand brushes
for steel



90HDG

Application
+ For grinding steel
+ Ideal for deburring, cleaning welding seams and cleaning surfaces

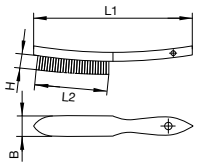
Advantage
+ Universal tool
+ Equipped with high-quality beech wood handle



Shape		Type no.	L1xBxHxL2	Specification	PU	Wire sequence
	90HDG	895498	290x22x25x140	S0.3	12	2
		895576	290x28x25x140	S0.3	12	3
		895577	290x32x25x140	S0.3	12	4
		895578	290x38x25x140	S0.3	12	5
		199657	290x42x25x140	S0.35	12	6

★★★ PREMIUM

Universal hand brushes
for stainless steel



90HDG

Application
+ For grinding stainless steel
+ Ideal for deburring, cleaning welding seams and cleaning surfaces

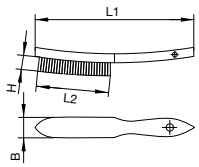
Advantage
+ Universal tool with maximum brush life
+ Equipped with high-quality beech wood handle
+ High-quality stainless steel wire prevents rusting of the workpiece



Shape		Type no.	L1xBxHxL2	Specification	PU	Wire sequence
	90HDG	895579	290x22x25x140	E0.3INOX	12	2
		895580	290x28x25x140	E0.3INOX	12	3
		896207	290x32x25x140	E0.3INOX	12	4
		896209	290x38x25x140	E0.3INOX	12	5

★★★ PREMIUM

Universal hand brushes
for nonferrous metals



Shape 90HDG

Application
+ For grinding nonferrous metals
+ Ideal for deburring, cleaning welding seams and cleaning surfaces

Advantage
+ Equipped with high-quality beech wood handle
+ Brass wire achieves the best results on workpieces made of nonferrous metals

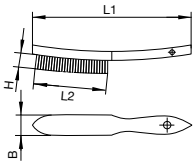
▶

◀

	Shape		Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90HDW	896217	290x22x25x140	M0.3	12	2
			895581	290x28x25x140	M0.3	12	3
			896219	290x32x25x140	M0.3	12	4
			896220	290x38x25x140	M0.3	12	5

★★★ PREMIUM

Hand-operated wire brushes with scraper
for steel



Shape 90HSDG

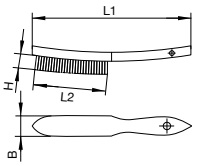
Application
+ For grinding steel
+ Ideal for deburring, cleaning welding seams and cleaning surfaces

Advantage
+ Integrated scraper: use on construction sites, especially for removing cement spatter
+ Ideal for brushing and scraping off heavy impurities
+ Equipped with high-quality beech wood handle

	Shape		Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90HSDG	34203491	290X32X25X140	S0.35	12	4

★★★ PREMIUM

Fillet weld brushes
for steel



Shape 90HKDG

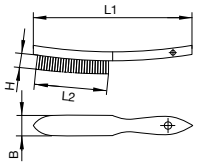
Application
+ For grinding steel
+ Especially suitable for cleaning fillet welds

Advantage
+ Removes slag and scale from very hard-to-reach places thanks to the V-shaped filaments
+ Robust construction for heavy work
+ Equipped with high-quality beech wood handle

	Shape		Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90HKDG	199682	290x35x35x135	S0.35	12	3

★★★ PREMIUM

Fillet weld brushes
for stainless steel



Shape 90HKDG

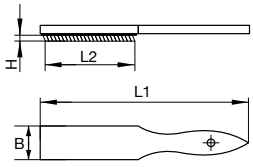
Application
+ For grinding stainless steel
+ Especially suitable for cleaning fillet welds

Advantage
+ Removes slag and scale from very hard-to-reach places thanks to the V-shaped filaments
+ Robust construction for heavy work
+ Equipped with high-quality beech wood handle
+ High-quality stainless steel wire prevents rusting of the workpiece

	Shape		Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90HKDG	199689	290x35x35x135	E0.35INOX	12	3

★★★ PREMIUM

File brushes
for steel



Shape 90FDG

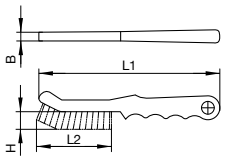
Application
+ For cleaning metal and wood files

Advantage
+ The wire filaments are firmly adhered to the robust wooden body and are able to cope with challenging requirements
+ Gentle and thorough cleaning of files
+ Equipped with high-quality beech wood handle

	Shape		Type no.	L1xBxHxL2	Specification	PU
		90FDG	899851	300x30x25x135	S0.3	10

★★★ PREMIUM

All-purpose wire brushes
for steel



Shape 90SDW

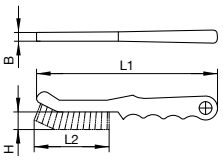
Application
+ For removing rust, paint and lacquer, for deburring and for surface preparation and finishing of stainless steel

Advantage
+ With ergonomic plastic handle for comfortable handling
+ Universal tool with maximum brush life

	Shape		Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90SDW	896223	260x10x28x135	S0.3	12	1

★★★ PREMIUM

All-purpose wire brushes
for stainless steel



Shape 90SDW

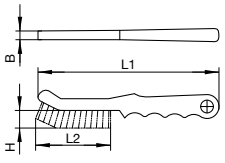
Application
+ For removing rust, paint and lacquer, for deburring and for surface preparation and finishing of stainless steel

Advantage
+ With ergonomic plastic handle for comfortable handling
+ Universal tool with maximum brush life

	Shape		Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90SDW	896224	260x10x28x135	E0.3INOX	12	1

★★★ PREMIUM

All-purpose wire brushes
for nonferrous metals



Shape 90SDW

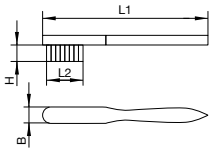
Application
+ For removing rust, paint and lacquer, for deburring and for surface preparation and finishing of nonferrous metals

Advantage
+ With ergonomic plastic handle for comfortable handling
+ Brass wire achieves the best results on workpieces made of nonferrous metals

	Shape		Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90SDW	199678	260x10x28x135	M0.3	12	1

★★★ PREMIUM

Spark brushes
for steel



Shape 90ZKDW

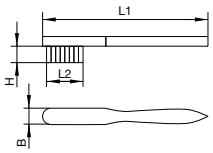
Application
+ For removing rust, paint and lacquer, for deburring and for surface preparation and finishing of steel
+ For fine work on nonferrous metals
+ Ideal for grinding the contact points of spark plugs

Advantage
+ With ergonomic plastic handle for comfortable handling
+ Equipped with high-quality beech wood handle
+ Thin wire for gentle brushing

	Shape		Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90ZKDW	903435	145x18x15x35	S0.15	12	3

★★★ PREMIUM

Spark brushes
for nonferrous metals



Shape 90ZKDW

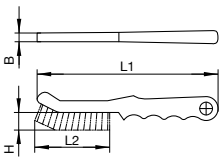
Application
+ For fine work on nonferrous metals
+ Ideal for grinding the contact points of spark plugs

Advantage
+ Brass wire achieves the best results on workpieces made of nonferrous metals
+ Equipped with high-quality beech wood handle
+ Thin wire for gentle brushing

	Shape		Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90ZKDW	903434	145x18x15x35	M0.15	12	3

★★★ PREMIUM

Brake caliper brushes
for stainless steel



Shape 90HBSDG

Application
+ For grinding stainless steel
+ Especially suitable for removing brake dust

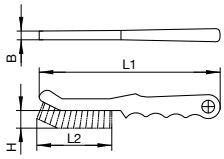
Advantage
+ Handy brush thanks to two-component handle
+ Despite its narrow filaments, it is an extremely powerful cleaning tool

▶

◀

	Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90HBSDG	34203496	225x12x22x90	E0.35INOX	10	2

★★★ PREMIUM Brake caliper brushes
for steel



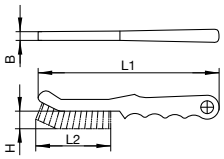
Shape 90HBSDG

Application
+ For grinding steel
+ Especially suitable for removing brake dust

Advantage
+ Handy brush thanks to two-component handle
+ Despite its narrow filaments, it is an extremely powerful cleaning tool

	Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90HBSDG	34203494	225x12x22x90	S0.35	10	2

★★★ PREMIUM Brake caliper brushes
for nonferrous metals



Shape 90HBSDG

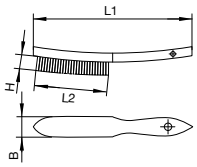
Application
+ For grinding nonferrous metals
+ Especially suitable for removing brake dust

Advantage
+ Handy brush thanks to two-component handle
+ Despite its narrow filaments, it is an extremely powerful cleaning tool and withstands high loads

	Shape	Type no.	Dimension	Specification	PU	Wire sequence
		90HBSDG	34203497	225x12x22x90	M0.25	10	2

★★★ PREMIUM

File brushes
for stainless steel



Shape 90HFDW

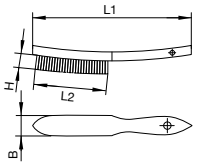
Application
+ For grinding stainless steel
+ For very fine work, popular with watchmakers and goldsmiths

Advantage
+ Features a large number of wire filaments
+ Ideal for applying solvents and cleaning agents
+ Special use

	Shape		Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90HFDW	34203500	225x20x20x110	E0.15INOX	12	4

★★★ PREMIUM

File brushes
for nonferrous metals



Shape 90HFDW

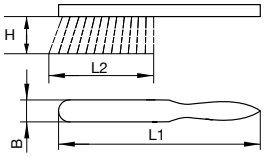
Application
+ For grinding nonferrous metals
+ For very fine work, popular with watchmakers and goldsmiths

Advantage
+ Features a large number of wire filaments
+ Ideal for applying solvents and cleaning agents
+ Special use

	Shape		Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90HFDW	34203498	225x20x20x110	M0.15	12	4

★★★ PREMIUM

Dusters
for universal use



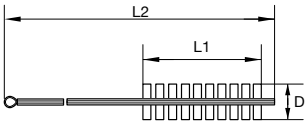
Shape 90HBDG

Application
+ For universal use in workshops
+ For removing coarse and slightly stubborn dirt

Advantage
+ The smooth synthetic fibre filaments can be easily cleaned and so- do not contaminate other surfaces
+ The bristles do not absorb much water, and are therefore also ideal for wet environments
+ Easy cleaning

	Shape		Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90HBDG	34203514	320x35x70x175	PP0.4	12	4

★★★ PREMIUM Cylindrical tube brushes
for steel



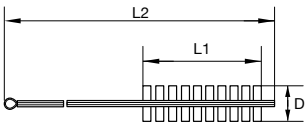
Shape 18ROODW

Application
+ For grinding steel
+ For hard-to-reach places
+ Especially suitable for cleaning the inside of bore holes and tubes

Advantage
+ Adapts perfectly to the workpiece surface due to its flexibility
+ Twisted-in galvanised wire and simple filament spiral for easy handling
+ Special use

	Shape		Type no.	DxL1xL2	Specification	PU
		18ROODW	34203516	4x100x300	S0.1	10
			34203518	6x100x300	S0.1	10
			34203520	8x100x300	S0.1	10
			34203522	10x100x300	S0.15	10
			34203524	15x100x300	S0.15	10
			34203527	20x100x300	S0.15	10

★★★ PREMIUM Cylindrical tube brushes
for nonferrous metals



Shape 18ROODW

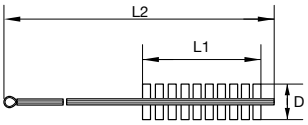
Application
+ For grinding nonferrous metals
+ For hard-to-reach places
+ Especially suitable for cleaning the inside of bore holes and tubes

Advantage
+ Adapts perfectly to the workpiece surface due to its flexibility
+ Twisted-in galvanised wire and simple filament spiral for easy handling
+ Special use

	Shape		Type no.	DxL1xL2	Specification	PU
		18ROODW	34203529	4x100x300	M0.06	10
			34203530	6x100x300	M0.1	10
			34203541	8x100x300	M0.12	10
			34203542	10x100x300	M0.15	10
			34203543	15x100x300	M0.15	10
			34203544	20x100x300	M0.15	10

★★★ PREMIUM

Cylindrical tube brushes
for universal use



Shape 18RODG

Application

+ For universal use
+ For hard-to-reach places
+ Especially suitable for cleaning the inside of bore holes and tubes

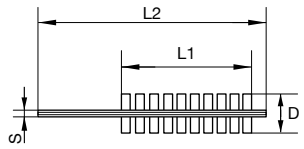
Advantage

+ Adapts perfectly to the workpiece surface due to its flexibility
+ Twisted-in galvanised wire and simple filament spiral for easy handling

	Shape		Type no.	DxL1xL2	Specification	PU
		18RODG	34203556	4x100x300	PA0.2	10
			34203557	6x100x300	PA0.2	10
			34203571	8x100x300	PA0.2	10
			34203572	10x100x300	PA0.25	10
			34203573	15x100x300	PA0.3	10
			34203575	20x100x300	PA0.3	10

★★★ PREMIUM

Tube brushes
for universal use



Shape 18RODK

Application

+ For universal use
+ Especially suitable for deburring bores, tubes or O-ring grooves
+ Suitable both for hand-held use and use on drilling machines taking into consideration the maximum permissible speed

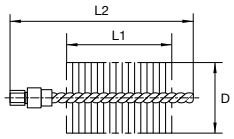
Advantage

+ Twisted-in galvanised wire and simple filament spiral for easy handling
+ Suitable for polishing or cleaning complex work-pieces such as nozzles
+ The sides of the abrasive bristles are also effective in rounding edges at bore interfaces

	Shape		Type no.	DxL1xL2	Specification	PU
		18RODK	34203595	10x65-3.7x125	C120	10
			34203596	16x65-5.2x125	C120	10
			34203597	20x65-5.7x125	C120	10
			34203598	25x65-5.7x125	C120	10

★★★ PREMIUM

Tube brushes with external thread
for steel



Shape 18ROGDG

Application
+ For grinding steel
+ Especially suitable for cleaning tubes, gratings, sleeves and cylinders, for deburring horizontal bore holes and for regulating flow velocities in tubing systems

Advantage
+ These brushes can be extended with an adapter or used on machines thanks to their external thread



Shape	Type no.	DxL2-L2 W1/2	Specification	PU	Max PRM
18ROGDG	34203600	20x100-150 W1/2	S0.2	10	2 500
	34203601	25x100-150 W1/2	S0.25	10	2 500
	34203602	30x100-160 W1/2	S0.3	10	1 000
	34203603	40x100-160 W1/2	S0.35	10	1 000
	34203605	50x100-160 W1/2	S0.35	5	1 000
	34203606	63x100-160 W1/2	S0.4	5	1 000





Catalogue 21
Coated abrasives

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Specific information
Specification

ZA-P43N

N	Backing made of natural fibres
V	Backing made of vulcanised fibres
A/B/C/D/E/F	Weight of paper
C J	Cloth – flexible
C JJ	Cloth – very flexible
C JX	Cloth – semi-flexible
PC-X	Polycotton – rigid
PC-Y	Polycotton – very rigid
PE-Y	Polyester – very rigid
FI	Film

01	Structural steel, carbon steel, aluminium, nonferrous metals etc.
02	Structural steel, carbon steel, aluminium, nonferrous metals etc.; with active additives
03	Stainless steel, steel and soft metals; with active additives; wet and dry
06	Structural steel, carbon steel, aluminium, nonferrous metals, wood etc.; with active additives
07	All metals; wet and dry
21	Paint, lacquers, composite materials, gel coat; for universal use; light with stearate layer
22	Paint, lacquers, composites, gel coat; for universal use; aggressive with stearate layer
31	Wood, lacquers, paint, for universal use
41	Structural steel, carbon steel, aluminium etc.; low to medium pressure, active additives
43	Steel, carbon steel, aluminium etc.; medium to high pressure; active additives
45	Steel, carbon steel, stainless steel etc.; low pressure; active additives
48	Stainless steel, high-alloy steel, hardened steel; medium to high pressure; active additives and Topsize
65	Stone, tiles, composites, gel coat, epoxies, glass etc.
68	Stone; wet and dry
93	Stainless steel, high-alloy steel, hardened steel; medium to high pressure; active additives and Topsize
101	Especially for hardened surfaces, clear coatings, lacquers, composite, gel coat, metals, etc.

P	PREMIUM***
S	STANDARD**
B	BASIC*

ZA	Zirconium
A	Aluminium oxide
CA	Sintered aluminium oxide
C	Silicium carbide
D	Diamond

Active additives: for cooler grinding
Topsize: for cooler grinding on stainless steel and high-alloy steel l
Stearate layer: reduces loading and smearing

Flap discs product label



Machine


Angle grinder


Straight grinder


Mini belt grinder


Portable belt grinder


Belt grinder


Hand-guided grinding


Dual action sander


Burnishing machine


Floorstand grinder

Colour codes






Label	Steel	2in1	INOX	Nonferrous metals
Colour code	BLUE	BLUE	RED	ORANGE
Material	Steel	Steel and stainless steel	Stainless steel	Aluminium, copper, zinc, brass, bronze, stone





4.1 Flap discs
Angle grinder



Flap discs **for angle grinders**

Working with an angle grinder is one of the most important processes in the trade and industrial sectors for processing all types of metals. TYROLIT offers a comprehensive assortment of flap discs for this purpose.

Whatever the application and whichever shape you prefer: we have the right product for you.
Since TYROLIT always puts your health first, we offer flap discs with a core made from natural fibres, which can even be trimmed. Innovative and precisely adapted to the application. On the following pages you will find the perfect tool for your requirements thanks to the uniform colour code for all materials.

Application recommendations

Performance level	Design	Grain	Steel	Stainless steel	NF metals	Pages	Rating System: Aggressivenes	Lifetime	Performance* (0-100)
★★★ PREMIUM	LONGLIFE	ZA	●			195			94
	STAHL	A	●			196			70
	LONGLFIE C-TRIM	ZA	●	●		198			94
	LONGLIFE	ZA	●	●		199			88
	FASTCUT	ZA	●	●		200, 201			88
	OVERLAP	ZA	●	●		201			65
	COMBI	A	●	●		202			
	X-LOCK 2in1	ZA	●	●		202, 203			75
	TWINFLAP	ZA/CA	●	●		203			94
	2in1	ZA	●	●		204, 205			75
	CERABOND	CA		●		210, 211			100
	CERAMIC	CA		●		212			100
	ALU	CA			●	213			80
★★ STANDARD	2in1	ZA	●	●		206, 207			60
	TWIN FLAP	ZA	●	●		205			66
	SOFTJOB	ZA				207			44
★ BASIC	STEEL	A	●			197			30
	2in1	ZA	●	●		208, 209			55

**The performance indicates the overall performance of the product in comparison to products with the same material suitability.*

Shapes

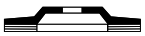


27A Flap disc

Depressed-centre design with fibreglass core. This shape creates the perfect angle of 15°–20°.

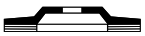


27PLCA Flap disc



28A Flap disc

Straight design with fibreglass core. This shape ensures optimum use of the abrasive cloth with a grinding angle of 0–15°.



28NF Flap disc

Core made from natural fibres for easy trimming - straight.



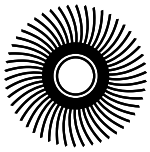
28S SOFTJOB Flap disc

The arrangement of the flaps differs from conventional flap discs, making it even more flexible in use.



28N Flap disc

Straight design with plastic core. This shape ensures optimum use of the abrasive cloth with a grinding angle of 0–15°. The core can also be reset in order to use up the abrasive cloth completely.



1LA Flap wheels

★★★
PREMIUM

LONGLIFE flap discs

for steel

+ LONGLIFE technology for maximum lifetime
+ 100% use of the disc through simple trimming



+ Maximum stock removal thanks to high-tech zirconia fabric
+ Perfect adaptation to the workpiece surfaces guarantees clean grinding transitions

Application:

+ For demanding grinding applications on different steel grades
+ For surface grinding and for welding seam finishing

We recommend:

+ Grit size 40/60 for high stock removal
+ Grit size 80/120 for fine work
+ Best results when used on powerful angle grinders

★★★
PREMIUM

LONGLIFE flap discs
for steel



Shape	Type no.	Dimension	Specification	PU
28NF	34063393	115x22.23	ZA40-B	10
	34063394	115x22.23	ZA60-B	10
	34063396	115x22.23	ZA80-B	10
	34063397	115x22.23	ZA120-B	10
	34063388	125x22.23	ZA40-B	10
	34063389	125x22.23	ZA60-B	10
	34063390	125x22.23	ZA80-B	10
	34063391	125x22.23	ZA120-B	10
	34063398	150x22.23	ZA40-B	10
	34063399	150x22.23	ZA60-B	10
	34063402	178x22.23	ZA40-B	10
	34063403	178x22.23	ZA60-B	10

★★★ PREMIUM

Flap discs
for steel

Application
+ For demanding grinding applications on different steel grades

We recommend
+ Grit size 40/60 for high stock removal
+ Grit size 80/120 for fine work
+ Best results when used on powerful angle grinders

Advantage
+ Best surface results on steel for surface and edge grinding as well as for deburring work
+ Very long lifetime
+ Supporting disc made of rigid fibre glass reinforcement



Shape		Type no.	Dimension	Specification	PU
	27A	668630	115x22.23	A40-B	10
		668631	115x22.23	A60-B	10
		668632	115x22.23	A80-B	10
		668633	115x22.23	A120-B	10
		668634	125x22.23	A40-B	10
		668635	125x22.23	A60-B	10
		668637	125x22.23	A80-B	10
		896379	125x22.23	A120-B	10
		668638	178x22.23	A40-B	10
		668640	178x22.23	A60-B	10
		668641	178x22.23	A80-B	10
		75193	178x22.23	A120-B	10
	28A	668679	115x22.23	A40-B	10
		795077	115x22.23	A60-B	10
		699984	115x22.23	A80-B	10
		642626	115x22.23	A120-B	10
		668681	125x22.23	A40-B	10
		728528	125x22.23	A60-B	10
		817672	125x22.23	A80-B	10
		817935	125x22.23	A120-B	10
		668683	178x22.23	A40-B	10
		886353	178x22.23	A60-B	10

★ BASIC

Flap discs
for steel

Application
+ For grinding applications on different steel grades
+ For surface grinding and for welding seam finishing

We recommend
+ Grit size 40/60 for high stock removal
+ Grit size 80/120 for fine work

Advantage
+ Robust handling
+ Good price-performance ratio
+ Excellent results

	Shape	Type no.	Dimension	Specification	PU
		34207216	115x22.23	A40-B	10
		34207217	115x22.23	A60-B	10
		34207231	115x22.23	A80-B	10
		34207233	115x22.23	A120-B	10
		34207235	125x22.23	A40-B	10
		34207236	125x22.23	A60-B	10
		34207237	125x22.23	A80-B	10
		34207238	125x22.23	A120-B	10
		34206840	115x22.23	A40-B	10
		34206851	115x22.23	A60-B	10
		34206854	115x22.23	A80-B	10
		34206857	115x22.23	A120-B	10
		34206858	125x22.23	A40-B	10
		34206860	125x22.23	A60-B	10
		34206891	125x22.23	A80-B	10

★★★
PREMIUM

LONGLIFE C-TRIM flap discs

for steel and stainless steel

+ LONGLIFE technology for maximum lifetime

+ Option of trimming means that the whole disc can be used and new cloth can always be used for grinding



+ Compacted fabric at the edge of the disc ensures high stability during edge grinding

Application:

+ For edge grinding and welding seam finishing on different steel and stainless steel grades

We recommend:

+ Grit size 40/60 for high stock removal
+ Grit size 80/120 for fine work
+ Best results when used on powerful angle grinders

★★★
PREMIUM

LONGLIFE C-TRIM flap discs

for steel and stainless steel



Shape	Type no.	Dimension	Specification	PU
28N	34239191	115x22.23	ZA40-B	10
	34239192	115x22.23	ZA60-B	10
	34239193	115x22.23	ZA80-B	10
	34239194	115x22.23	ZA120-B	10
	34239195	125x22.23	ZA40-B	10
	34239196	125x22.23	ZA60-B	10
	34239197	125x22.23	ZA80-B	10
	34239198	125x22.23	ZA120-B	10
	34382292	150x22.23	ZA40-B	10
	34382293	150x22.23	ZA60-B	10
	34239199	178x22.23	ZA40-B	10
	34239200	178x22.23	ZA60-B	10
	34239221	178x22.23	ZA80-B	10
	34239222	178x22.23	ZA120-B	10

★★★
PREMIUM

LONGLIFE flap discs

for steel and stainless steel

+ LONGLIFE technology for maximum lifetime
+ Above-average stock removal



+ Increased number of closely spaced flaps enables the disc to withstand even the highest loads

Application:

+ For demanding grinding applications on different steel and stainless steel grades
+ For easy welding seam finishing and for surface grinding

We recommend:

+ Grit size 40/60 for high stock removal
+ Grit size 80/120 for fine work
+ Best results when used on powerful angle grinders

★★★
PREMIUM

LONGLIFE flap discs

for steel and stainless steel



Shape	Type no.	Dimension	Specification	PU
28N	680369	115x22.23	ZA40-B	10
	680373	115x22.23	ZA60-B	10
	680376	115x22.23	ZA80-B	10
	680377	115x22.23	ZA120-B	10
	680379	125x22.23	ZA40-B	10
	680380	125x22.23	ZA60-B	10
	680383	125x22.23	ZA80-B	10
	680386	125x22.23	ZA120-B	10
	680387	178x22.23	ZA40-B	10
	680388	178x22.23	ZA60-B	10
	680389	178x22.23	ZA80-B	10
	680390	178x22.23	ZA120-B	10

★★★ PREMIUM

FASTCUT flap discs

for steel and stainless steel

+ Maximum stock removal thanks to FASTCUT technology

+ Product retains its high abrasiveness over its entire lifetime



+ Cool grinding thanks to Top Size coating prevents discolouration on the workpiece and thus difficult rework

Application:

+ For demanding grinding applications on different steel and stainless steel grades and in some cases on aluminium

We recommend:

+ Grit size 40/60 for high stock removal
+ Grit size 80 for fine work
+ Best results when used on powerful angle grinders

★★★ PREMIUM

FASTCUT flap discs

for steel and stainless steel

	Shape	Type no.	Dimension	Specification	PU
	27A	160229	115x22.23	ZA40-B	10
		160230	115x22.23	ZA60-B	10
		160235	115x22.23	ZA80-B	10
		160240	125x22.23	ZA40-B	10
		160242	125x22.23	ZA60-B	10
		160244	125x22.23	ZA80-B	10
		34166360	150x22.23	ZA40-B	10
		34166362	150x22.23	ZA60-B	10
		34166363	150x22.23	ZA80-B	10
		160245	178x22.23	ZA40-B	10
		160246	178x22.23	ZA60-B	10

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	Shape	Type no.	Dimension	Specification	PU
	 28A	160249	115x22.23	ZA40-B	10
		160251	115x22.23	ZA60-B	10
		160252	115x22.23	ZA80-B	10
		160254	125x22.23	ZA40-B	10
		160255	125x22.23	ZA60-B	10
		160256	125x22.23	ZA80-B	10
	 28N	458028	115x22.23	ZA40-B	10
		458029	115x22.23	ZA60-B	10
		458030	115x22.23	ZA80-B	10
		458034	125x22.23	ZA40-B	10
		458033	125x22.23	ZA60-B	10
		458031	125x22.23	ZA80-B	10

★★★ PREMIUM

OVERLAP flap discs

for steel and stainless steel



Application

+ For demanding grinding applications on different steel and stainless steel grades
+ For grinding hard-to-reach places

Advantage

+ Ideal for finishing fillet welds, grooves and flutes thanks to the flaps which overlap by 10Â mm
+ Very good stock removal and lifetime

We recommend

+ Grit size 40/60 for high stock removal

	Shape	Type no.	Dimension	Specification	PU
	 27A	34206408	115x22.23	ZA40-B	10
		34206409	115x22.23	ZA60-B	10
		540688	125x22.23	ZA40-B	10
		540689	125x22.23	ZA60-B	10

★★★ PREMIUM

COMBI flap discs
for steel and stainless steel

Application

+ For removing material and finishing surfaces on different steel and stainless steel grades

We recommend

+ Grit size 120 for fine work
+ Adjustable angle grinders for the best results

Advantage

+ The combination of abrasive cloth and fabric enables simultaneous removal of material and finishing of the surfaces for the best possible result
+ Long lifetime
+ Specially developed to achieve good results at high speeds on non-adjustable angle grinders (max. 80 m/s)



Shape	Type no.	Dimension	Specification	Rec. speed	PU
27PLCA	742167	115x22.23	120-M	4 000 U/min	5
	742168	125x22.23	120-M	3 600 U/mm	5

★★★ PREMIUM

X-LOCK flap discs
for steel and stainless steel

Application

+ For demanding applications on different steel and stainless steel grades with new Bosch angle grinders

We recommend

+ Grit size 40/60 for high stock removal
+ Grit size 80/120 for fine work

Advantage

+ New X-LOCK clamping system for fast disc changes and easy handling
+ Secure mounting thanks to click noise during clamping
+ Maximum abrasiveness and lifetime



Shape	Type no.	Dimension	Specification	PU
28N	34428486	115x22.23/XL	ZA40Q-B	10
	34428487	115x22.23/XL	ZA60Q-B	10
	34428488	115x22.23/XL	ZA80Q-B	10
	34428489	115x22.23/XL	ZA120Q-B	10
	34428490	125x22.23/XL	ZA40Q-B	10
	34428511	125x22.23/XL	ZA60Q-B	10
	34428512	125x22.23/XL	ZA80Q-B	10
	34428513	125x22.23/XL	ZA120Q-B	10

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	Shape	Type no.	Dimension	Specification	PU
	27A	34428482	115x22.23/XL	ZA40Q-B	10
		34428483	115x22.23/XL	ZA60Q-B	10
		34428484	115x22.23/XL	ZA80Q-B	10
		34428485	115x22.23/XL	ZA120Q-B	10
		34428311	125x22.23/XL	ZA40Q-B	10
		34428312	125x22.23/XL	ZA60Q-B	10
		34428313	125x22.23/XL	ZA80Q-B	10
		34428314	125x22.23/XL	ZA120Q-B	10

★★★ PREMIUM

TWIN FLAP

for steel and stainless steel

Application

+ For demanding grinding applications on different steel and stainless steel grades

We recommend

+ Grit size 40/60 for high stock removal
+ Best results when used on powerful angle grinders

Advantage

+ Double flap arrangement for maximum lifetime
+ Combination of ceramic grain and zirconium for highest aggressiveness

	Shape	Type no.	Dimension	Specification	PU
	27A	34429823	115x22.23	ZA/CA40Q-B	10
		34429825	115x22.23	ZA/CA60Q-B	10
		34429827	125x22.23	ZA/CA40Q-B	10
		34429828	125x22.23	ZA/CA60Q-B	10
	28N	34474190	115x22.23	ZA/CA40Q-B	10
		34474211	115x22.23	ZA/CA60Q-B	10
		34474212	125x22.23	ZA/CA40Q-B	10
		34474213	125x22.23	ZA/CA60Q-B	10

★★★ PREMIUM

2in1 flap discs
for steel and stainless steel

Application
+ For demanding grinding applications on different steel and stainless steel grades
+ For welding seam finishing as well as edge and surface grinding

We recommend
+ Grit size 40/60 for high stock removal
+ Grit size 80/120 for fine work
+ Best results when used on powerful angle grinders

Advantage
+ Maximum stock removal rates
+ Very long lifetime
+ Chemical purity prevents corrosion, pitting corrosion and reduction in fatigue strength for the best results on stainless steel

	Shape	Type no.	Dimension	Specification	PU
	27N	34043471	115x22.23	ZA40-B	10
		34043472	115x22.23	ZA60-B	10
		34043473	115x22.23	ZA80-B	10
		34043474	115x22.23	ZA120-B	10
		34043475	125x22.23	ZA40-B	10
		34043476	125x22.23	ZA60-B	10
		34043477	125x22.23	ZA80-B	10
		34043478	125x22.23	ZA120-B	10
		34043479	150x22.23	ZA40-B	10
		34043480	150x22.23	ZA60-B	10
		34043481	150x22.23	ZA80-B	10
		34043482	150x22.23	ZA120-B	10
	27A	668642	115x22.23	ZA40-B	10
		668644	115x22.23	ZA60-B	10
		668649	115x22.23	ZA80-B	10
		643803	115x22.23	ZA120-B	10
		668663	125x22.23	ZA40-B	10
		668664	125x22.23	ZA60-B	10
		668665	125x22.23	ZA80-B	10
		643805	125x22.23	ZA120-B	10
		519212	150x22.23	ZA40-B	10
		519213	150x22.23	ZA60-B	10
		668670	178x22.23	ZA40-B	10
		668672	178x22.23	ZA60-B	10
		668673	178x22.23	ZA80-B	10
		643807	178x22.23	ZA120-B	10

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	Shape	Type no.	Dimension	Specification	PU
	28A	668686	115x22.23	ZA40-B	10
		668687	115x22.23	ZA60-B	10
		668691	115x22.23	ZA80-B	10
		846344	115x22.23	ZA120-B	10
		668692	125x22.23	ZA40-B	10
		668693	125x22.23	ZA60-B	10
		668694	125x22.23	ZA80-B	10
		645145	125x22.23	ZA120-B	10
		668696	178x22.23	ZA40-B	10
		668697	178x22.23	ZA60-B	10

★★ STANDARD

TWIN FLAP

for steel and stainless steel

Application

+ For demanding grinding applications on different steel and stainless steel grades

We recommend

+ Grit size 40/60 for high stock removal
+ Best results when used on powerful angle grinders

Advantage

+ Double flap arrangement for maximum lifetime
+ Zirconium for very high aggressiveness

	Shape	Type no.	Dimension	Specification	PU
	27A	34441260	115x22.23	ZA/ZA40Q-B	10
		34441311	115x22.24	ZA/ZA60Q-B	10
		34441312	115x22.25	ZA/ZA80Q-B	10
	28N	34474187	115x22.23	ZA/ZA40Q-B	10
		34474188	115x22.23	ZA/ZA60Q-B	10
		34474189	115x22.23	ZA/ZA80Q-B	10

★★ STANDARD

2in1 flap discs
for steel and stainless steel

Application
+ For use on different steel and stainless steel grades

We recommend
+ Grit size 40/60 for high stock removal
+ Grit size 80/120 for fine work

Advantage
+ Very good balance between lifetime and specific stock removal



Shape		Type no.	Dimension	Specification	PU
	27A	572473	115x22.23	ZA40-B	10
		454393	115x22.23	ZA60-B	10
		455312	115x22.23	ZA80-B	10
		50801	115x22.23	ZA120-B	10
		824385	125x22.23	ZA40-B	10
		455303	125x22.23	ZA60-B	10
		458587	125x22.23	ZA80-B	10
		243069	125x22.23	ZA120-B	10
		139648	150x22.23	ZA40-B	10
		139651	150x22.23	ZA60-B	10
		139653	150x22.23	ZA80-B	10
		580650	178x22.23	ZA40-B	10
		454396	178x22.23	ZA60-B	10
		455314	178x22.23	ZA80-B	10
		243071	178x22.23	ZA120-B	10
	28A	537021	115x22.23	ZA40-B	10
		537084	115x22.23	ZA60-B	10
		537089	115x22.23	ZA80-B	10
		537093	115x22.23	ZA120-B	10
		537095	125x22.23	ZA40-B	10
		537097	125x22.23	ZA60-B	10
		537110	125x22.23	ZA80-B	10
		537111	125x22.23	ZA120-B	10
		537112	178x22.23	ZA40-B	10
		537113	178x22.23	ZA60-B	10
		537114	178x22.23	ZA80-B	10
		537115	178x22.23	ZA120-B	10

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	Shape		Type no.	Dimension	Specification	PU
		28N	847917	115x22.23	ZA40-B	10
			847924	115x22.23	ZA60-B	10
			847927	115x22.23	ZA80-B	10
			247165	115x22.23	ZA120-B	10
			847921	125x22.23	ZA40-B	10
			847925	125x22.23	ZA60-B	10
			847928	125x22.23	ZA80-B	10
			247366	125x22.23	ZA120-B	10
			847923	178x22.23	ZA40-B	10
			847926	178x22.23	ZA60-B	10
			847929	178x22.23	ZA80-B	10
			247175	178x22.23	ZA120-B	10

★★ STANDARD

SOFTJOB flap discs
for steel and stainless steel




Application
+ For surface improvement and preparing for welding work as well as cleaning welding seams on various steel and stainless steel grades
+ For grinding contours, profiled surfaces, handrails and pipes as well as for cleaning rust and paint residues

We recommend
+ Grit size 40/60 for high stock removal
+ Grit size 80/120 for fine work

Advantage
+ Maximum flexibility thanks to specific design
+ Perfect for hard-to-reach places thanks to offset arrangement of the fabric

	Shape		Type no.	Dimension	Specification	PU
		28S	246987	115x22.23	ZA40-B	10
			246988	115x22.23	ZA60-B	10
			246990	115x22.23	ZA80-B	10
			246994	115x22.23	ZA120-B	10
			246995	125x22.23	ZA40-B	10
			246996	125x22.23	ZA60-B	10
			246998	125x22.23	ZA80-B	10
			247001	125x22.23	ZA120-B	10

BASIC

2in1 flap disc

for steel and stainless steel

Application

+ For grinding applications on different steel and stainless steel grades

We recommend

+ Grit size 40/60 for high stock removal
+ Grit size 80/120 for fine work

Advantage

+ Good stock removal with 30% more performance compared to the previous version
+ Good lifetime



Shape	Type no.	Dimension	Specification	PU
27A	34318364	115x22.23	ZA40-B	10
	34318365	115x22.23	ZA60-B	10
	34318366	115x22.23	ZA80-B	10
	34318368	115x22.23	ZA120-B	10
	34318369	125x22.23	ZA40-B	10
	34318370	125x22.23	ZA60-B	10
	34318391	125x22.23	ZA80-B	10
	34318392	125x22.23	ZA120-B	10
	34318393	150x22.23	ZA40-B	10
	34318394	150x22.23	ZA60-B	10
	34318395	150x22.23	ZA80-B	10
	34318396	150x22.23	ZA120-B	10
	34318398	178x22.23	ZA40-B	10
	34318400	178x22.23	ZA60-B	10
	34318533	178x22.23	ZA80-B	10
	34318534	178x22.23	ZA120-B	10
28A	34318539	115x22.23	ZA40-B	10
	34318551	115x22.23	ZA60-B	10
	34318552	115x22.23	ZA80-B	10
	34318553	115x22.23	ZA120-B	10
	34318554	125x22.23	ZA40-B	10
	34318555	125x22.23	ZA60-B	10
	34318557	125x22.23	ZA80-B	10
	34318558	125x22.23	ZA120-B	10
	34318559	150x22.23	ZA40-B	10
	34318560	150x22.23	ZA60-B	10
	34318561	150x22.23	ZA80-B	10
	34318562	150x22.23	ZA120-B	10
	34318563	178x22.23	ZA40-B	10
	34318564	178x22.23	ZA60-B	10
	34318566	178x22.23	ZA80-B	10
	34318567	178x22.23	ZA120-B	10

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	Shape		Type no.	Dimension	Specification	PU
		28N	34318568	115x22.23	ZA40-B	10
			34318569	115x22.23	ZA60-B	10
			34318570	115x22.23	ZA80-B	10
			34318571	115x22.23	ZA120-B	10
			34318572	125x22.23	ZA40-B	10
			34318573	125x22.23	ZA60-B	10
			34318574	125x22.23	ZA80-B	10
			34318576	125x22.23	ZA120-B	10
			34318577	178x22.23	ZA40-B	10
			34318579	178x22.23	ZA60-B	10
			34318580	178x22.23	ZA80-B	10
			34318582	178x22.23	ZA120-B	10

★★★
PREMIUM

CERABOND flap discs

for stainless steel

+ High stock removal on the workpiece thanks to ceramic grain and CERABOND bond system

+ Trimmable shape 28N means that the whole disc can be used



+ Unique bond system prevents premature grain break-out and permits maximum lifetime

+ Cool grinding thanks to Top Size coating prevents discolouration on the workpiece and thus difficult rework

Application:

+ For demanding grinding applications on different stainless steel grades

We recommend:

+ Grit size 40/60 for high stock removal
+ Grit size 80 for fine work
+ Best results when used on powerful angle grinders

▶

★★★ PREMIUM

CERABOND flap discs
for stainless steel

	Shape	Type no.	Dimension	Specification	PU
	 27A	34043514	115x22.23	CA40-B	5
		34043515	115x22.23	CA60-B	5
		34165680	115x22.23	CA80-B	5
		34043516	125x22.23	CA40-B	5
		34043517	125x22.23	CA60-B	5
		34165681	125x22.23	CA80-B	5
		34166166	178x22.23	CA40-B	5
		34166167	178x22.23	CA60-B	5
		34166168	178x22.23	CA80-B	5
	 28A	34166172	115x22.23	CA40-B	5
		34166173	115x22.23	CA60-B	5
		34166174	115x22.23	CA80-B	5
		34166175	125x22.23	CA40-B	5
		34166176	125x22.23	CA60-B	5
		34166177	125x22.23	CA80-B	5
		34166178	150x22.23	CA40-B	10
		34166180	150x22.23	CA80-B	10
		34166181	178x22.23	CA40-B	5
	 28N	34315841	115x22.23	CA40-B	5
		34315842	115x22.23	CA60-B	5
		34315843	115x22.23	CA80-B	5
		34315845	125x22.23	CA40-B	5
		34315846	125x22.23	CA60-B	5
		34315847	125x22.23	CA80-B	5

★★★ PREMIUM

CERAMIC flap discs
for stainless steel

Application
+ For demanding grinding applications on different stainless steel grades

We recommend
+ Grit size 40/60 for high stock removal
+ Grit size 80 for fine work

Advantage
+ Maximum stock removal on the workpiece thanks to ceramic grain
+ Cool grinding thanks to Top Size coating prevents discolouration on the workpiece and thus difficult rework
+ Even surface finish thanks to the self-sharpening characteristic of the abrasive grain over the entire lifetime of the disc

	Shape		Type no.	Dimension	Specification	PU
		27A	645130	115x22.23	CA40-B	10
			645132	115x22.23	CA60-B	10
			34166620	115x22.23	CA80-B	10
			645135	125x22.23	CA40-B	10
			645137	125x22.23	CA60-B	10
			34166671	125x22.23	CA80-B	10
		28A	719797	115x22.23	CA40-B	10
			719798	115x22.23	CA60-B	10
			34166687	115x22.23	CA80-B	10
			719799	125x22.23	CA40-B	10
			719800	125x22.23	CA60-B	10
			34166688	125x22.23	CA80-B	10
		28N	719846	125x22.23	CA40-B	10
			719847	125x22.23	CA60-B	10
			34166865	125x22.23	CA80-B	10

★★★ PREMIUM

Flap discs
for nonferrous metals

Application
+ For demanding grinding applications on nonferrous metals, especially difficult-to-grind materials such as aluminium, aluminium bronze, aluminium base alloy, copper, bronze, brass and nickel silver

We recommend
+ Grit size 40/60 for high stock removal
+ Grit size 80/120 for fine work

Advantage
+ Specification prevents the usual smearing and dulling of the flap disc
+ Self-cleaning and sharpening of the disc during material abrasion thanks to fed ceramic grain



Shape		Type no.	Dimension	Specification	PU
	27A	707005	115x22.23	CA40-B	10
		707007	115x22.23	CA60-B	10
		707008	115x22.23	CA80-B	10
		707010	115x22.23	CA120-B	10
		707011	125x22.23	CA40-B	10
		707012	125x22.23	CA60-B	10
		707013	125x22.23	CA80-B	10
		707014	125x22.23	CA120-B	10
		707015	178x22.23	CA40-B	10
		707016	178x22.23	CA60-B	10
	28A	707158	115x22.23	CA120-B	10
		707159	125x22.23	CA40-B	10
		707160	125x22.23	CA60-B	10
		707161	125x22.23	CA80-B	10
		707163	125x22.23	CA120-B	10

★★★
PREMIUM

A-P01 C X flap wheels

for steel, nonferrous metal and wood

+ Consistent wear pattern of the flap wheel over its entire lifetime enables a consistently high-quality surface finish



Application:

+ For general grinding applications such as cleaning, finishing and polishing on steel, nonferrous metals and wood
+ For polishing uneven or curved surfaces

We recommend:

+ Grit size 40/60 for high stock removal
+ Grit size 80/120 for fine work

★★★
PREMIUM

A-P01 C X flap wheels

for steel, nonferrous metal and wood

	Shape		Type no.	Dimension	Mounting	Grain	Rec. speed
		1LA	34053198	115x20	M14	40	13 300
			34057513	115x20	M14	60	13 300
			34057514	115x20	M14	80	13 300
			34057515	115x20	M14	120	13 300
			34057521	125x20	M14	60	12 200



4.2 Fibre discs
Angle grinder



Fibre discs
Angle grinder

For quite a number of years, in the “coated abrasives” range, TYROLIT has offered fibre discs and back up pads for all common and not-so-common grinding jobs.

Fibre discs are used when it is necessary to carry out rough grinding or derust or deburr surfaces. TYROLIT believes in the importance of flexibility and ease of use, and offers a very wide assortment for every conceivable application. Naturally the discs come with all accessories needed for assembly.
TYROLIT has also developed a more environment-friendly version. Our jute disc, made from eco-friendly jute fibre, is used without any additional core and, being trimmable, offers maximum stock removal right to the very end. Try it for yourself!

Application recommendations

Performance level	Specification	Steel	Stainless steel	NF metals	Wood	Composites	Gel-Coat	Pages
★★★ PREMIUM	CA-P93 N	●	●					218
	ZA-P48 N	●	●					219
	ZA-P43 V	●						220
	ZA-P48 V	●	●					221, 222
	CA-P93 V	●	●					223, 224
★ BASIC	A-B02 V	●		●	●			225
	A-B01 V	●		●	●			226
TFC	ZA-P45 V	●		●		●	●	228
★★★ PREMIUM	ZA-P45 P F	●		●		●	●	228

Shapes



N Disc Jute disc



V Disc 4S Vulcanised fibre disc



TYROLIT FAST CHANGE Disc



PAD UNI Back up pads



PAD INOX Back up pads



PAD BASIC Back up pads



PAD TFC back up pads for TYROLIT FAST CHANGE

★★★
PREMIUM

CA-P93 N
natural fibre discs

for steel and stainless steel

+ Ceramic aluminium oxide and an additional coolant layer ensures maximum stock removal rate



+ Core helps to transport the heat away and ensures cool grinding

+ Environmentally friendly, trimmable jute fibre core guarantees maximum lifetime

Application:

+ For coarse grinding work as well as for removing rust and burrs from hard steel and stainless steel surfaces

We recommend:

+ Grit size 36 for maximum stock removal

★★★
PREMIUM

CA-P93 N natural fibre discs
for steel and stainless steel

	Shape		Type no.	Diameter	Grain	Max. RPM	PU
		N Disc	712259	115x22	36	13 300	10
			712268	125x22	36	12 250	10
			712269	180x22	36	8 600	10

★★★ PREMIUM

ZA-P48 N natural fibre discs
for steel and stainless steel

Application
+ For coarse grinding work as well as for removing rust and burrs from regular and hard steel and stainless steel surfaces

We recommend
+ Grit size 36 for maximum stock removal
+ Grit size 60 for general grinding work

Advantage
+ Zirconia alumina and an additional coolant layer ensures very good stock removal
+ Environmentally friendly, trimmable jute fibre core guarantees maximum lifetime
+ Core helps to transport the heat away and ensures cool grinding



Shape		Type no.	Diameter	Grain	Max. RPM	PU
●	N Disc	706128	115x22	36	13 300	10
		205056	115x22	60	13 300	10
		706129	125x22	36	12 250	10
		205058	125x22	60	12 250	10
		706130	180x22	36	8 600	10
		205060	180x22	60	8 600	10

Accessory
for natural fibre discs

Application
+ Ideally suited to setting the correct distance between the wheel and angle grinder

Advantage
+ Enables flat surfaces to be ground with a small grinding angle
+ Compatible with all wheel diameters



	Type no.	Diameter	PU
100SFL	21381	42x22,23 M14	1

★★★ PREMIUM

ZA-P43 V vulcanised fibre discs

for steel

Application

+ For coarse and fine grinding work as well as for removing rust and burrs from steel surfaces

We recommend

+ Grit size 24/36/40/60 for maximum stock removal
+ Grit size 80/120 for fine grinding

Advantage

+ Zirconia alumina ensures high abrasion when working on steel and very good stock removal
+ Low level of vibration for comfortable working



Shape	Type no.	Diameter	Grain	Max. RPM	PU
V Disc	706068	115x22	24	13 300	25
	706069	115x22	36	13 300	25
	706071	115x22	40	13 300	25
	706072	115x22	60	13 300	25
	706073	115x22	80	13 300	25
	706074	115x22	120	13 300	25
	706075	125x22	24	12 300	25
	706076	125x22	36	12 300	25
	706077	125x22	40	12 300	25
	706078	125x22	60	12 300	25
	706079	125x22	80	12 300	25
	706082	125x22	120	12 300	25
	706084	180x22	24	8 600	25
	706088	180x22	36	8 600	25
	706090	180x22	60	8 600	25
	706091	180x22	80	8 600	25
	706092	180x22	120	8 600	25

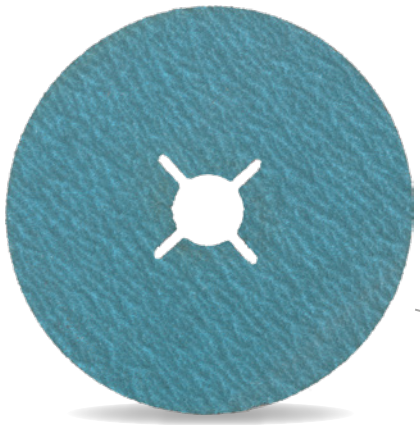
★★★
PREMIUM

ZA-P48 V
vulcanised fibre discs

for steel and stainless steel

+ Zirconia alumina and an additional coolant layer ensure very good stock removal

+ Additional coolant layer for long lifetime



+ Very good surface finish thanks to optimised backing thickness

Application:

+ For coarse and fine grinding work as well as for removing rust and burrs from regular and hard steel and stainless steel surfaces

We recommend:

+ Grit size 24/36/40/60 for maximum stock removal
+ Grit size 80/120 for fine grinding

★★★
PREMIUM

ZA-P48 V vulcanised fibre discs
for steel and stainless steel



Shape		Type no.	Diameter	Grain	Max. RPM	PU
✦	V Disc	34162979	115x22	24	13 300	25
		34162980	115x22	36	13 300	25
		34162981	115x22	40	13 300	25
		34162982	115x22	60	13 300	25
		34162983	115x22	80	13 300	25
		34162985	115x22	120	13 300	25
		34162987	125x22	24	12 300	25

▶

★★★ PREMIUM

ZA-P48 V vulcanised fibre discs

for steel and stainless steel





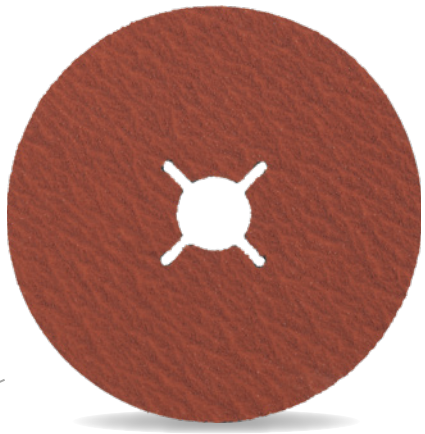
Shape		Type no.	Diameter	Grain	Max. RPM	PU
	V Disc	34162988	125x22	36	12 300	25
		34162989	125x22	40	12 300	25
		34162990	125x22	60	12 300	25
		34163011	125x22	80	12 300	25
		34163012	125x22	120	12 300	25
		34163013	180x22	24	8 600	25
		34163014	180x22	36	8 600	25
		34163020	180x22	60	8 600	25
		34163021	180x22	80	8 600	25
		34163022	180x22	120	8 600	25
		34163024	115x22	24	13 300	50
		34163025	115x22	36	13 300	50
		34163026	115x22	40	13 300	50
		34163888	115x22	60	13 300	50
		34163889	115x22	80	13 300	50
		34163890	115x22	120	13 300	50
		34163902	125x22	24	12 300	50
		34163903	125x22	36	12 300	50
		34163905	125x22	40	12 300	50
		34163906	125x22	60	12 300	50
		34163908	125x22	80	12 300	50
		34163910	125x22	120	12 300	50
		34163911	180x22	24	8 600	50
		34163912	180x22	36	8 600	50
		34163914	180x22	60	8 600	50
		34163915	180x22	80	8 600	50
		34163917	180x22	120	8 600	50

★★★
PREMIUM

CA-P93 V
vulcanised fibre discs

for steel and stainless steel

+ Ceramic aluminium oxide and an additional coolant layer ensures maximum stock removal rate



+ Maximum abrasiveness thanks to strong backing

+ Additional coolant layer for long lifetime

Application:

+ For coarse grinding work as well as for removing rust and burrs from hard steel and stainless steel surfaces

We recommend:

+ Grit size 24/36/40/60 for maximum stock removal
+ Grit size 80/120 for fine grinding

★★★
PREMIUM

CA-P93 V vulcanised fibre discs
for steel and stainless steel



Shape		Type no.	Diameter	Grain	Max. RPM	PU
✦	V Disc	34163955	115x22	24	13 300	25
		706107	115x22	36	13 300	25
		34163957	115x22	40	13 300	25
		706108	115x22	60	13 300	25
		706109	115x22	80	13 300	25
		706110	115x22	120	13 300	25
		34163958	125x22	24	12 300	25

▶

★★★ PREMIUM

CA-P93 V vulcanised fibre discs

for steel and stainless steel





Shape	Type no.	Diameter	Grain	Max. RPM	PU
V Disc	706111	125x22	36	12 300	25
	34163959	125x22	40	12 300	25
	706114	125x22	60	12 300	25
	706116	125x22	80	12 300	25
	706117	125x22	120	12 300	25
	34164002	180x22	24	8 600	25
	706119	180x22	36	8 600	25
	34164004	180x22	40	8 600	25
	706120	180x22	60	8 600	25
	706123	180x22	80	8 600	25
	706124	180x22	120	8 600	25
	34163992	115x22	24	13 300	50
	34163993	115x22	36	13 300	50
	34163994	115x22	40	13 300	50
	34163995	115x22	60	13 300	50
	34163997	115x22	80	13 300	50
	34163998	115x22	120	13 300	50
	34163999	125x22	24	12 300	50
	34164000	125x22	36	12 300	50
	34164011	125x22	40	12 300	50
	34164012	125x22	60	12 300	50
	34164013	125x22	80	12 300	50
	34164014	125x22	120	12 300	50
	34164015	180x22	24	8 600	50
	34164017	180x22	36	8 600	50
	34164018	180x22	40	8 600	50
	34164019	180x22	60	8 600	50
	34164020	180x22	80	8 600	50
	34164031	180x22	120	8 600	50

★ BASIC

A-B02 V vulcanised fibre discs

for steel, nonferrous metals and wood

Application

+ Suitable for universal use on steel, nonferrous metals and wood

We recommend

+ Grit size 16/24/36/40/60 for maximum stock removal
+ Grit size 80/120 for fine grinding

Advantage

+ Aluminium oxide for long lifetime and high abrasiveness
+ Maximum economic efficiency



Shape		Type no.	Diameter	Grain	Max. RPM	PU
	V Disc	150465	115x22	16	13 300	25
		706024	115x22	24	13 300	25
		706025	115x22	36	13 300	25
		706026	115x22	40	13 300	25
		706027	115x22	60	13 300	25
		706028	115x22	80	13 300	25
		150467	115x22	100	13 300	25
		706029	115x22	120	13 300	25
		150468	125x22	16	12 300	25
		706030	125x22	24	12 300	25
		706031	125x22	36	12 300	25
		706032	125x22	40	12 300	25
		706033	125x22	60	12 300	25
		706034	125x22	80	12 300	25
		150469	125x22	100	12 300	25
		706035	125x22	120	12 300	25
		150473	180x22	16	8 600	25
		706036	180x22	24	8 600	25
		706037	180x22	36	8 600	25
		706038	180x22	40	8 600	25
		706039	180x22	60	8 600	25
		706047	180x22	80	8 600	25
		706048	180x22	120	8 600	25

BASIC

A-B01 V vulcanised fibre discs

for steel, aluminium and wood

Application

+ Suitable for universal use on steel, nonferrous metals and wood

Advantage

+ Aluminium oxide for long lifetime and high abrasiveness

We recommend

+ Grit size 24 - 60 for maximum stock removal
+ Grit size 80/120 for fine grinding



Shape		Type no.	Diameter	Grain	Max. RPM	PU
	V Disc	34286491	115x22	24	13 300	5
		34286492	115x22	36	13 300	5
		34286493	115x22	40	13 300	5
		34286703	115x22	50	13 300	5
		34286494	115x22	60	13 300	5
		34286495	115x22	80	13 300	5
		34286497	115x22	100	13 300	5
		34286498	115x22	120	13 300	5
		34286499	125x22	24	12 300	5
		34286500	125x22	36	12 300	5
		34286501	125x22	40	12 300	5
		34286705	125x22	50	12 300	5
		34286502	125x22	60	12 300	5
		34286503	125x22	80	12 300	5
		34286505	125x22	100	12 300	5
		34286506	125x22	120	12 300	5
		34286507	180x22	24	8 600	5
		34286508	180x22	36	8 600	5
		34286509	180x22	40	8 600	5
		34286706	180x22	50	8 600	5
		34286510	180x22	60	8 600	5
		34286511	180x22	80	8 600	5
		34286512	180x22	100	8 600	5
		34286513	180x22	120	8 600	5

★★★ PREMIUM

Accessory
for fibre discs

Application
+ Back up pads offer the best support for working with fibre discs

Advantage
+ Various hardnesses for the required stock removal rate
+ Constant air circulation thanks to special design prevents heat build-up at the workpiece and tool



Shape		Type no.	Diameter	Mounting	Grade	Max. RPM	PU
	PAD INOX	709989	115x22	M14	VERY HARD	13 300	5
		709991	125x22	M14	VERY HARD	12 300	5
	PAD UNI	709992	115x22	M14	HARD	13 300	5
		709993	125x22	M14	HARD	12 300	5
		709994	180X22	M14	HARD	8 600	5

★ BASIC

Accessory
for fibre discs

Application
+ Pack up pads offer the best support for working with fibre discs

Advantage
+ Good support for a perfect surface finish



Shape		Type no.	Diameter	Mounting	Grade	Max. RPM	PU
	PAD BASIC	709995	115x22	M14	HARD	13 300	5
		709997	125x22	M14	HARD	12 300	5
		709998	180X22	M14	HARD	8 600	5
		709999	115x22	⅝"	HARD	13 300	5
		710002	125x22	⅝"	HARD	12 300	5
		710005	180X22	⅝"	HARD	8 600	5

★★★ PREMIUM

ZA-P45 V* / ZA-P45 P F TYROLIT Fast Change (TFC)

for steel, nonferrous metals, composites and gel coat

Application

+ For coarse and fine grinding of steel, nonferrous metals, composites and gel coat

We recommend

+ Grit size 40 for grinding smaller welding seams and spot weld seams
+ Grit size 60 for maximum stock removal
+ Grit size 80/120 for a perfect surface finish

Advantage

+ Combination of zirconia alumina and a unique, strong paper backing for maximum abrasiveness and lifetime
+ Active coolant in the bond for cool and clean grinding
+ TYROLIT Fast Change system for quick and easy wheel changes thanks to Velcro fastening



Shape		Type no.	Diameter	Grain	Max. RPM	PU
●	Disc	706135*	115	40	12 300	50
		706136	115	60	12 300	50
		706137	115	80	12 300	50
		706138	115	120	12 300	50
		706139*	125	40	10 500	50
		706141	125	60	10 500	50
		706142	125	80	10 500	50
		706143	125	120	10 500	50

**Fibre backing*

★★★ PREMIUM

Accessory

for TYROLIT Fast Change (TFC)

Application

+ Back up pads for quick and easy mounting of the TFC discs on speed-controlled angle grinders

Advantage

+ Ideal support for finishing and preparing surfaces
+ High-quality product design enables use on different materials, including wood and paints



Shape		Type no.	Diameter	Mounting	Grade	Max. RPM	PU
	PAD TFC	710006	115	M14	HARD	13 300	5
		710007	125	M14	HARD	12 300	5



4.3 Rough cleaning wheel
Angle grinder



Rough cleaning wheel **for angle grinder**

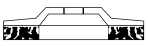
Working with an angle grinder is one of the most important processes in the trade and industrial sectors for processing all types of metals. Would you like to remove rust, paint and varnish with a minimum of effort? Or do you need to prepare surfaces for welding, soldering or anodising?

The highly porous nylon fibres are evenly treated with aggressive abrasives and are able to meet any challenge.
All of our rough cleaning discs resist loading or smearing and offer long life with an even grinding pattern, but also low heat generation and quiet, stress-free working.

Application recommendations

Performance level	Design	All in One	Pages
★★★ PREMIUM	C COARSE, A EX. COARSE	●	231

Shapes



27GR Rough cleaning wheel
(sound insulated)

★★★ PREMIUM Rough cleaning wheels
for universal use

Application

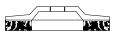
+ For removing rust, paint and lacquer and for preparing surfaces for welding, soldering or anodising

We recommend

+ C COARSE design for fine work on surfaces
+ A EX. COARSE design for increased abrasiveness and use on edges

Advantage

+ Flexible nylon fibres treated with aggressive abrasive grain for universal use and the best results
+ Design prevents clogging and loading of the wheel
+ Minimal generation of heat thanks to open structure

	Shape	Type no.	Dimension	Design	Colour	PU	Max. RPM	Rec. speed
	 28 VL GR	898014	115x22.23	C COARSE	BLACK	5	11 000	8 600
		898017	125x22.23	C COARSE	BLACK	5	9 800	7 800
		898018	178x22.23	C COARSE	BLACK	5	7 000	6 600
		34206236	115x22.2	A EX. COARSE	BLUE	5	11 000	8 600
		34206237	125x22.2	A EX. COARSE	BLUE	5	9 800	7 800
		34206238	178x22.2	A EX. COARSE	BLUE	5	7 000	6 600





4.4 SCM – SURFACE CONDITIONING MATERIAL
Angle grinder



SCM discs **for angle grinders**

Working with an angle grinder is one of the most important processes in the trade and industrial sectors for processing all types of metals. TYROLIT now offers the SCM product assortment for use with angle grinders as well.

SURFACE CONDITIONING MATERIAL discs combine excellent cutting ability with long tool life, so that you can achieve optimum surface quality. This saves you two or three work steps. From simple deburring work without workpiece deformation to perfect surface finishing, SCM can be used universally.

With a wide range of grain sizes, from extra coarse to very fine, TYROLIT products are suitable for many different applications. Our discs offer another special feature: thanks to the removable centre hole, our discs can be mounted on the three most popular back up pads. Try it for yourself!

Application recommendations

Performance level	Design	All in One	Pages
★★★ PREMIUM	EXTRA COARSE, COARSE, EXTRA MEDIUM, MEDIUM, VERY FINE	●	236, 237

SCM disc assembly

SCM discs are designed for use on an angle grinder and are available in the popular diameters 115–178 mm, from EXTRA COARSE to VERY FINE.

Cleverly designed: Thanks to the removable centre hole, each of these discs can be used on all three of the supporting discs in our range.



Colours

	EXTRA COARSE	COARSE	EXTRA MEDIUM	MEDIUM	VERY FINE
Front					
Back					

Shapes



DISC SCM Disc

★★★
PREMIUM

SCM discs

for universal use

+ Versatile application options eliminate the need for 1-3 work steps



+ Best lifetime and high stock removal

+ Removable centre hole enables mounting on a wide range of back up pads

+ Universal application areas

Application:

+ For reducing surface roughness, removing paint residues, smoothing surfaces, cleaning and removing welding seams and for deburring edges

We recommend:

+ Use on adjustable angle grinders
+ “EXTRA COARSE/EXTRA MEDIUM” grain for cleaning, for removing rust and burrs and for minimal stock removal
+ “COARSE” grain for cleaning, for removing rust and coatings and for final finishing
+ “MEDIUM” grain for gentle cleaning, for removing burrs and for final finishing
+ “VERY FINE” grain as the final step

★★★
PREMIUM

SCM discs
for universal use

	Shape	Type no.	Dimension	Design	Colour	Max. RPM	Rec. speed	PU
	Disc	34299305	115x22	HD EXTRA COARSE	DARK BROWN / PURPLE	13 000	8–9 000	20
		34047715	115x22	COARSE	BROWN	13 000	8–9 000	20
		34299306	115x22	HD EXTRA MEDIUM	DARK BROWN / PURPLE	13 000	8–9 000	20
		34047720	115x22	MEDIUM	RED	13 000	8–9 000	20

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	Shape	Type no.	Dimension	Design	Colour	Max. RPM	Rec. speed	PU
	Disc	34047722	115x22	VERY FINE	BLUE	13 000	8–9 000	20
		34299307	125x22	HD EXTRA COARSE	DARK BROWN / PURPLE	12 000	7–8 500	20
		34047727	125x22	COARSE	BROWN	12 000	7–8 500	20
		34299308	125x22	HD EXTRA MEDIUM	DARK BROWN / PURPLE	12 000	7–8 500	20
		34047732	125x22	MEDIUM	RED	12 000	7–8 500	20
		34047733	125x22	VERY FINE	BLUE	12 000	7–8 500	20
		34047734	178x22	HD EXTRA COARSE	DARK BROWN / PURPLE	8 500	5–6 000	20
		34047735	178x22	COARSE	BROWN	8 500	5–6 000	20
		34047736	178x22	HD EXTRA MEDIUM	DARK BROWN / PURPLE	8 500	5–6 000	20
		34047755	178x22	MEDIUM	RED	8 500	5–6 000	20
		34047757	178x22	VERY FINE	BLUE	8 500	5–6 000	20

★★★ PREMIUM

SCM set
for universal use

Application
+ For reducing surface roughness, removing paint residues, smoothing surfaces, cleaning and removing welding seams and for deburring tool edges

Advantage
+ The SCM set includes all five designs â€“ from EXTRA COARSE to VERY FINE
+ Best lifetime and good stock removal
+ Universal application areas
+ Removable centre hole enables mounting on all back up pads available in the assortment

	Shape	Type no.	Dimension	Mounting	Max. RPM	Rec. speed	PU
	Disc	34186370	115x22	M14	13 000	8–9 000	1
		34197811	125x22	M14	12 000	7–8 500	1

★★★
PREMIUM

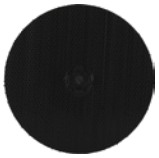
Back up pads
for SCM discs

Application

+ For using SCM discs on angle grinders
+ SCM back up pads available with or without centre hole mounting

Advantage

+ Back up pads with centre hole mountings for self-centring fitting of the disc on the back up pad

	Shape		Type no.	Diameter	Mounting	Grade	Max. RPM	PU
		PAD SCM	34050524	115x22	M14	MEDIUM	13 000	1
			34050525	125x22	M14	MEDIUM	12 000	1
			34050358	115	M14	MEDIUM	13 000	1
			34050359	125	M14	MEDIUM	12 000	1
			34050509	178	M14	MEDIUM	8 500	1



4.5 Compact wheels
Angle grinders



Compact wheels **for angle grinders**

Working with an angle grinder is one of the most important processes in the trade and industrial sectors for processing all types of metals. TYROLIT offers a comprehensive assortment of products for this purpose.

With the compact wheel range, TYROLIT offers you an ideal tool for the machining of surfaces without changing the surface geometry, particularly for the removal of rust and dirt. Compact wheels consist of multilayer unitised fleece and are available in coarse to fine specifications depending on the number of layers. On the following pages, you will find our range of unitised compact wheels for angle grinders.

Application recommendations

Performance level	Design	All in One	Pages
★★★ PREMIUM	2 A MEDIUM, 2 C FINE, 3 C FINE, 6 A MEDIUM, 6 C FINE, 8 A COARSE	●	242, 243

Shapes



1UW Unitized wheel (unitised wheel)

★★★
PREMIUM

Unitised compact wheels

for universal use

+ Ideally suited to hard-to-reach places thanks to their flexibility



+ Cool grinding and low clogging of the wheel for the best surface results

+ Universal tool with maximum brush life

Application:

+ For removing rust, burrs and scratches as well as for fading, glazing, finishing and grinding welding seams

We recommend:

+ 2/3 C FINE for deburring and polishing
+ 2 A MEDIUM for deburring, polishing and for transitions
+ 6 C FINE / 6 A MEDIUM for deburring, rounding sharp edges and for transitions
+ 8 A COARSE for deburring, rounding sharp edges and for transitions with increased abrasiveness
+ Adjustable angle grinders for the best results

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★★★ PREMIUM

Unitised compact wheels
for universal use



Shape	Type no.	Dimension	Design	Max. RPM	Rec. speed	PU
	34257307	127x6x22.2	3 C FINE	10 000	6 000	2
	34190122	127x3x22.2	6 A MEDIUM	10 000	6 000	16
	34190123	127x6x22.2	3 C FINE	10 000	6 000	8
	34190124	127x6x22.2	6 A MEDIUM	10 000	6 000	8
	34190125	152x3x25.4	2 A MEDIUM	5 000	3 000	16
	34190209	152x3x25.4	6 A MEDIUM	7 500	4 500	16
	34190210	152x3x25.4	6 C FINE	7 500	4 500	16
	34190231	152x3x25.4	8 A COARSE	7 500	4 500	16
	34190274	152x6x25.4	2 A MEDIUM	5 000	3 000	8
	34190275	152x6x25.4	2 C FINE	5 000	3 000	8
	34190276	152x6x25.4	3 C FINE	5 000	3 000	8
	34190277	152x6x25.4	6 A MEDIUM	7 500	4 500	8
	34190279	152x6x25.4	8 A COARSE	7 500	4 500	8


KICK
ASS



4.6 POLISHING PROGRAM
Angle grinder



Polishing program **for angle grinders**

Working with an angle grinder is one of the most important processes in the trade and industrial sectors for processing all types of metals. TYROLIT offers an optimally tailored package for polishing metal.

There are many suppliers of polishing accessories. But anyone who has ever polished knows how important it is that all components should be perfectly matched to one another.

With TYROLIT you can get everything you need from one source. You can tell how perfectly our products are matched from the fact that you can get a mirror finish in only three steps – without unwanted discolouration due to overheating.

Shapes



28PCA CONDITIONING



28PUA PRE-POLISH



28PWA POLISH



Disc POLISTAR

Recommended speeds

PREMIUM*** CONDITIONING	PREMIUM*** PRE-POLISH	PREMIUM*** POLISH
115 mm – 4 000 U/min	115 mm – 3 500 U/min	115 mm – 1 800 U/min
125 mm – 3 600 U/min	125 mm – 3 000 U/min	125 mm – 1 500 U/min

POLISHING PASTE:

- WHITE – high gloss PRE-POLISH (POLISH)
- BLUE – high gloss POLISH (S-POLISH)
- BROWN - special POLISH for nonferrous metals (POLISH-NE)

★★★ PREMIUM

TYROLIT polishing program

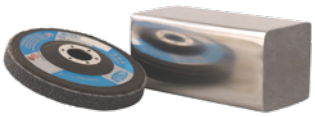
Three steps to a perfect mirror finish

+ **Preparation**
Preparing the untreated workpiece
To prepare the untreated material and get a mirror finish, you need:
PREMIUM*** fibre discs ZA-P48 Page 221
PREMIUM*** 2in1 flap discs Page 201
STANDARD** SOFTJOB Page 207
Our recommendation: grit size 120 or 80 depending on the material

+ **Step 1**
Remove rough scratch marks using the PREMIUM* CONDITIONING disc**
It removes all rough scratch marks from the surfaces to be machined.
A multi-dimensional flap design reduces clogging and prevents unwanted material discolouration.
Recommendation: “MEDIUM” grain



+ **Step 2**
Prepare for polishing with the PREMIUM* PRE-POLISH disc**
This provides optimum polishing preparation. The disc adapts flexibly to the material surface.
Recommendation: “FINE-P” grain



+ **Step 3**
POLISH **with the PREMIUM*** POLISH disc**
This allows you finally to achieve a perfect mirror finish.
Different grinding pastes enable processing of different materials, such as steel, stainless steel and nonferrous metals.
Recommendation: SHF with “S-POLISH” polishing paste



★★★ PREMIUM

CONDITIONING discs

for steel, stainless steel and nonferrous metals

Application

+ For removing the final scratches in preparation for polishing

Advantage

+ No discolouration thanks to low thermal load (heat build-up)
+ Specially developed to achieve the best results even on non-adjustable angle grinders
+ Three-dimensional flap design eliminates clogging of the disc



Shape	Type no.	Dimension	Design	PU	Max. RPM
28PCA	742155	115x22.23	COARSE	5	12 000
	742157	115x22.23	MEDIUM	5	12 000
	742158	115x22.23	VERY FINE	5	12 000
	742148	125x22.23	COARSE	5	11 000
	742153	125x22.23	MEDIUM	5	11 000
	742154	125x22.23	VERY FINE	5	11 000

★★★ PREMIUM

PRE-POLISH discs

for steel, stainless steel and nonferrous metals

Application

+ For preparing the surface for polishing

Advantage

+ Several layers of abrasive fabric for maximum lifetime and sturdiness
+ Can additionally be used for smaller deburring tasks
+ Specially developed to achieve the best results even on non-adjustable angle grinders



Shape	Type no.	Dimension	Design	PU	Max. RPM
28PUA	742379	115x22.23	MEDIUM-Q	5	12 000
	742380	115x22.23	FINE-P	5	12 000
	742381	115x22.23	VERY FINE-P	5	12 000
	742382	125x22.23	MEDIUM-Q	5	11 000
	742384	125x22.23	FINE-P	5	11 000
	742385	125x22.23	VERY FINE-P	5	11 000

★★★ PREMIUM

POLISH discs
for universal use

Application
+ For polishing various materials

We recommend
+ Use in combination with TYROLIT grinding paste for a perfect mirror finish
+ Note maximum speed

Advantage
+ Optimum heat distribution and cool grinding thanks to highly flexible flaps
+ Cool grinding prevents unwanted discolouration

	Shape		Type no.	Dimension	Specification	PU	Max. RPM
		28PWA	742378	115x22.23	SHF	3	9 200
			742375	125x22.23	SHF	3	7 700

★★★ PREMIUM

Polishing pastes
for steel, stainless steel and nonferrous metals

Application
+ For enhancing polishing of steel, stainless steel and nonferrous metals

We recommend
+ POLISH – for a high-gloss pre-polish
+ S-POLISH – for a high-gloss polish
+ POLISH-NE – special polish for nonferrous metals

Advantage
+ Perfect mirror finish in combination with POLISH discs

		Type no.	Dimension	Specification	Colour	PU
	90PP	741230	30x20x90	POLISH	WHITE	2
		741285	30x20x90	POLISH-NE	BROWN	2
		741291	30x20x90	S-POLISH	BLUE	2
		741347	60x45x160	POLISH	WHITE	1
		741348	60x45x160	POLISH-NE	BROWN	1
		741349	60x45x160	S-POLISH	BLUE	1

★★★
PREMIUM

Polishing program set

for steel, stainless steel and nonferrous metals

+ Step 1 - PREMIUM*** CONDITIONING discs: Removing coarse scratches – the three-dimensional flap design eliminates clogging of the disc



+ Step 3 – PREMIUM*** POLISH discs: Polishing for a perfect mirror finish – different grinding pastes enable different materials to be ground

+ Step 2 – PREMIUM*** PRE-POLISH discs: Preparing for polishing – the disc adapts to the surface, providing the perfect basis for polishing

Application:

+ Three steps to a mirror finish

★★★
PREMIUM

Polishing program set

for steel, stainless steel and nonferrous metals

	Type no.	Shape	Dimension	Design	Type no.	PU
	21262	28PCA	115x22.23	MEDIUM	742157	1
		28PUA	115x22.23	FINE-P	742380	1
		28PWA	115x22.23	SHF	742378	1
		90PP	30x20x90	S-POLISH	741291	2

▶

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	Type no.	Shape	Dimension	Design	Type no.	PU
	52433	28PCA	125x22.23	MEDIUM	742153	1
		28PUA	125x22.23	FINE-P	742384	1
		28PWA	125x22.23	SHF	742375	1
		90PP 00000	30x20x90	S-POLISH	741291	2

★★★ PREMIUM

POLISTAR
for stone

Application
+ Ceramic polishing pads for polishing various stone surfaces
+ Perfect results on granite, marble and terrazzo

We recommend
+ Use discs with increasing grit size until the required surface result is achieved

Advantage
+ Velcro fastening on the back for quick and easy mounting on the angle grinder
+ Grit sizes between 50 and 3000 for a perfect surface finish on the material

		Type no.	Dimension	Specification	Colour	PU
	65A	293641	100x3	D50-B	BLACK	5
		293643	100x3	D150-B	GREEN	5
		293644	100x3	D300-B	RED	5
		293645	100x3	D500-B	BLUE	5
		293737	100x3	D1000-B	YELLOW	5
		293738	100x3	D2000-B	BEIGE	5
		293739	100x3	D3000-B	WHITE	5
	ELKUPS	293790	100x3xM14			1

★★★
PREMIUM

POLISTAR set
for stone

Application
+ Ceramic polishing pads for polishing different stone surfaces
+ Perfect results on granite, marble, terrazzo

Advantage
+ The POLISTAR-Set includes all 7 different Polishing pads in the grit sizes 50, 150, 300, 500 1000, 2000, 3000 as well as a backing pad with M14 uptake.

	Type no.	Contents	Dimension	PU
	293740	293641	100x3	1
		293643	100x3	1
		293644	100x3	1
		293645	100x3	1
		293737	100x3	1
		293738	100x3	1
		293739	100x3	1
		293790	100x3xM14	1



4.7 QUICK-CHANGE DISCS
Mini angle grinder



QUICK-CHANGE DISCS
Mini angle grinder

QUICK-CHANGE DISCS are easy to use, without assembly tools being required. Easy handling on the mini angle grinder saves you a lot of time in your day-to-day work and increases your productivity.

A comprehensive assortment offers high-quality products for general grinding work, including fine surface finishing.
Two different mountings cover the main fixing systems. Type R can be used for Lockit, PowerLock III and Roloc TR mountings, type S for SocAtt, PowerLock II and Roloc TSM.

Another special feature of the S type mounting is that it is made from nylon, making it immune to rust and other types of contamination.

TYROLIT offers QUICK-CHANGE DISCS in a wide range of grit sizes for different materials. Take a look at our wide-ranging assortment and see for yourself.

Application recommendations

Performance level	Design	Steel	Stainless steel	NF metals	PVC	Wood	All in One	Pages
QUICK-CHANGE DISCS ★★★ PREMIUM	MINIDISC	●	●					256
	SOFTJOB	●	●					256
	A-P01 PE Y	●		●	●	●		260, 261
	ZA-P43 PC X	●						257
	ZA-P48 PE Y	●	●					258, 259
	CA-P93 PE Y	●	●					259, 260
SCM QUICK-CHANGE DISCS ★★★ PREMIUM	EXTRA COARSE, COARSE, EXTRA MEDIUM, MEDIUM, VERY FINE	●	●	●	●	●		261, 262
COMPACT WHEELS ★★★ PREMIUM	2 A MEDIUM, 2 C FINE, 3 C FINE, 6 A MEDIUM, 6 C FINE, 8 A COARSE, 8 A MEDIUM FINE, MEDIUM, COARSE						●	263, 264
ROUGH CLEANING WHEEL QUICK-CHANGE DISCS ★★★ PREMIUM	C COARSE, A EX COARSE						●	264

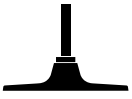
Shapes



QDisc-R



QDisc-S



Pad Q-Disc

★★ STANDARD

QUICK-CHANGE MINIDISCS
for steel and stainless steel

Application
+ For grinding and refining hard-to-reach places on steel and stainless steel with mini angle grinders

We recommend
+ Grit size 40/60 for maximum stock removal
+ Grit size 80/120 for fine grinding

Advantage
+ Quick clamping system for quick and convenient tool changes



Shape	Type no.	Diameter	Grain	Max. RPM	PU
QDisc-R	679662	50	40	30 000	10
	666221	50	60	30 000	10
	679663	50	80	30 000	10
	679664	50	120	30 000	10
	666276	75	40	20 000	10
	666279	75	60	20 000	10
	666280	75	80	20 000	10
	666421	75	120	20 000	10

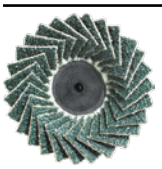
★★ STANDARD

SOFTJOB MINIDISCS
for steel and stainless steel

Application
+ For grinding contours and profiled surfaces, for cleaning welding seams and for removing rust and paint residues using mini angle grinders

We recommend
+ Grit size 40/60 for maximum stock removal
+ Grit size 80/120 for fine grinding

Advantage
+ Easy grinding of hard-to-reach places
+ High flexibility thanks to wide application area



Shape	Type no.	Diameter	Grain	Max. RPM	PU
QDisc-R	246982	50	40	30 000	10
	246984	50	60	30 000	10
	246985	50	80	30 000	10
	246986	50	120	30 000	10
	289327	75	40	20 000	10
	289329	75	60	20 000	10
	289330	75	80	20 000	10

★★★ PREMIUM

ZA-P43 PC X QUICK-CHANGE DISCS

for steel

Application

+ For coarse grinding work, for removing rust and burrs from hard-to-reach steel surfaces

We recommend

+ Grit size 36/40/60 for maximum stock removal
+ Grit size 80/120 for fine grinding

Advantage

+ Zirconia alumina guarantees maximum lifetime and abrasiveness on steel
+ TYROLIT QUICK-CHANGE system for fast disc changes



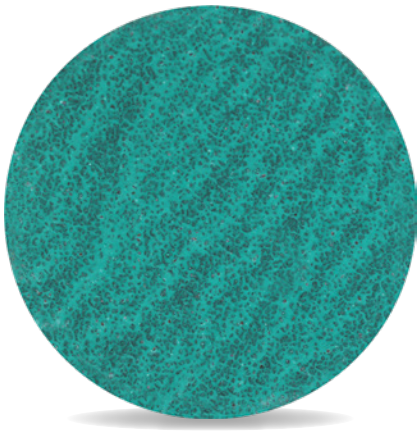
Shape	Type no.	Diameter	Grain	Max. RPM	PU
QDisc-R	116061	50	36	25 000	50
	116065	50	40	25 000	50
	116097	50	60	25 000	50
	116111	50	80	25 000	50
	116115	50	120	25 000	50
	116127	75	36	20 000	25
	116143	75	60	20 000	25
	116152	75	80	20 000	25

★★★
PREMIUM

ZA-P48 PE Y QUICK-CHANGE DISCS

for steel and stainless steel

+ High abrasiveness guarantees maximum stock removal



+ Very durable tool thanks to three-layer product structure in combination with zirconia alumina and a coolant layer

+ Robust design ensures low grain break-out and high edge stability

Application:

+ For coarse grinding applications, for removing rust and burrs from hard-to-reach places on regular and hard steel and stainless steel surfaces

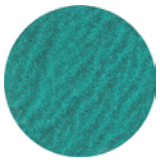
We recommend:

+ Grit size 24/36/40/60 for maximum stock removal
+ Grit size 80/120 for fine grinding

★★★
PREMIUM

ZA-P48 PE Y QUICK-CHANGE DISCS

for steel and stainless steel



Shape	Type no.	Diameter	Grain	Max. RPM	PU
QDisc-R	112398	50	24	25 000	50
	112401	50	36	25 000	50
	112406	50	40	25 000	50
	112411	50	60	25 000	50
	112413	50	80	25 000	50
	112418	50	120	25 000	50
	112432	75	24	20 000	25
	112438	75	36	20 000	25
	112447	75	60	20 000	25
	112449	75	80	20 000	25
	112452	75	120	20 000	25

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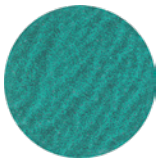
	Shape	Type no.	Diameter	Grain	Max. RPM	PU
	QDisc-S	112469	50	36	25 000	50
		112471	50	40	25 000	50
		112486	50	60	25 000	50
		112493	50	80	25 000	50
		112494	50	120	25 000	50
		112527	75	60	20 000	25
		112532	75	80	20 000	25

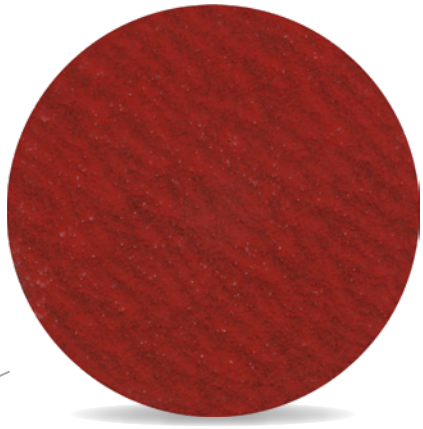
★★★
PREMIUM

CA-P93 PE Y QUICK-CHANGE DISCS

for steel and stainless steel

+ Maximum abrasiveness guarantees maximum stock removal

+ Very durable tool thanks to three-layer product structure in combination with ceramic aluminium oxide and a coolant layer



+ Robust design ensures low grain break-out and very high edge stability

Application:

+ For coarse grinding applications, for removing rust and burrs from hard-to-reach places on hard steel and stainless steel surfaces

We recommend:

+ Grit size 36/40/60 for maximum stock removal
+ Grit size 80/120 for fine grinding

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★★★ PREMIUM

CA-P93 PE Y QUICK-CHANGE DISCS

for steel and stainless steel



Shape	Type no.	Diameter	Grain	Max. RPM	PU
QDisc-R	112917	50	36	25 000	50
	112918	50	40	25 000	50
	112923	50	60	25 000	50
	112924	50	80	25 000	50
	112928	50	120	25 000	50
	112934	75	36	20 000	25
	112935	75	40	20 000	25
	112937	75	60	20 000	25
	112947	75	80	20 000	25
	112948	75	120	20 000	25
QDisc-S	112950	50	36	25 000	50
	112988	50	60	25 000	50
	113007	50	80	25 000	50
	113023	50	120	25 000	50
	113026	75	36	20 000	25
	113031	75	60	20 000	25
	113057	75	80	20 000	25
	113059	75	120	20 000	25

★★★ PREMIUM

A-P01 PE Y QUICK-CHANGE DISCS

for steel, nonferrous metals, plastic and wood

Application

+ For general grinding tasks on a wide range of materials such as steel, nonferrous metals, plastic and wood

We recommend

+ Grit size 24/36/40/60 for maximum stock removal
+ Grit size 80/120 for fine grinding

Advantage

+ Maximum productivity thanks to easy handling
+ Strong, two-layer polyester backing for a long lifetime
+ Also available in the fine grit range (grit > 120) on request



Shape	Type no.	Diameter	Grain	Max. RPM	PU
QDisc-R	111567	50	36	25 000	50
	111570	50	40	25 000	50
	111577	50	60	25 000	50
	111584	50	80	25 000	50
	111585	50	120	25 000	50
	111611	75	24	20 000	25
	111631	75	36	20 000	25

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Shape	Type no.	Diameter	Grain	Max. RPM	PU
QDisc-R	112204	75	60	20 000	25
	112205	75	80	20 000	25
	112242	75	120	20 000	25
QDisc-S	112254	50	36	25 000	50
	112273	50	50	25 000	50
	112283	50	80	25 000	50
	112298	50	120	25 000	50

★★★
PREMIUM

SCM QUICK-CHANGE DISCS

for steel, stainless steel, nonferrous metals, plastic and wood

+ Shortest grinding time thanks to easy handling and mounting



+ Versatile application options eliminate the need for 1-3 work steps

+ Best lifetime and very good stock removal

Application:

+ For reducing surface roughness, smoothing surfaces as well as cleaning and removing welding seams on a wide range of materials
+ Ideal for hard-to-reach places

We recommend:

+ “EXTRA COARSE/EXTRA MEDIUM” grain for cleaning, for removing rust and burrs and for minimal stock removal
+ “COARSE” grain for cleaning, for removing rust and coatings and for final finishing
+ “MEDIUM” grain for gentle cleaning, for removing burrs and for final finishing
+ “VERY FINE” grain as the final step

◀

★★★ PREMIUM

SCM QUICK-CHANGE DISCS

for steel, stainless steel, nonferrous metals, plastic and wood

	Shape	Type no.	Diameter	Design	Colour	Max. RPM	Rec. speed	PU
	QDisc-R	34072695	50	EXTRA COARSE	DARK BROWN / PURPLE	25 000	16 000	50
		112543	50	COARSE	BROWN	25 000	16 000	50
		34072696	50	EXTRA MEDIUM	DARK RED / PURPLE	25 000	16 000	50
		112546	50	MEDIUM	RED	25 000	16 000	50
		112550	50	VERY FINE	BLUE	25 000	16 000	50
		34072700	75	EXTRA COARSE	DARK BROWN / PURPLE	20 000	13 000	25
		112551	75	COARSE	BROWN	20 000	13 000	25
		34072701	75	EXTRA MEDIUM	DARK RED / PURPLE	25 000	13 000	25
		112581	75	MEDIUM	RED	20 000	13 000	25
		112588	75	VERY FINE	BLUE	20 000	13 000	25
	QDisc-S	112589	50	COARSE	BROWN	25 000	16 000	50
		112590	50	MEDIUM	RED	25 000	16 000	50
		112591	50	VERY FINE	BLUE	25 000	16 000	50
		112599	75	VERY FINE	BLUE	20 000	13 000	25

★★★
PREMIUM

QUICK-CHANGE DISC
unitised compact wheels

for universal use

+ Cool grinding and low clogging of the wheel guarantee maximum lifetime



+ Compact deburring tools are perfect for grinding hard-to-reach places and edges

+ Soft wheel surface maintains the surface geometry of the workpiece

Application:

+ For deburring, cleaning, fading, finishing and grinding welding seams on all materials

We recommend:

+ 2/3 C FINE for deburring and polishing
+ 2 A MEDIUM for deburring, polishing and for transitions
+ 6 C FINE / 6 A MEDIUM for deburring, rounding sharp edges and for transitions
+ 8 A MEDIUM / 8 A COARSE for deburring, rounding sharp edges and for transitions with increased abrasiveness

QUICK-CHANGE DISC unitised compact wheels

★★★ PREMIUM

for universal use

	Shape	Type no.	Diameter	Design	Max. RPM	Rec. speed	PU
	QDisc-R	34190106	51	2 A MEDIUM	22 000	13 000	20
		34190107	51	2 C FINE	22 000	13 000	20
		34190108	51	3 C FINE	22 000	13 000	20
		34190110	51	6 A MEDIUM	22 000	13 000	20
		34190133	51	6 C FINE	22 000	13 000	20
		34190134	51	8 A COARSE	22 000	13 000	20
		34190135	76	2 A MEDIUM	15 000	9 000	10
		34190137	76	2 C FINE	15 000	9 000	10
		34190138	76	3 C FINE	15 000	9 000	10
		34190139	76	6 A MEDIUM	15 000	9 000	10
		34190140	76	6 C FINE	15 000	9 000	10
		34190142	76	8 A COARSE	15 000	9 000	10
		34201558	76	8 A MEDIUM	15 000	9 000	10

QUICK-CHANGE DISC rough cleaning wheels

★★★ PREMIUM

for steel, stainless steel and PVC

Application

+ For removing rust, paint, lacquer and underbody sealant using a mini angle grinder

We recommend

+ C COARSE design for fine work on surfaces
+ A EX. COARSE design for increased abrasiveness and use on edges

Advantage

+ Quiet and non-strenuous grinding with low generation of heat
+ Structure treated with nylon fibres guarantees aggressive grinding
+ No smearing or loading of the disc

	Shape	Type no.	Diameter	Design	Colour	Max. RPM	Rec. speed	PU
	QDisc-R	112602	50	C COARSE	BLACK	10 500	6 300	20
		112603	75	C COARSE	BLACK	7 000	4 200	10
		34206231	50	A EX. COARSE	BLUE	10 500	7 000	20
		34206232	75	A EX. COARSE	BLUE	7 000	4 200	10

Accessories
for QUICK CHANGE DISCS

Application

+ Accessory for QUICK-CHANGE DISCS for mounting on mini-angle grinders with diameter 50 mm and 70 mm

	Shape		Type no.	Dimension	Grade	Mounting	Max. RPM	PU
		PAD Q-DISC	131779	50-6x40	MEDIUM	R	25 000	1
			131783	75-6x40	MEDIUM	R	20 000	1
			34472191	50-6x40	HARD	R	20 000	1
			131784	50-6x40	MEDIUM	S	25 000	1
			131786	75-6x40	MEDIUM	S	20 000	1

Accessories
for Q-Disc compact wheels

Application

+ Accessory for fitting the Q-DISC adapters on an angle grinder

	Shape	Type no.	Mounting	Specification	Max. RPM	PU
		34214177	R	P ADAPTER	22 000	1

★★★ PREMIUM

QUICK-CHANGE DISC set
for universal use

Application

+ Set includes SCM discs, rough cleaning wheels and fibre discs in the specification ZA-P48, ZA-P93 and A-P01 as well as corresponding mounts

Advantage

+ Set of high-quality products for general grinding work all the way up to fine surface finishing

	Shape	Type no.	Dimension	Mounting	Comments	PU
		34064598	50 & 75	R	DEMOBOX	1


KROLL



4.8 Spiral belts
Straight grinder



Spiral belts
Straight grinder

Straight grinders are used when you need to work precisely in hard-to-reach locations. TYROLIT spiral belts provide the help you need for every task. They’re precise, yet flexible.

Our spiral belts allow you to work quickly and neatly on every type of metal, both ferrous and nonferrous. Applications range from simple deburring, to precision work, to the shaping of complex workpieces.

With many different grit sizes available, a wide range of possibilities is open to you. Naturally TYROLIT also offers suitable accessories for easy assembly on straight grinders.

Application recommendations

Performance level	Specification	Steel	Stainless steel	NF metals	Pages
★★★ PREMIUM	ZA-P43 PC X	●	●	●	270, 271

Shapes



Spiral Spiral belt



SBH Accessories

★★★ PREMIUM

ZA-P43 PC X spiral belts

for steel, stainless steel and aluminium

Application

+ For fine grinding and deburring work as well as shaping complex workpieces made of steel, stainless steel and aluminium

We recommend

+ Grit size 36/50/60 for maximum stock removal
+ Grit size 80/120 for fine work

Advantage

+ Combination of zirconium and coolant in the bond for use on a wide variety of materials
+ Easy mounting on an axle or an expandable mandrel
+ For grinding hard-to-reach places



Shape	Type no.	Dimension	Grain	Max. RPM	PU
Spiral	706515	10x20	60	36 000	50
	706516	10x20	80	36 000	50
	706517	10x20	120	36 000	50
	706519	13x25	50	36 000	50
	706520	13x25	60	36 000	50
	706521	13x25	80	36 000	50
	706523	13x25	120	36 000	50
	706524	15x30	36	36 000	50
	706525	15x30	50	36 000	50
	706526	15x30	60	36 000	50
	706527	15x30	80	36 000	50
	706528	15x30	120	36 000	50
	706529	19x25	36	30 000	50
	706530	19x25	50	30 000	50
	706531	19x25	60	30 000	50
	706533	19x25	80	30 000	50
	706534	19x25	120	30 000	50
	706535	22x20	36	26 000	50
	706536	22x20	50	26 000	50
	706537	22x20	60	26 000	50
	706538	22x20	80	26 000	50
	706539	22x20	120	26 000	50
	706540	25x25	36	24 000	50
	706541	25x25	50	24 000	50
	706542	25x25	60	24 000	50
	706543	25x25	80	24 000	50
	706544	25x25	120	24 000	50
	706545	30x30	36	19 100	50
	706546	30x30	50	19 100	50
	706547	30x30	60	19 100	50
	706548	30x30	80	19 100	50

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	Shape	Type no.	Dimension	Grain	Max. RPM	PU
	 Spiral	706550	30x30	120	19 100	50
		706551	38x25	36	15 000	50
		706552	38x25	50	15 000	50
		706553	38x25	60	15 000	50
		706555	38x25	80	15 000	50
		706557	38x25	120	15 000	50
		706558	45x30	36	12 700	50
		706559	45x30	50	12 700	50
		706560	45x30	60	12 700	50
		706561	45x30	80	12 700	50
		706562	45x30	120	12 700	50
		706566	51x25	80	11 200	50
		706568	60x30	36	9 500	50
		706569	60x30	50	9 500	50
		706570	60x30	60	9 500	50
		706571	60x30	80	9 500	50
		706573	60x30	120	9 500	50

★★★ PREMIUM

Accessories
for spiral belts



Application

+ Expandable rubber support for mounting TYROLIT spiral belts on straight grinders

We recommend

+ Note maximum speed

Advantage

+ Flaps can be expanded for secure and easy mounting of the spiral belts

	Shape	Type no.	Dimension	Max. RPM	PU
	 SBH	710011	10x20-6x40	44 000	5
		710012	13x25-6x40	44 000	5
		710013	15x30-6x40	36 000	5
		710014	19x25-6x40	30 000	5
		710015	22x20-6x40	26 000	5
		710016	25x25-6x40	24 000	5
		710017	30x30-6x40	19 100	5
		710018	38x25-6x40	15 000	5
		710022	45x30-6x40	12 700	5
		710023	51x25-6x40	11 200	5
		710025	60x30-6x40	9 500	5
		710026	75x30-6x40	7 600	5


TYROLIT

4.9 Spindle-mounted fleece flap wheels and mounted flap wheels
Straight grinder





Spindle-mounted fleece flap wheels and mounted flap wheels **for straight grinders**

Straight grinders are used when you need to work precisely in hard-to-reach locations. Especially when used in conjunction with TYROLIT spindle-mounted fleece flap wheels and mounted flap wheels, they are a flexible tool for producing optimum workpiece contours.

The fan-shaped, abrasive grain flaps of the mounted flap wheels allow precise work on all surfaces. They can be used not only on electrical but also on pneumatic straight grinders.

The TYROLIT assortment also includes a large number of spindle-mounted fleece flap wheels in different shapes and designs. They are highly adaptable and ensure that no changes occur to the surface integrity. Spindle-mounted fleece flap wheels are available with or without embedded abrasive.

Application recommendations

Performance level	Specification	Steel	Stainless steel	NF metals	Pages
MOUNTED FLAP WHEELS ★★★ PREMIUM	A-P01 C X	●	●	●	276, 277, 278, 279
MOUNTED FLAP WHEELS ★ BASIC	A-B02 PC X	●	●	●	279, 280
FLEECE FLAP WHEELS SPINDLE MOUNTED ★★★ PREMIUM		●	●	●	281, 282

Shapes



52 VL Spindle-mounted fleece flap wheels

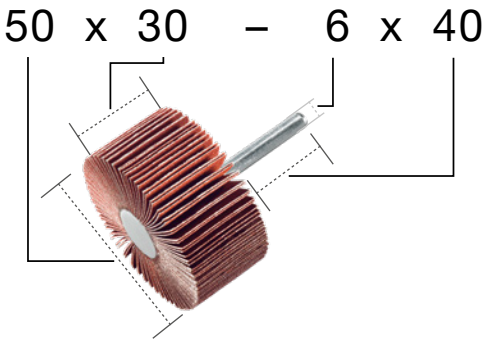


52 LAVL Spindle-mounted fleece flap wheels



552 LA Mounted flap wheels

Dimensions



★★★
PREMIUM

A-P01 C X mounted flap wheels

for steel, stainless steel and nonferrous metals

+ Flexible flaps for precision work



+ Perfect for grinding hard-to-reach places

+ Maximum lifetime and the best grinding results

Application:

+ For various applications on steel, stainless steel and nonferrous metals
+ For matting, pre-polishing, removing rust or cleaning surfaces

We recommend:

+ Grit size 40/60 for high stock removal
+ Grit size 80/120 for universal grinding
+ Grit sizes 150 to 320 for fine work
+ Note maximum speed

★★★
PREMIUM

A-P01 C X flap wheels

for steel, stainless steel and nonferrous metals

	Shape	Type no.	Dimension	Grain	Max. RPM	Rec. speed	PU
	 52LA-C	909383	10x10-3x40	80	35 000	26 000	10
		909385	10x10-3x40	120	35 000	26 000	10
		661085	10x10-3x40	150	35 000	26 000	10
		49856	20x10-6x40	60	30 000	20 000	10
		816831	20x10-6x40	80	30 000	20 000	10
		816833	20x10-6x40	120	30 000	20 000	10
		886805	25x15-6x40	60	26 000	18 000	10
		816846	25x15-6x40	80	26 000	18 000	10

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	Shape	Type no.	Dimension	Grain	Max. RPM	Rec. speed	PU
	 52LA-C	816847	25x15-6x40	120	26 000	18 000	10
		909390	30x5-6x40	80	26 000	16 000	10
		909393	30x5-6x40	120	26 000	16 000	10
		909397	30x10-3x40	80	26 000	16 000	10
		909398	30x10-3x40	120	26 000	16 000	10
		959241	30x10-6x40	40	26 000	16 000	10
		816855	30x10-6x40	60	26 000	16 000	10
		816871	30x10-6x40	80	26 000	16 000	10
		816872	30x10-6x40	120	26 000	16 000	10
		816873	30x10-6x40	150	26 000	16 000	10
		816874	30x10-6x40	240	26 000	16 000	10
		816875	30x10-6x40	320	26 000	16 000	10
		939107	30x15-6x40	40	26 000	16 000	10
		816880	30x15-6x40	60	26 000	16 000	10
		816893	30x15-6x40	80	26 000	16 000	10
		816905	30x15-6x40	120	26 000	16 000	10
		648425	40x10-6x40	60	20 000	13 000	10
		82078	40x10-6x40	80	20 000	13 000	10
		82079	40x10-6x40	120	20 000	13 000	10
		816907	40x15-6x40	60	20 000	13 000	10
		816908	40x15-6x40	80	20 000	13 000	10
		816909	40x15-6x40	120	20 000	13 000	10
		816911	40x15-6x40	150	20 000	13 000	10
		816914	40x20-6x40	40	20 000	13 000	10
		816915	40x20-6x40	60	20 000	13 000	10
		816916	40x20-6x40	80	20 000	13 000	10
		816918	40x20-6x40	120	20 000	13 000	10
		816919	40x20-6x40	150	20 000	13 000	10
		897078	40x20-6x40	180	20 000	13 000	10
		816920	40x20-6x40	240	20 000	13 000	10
		816922	50x15-6x40	60	16 000	11 000	10
		816923	50x15-6x40	80	16 000	11 000	10
		816928	50x20-6x40	40	16 000	11 000	10
		816931	50x20-6x40	60	16 000	11 000	10
		816933	50x20-6x40	80	16 000	11 000	10
		816934	50x20-6x40	120	16 000	11 000	10
		816939	50x20-6x40	320	16 000	11 000	10
		910574	50x30-6x40	40	16 000	11 000	10
		816940	50x30-6x40	60	16 000	11 000	10

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★★★ PREMIUM

A-P01 C X flap wheels

for steel, nonferrous metal and wood

	Shape	Type no.	Dimension	Grain	Max. RPM	Rec. speed	PU
	 52LA-C	816941	50x30-6x40	80	16 000	11 000	10
		816942	50x30-6x40	120	16 000	11 000	10
		816943	50x30-6x40	150	16 000	11 000	10
		433020	50x30-6x40	240	16 000	11 000	10
		910572	50x30-6x40	320	16 000	11 000	10
		816949	60x15-6x40	60	13 500	9 000	10
		816950	60x15-6x40	80	13 500	9 000	10
		910707	60x20-6x40	40	13 500	9 000	10
		816953	60x20-6x40	60	13 500	9 000	10
		816954	60x20-6x40	80	13 500	9 000	10
		816955	60x20-6x40	120	13 500	9 000	10
		816956	60x20-6x40	150	13 500	9 000	10
		433039	60x20-6x40	180	13 500	9 000	10
		816958	60x20-6x40	320	13 500	9 000	10
		817011	60x30-6x40	40	13 500	9 000	10
		816959	60x30-6x40	60	13 500	9 000	10
		816960	60x30-6x40	80	13 500	9 000	10
		816961	60x30-6x40	120	13 500	9 000	10
		816962	60x30-6x40	150	13 500	9 000	10
		909368	60x30-6x40	180	13 500	9 000	10
		816963	60x30-6x40	240	13 500	9 000	10
		816964	60x30-6x40	320	13 500	9 000	10
		817012	60x40-6x40	40	13 500	9 000	10
		816965	60x40-6x40	60	13 500	9 000	10
		816966	60x40-6x40	80	13 500	9 000	10
		816967	60x40-6x40	120	13 500	9 000	10
		816969	60x40-6x40	240	13 500	9 000	10
		816971	60x50-6x40	40	13 500	9 000	10
		816972	60x50-6x40	60	13 500	9 000	10
		816973	60x50-6x40	80	13 500	9 000	10
		816976	80x20-6x40	60	10 000	6 000	10
		910722	80x30-6x40	40	10 000	6 000	10
		816981	80x30-6x40	60	10 000	6 000	10
		816982	80x30-6x40	80	10 000	6 000	10
		816983	80x30-6x40	120	10 000	6 000	10
		816984	80x30-6x40	150	10 000	6 000	10

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	Shape	Type no.	Dimension	Grain	Max. RPM	Rec. speed	PU
	 52LA-C	915573	80x30-6x40	240	10 000	6 000	10
		910720	80x30-6x40	320	10 000	6 000	10
		816985	80x40-6x40	60	10 000	6 000	10
		816986	80x40-6x40	80	10 000	6 000	10
		816987	80x40-6x40	120	10 000	6 000	10
		87910	80x50-6x40	40	10 000	6 000	10
		816990	80x50-6x40	60	10 000	6 000	10
		816991	80x50-6x40	80	10 000	6 000	10
		816992	80x50-6x40	120	10 000	6 000	10
		816993	80x50-6x40	150	10 000	6 000	10
		817001	80x50-6x40	240	10 000	6 000	10
		817003	80x50-6x40	320	10 000	6 000	10

★ BASIC

A-B02 PC X mounted flap wheels

for steel, stainless steel and nonferrous metals



Application

+ For various applications on steel, stainless steel and nonferrous metals
+ For matting, pre-polishing, removing rust or cleaning surfaces
+ Can be used on both electric and pneumatic machines

Advantage

+ Flexible flaps for precision work
+ Perfect for grinding hard-to-reach places
+ Good lifetime

We recommend

+ Grit size 40/60 for high stock removal
+ Grit size 80/120 for medium-fine grinding
+ Grit size 180 for fine work

	Shape	Type no.	Dimension	Grain	Max. RPM	Rec. speed	PU
	 52LA-C	34054619	30x10-6x40	60	26 000	16 000	10
		34054737	30x10-6x40	80	26 000	16 000	10
		34054660	30x10-6x40	120	26 000	16 000	10
		34054738	30x10-6x40	180	26 000	16 000	10
		34054751	40x15-6x40	60	20 000	13 000	10
		34054753	40x15-6x40	80	20 000	13 000	10
		34054759	40x20-6x40	40	20 000	13 000	10
		34054760	40x20-6x40	60	20 000	13 000	10

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BASIC

A-B02 PC X mounted flap wheels

for steel, stainless steel and nonferrous metals



	Shape	Type no.	Dimension	Grain	Max. RPM	Rec. speed	PU
	 52LA-C	34054783	40x20-6x40	80	20 000	13 000	10
		34054784	40x20-6x40	120	20 000	13 000	10
		34054785	40x20-6x40	180	20 000	13 000	10
		34054787	50x15-6x40	60	16 000	11000	10
		34054801	50x20-6x40	40	16 000	11000	10
		34054805	50x20-6x40	60	16 000	11000	10
		34054809	50x20-6x40	80	16 000	11000	10
		34054812	50x20-6x40	120	16 000	11000	10
		34054813	50x20-6x40	180	16 000	11000	10
		34054814	50x30-6x40	40	16 000	11000	10
		34054817	50x30-6x40	60	16 000	11000	10
		34054820	50x30-6x40	80	16 000	11000	10
		34054831	50x30-6x40	120	16 000	11000	10
		34054836	60x20-6x40	60	13 500	9 000	10
		34054837	60x20-6x40	80	13 500	9 000	10
		34054852	60x30-6x40	40	13 500	9 000	10
		34054854	60x30-6x40	60	13 500	9 000	10
		34054855	60x30-6x40	80	13 500	9 000	10
		34054856	60x30-6x40	120	13 500	9 000	10
		34054857	60x30-6x40	180	13 500	9 000	10
		34054858	80x30-6x40	40	10 000	6 000	10
		34054860	80x30-6x40	60	10 000	6 000	10
		34054861	80x30-6x40	80	10 000	6 000	10
		34054862	80x30-6x40	120	10 000	6 000	10

★★★
PREMIUM

Fleece flap wheels spindle mounted

for steel, stainless steel and nonferrous metals

Application

+ For finishing steel, stainless steel and nonferrous metals

We recommend

+ Fleece flap wheels spindle mounted with coated abrasive (VL-C) for increased stock removal
+ Fleece flap wheels spindle mounted without coated abrasive for fine work
+ Use on adjustable straight grinders

Advantage

+ Variety of grit sizes enables different surface roughnesses to be achieved
+ Perfect for grinding hard-to-reach places
+ Longest lifetime
+ Material grinding without altering the surface integrity

	Shape	Type no.	Dimension	Grain	Design	Max. RPM	Rec. speed	PU
	52 LA VL	570473	40x20-6x40		A COARSE	9 000	7 500	10
		908708	40x20-6x40		A MEDIUM	9 000	7 500	10
		908712	40x20-6x40		A FINE	9 000	7 500	10
		388126	40x20-6x40		A VERY FINE	9 000	7 500	10
		136087	50x30-6x40		A MEDIUM	8 000	6 000	10
		136090	50x30-6x40		A VERY FINE	8 000	6 000	10
		908854	50x50-6x40		A MEDIUM	8 000	6 000	10
		570485	60x30-6x40		A COARSE	7 000	5 000	10
		908784	60x30-6x40		A MEDIUM	7 000	5 000	10
		908794	60x30-6x40		A FINE	7 000	5 000	10
		908795	60x30-6x40		A VERY FINE	7 000	5 000	10
		34054620	60x50-6x40		A COARSE	7 000	5 000	10
		908710	60x50-6x40		A MEDIUM	7 000	5 000	10
		908715	60x50-6x40		A FINE	7 000	5 000	10
		34054651	60x50-6x40		A VERY FINE	7 000	5 000	10
		908862	80x50-6x40		A COARSE	6 000	4 000	10
		372339	80x50-6x40		C MEDIUM	6 000	4 000	10
		908711	80x50-6x40		A MEDIUM	6 000	4 000	10
		908717	80x50-6x40		A FINE	6 000	4 000	10
		908796	80x50-6x40		A VERY FINE	6 000	4 000	10
	52LA VL-C	34053446	40x20-6x40	60	A COARSE	9 000	7 500	10
		908775	40x20-6x40	80	A MEDIUM	9 000	7 500	10
		908779	40x20-6x40	150	A FINE	9 000	7 500	10
		34053447	50x30-6x40	60	A COARSE	8 000	6 000	10
		136161	50x30-6x40	80	A MEDIUM	8 000	6 000	10
		457370	50x30-6x40	150	A FINE	8 000	6 000	10
		136164	50x30-6x40	240	A VERY FINE	8 000	6 000	10
		148718	50x50-6x40	120	A MEDIUM	8 000	6 000	10

▶

★★★ PREMIUM

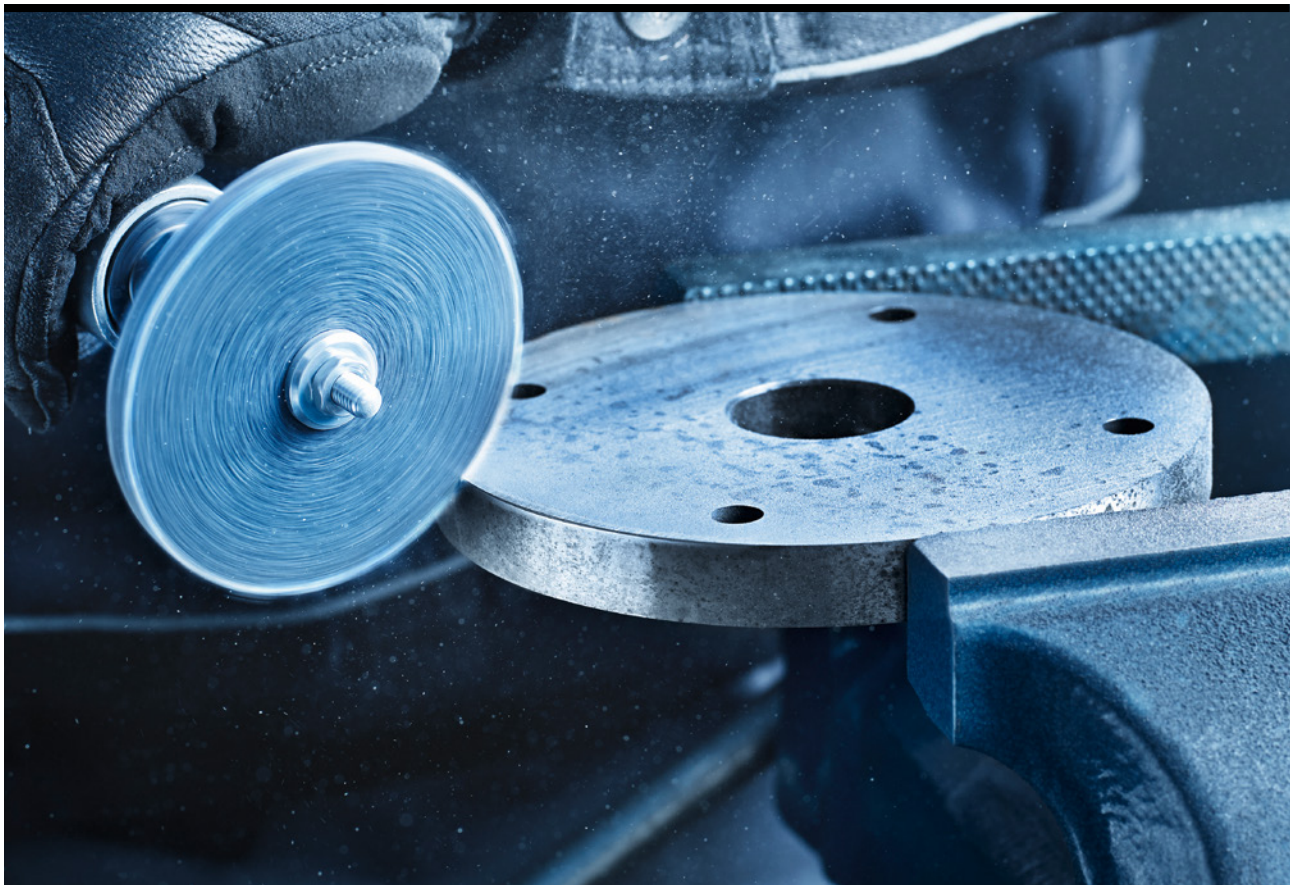
Fleece flap wheels spindle mounted

for steel, stainless steel and nonferrous metals

	Shape	Type no.	Dimension	Grain	Design	Max. RPM	Rec. speed	PU
	 52LA VL-C	148722	50x50-6x40	240	A VERY FINE	8 000	6 000	10
		263249	60x30-6x40	60	A COARSE	7 000	5 000	10
		910902	60x30-6x40	80	A MEDIUM	7 000	5 000	10
		908780	60x30-6x40	150	A FINE	7 000	5 000	10
		908821	60x30-6x40	240	A VERY FINE	7 000	5 000	10
		136168	60x40-6x40	80	A MEDIUM	7 000	5 000	10
		136173	60x40-6x40	240	A VERY FINE	7 000	5 000	10
		34054652	60x50-6x40	60	A COARSE	7 000	5 000	10
		34054655	60x50-6x40	80	A MEDIUM	7 000	5 000	10
		34054658	60x50-6x40	150	A FINE	7 000	5 000	10
		239448	80x30-6x40	240	A VERY FINE	6 000	4 000	10
		908871	80x50-6x40	60	A COARSE	6 000	4 000	10
		910864	80x50-6x40	80	A MEDIUM	6 000	4 000	10
		136193	80x50-6x40	120	A MEDIUM	6 000	4 000	10
		910853	80x50-6x40	150	A FINE	6 000	4 000	10
		908823	80x50-6x40	240	A VERY FINE	6 000	4 000	10
		908872	100x50-6x40	60	A COARSE	4 000	3 000	10
		910890	100x50-6x40	80	A MEDIUM	4 000	3 000	10
		908826	100x50-6x40	150	A FINE	4 000	3 000	10
		908825	100x50-6x40	240	A VERY FINE	4 000	3 000	10



4.10 Compact wheels
Straight grinders



Compact wheels **for straight grinders**

Straight grinders are always used where precision is required in hard-to-reach locations. TYROLIT offers a comprehensive assortment of unitised and convolute compact wheels.

With the compact wheel range, TYROLIT offers you an ideal tool for the machining of surfaces without changing the surface geometry, particularly for the removal of rust and dirt. Compact wheels consist of multilayer unitised fleece and are available in coarse to fine specifications depending on the number of layers. Due to their soft structure, MMF (multi metal finishing) compact wheels are especially suitable for the fine machining of all metal surfaces, whereas DB (deburring) compact wheels are particularly hard due to several layers and high pressure and are therefore suitable for deburring work.
On the following pages, you will find our range of unitised and convolute compact wheels for straight grinders.

Application recommendations

Performance level	Design	All in One	Pages
★★★ PREMIUM	2 A MEDIUM, 2 A COARSE, 2 C COARSE, 2 C MEDIUM, 2 C FINE, 3 C FINE, 5 A MEDIUM, 6 A MEDIUM, 6 C FINE, 8 A COARSE	●	286, 287, 288

Shapes



1UW Unitized wheel
(unitised wheel)



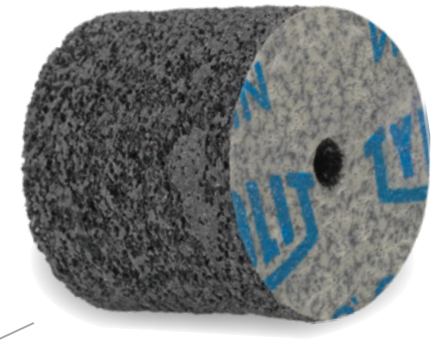
1CW Convolute wheel
(convolute wheel)

★★★
PREMIUM

Unitised compact wheels

for universal use

+ Cool grinding and low clogging of the wheel for very long lifetime



+ Compact wheels do not alter the surface geometry of the workpiece

+ Can be used in hard-to-reach places

Application:

+ For removing rust, burrs and scratches as well as for fading, glazing, finishing and grinding welding seams

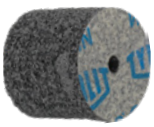
We recommend:

+ 2/3 C FINE for deburring and polishing
+ 2 A MEDIUM for deburring, polishing and for transitions
+ 6 C FINE / 6 A MEDIUM for deburring, rounding sharp edges and for transitions
+ 8 A MEDIUM / 8 A COARSE for deburring, rounding sharp edges and for transitions with increased abrasiveness
+ Use on adjustable straight grinders

★★★
PREMIUM

Unitised compact wheels

for universal use

	Shape		Type no.	Dimension	Design	Max. RPM	Rec. speed	PU
		1UW	34201993	25x25x4,8	2 A MEDIUM	30 000	18 000	25
			34201994	25x25x4,8	2 C FINE	30 000	18 000	25
			34201995	25x25x4,8	3 C FINE	30 000	18 000	25
			34201996	25x25x4,8	6 A MEDIUM	35 000	21 000	25

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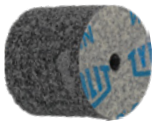
	Shape	Type no.	Dimension	Design	Max. RPM	Rec. speed	PU
		34201998	25x25x4,8	8 A COARSE	35 000	21 000	25
		34189233	51x6x6,3	2 A MEDIUM	16 000	9 600	25
		34189994	51x6x6,3	2 C FINE	16 000	9 600	25
		34189995	51x6x6,3	3 C FINE	16 000	9 600	25
		34189996	51x6x6,3	6 A MEDIUM	22 000	13 200	25
		34189997	51x6x6,3	6 C FINE	22 000	13 200	25
		34189999	51x6x6,3	8 A COARSE	22 000	13 200	25
		34204206	76x3x6,3	6 A MEDIUM	18 000	10 800	50
		34189552	76x6x6,3	2 A MEDIUM	15 000	9 000	25
		34189553	76x6x6,3	2 C FINE	15 000	9 000	25
		34189557	76x6x6,3	3 C FINE	15 000	9 000	25
		34189554	76x6x6,3	6 A MEDIUM	18 000	10 800	25
		34189555	76x6x6,3	6 C FINE	18 000	10 800	25
		34189556	76x6x6,3	8 A COARSE	18 000	10 800	25
		34257640	152x6x12,7	2 C FINE	5 000	3 000	2
		34190233	152x6x12,7	2 A MEDIUM	5 000	3 000	8
		34190235	152x6x12,7	2 C FINE	5 000	3 000	8
		34190236	152x6x12,7	3 C FINE	5 000	3 000	8
		34190237	152x6x12,7	6 A MEDIUM	7 500	4 500	8
		34190238	152x6x12,7	6 C FINE	7 500	4 500	8
		34190239	152x6x12,7	8 A COARSE	7 500	4 500	8
		34190280	152x13x12,7	2 A MEDIUM	5 000	3 000	4
		34190291	152x13x12,7	2 C FINE	5 000	3 000	4
		34190293	152x13x12,7	6 A MEDIUM	7 500	4 500	4
		34190294	152x13x12,7	6 C FINE	7 500	4 500	4
		34190297	152x25x12,7	2 A MEDIUM	5 000	3 000	2
		34190299	152x25x12,7	3 C FINE	5 000	3 000	2
		34190301	152x25x12,7	6 A MEDIUM	7 500	4 500	2
		34190302	152x25x12,7	6 C FINE	7 500	4 500	2
		34190303	152x25x12,7	8 A COARSE	7 500	4 500	2

★★★ PREMIUM

MMF convolute compact wheels
for universal use

ALL IN ONE

Application
+ For various finishing work on all metal surfaces

We recommend
+ Use on adjustable straight grinders

Advantage
+ Surface finishing
+ Very soft structure enables the workpiece to be ground without altering the geometry
+ Universal use

	Shape		Type no.	Dimension	Design	Max. RPM	Rec. speed	PU
		1CW	34200686	152x25x25.4	2 C COARSE	6 000	3 600	2
			34200687	152x25x25.4	2 C MEDIUM	6 000	3 600	2
			34200688	152x25x25.4	5 A MEDIUM	6 000	3 600	2
			34200689	152x50x25.4	2 C COARSE	6 000	3 600	1
			34200690	152x50x25.4	2 C MEDIUM	6 000	3 600	1
			34200712	152x50x25.4	5 A MEDIUM	6 000	3 600	1

Coated abrasives

Accessories
for unitised wheels

Application
+ Easy and safe mounting of compact wheels on straight grinders

	Type no.	Dimension	Specification	PU
	34214172	25x25x4.8	UW	1

Flange
for compact wheels

Application
+ Easy and safe mounting of compact wheels on straight grinders

	Type no.	Dimension	Specification	PU
	846442	S6/H6/L6	SS174	1
	905336	S6/H13/L52	SS597	1

★★★ PREMIUM

Unitised compact wheel set
for universal use

Application
+ For various finishing work on all metal surfaces

Advantage
+ Set includes compact wheels for angle grinders, QUICK CHANGE DISCs for mini-angle grinders, for straight grinders as well as for floorstand grinders
+ Set also includes the necessary accessories and adapters

	Type no.	Dimension	Specification	Comments	VE
	34270968	50–150	UW + CW	DEMOBOX	1





4.11 Rough cleaning wheels
Straight grinder

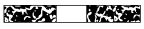


Rough cleaning wheels **for straight grinder**

Straight grinders are used when you need to work precisely in hard-to-reach locations. Would you like to remove rust, paint and varnish with a minimum of effort? Or do you need to prepare surfaces for welding, soldering or anodising?

The highly porous nylon fibres are evenly treated with aggressive abrasives and are able to meet any challenge.
All of our rough cleaning discs resist loading or smearing and offer long life with an even grinding pattern, but also low heat generation and quiet, stress-free working.

Shapes



1GR Rough cleaning wheel

Application recommendations

Performance level	Design	All in One	Pages
★★★ PREMIUM	C COARSE, A EX. COARSE	●	293

★★★ PREMIUM

Rough cleaning wheels
for universal use

Application
+ For removing rust, paint and lacquer and for preparing surfaces for welding, soldering or anodising

We recommend
+ C COARSE design for fine work on surfaces
+ A EX. COARSE design for increased abrasiveness and use on edges
+ Two 1GR wheels can be clamped when using a longer clamping spike for a larger area of contact
+ Use on adjustable straight grinders

Advantage
+ Flexible nylon fibres treated with aggressive abrasive grain for universal use
+ Design prevents clogging and loading of the wheel
+ Low heat generation

	Shape	Type no.	Dimension	Design	Colour	Max. RPM	Rec. speed	PU
	1GR	898048	75x13x8	C COARSE	BLACK	10 500	8 000	5
		898044	100x13x13	C COARSE	BLACK	8 000	6 000	5
		898051	150x13x13	C COARSE	BLACK	5 300	4 100	5
		943168	200x13x13	C COARSE	BLACK	4 000	3 000	5
		34206234	100x13x13	A EX. COARSE	BLUE	8 000	6 000	5
		34206235	150x13x13	A EX. COARSE	BLUE	5 300	4 100	5

Adapters for straight grinders
for rough cleaning wheels

Application
+ Permits easy and secure clamping of the compact wheels on straight grinders

		Type no.	Dimension	Specification	PU
	100SS	905335	S6/H8/L67	SS596	1
		905336	S6/H13/L52	SS597	1
		905337	S8/H13/L67	SS598	1


SCANTOOL
SCANTOOL



4.12 Belts
Belt grinder



Belts
for mini belt grinders, portable belt grinders and contact grinders

In this chapter you will find belts for metal and wood processing in different sizes for mini belt grinders, portable belt grinders and large, stationary contact grinders.

Depending on the application, we have the right belt for an optimum result, whether you need long life, maximum stock removal or a perfect surface finish. With their high stock removal rate, belts with embedded ceramic grain offer a quick and easy way of grinding metal.
We also offer products with a range of flexible underlays and additional coatings. These allow you to work on harder materials, such as stainless steel, alloys, structural steel and non-ferrous metals. They can also be used with woods, paints and lacquers.
TYROLIT coated abrasives have been developed with particular applications in mind and thus achieve the best possible results in day-to-day use.

Shapes



Belt 1
For mini belt grinders



Belt 2
For portable belt grinders

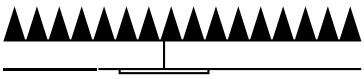


Belt 3
For contact grinders

Belt joints

TYROLIT belts are available with two different belt joints.

JTS (Joint Tape Straight)
mainly for metal processing



JOT (Joint Overlap Top)
mainly for wood processing



Application recommendations

Performance level	Design	Steel	Stainless steel	NF metals	PVC	Wood	All in One	Pages
★★★ PREMIUM	ZA-P48 PE Y F	●	●	●				298
	ZA-P41 PC X	●		●				298, 302, 303
	ZA-P48 PE Y	●	●					302
	ZA-P43 PE Y	●		●				303
	CA-P93	●	●					301
★ BASIC	A-B06 PC X	●			●	●		299
SCM BELTS	FLEX						●	300
★★★ PREMIUM	COARSE, MEDIUM, VERY FINE						●	303

★★★ PREMIUM

ZA-P48 PE Y F / ZA-P41 PC X mini belts

for steel, stainless steel and aluminium

Application

+ For universal use on steel, stainless steel and aluminium using mini belt grinders

We recommend

+ Grit size 40/60 for maximum stock removal
+ Grit size 80/120 for a perfect surface finish

Advantage

+ Zirconia alumina and an additional coolant layer for maximum lifetime and cool grinding
+ Very good stock removal
+ ZA-P48 polyester braid backing with coolant layer for higher abrasiveness, cooler grinding and edge stability



Shape	Type no.	Dimension	Grain	Connection	PU
 Belt 1	706292	9x533	40	JTS	33
	706293	9x533	60	JTS	33
	706295	9x533	80	JTS	33
	706299	9x533	120	JTS	33
	706300	10x330	40	JTS	20
	706301	10x330	60	JTS	20
	706302	10x330	80	JTS	20
	706303	10x330	120	JTS	20
	706306	12x330	60	JTS	20
	706309	12x457	40	JTS	20
	706310	12x457	60	JTS	20
	706311	12x457	80	JTS	20
	706313	12x533	40	JTS	20
	706314	12x533	60	JTS	20
	706315	12x533	80	JTS	20
	706316	12x533	120	JTS	20
	706317	13x455	40	JTS	20
	706318	13x455	60	JTS	20
	706320	13x455	80	JTS	20
	706323	13x455	120	JTS	20
	706337*	20x480	60	JTS	20
	706341*	20x520	40	JTS	20
	706342*	20x520	60	JTS	20
	706343*	20x520	80	JTS	20
	706344*	20x520	120	JTS	20
	706345*	29x533	40	JTS	20

** ZA-P41 PC X*

★ BASIC

A-B06 PC X belts
for universal use

Application
+ For grinding various materials, especially wood, using portable hand sanders

We recommend
+ Grit size 40/60 for maximum stock removal
+ Grit size 80/120 for a perfect surface finish

Advantage
+ Universal use
+ Good lifetime
+ Good stock removal





Belt 2

Type no.	Dimension	Grain	Connection	PU
706368	75x457	40	JOT	10
706369	75x457	60	JOT	10
706370	75x457	80	JOT	10
706371	75x457	100	JOT	10
706372	75x457	120	JOT	10
706383	75x533	40	JOT	10
706384	75x533	60	JOT	10
706385	75x533	80	JOT	10
706386	75x533	100	JOT	10
706387	75x533	120	JOT	10
706404	100x610	40	JOT	10
706405	100x610	60	JOT	10
706406	100x610	80	JOT	10
706407	100x610	100	JOT	10
706408	100x610	120	JOT	10
741455	100x690	40	JOT	10
741460	100x690	60	JOT	10
741464	100x690	80	JOT	10
741471	100x690	100	JOT	10
741474	100x690	120	JOT	10

★★★
PREMIUM

SCM belts

for universal use

+ Outstanding economy thanks to maximum stock removal combined with short work-piece machining time



+ Robust belt design guarantees maximum lifetime

Application:

+ For reducing surface roughness, smoothing surfaces as well as cleaning and removing welding seams using stationary belt grinders

We recommend:

+ “COARSE” grain for cleaning, for removing rust and coatings and for final finishing
+ “MEDIUM” grain for gentle cleaning, for removing burrs and for final finishing
+ “VERY FINE” grain as the final step

★★★
PREMIUM

SCM belts
for universal use

ALL IN ONE

	Shape		Type no.	Dimension	Design	Specification	Colour	PU
		Belt 2	34206205	90x395mm	MEDIUM	FLEX	RED/LIGHT GREEN	5

★★★
PREMIUM

CA-P93 PE Y Belts

for steel and stainless steel

+ Highest possible stock removal thanks to the use of ceramic grain



+ Self-sharpening grain for constantly good surface result combined with reduced operator workload

+ Coolant layer for very cool grinding

Application:

+ For grinding regular and hard steel and stainless steel using belt grinders

We recommend:

+ Grit size 24/36/40 for maximum stock removal
+ Grit size 60/80/120 for a perfect surface finish

★★★
PREMIUM

CA-P93 PE Y belts
for steel and stainless steel



Shape	Type no.	Dimension	Grain	Connection	VE
 Belt 3	34168478	75x2000	24	JTS	10
	34168479	75x2000	36	JTS	10
	34168480	75x2000	40	JTS	10
	34168481	75x2000	60	JTS	10
	34168482	75x2000	80	JTS	10
	34168483	75x2000	120	JTS	10
	34221594	150X2000	36	JTS	10
	34218343	150X2000	40	JTS	10
	34218356	150X2000	60	JTS	10
	34228323	150X2000	80	JTS	10

★★★ PREMIUM

ZA-P48 PE Y belts
for steel and stainless steel

Application
+ For demanding applications on regular and hard steel and stainless steel, especially for dry applications

We recommend
+ Grit size 36/60 for maximum stock removal
+ Grit size 80/120 for a perfect surface finish

Advantage
+ Outstanding stock removal and ideal for grinding using high pressure through the use of hard zirconium
+ Minimal generation of heat while grinding thanks to active coolant layer
+ Durable polyester for a robust belt design





Belt 3

Type no.	Dimension	Grain	Connection	PU
706473	75x2000	36	JTS	10
706474	75x2000	60	JTS	10
706475	75x2000	80	JTS	10
706477	75x2000	120	JTS	10

★★★ PREMIUM

ZA-P41 PC X belts
for steel and nonferrous metals

Application
+ For demanding applications on steel and nonferrous metals
+ In particular also for wet applications with oil, emulsion or water

We recommend
+ Grit size 40/60 for maximum stock removal
+ Grit size 80/120 for a perfect surface finish

Advantage
+ Outstanding stock removal and ideal for grinding using high pressure through the use of hard zirconium
+ Minimal generation of heat while grinding thanks to active coolant in the bond
+ Durable polycotton for a robust belt design
+ Grit sizes 24, 36 and 100 available on request





Belt 3

Type no.	Dimension	Grain	Connection	PU
706422	50x1000	80	JTS	12
706463	75x2000	40	JTS	10
706464	75x2000	60	JTS	10
706465	75x2000	80	JTS	10
706466	75x2000	120	JTS	10
706494	100x915	60	JTS	10
706497	100x915	80	JTS	10
706499	100x915	120	JTS	10
706500	100x1000	40	JTS	12
706501	100x1000	60	JTS	12
706502	100x1000	80	JTS	12

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	Shape	Type no.	Dimension	Grain	Connection	PU
		706503	100x1000	120	JTS	10
		706504	150x2000	40	JTS	10
		706506	150x2000	60	JTS	10
		706507	150x2000	80	JTS	10

★★★ PREMIUM

ZA-P43 PE Y belts
for steel and nonferrous metals



Application
+ For demanding applications on steel and nonferrous metals
+ In particular also for wet applications with oil, emulsion or water

We recommend
+ Grit size 36/40/60 for maximum stock removal
+ Grit size 80/120 for a perfect surface finish

Advantage
+ Outstanding stock removal and ideal for grinding using light and medium pressure
+ Minimal generation of heat while grinding thanks to active coolant in the bond
+ Stiff polyester for maximum stock removal

	Form	Typennummer	Abmessung	Korn	Verbindung	VP
	 Belt 3	706467	75x2000	36	JTS	10
		706469	75x2000	40	JTS	10
		706470	75x2000	60	JTS	10
		706471	75x2000	80	JTS	10
		706472	75x2000	120	JTS	10

★★★ PREMIUM

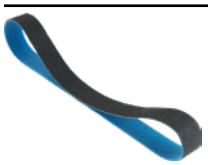
SCM belts
for universal use



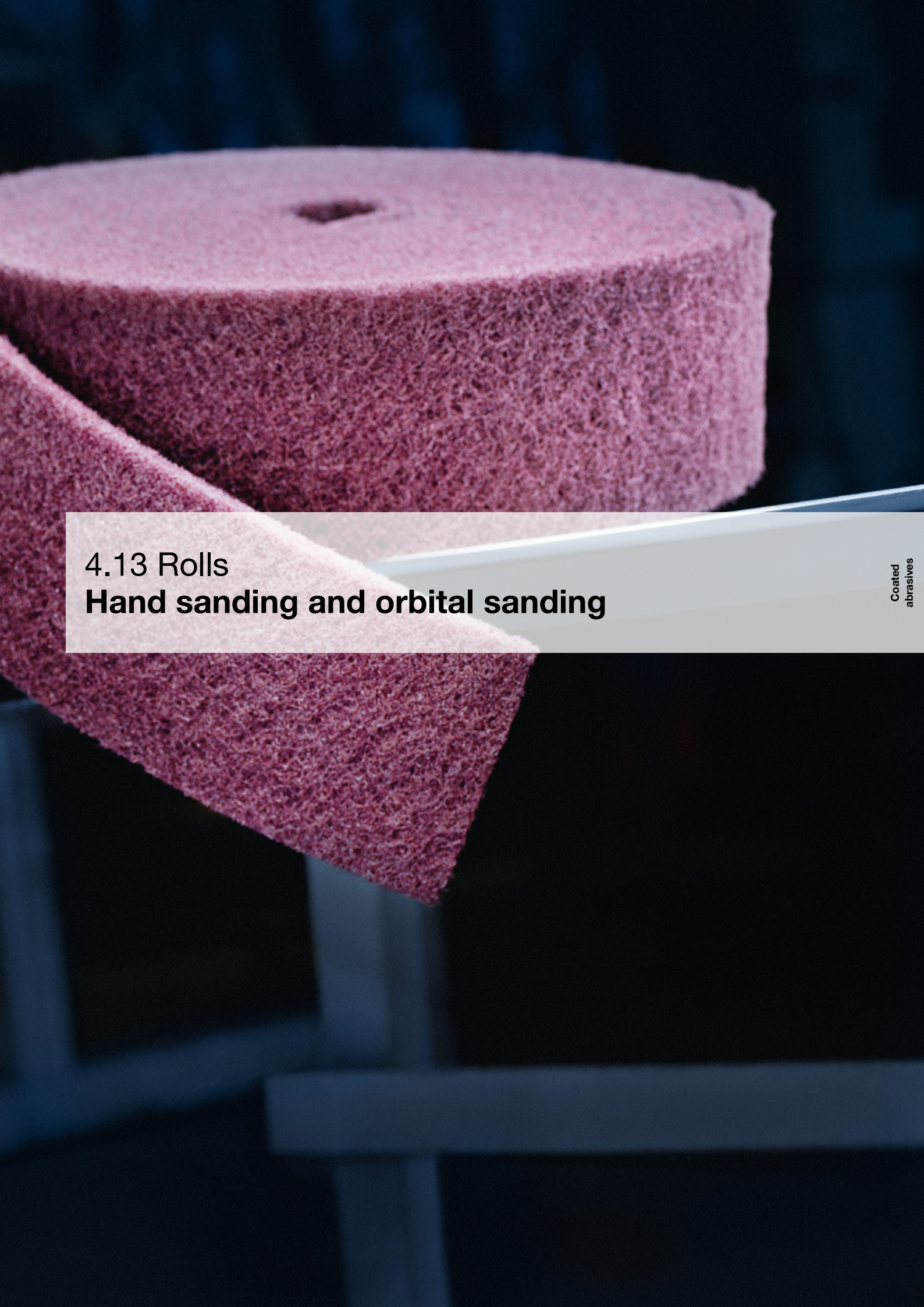
Application
+ For reducing surface roughness, smoothing surfaces as well as cleaning and removing welding seams using portable belt grinders

We recommend
+ “COARSE” grain for cleaning, for removing rust and coatings and for final finishing
+ “MEDIUM” grain for gentle cleaning, for removing burrs and for final finishing
+ “VERY FINE” grain as the final step

Advantage
+ Outstanding economy thanks to maximum stock removal combined with short workpiece machining time
+ Robust belt design guarantees maximum lifetime
+ Comprehensive assortment

	Shape	Type no.	Dimension	Design	Connection	Colour	PU
	 Belt 3	34049731	75x2000	COARSE	JTS	BROWN	4
		34049732	75x2000	MEDIUM	JTS	RED	4
		34049734	75x2000	VERY FINE	JTS	BLUE	4





4.13 Rolls
Hand sanding and orbital sanding



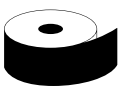
Rolls
for hand and orbital sanding

Any kind of surface finishing requires thorough preparation. This can be done by hand or using an orbital sander.

Wood, paint or lacquer are usually abraded by hand. Deburring work can also be accomplished by hand. However, for perfect intermediate sanding, we recommend using an orbital sander. This also allows smooth finishing of coatings and smoothing of composite materials.

For jobs such as these we offer abrasive rolls in a wide range of designs, such as cloth, paper and fleece rolls. They allow easy and flexible working on virtually any material.

Shapes



Roll

Application recommendations

Performance level	Design	Steel	NF metals	Paint / lacquer	Wood	Wet	PVC	All in One	Pages
PAPER ROLLS ★★★ PREMIUM	A-P07 P C	●	●	●	●	●			308
PAPER ROLLS ★★★ PREMIUM	A-P21 D				●		●		308, 309
CLOTH ROLLS ★ BASIC	A-B01 C JX							●	310, 311
	A-B01 C JJ							●	311, 312
FLEECE ROLLS ★★★ PREMIUM	A COARSE, A MEDIUM, A FINE, A VERY FINE, C ULTRA FINE, A GP-GREEN							●	313

★★★ PREMIUM

A-P07 P C paper sheets

for steel, nonferrous metals, wood, paints and lacquers

Application

+ For surface preparation by hand or in combination with an orbital sander
+ For levelling, smoothing, light deburring, fine grinding of coatings as well as for general surface preparation

Advantage

+ With latex-finished backing for optimum results in wet and dry applications
+ Closed coating for an excellent surface finish
+ Universal use



Shape	Type no.	Dimension	Grain	PU
Roll	705945	100x50M	60	1
	705946	100x50M	80	1
	705947	100x50M	100	1
	705948	100x50M	120	1
	705959	100x50M	150	1
	705960	100x50M	180	1
	705962	100x50M	240	1
	705965	115x50M	60	1
	705966	115x50M	80	1
	705967	115x50M	100	1
	705968	115x50M	120	1
	705969	115x50M	150	1
	705970	115x50M	180	1
	705972	115x50M	240	1

★★★ PREMIUM

A-P21 D paper rolls

for plastic, wood, paints and lacquers

Application

+ For surface preparation by hand or in combination with an orbital sander
+ For levelling, smoothing, light deburring, fine grinding of coatings as well as for general surface preparation

Advantage

+ Perfect solution for dry grinding thanks to open distribution of grain on light paper backing
+ Semi-open coating prevents loading and delivers an excellent surface finish
+ Universal use

▶

◀

	Shape		Type no.	Dimension	Grain	PU
		Roll	34231862	100x5M	40	1
			34231863	100x5M	60	1
			34231864	100x5M	80	1
			34231865	100x5M	100	1
			34231866	100x5M	120	1
			34231867	100x5M	150	1
			34231868	100x5M	180	1
			34231869	100x5M	240	1
			34231870	115x5M	40	1
			34231871	115x5M	60	1
			34231872	115x5M	80	1
			34231873	115x5M	100	1
			34231874	115x5M	120	1
			34231875	115x5M	150	1
			34231876	115x5M	180	1
			34231877	115x5M	240	1
			34230618	100x50M	40	1
			34230619	100x50M	60	1
			34230620	100x50M	80	1
			34230631	100x50M	100	1
			34230632	100x50M	120	1
			34230633	100x50M	150	1
			34230634	100x50M	180	1
			34230635	100x50M	240	1
			34230636	115x50M	40	1
			34230637	115x50M	60	1
			34230638	115x50M	80	1
			34230639	115x50M	100	1
			34230640	115x50M	120	1
			34230641	115x50M	150	1
			34230642	115x50M	180	1
			34230643	115x50M	240	1

BASIC

A-B01 C JX cloth rolls

for universal use

Application

+ For surface preparation by hand or in combination with an orbital sander
+ For levelling, smoothing, light deburring, fine grinding of coatings as well as for general surface preparation

Advantage

+ Perfect solution for dry grinding thanks to open distribution of grain on semi-flexible cotton backing
+ Universal use



Shape	Type no.	Dimension	Grain	PU
Roll	705824	25x50M	40	1
	705825	25x50M	60	1
	705826	25x50M	80	1
	705828	25x50M	100	1
	705830	25x50M	120	1
	705831	25x50M	150	1
	705832	25x50M	180	1
	705833	25x50M	220	1
	705834	25x50M	240	1
	705836	25x50M	320	1
	705837	25x50M	400	1
	705839	40x25M	40	1
	705840	40x25M	60	1
	705841	40x25M	80	1
	705842	40x25M	100	1
	705843	40x25M	120	1
	705844	40x25M	150	1
	705845	40x25M	180	1
	705846	40x25M	220	1
	705850	40x25M	240	1
	705851	40x25M	320	1
	705852	40x25M	400	1
	705853	40x25M	600	1
	705854	40x50M	40	1
	705855	40x50M	60	1
	705856	40x50M	80	1
	705857	40x50M	100	1
	705858	40x50M	120	1
	705859	40x50M	150	1
	705860	40x50M	180	1
	705861	40x50M	220	1
	705862	40x50M	240	1
	705863	40x50M	320	1

◀

	Shape		Type no.	Dimension	Grain	PU
		Roll	705864	40x50M	400	1
			705873	50x25M	40	1
			705874	50x25M	60	1
			705875	50x25M	80	1
			705876	50x25M	100	1
			705877	50x25M	120	1
			705878	50x25M	150	1
			705879	50x25M	180	1
			705880	50x25M	220	1
			705881	50x25M	240	1
			705882	50x25M	320	1
			705883	50x25M	400	1
			705884	50x25M	600	1
			705885	50x50M	40	1
			705886	50x50M	60	1
			705887	50x50M	80	1
			705888	50x50M	100	1
			705889	50x50M	120	1
			705891	50x50M	150	1
			705892	50x50M	180	1
			705894	50x50M	220	1
			705895	50x50M	240	1
			705896	50x50M	320	1
			705898	50x50M	400	1

★ BASIC

A-B01 C JJ cloth rolls

for universal use




Application

+ For surface preparation by hand or in combination with an orbital sander
+ For levelling, smoothing, light deburring, fine grinding of coatings as well as for general surface preparation

Advantage

+ Perfect solution for dry grinding thanks to open distribution of grain on fully flexible cloth backing
+ Universal use

	Shape		Type no.	Dimension	Grain	PU
		Roll	20781	40x50M	60	1
			20793	40x50M	80	1
			20794	40x50M	100	1
			20796	40x50M	120	1
			20797	40x50M	150	1

▶

BASIC

A-B01 C JJ cloth rolls

for universal use



Shape		Type no.	Dimension	Grain	PU
	Roll	20798	40x50M	180	1
		20799	40x50M	220	1
		20801	40x50M	240	1
		20803	40x50M	320	1
		20805	40x50M	400	1
		20806	50x50M	60	1
		20807	50x50M	80	1
		20811	50x50M	100	1
		20813	50x50M	120	1
		20816	50x50M	150	1
		20817	50x50M	180	1
		20819	50x50M	220	1
		20821	50x50M	240	1
		20822	50x50M	320	1
		20824	50x50M	400	1
		34061912	100x50M	60	1
		34061913	100x50M	80	1
		34061919	100x50M	100	1
		34061934	100x50M	120	1
		34061938	100x50M	150	1
		34061939	100x50M	180	1
		34061951	100x50M	240	1
		34061953	100x50M	320	1
		34061954	100x50M	400	1
		34061960	115x50M	60	1
		34062015	115x50M	80	1
		34062021	115x50M	100	1
		34062022	115x50M	120	1
		34062023	115x50M	150	1
		34062024	115x50M	180	1
		34062025	115x50M	240	1
		34062026	115x50M	320	1
		34062027	115x50M	400	1

★★★ PREMIUM

Fleece rolls

for universal use



+ Maximum lifetime thanks to 100% impregnation - grain is thus also located inside the abrasive fabric
+ Very flexible design and fabric adapts perfectly to the surfaces
+ Various specifications enable the cleaning of welding seams all the way up to polishing of surfaces

Application:

+ For cleaning and grinding surfaces using an orbital sander or by hand
+ **We recommend:**
+ A COARSE / A MEDIUM for cleaning welding seams, removing rust and coatings as well as for light deburring
+ A FINE for grinding lacquer and paint, for cleaning machine components and for finishing
+ A VERY FINE / A ULTRA FINE for finishing any kind of workpiece
+ A GP – GREEN for fast all-round cleaning and finishing

★★★ PREMIUM

Fleece rolls
for universal use



	Shape	Type no.	Dimension	Conforms to	Design	Colour	PU
	Roll	120653	100x10m	P150	A COARSE	BROWN	1
		120667	100x10m	P220–240	A MEDIUM	REDBROWN	1
		120671	100x10m	P320	A FINE	REDBROWN	1
		120674	100x10m	P400–500	A VERY FINE	REDBROWN	1
		120676	100x10m	P800	C ULTRA FINE	GREY	1
		120682	100x10m	P400–500	A GP-GREEN	GREEN	1
		120688	115x10m	P150	A COARSE	BROWN	1
		120689	115x10m	P220–240	A MEDIUM	REDBROWN	1
		120693	115x10m	P320	A FINE	REDBROWN	1
		120694	115x10m	P400–500	A VERY FINE	REDBROWN	1
		120700	115x10m	P800	C ULTRA FINE	GREY	1
		120716	115x10m	P400–500	A GP-GREEN	GREEN	1





4.14 Sheets
Hand sanding and superfinishing



Sheets
for hand sanding and superfinishing

Any kind of surface finishing requires thorough preparation. This can be done by hand or using an orbital sander.

Wood, paint or lacquer are usually abraded by hand. Deburring work can also be accomplished by hand. However, for perfect intermediate sanding, we recommend using an orbital sander. This also allows smooth finishing of coatings and smoothing of composite materials.

For jobs like these we offer abrasive sheets in a wide range of designs, such as cloth, paper and fleece rolls. They allow easy and flexible working on virtually any material.

Shapes



Sheet

Application recommendations

Performance level	Specification	Steel	NF metals	Paint / lacquer	Wood	Wet	Stone	PVC	All in One	Pages
PAPER SHEETS	A-P07 P C	●	●	●	●	●				318
★★★ PREMIUM	C-P68 P A	●	●	●	●	●	●			318
	C-P68 P C	●	●	●	●	●	●			318, 319
	A-P21 P D			●	●			●		319
CLOTH SHEETS	A-B01 C JX								●	320
★ BASIC	A-B01 C JJ								●	320
FLEECE SHEETS									●	321
★★★ PREMIUM										

★★★ PREMIUM

A-P07 P C paper rolls

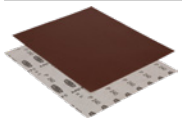
for steel, nonferrous metals, wood, paints and lacquers

Application

+ For surface preparation by hand or in combination with an orbital sander
+ For levelling, smoothing, light deburring, fine grinding of coatings as well as for general surface preparation

Advantage

+ Latex-finished backing for optimum results in wet and dry applications
+ Closed coating for an excellent surface finish
+ Universal use



Shape		Type no.	Dimension	Grain	PU
■	Sheet	706001	230x280	60	50
		706002	230x280	80	50
		706003	230x280	100	50
		706004	230x280	120	50
		706005	230x280	150	50
		706006	230x280	180	50
		706007	230x280	220	50
		706008	230x280	240	50
		706009	230x280	320	50
		706010	230x280	400	50
		706011	230x280	600	50
		706012	230x280	800	50
		706013	230x280	1000	50
		706014	230x280	1200	50

★★★ PREMIUM

C-P68 P C | C-P68 P A paper sheets

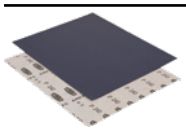
for steel, nonferrous metals, wood, paints and lacquers

Application

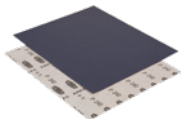
+ For surface preparation by hand or in combination with an orbital sander
+ For levelling, smoothing, light deburring, fine grinding of coatings as well as for general surface preparation

Advantage

+ Perfect solution for dry grinding thanks to open distribution of grain on light paper backing
+ Semi-open coating prevents loading and delivers an excellent surface finish
+ Universal use



Shape		Type no.	Dimension	Grain	PU
■	Sheet	724257	230x280	80	50
		724264	230x280	100	50
		724267	230x280	120	50
		724268	230x280	150	50
		724271*	230x280	180	50
		724272*	230x280	220	50

	Shape		Type no.	Dimension	Grain	PU
	■	Sheet	724273*	230x280	240	50
			724275*	230x280	320	50
			724276*	230x280	400	50
			724281*	230x280	600	50
			724283*	230x280	800	50
			724284*	230x280	1000	50
			724285*	230x280	1200	50

** C-P68 P A*

★★★ PREMIUM

A-P21 P D paper sheets

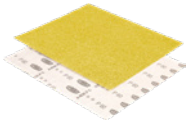
for plastic, wood, paints and lacquers

Application

+ For surface preparation by hand or in combination with an orbital sander
+ For levelling, smoothing, light deburring, fine grinding of coatings as well as for general surface preparation

Advantage

+ Perfect solution for dry grinding thanks to open distribution of grain on light paper backing
+ Semi-open coating prevents loading and delivers an excellent surface finish
+ Universal use

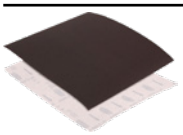
	Shape		Type no.	Dimension	Grain	PU
	■	Sheet	34230644	230x280	40	25
			34230677	230x280	60	25
			34230678	230x280	80	25
			34230679	230x280	100	50
			34230680	230x280	120	50
			34230701	230x280	150	50
			34230702	230x280	180	50
			34230703	230x280	240	50

BASIC

A-B01 C JX cloth sheets
for plastic, wood, paints and lacquers

Application
+ For surface preparation by hand or in combination with an orbital sander
+ For levelling, smoothing, light deburring, fine grinding of coatings as well as for general surface preparation

Advantage
+ Perfect solution for dry grinding thanks to open distribution of grain on semi-flexible cotton backing
+ Universal use



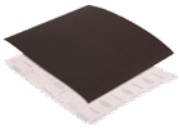
Shape	Type no.	Dimension	Grain	PU
Sheet	705989	230x280	40	50
	705990	230x280	60	50
	705991	230x280	80	50
	705992	230x280	100	50
	705993	230x280	120	50
	705994	230x280	150	50
	705995	230x280	180	50
	705996	230x280	220	50
	705997	230x280	240	50
	705998	230x280	320	50
	705999	230x280	400	50
	706000	230x280	600	50

BASIC

A-B01 C JJ cloth sheets
for plastic, wood, paints and lacquers

Application
+ For surface preparation by hand or in combination with an orbital sander
+ For levelling, smoothing, light deburring, fine grinding of coatings as well as for general surface preparation

Advantage
+ Perfect solution for dry grinding thanks to open distribution of grain on semi-flexible cotton backing
+ Universal use



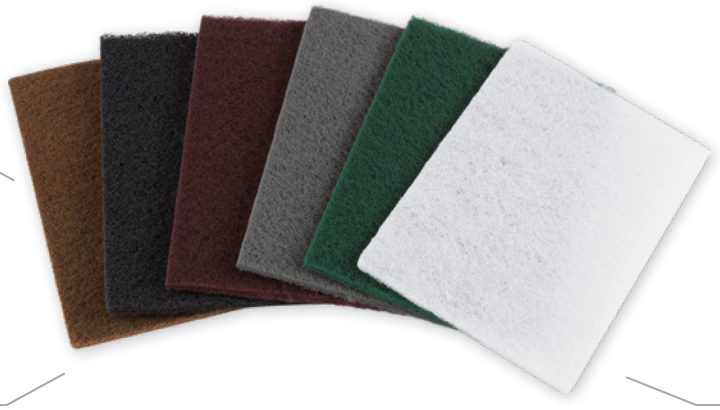
Shape	Type no.	Dimension	Grain	PU
Sheet	20832	230x280	60	50
	20833	230x280	80	50
	20834	230x280	100	50
	20835	230x280	120	50
	20836	230x280	150	50
	20842	230x280	180	50
	20844	230x280	220	50
	20851	230x280	240	50
	20860	230x280	320	50
	20868	230x280	400	50

★★★
PREMIUM

Fleece sheets

for universal use

+ Maximum lifetime thanks to 100% impregnation - grain is thus also located inside the abrasive fabric



+ Very flexible design and fabric adapts perfectly to the surfaces

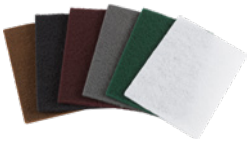
+ Various specifications enable the cleaning of welding seams all the way up to polishing of surfaces

Application:

+ For cleaning and grinding surfaces using an orbital sander or by hand
+ **We recommend:**
+ A COARSE / A MEDIUM for cleaning welding seams, removing rust and coatings as well as for light deburring
+ A FINE for grinding lacquer and paint, for cleaning machine components and for finishing
+ A VERY FINE / C ULTRA FINE for finishing any kind of workpiece
+ A GP – GREEN for fast all-round cleaning and finishing

★★★
PREMIUM

Fleece sheets
for universal use



Shape		Type no.	Dimension	Conforms to	Design	Colour	PU
■	Sheet	120769	152x229	P150	A COARSE	BROWN	10
		120770	152x229	P220-240	A MEDIUM	REDBROWN	10
		120772	152x229	P320	A FINE	REDBROWN	10
		120774	152x229	P400-500	A VERY FINE	REDBROWN	10
		120777	152x229	P220-240	S MEDIUM	BLACK	10
		120779	152x229	P800	C ULTRA FINE	GREY	10
		120781	152x229	P400-500	A GP-GREEN	GREEN	10
		120787	152x229	–	POLISH	WHITE	10


TYROLIT
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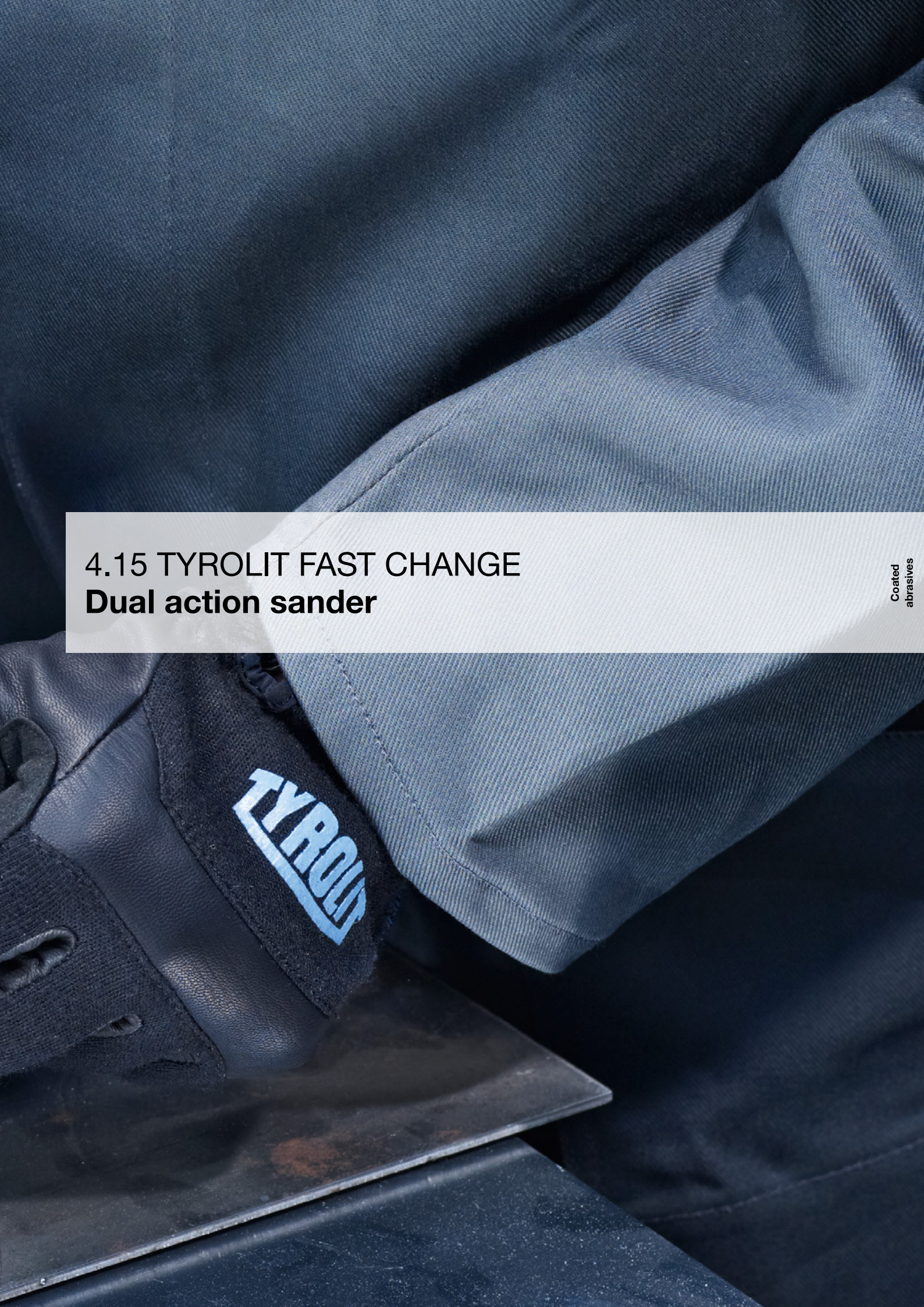


4.15 TYROLIT FAST CHANGE
Dual action sander



TYROLIT FAST CHANGE
for dual action sanders

TYROLIT FAST CHANGE discs offer a simple and convenient solution for surface treatment. Disc changes are quick and easy thanks to the Velcro fastening.

These tools are available with paper or film backings and can be used on nearly all materials. We offer discs with different numbers of holes for optimum material removal or extraction. They are easily applied to our back up pads.

The different grit sizes allow grinding from coarse to fine on ferrous and nonferrous metals and on wood, lacquers, paint and composites.

Application recommendations

Performance level	Specification	Steel	All in One	Compos-ites	PVC	Gel-Coat	Colour/ Lack	Wood	Hard Stone	Marble	Pages
★★★ PREMIUM	ZA-P45 V		●								326
	ZA-P45 P F		●								326
	A-P22 FI			●	●	●		●			326, 327
	A-P22 P E (=Grain 40)			●	●	●	●	●			329, 330
	A-P22 P D (=Grain 60–180)			●	●	●	●	●			329, 330
	A-P22 P C (=Grain > 180)			●	●	●	●	●			329, 330
	C-P65 P E	●		●	●				●	●	328
	A-P31 P F		●								331, 332

Shapes



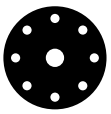
Disc



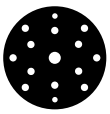
Disc 7H



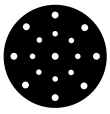
Disc 8H



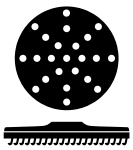
Disc 9H



Disc 15H



Disc 17H



Pad TFC 23

★★★ PREMIUM

ZA-P45 V | ZA-P45 P F TFC

for universal use

Application

+ For coarse and fine grinding of steel, nonferrous metals, composites and gel coat

We recommend

+ Grit size 40 for grinding smaller welding seams and spot weld seams
+ Grit size 60 for maximum stock removal
+ Grit size 80/120 for a perfect surface finish

Advantage

+ Combination of zirconia alumina and a unique, strong paper backing for maximum abrasiveness and lifetime
+ Active coolant in the bond for cool and clean grinding
+ TYROLIT Fast Change system for quick and easy wheel changes thanks to velcro fastening



Shape		Type no.	Diameter	Grain	Max. RPM	PU
●	Disc	706139	125	40	10 500	50
		706141*	125	60	10 500	50
		706142*	125	80	10 500	50
		706143*	125	120	10 500	50
		706144*	150	60	8 800	50
		706145*	150	80	8 800	50
		706146*	150	120	8 800	50

** ZA-P45 P F*

★★★ PREMIUM

A-P22 FI TFC

for plastic, composites, gel coat, wood and aluminium

Application

+ For coarse and fine grinding of workpieces made of plastic, composite, gel coat, wood and aluminium

We recommend

+ Grit size 40/60 for maximum stock removal
+ Grit sizes 80-120 for universal grinding work
+ Grit sizes 150-400 for a perfect surface finish

Advantage

+ Special film backing for improved edge stability and maximum stock removal
+ No clogging or loading of the disc
+ TYROLIT Fast Change system for quick and easy wheel changes thanks to Velcro fastening



Shape		Type no.	Diameter	Grain	Holes	Max. RPM	PU
●	Disc 8H	706147	125	40	8	10 500	50
		706148	125	60	8	10 500	50
		706149	125	80	8	10 500	50
		706150	125	100	8	10 500	50
		706151	125	120	8	10 500	50

▶

◀



Shape		Type no.	Diameter	Grain	Holes	Max. RPM	PU
	Disc 8H	706152	125	150	8	10 500	50
		706154	125	180	8	10 500	50
		706155	125	240	8	10 500	50
		706157	125	320	8	10 500	50
		706158	125	400	8	10 500	50
	Disc 15H	34063266	150	40	15	8 800	50
		34063267	150	60	15	8 800	50
		34063292	150	80	15	8 800	50
		34063294	150	100	15	8 800	50
		34063296	150	120	15	8 800	50
		34063298	150	150	15	8 800	50
		34063299	150	180	15	8 800	50
		34063300	150	240	15	8 800	50
		34063301	150	320	15	8 800	50
		34063303	150	400	15	8 800	50
	Disc 17H	34036456	150	40	17	8 800	50
		34036457	150	60	17	8 800	50
		34036458	150	80	17	8 800	50
		34036459	150	100	17	8 800	50
		34036460	150	120	17	8 800	50
		34036501	150	150	17	8 800	50
		34036502	150	180	17	8 800	50
		34036503	150	240	17	8 800	50
		34036504	150	320	17	8 800	50
		34036505	150	400	17	8 800	50

★★★ PREMIUM

C-P65 P E TFC

for hard stone, steel, composites, plastics and soft stone

Application

+ For coarse and fine grinding of workpieces made of hard stone, steel, composites, plastics and soft stone

We recommend

+ Grit size 40/60 for maximum stock removal
+ Grit size 80/120 for universal grinding work
+ Grit sizes 150-800 for a perfect surface finish

Advantage

+ Sturdy “E” paper backing perfectly suited to coarse and fine grinding
+ TYROLIT Fast Change system for quick and easy wheel changes thanks to velcro fastening



Shape		Type no.	Diameter	Grain	Max. RPM	PU
●	Disc	6957	125	40	10 500	50
		6958	125	60	10 500	50
		6960	125	80	10 500	50
		6964	125	120	10 500	50
		6968	125	180	10 500	50
		6969	125	220	10 500	50
		6979	125	320	10 500	50
		6991	125	400	10 500	50
		6993	125	600	10 500	50
		7007	125	800	10 500	50
		7008	180	40	7 300	50
		7030	180	60	7 300	50
		7055	180	80	7 300	50
		7058	180	120	7 300	50
		7070	180	180	7 300	50
		7072	180	220	7 300	50
		7086	180	320	7 300	50
		7087	180	400	7 300	50
		7093	180	600	7 300	50
		7100	180	800	7 300	50

★★★
PREMIUM

A-P22 P D/P E/P C TYROLIT FAST CHANGE

for plastics, composites, gel coat, wood, paint and lacquers

+ Elimination of clogging and loading of the disc enables maximum lifetime



+ TYROLIT Fast Change system for quick and easy wheel changes thanks to Velcro fastening

+ Very high stock removal thanks to improved backing

Application:

+ For coarse and fine grinding of workpieces made of plastic, composite, gel coat and wood

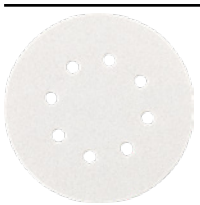
We recommend:

+ Grit size 40/60 for maximum stock removal
+ Grit sizes 80-120 for medium grinding
+ Grit sizes 150-400 for a perfect surface finish

★★★
PREMIUM

A-P22 A-P22 P D/P E/P C TYROLIT FAST CHANGE

for plastics, composites, gel coat, wood, paint and lacquers



Shape	Type no.	Diameter	Grain	Holes	Max. RPM	PU
Disc 8H	34230261	125	40	8	10 500	50
	34230417*	125	60	8	10 500	50
	34230419*	125	80	8	10 500	50
	34230420*	125	100	8	10 500	100
	34230422*	125	120	8	10 500	100
	34230446*	125	150	8	10 500	100
	34230447*	125	180	8	10 500	100
	34230449**	125	220	8	10 500	100

*A-P22 PE **A-P22 PC

▶

★★★ PREMIUM

A-P22 P D/P E/P C TYROLIT FAST CHANGE

for plastics, composites, gel coat, wood, paint and lacquers

Shape		Type no.	Diameter	Grain	Holes	Max. RPM	PU
	Disc 8H	34230450**	125	240	8	10 500	100
		34230452**	125	320	8	10 500	100
		34230453**	125	400	8	8 800	100
	Disc	34230486	150	40		8 800	50
		34230487*	150	60		8 800	50
		34230488*	150	80		8 800	100
		34230490*	150	120		8 800	100
		34230531*	150	150		8 800	100
		34230532**	150	180		8 800	100
		34230533**	150	240		8 800	100
	Disc 15H	34230534	150	40	15	8 800	50
		34230535*	150	60	15	8 800	50
		34230591*	150	80	15	8 800	100
		34230592*	150	100	15	8 800	100
		34230593*	150	120	15	8 800	100
		34230595*	150	150	15	8 800	100
		34230597*	150	180	15	8 800	100
		34230598**	150	220	15	8 800	100
		34230599**	150	240	15	8 800	100
		34230600**	150	320	15	8 800	100
		34230601**	150	400	15	8 800	100
	Disc 17H	34230605	150	40	17	8 800	50
		34230606*	150	60	17	8 800	50
		34230607*	150	80	17	8 800	100
		34230608*	150	100	17	8 800	100
		34230609*	150	120	17	8 800	100
		34230610*	150	150	17	8 800	100
		34230612*	150	180	17	8 800	100
		34230613**	150	220	17	8 800	100
		34230614**	150	240	17	8 800	100
		34230615**	150	320	17	8 800	100
		34230616**	150	400	17	8 800	100

**A-P22 PE* ***A-P22 PC*

★★★
PREMIUM

A-P31 P F
TYROLIT FAST CHANGE

for universal use

+ Strong backing for very high abrasiveness and lifetime



+ Grit size 320 and 400 available on request

+ High durability on edges

Application:

+ For coarse and fine grinding of various materials

We recommend:

+ Grit size 40/60 for maximum stock removal
+ Grit sizes 80-120 for medium grinding
+ Grit sizes 150-240 for a perfect surface finish

★★★
PREMIUM

A-P31 P F TYROLIT FAST CHANGE

for universal use



Shape		Type no.	Diameter	Grain	Max. RPM	PU
●	Disc	34230705	115	40	12 300	50
		34230706	115	60	12 300	50
		34230707	115	80	12 300	50
		34230708	115	100	12 300	50
		34230709	115	120	12 300	50
		34230710	115	150	12 300	50
		34230711	115	180	12 300	50
		34230712	115	240	12 300	50
		34230713	125	40	10 500	50

▶

A-P31 P F TYROLIT FAST CHANGE
for universal use

★★★ PREMIUM



Shape	Type no.	Diameter	Grain	Max. RPM	PU
Disc	34230714	125	60	10 500	50
	34230715	125	80	10 500	50
	34230716	125	100	10 500	50
	34230717	125	120	10 500	50
	34230718	125	150	10 500	50
	34230719	125	180	10 500	50
	34230720	125	240	10 500	50
	34230721	150	40	8 800	50
	34230722	150	60	8 800	50
	34230723	150	80	8 800	50
	34230724	150	120	8 800	50
	34230725	150	150	8 800	50
	34230726	150	180	8 800	50

Pack up pads
for TYROLIT FAST CHANGE (TFC) discs

★★★ PREMIUM

Application
+ For quick and easy mounting of the discs on the dual action sander
+ Compatible with all TFC discs

Advantage
+ Ideal support for finishing and preparing surfaces
+ Back up pad design for outstanding dust extraction



Shape	Type no.	Diameter	Design	Holes	Grade	Max. RPM	PU	
PAD TFC	710006	115	M14		HARD	13 300	5	
	710007	125	M14		HARD	12 300	5	
	34177464	150	5/16-M8	21	HARD	10 500	1	Suitable for discs with 0, 6, 7, 9, 15 holes
	710008	150	5/16-M8	23	HARD	10 500	1	Suitable for discs with 0, 6, 7, 9, 15 holes
	710009	150	5/16-M8	23	MEDIUM	10 500	1	Suitable for discs with 0, 6, 7, 9, 15 holes



4.16 Rollers
Burnishing machine



Rollers
for burnishing machines

TYROLIT rollers are used on portable equipment such as burnishing machines for general grinding jobs, cleaning, finishing and for polishiang uneven or curved surfaces.

Our products allow a consistent, high-quality surface finish throughout their lifetime. With our comprehensive assortment, we offer products for removing welding tracks, scratches or oxidation residues. These tools are especially popular for surface pre-treatment over large areas.

The patented shape of the newly developed spiral rollers means they are extremely easy and convenient to use without lateral deflection. You can also increase your productivity by avoiding typical roller imprinting on the workpiece. In addition, vibrations are considerably reduced and the load is minimised.

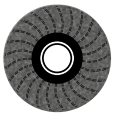
Application recommendations

Performance level	Steel	Stainless steel	NF metals	PVC	Pages
ROLLERS ★★★ PREMIUM	●	●	●		336
SPIRAL ROLLERS ★★★ PREMIUM	●	●	●		337
ROUGH GRINDING WHEEL ★★★ PREMIUM	●	●		●	338

Shapes



1LA C Flap wheel



1LA VL Fleece wheel



1LA VL-C
Fleece flap wheel

★★★ PREMIUM

Rollers

for steel, stainless steel and nonferrous metals

Application

+ For cleaning, finishing, polishing or for general grinding processes on uneven or curved surfaces
+ For removing welding tracks, scratches and oxidation residues as well as for pre-treating the surface

Advantage

+ Consistent wear pattern for a consistently high-quality surface finish
+ Outstanding lifetime

We recommend

+ Grit size 40/60 for maximum stock removal
+ Grit size 80/120/180 for a perfect surface finish
+ A COARSE / A MEDIUM for cleaning welding seams, removing rust and coatings as well as for light deburring
+ A FINE for grinding lacquer and paint, for cleaning machine components and for finishing
+ A VERY FINE / A ULTRA FINE for finishing a wide variety of workpieces

	Shape		Type no.	Dimension	Grain	Design	Colour	Max. RPM	Rec. speed	PU
		1LA C	62144	100x100x19.1 S4	40			6 800	3 700	1
			62153	100x100x19.1 S4	60			6 800	3 700	1
			62154	100x100x19.1 S4	80			6 800	3 700	1
			62155	100x100x19.1 S4	120			6 800	3 700	1
			62178	100x100x19.1 S4	180			6 800	3 700	1
		1LA VL	60159	100x100x19.1 S4		A COARSE	REDBROWN	6 800	2 400	1
			60170	100x100x19.1 S4		A MEDIUM	REDBROWN	6 800	2 400	1
			60184	100x100x19.1 S4		A FINE	REDBROWN	6 800	2 400	1
			60185	100x100x19.1 S4		A VERY FINE	REDBROWN	6 800	2 400	1
		1LA VL-C	60337	100x100x19.1 S4	60	A COARSE	GREY	6 800	2 400	1
			60351	100x100x19.1 S4	80	A MEDIUM	GREY	6 800	2 400	1
			60352	100x100x19.1 S4	120	A FINE	GREY	6 800	2 400	1
			60354	100x100x19.1 S4	180	A VERY FINE	GREY	6 800	2 400	1

★★★ PREMIUM

Spiral rollers

for steel, stainless steel and nonferrous metals

Application

+ For cleaning, finishing, polishing or for general grinding processes on uneven or curved surfaces

Advantage

+ Easy handling: spiral cuts for very easy use, especially for inexperienced operators
+ Uniform results
+ Longest lifetime

We recommend

+ A COARSE / A MEDIUM for cleaning welding seams, removing rust and coatings as well as for light deburring
+ A FINE for grinding lacquer and paint, for cleaning machine components and for finishing
+ A VERY FINE / A ULTRA FINE for finishing a wide variety of workpieces
+ Grit size 60/80: for a coarser surface finish
+ Grit size 120/180: for a fine surface finish

	Shape		Type no.	Dimension	Grain	Design	Colour	Max. RPM	Rec. speed	PU
		1LA VL	94134	100x100x19.1 S4		A COARSE	REDBROWN	6 800	2 400	1
			94204	100x100x19.1 S4		A MEDIUM	REDBROWN	6 800	2 400	1
			94210	100x100x19.1 S4		A VERY FINE	REDBROWN	6 800	2 400	1
		1LA VL-C	94223	100x100x19.1 S4	60	A COARSE	GREY	6 800	2 400	1
			94234	100x100x19.1 S4	80	A MEDIUM	GREY	6 800	2 400	1

★★★
PREMIUM

Rough cleaning rollers

for steel, stainless steel and PVC

+ Maximum lifetime and perfect surface result



+ Universal tool

+ For quiet and low-fatigue working

Application:

+ For removing rust, paint and underbody sealant as well as for preparing surfaces for welding, soldering and anodising

We recommend:

+ Best results at a speed of 2400 rpm
+ Note maximum speed

★★★
PREMIUM

Rough cleaning rollers

for steel, stainless steel and PVC

		Type no.	Dimension	Grain	Design	Colour	Max. RPM	Rec. speed	PU
	1GR	34077301	100x100x19.1 S4		C COARSE	BLACK	6 800	2 400	1



4.17 Rollers
Floorstanding grinder



Rollers
for floorstanding grinders

TYROLIT rollers are used on stationary machines such as floorstanding grinders for general grinding jobs, cleaning, finishing and for polishing uneven or curved surfaces.

Our products allow a consistent, high-quality surface finish throughout their lifetime. With our comprehensive assortment, we offer products for removing welding tracks, scratches or oxidation residues. These tools are especially popular for surface pre-treatment over large areas.

Rollers for floorstanding grinders are available in many different grain sizes and so always produce the desired result.

Application recommendations

Performance level	Steel	Stainless steel	NF metals	Pages
ROLLERS ★★★ PREMIUM	●	●	●	342

Shapes



1LA C

★★★ PREMIUM

Floorstand grinder rollers

for steel, stainless steel and nonferrous metals

Application

+ For cleaning, finishing, polishing or for general grinding processes on uneven or curved surfaces
+ For removing welding tracks, scratches and oxidation residues as well as for pre-treating the surface

We recommend

+ Grit size 40/60 for maximum stock removal
+ Grit sizes 80-120 for medium grinding
+ Grit sizes 150-320 for a perfect surface finish

Advantage

+ Consistent wear pattern for a consistently high-quality surface finish
+ Outstanding lifetime

	Shape	Type no.	Shape	Dimension	Grain	Max. RPM	Rec. speed	PU
	 1LA C	62180	1LA	165x25x25,4	40	5 200	3 300	2
		62181	1LA	165x25x25,4	60	5 200	3 300	2
		62190	1LA	165x25x25,4	80	5 200	3 300	2
		62194	1LA	165x25x25,4	120	5 200	3 300	2
		62202	1LA	165x25x25,4	180	5 200	3 300	2
		62212	1LA	165x25x25,4	220	5 200	3 300	2
		62239	1LA	165x25x25,4	320	5 200	3 300	2
		62353	1LA	165x50x54	40	5 200	3 300	1
		62384	1LA	165x50x54	50	5 200	3 300	1
		62409	1LA	165x50x54	60	5 200	3 300	1
		62416	1LA	165x50x54	80	5 200	3 300	1
		62419	1LA	165x50x54	100	5 200	3 300	1
		62434	1LA	165x50x54	120	5 200	3 300	1
		62436	1LA	165x50x54	150	5 200	3 300	1
		62448	1LA	165x50x54	220	5 200	3 300	1
		62453	1LA	165x50x54	240	5 200	3 300	1
		62471	1LA	165x50x54	320	5 200	3 300	1
		62518	1LA	250x50x100	60	3 000	2 000	1
		62548	1LA	250x50x100	220	3 000	2 000	1

★★★
PREMIUM

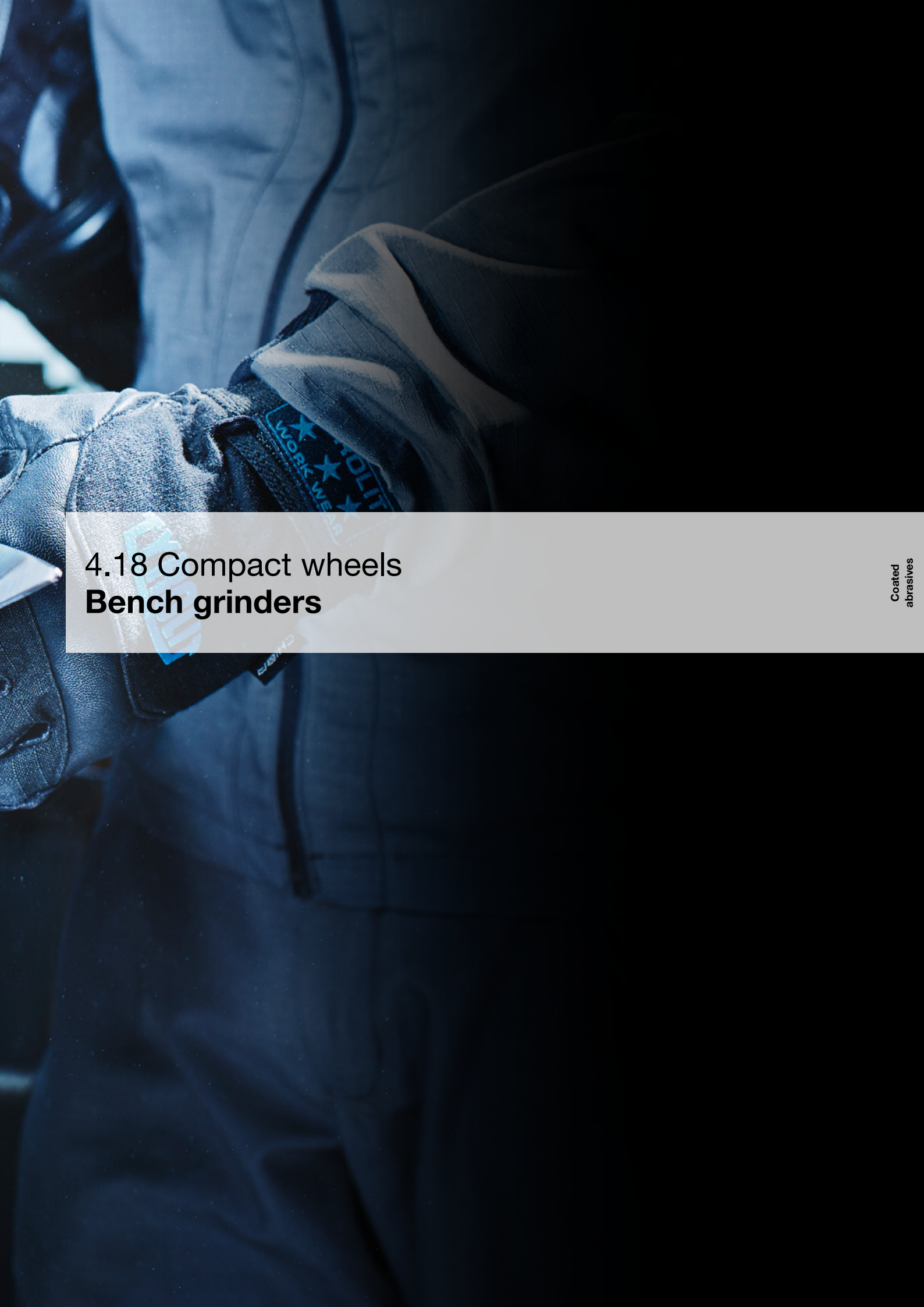
Reduction bushes
for floorstand grinder rollers

Application

+ Reduction bushes enable the original 54 millimetre bore diameter to be reduced to 32, 25, 22, 20, 16 or 12 millimetres

		Type no.	Dimension	Design	PU
	27	34024028	54x32	Reduction from 54 to 32, 25, 22, 20, 16, 12	1





4.18 Compact wheels
Bench grinders



Compact wheels **for bench grinders**

Compact wheels from TYROLIT are used on stationary machines such as bench grinders for general grinding work, cleaning, finishing and polishing surfaces.

Our products enable a consistent, high-quality surface finish throughout their lifetime. With the compact wheel range, TYROLIT offers you an ideal tool for the machining of surfaces without changing the surface geometry, particularly for the removal of rust and dirt.

Compact wheels consist of multilayer unitised fleece and are available in coarse to fine specifications depending on the number of layers. Due to their soft structure, MMF (multi metal finishing) compact wheels are especially suitable for the fine machining of all metal surfaces, whereas

DB (deburring) compact wheels are particularly hard due to several layers and high pressure and are therefore suitable for deburring work.
On the following pages, you will find our range of unitised and convolute compact wheels for bench grinders.

Application recommendations

Performance level	Design	Steel	Stainless steel	All in One	Pages
★★★ PREMIUM	2 A MEDIUM, 2 C MEDIUM, 2 C COARSE, 2 C FINE, 3 C FINE, 5 A MEDIUM, 6 A MEDIUM, 6 C FINE, 7 C FINE, 8 A MEDIUM, 8 A COARSE, 8 C FINE, 9 C FINE			●	348, 349, 350

Shapes



1UW Unitized wheel



1CW Convolute wheel

★★★
PREMIUM

Unitised compact wheels

for universal use

+ Maximum lifetime thanks to low clogging of the wheel and cool grinding



+ Universal tool

Application:

+ For removing rust, burrs and scratches as well as for fading, glazing and finishing and grinding welding seams

We recommend:

+ 2/3 C FINE for deburring and polishing
+ 2 A MEDIUM for deburring, polishing and for transitions
+ 6 C FINE / 6 A MEDIUM for deburring, rounding sharp edges and for transitions
+ 8 A COARSE for deburring, rounding sharp edges and for transitions with increased abrasiveness

★★★
PREMIUM

Unitised compact wheels
for universal use

ALL IN ONE

	Shape		Type no.	Dimension	Design	Max. RPM	Rec. speed	VE
		1UW	34190233	152x6x12.7	2 A MEDIUM	5 000	3 000	8
			34190235	152x6x12.7	2 C FINE	5 000	3 000	8
			34190236	152x6x12.7	3 C FINE	5 000	3 000	8
			34190237	152x6x12.7	6 A MEDIUM	7 500	4 500	8
			34190238	152x6x12.7	6 C FINE	7 500	4 500	8
			34190239	152x6x12.7	8 A COARSE	7 500	4 500	8
			34190280	152x13x12.7	2 A MEDIUM	5 000	3 000	4

▶



Shape		Type no.	Dimension	Design	Max. RPM	Rec. speed	VE
	1UW	34190291	152x13x12.7	2 C FINE	5 000	3 000	4
		34190292	152x13x12.7	3 C FINE	5 000	3 000	4
		34190293	152x13x12.7	6 A MEDIUM	7 500	4 500	4
		34190294	152x13x12.7	6 C FINE	7 500	4 500	4
		34190295	152x13x12.7	8 A COARSE	7 500	4 500	4
		34190297	152x25x12.7	2 A MEDIUM	5 000	3 000	2
		34190298	152x25x12.7	2 C FINE	5 000	3 000	2
		34190299	152x25x12.7	3 C FINE	5 000	3 000	2
		34190301	152x25x12.7	6 A MEDIUM	7 500	4 500	2
		34190302	152x25x12.7	6 C FINE	7 500	4 500	2
		34190303	152x25x12.7	8 A COARSE	7 500	4 500	2
		34190304	152x25x25.4	2 A MEDIUM	5 000	3 000	2
		34190305	152x25x25.4	2 C FINE	5 000	3 000	2
		34190306	152x25x25.4	3 C FINE	5 000	3 000	2
		34190308	152x25x25.4	6 A MEDIUM	7 500	4 500	2
		34190309	152x25x25.4	6 C FINE	7 500	4 500	2
		34190310	152x25x25.4	8 A COARSE	7 500	4 500	2

★★★ PREMIUM

Convolute compact wheels
for universal use

ALL IN ONE

Application
+ For deburring lasered and stamped workpieces
+ Note maximum speed

Advantage
+ No alteration of the surface geometry and no chamfering at the edges
+ Outstanding lifetime
+ Very fine finish



Shape		Type no.	Dimension	Design	Max. RPM	Rec. speed	VE
	1CW	34244233	150x20x32	7 C FINE	6 000	3 600	1
		34244235	150x20x32	9 C FINE	6 000	3 600	1
		34257324	152x25x25,4	7 C FINE	6 000	3 600	1
		34200286	152x13x25,4	7 C FINE	6 000	3 600	4
		34200287	152x13x25,4	8 A MEDIUM	6 000	3 600	4
		34200379	152x13x25,4	8 C FINE	6 000	3 600	4
		34200380	152x13x25,4	9 C FINE	6 000	3 600	4
		34200559	152x25x25,4	7 C FINE	6 000	3 600	2
		34200611	152x25x25,4	8 A MEDIUM	6 000	3 600	2
		34200612	152x25x25,4	8 C FINE	6 000	3 600	2
		34200614	152x25x25,4	9 C FINE	6 000	3 600	2

Convolute compact wheels
for universal use

★★★ PREMIUM

	Shape		Type no.	Dimension	Design	Max. RPM	Rec. speed	VE
		1CW	34200616	203x13x76,2	7 C FINE	4 500	2 700	4
			34200618	203x13x76,2	8 A MEDIUM	4 500	2 700	4
			34200619	203x13x76,2	8 C FINE	4 500	2 700	4
			34200623	203x25x76,2	8 C FINE	4 500	2 700	2
			34200624	203x25x76,2	9 C FINE	4 500	2 700	2
			34200626	203x50x76,2	7 C FINE	4 500	2 700	1
			34200627	203x50x76,2	8 A MEDIUM	4 500	2 700	1
			34200628	203x50x76,2	8 C FINE	4 500	2 700	1
			34200630	203x50x76,2	9 C FINE	4 500	2 700	1
			34200620	203x13x76,2	9 C FINE	4 500	2 700	4
			34200621	203x25x76,2	7 C FINE	4 500	2 700	2
			34200622	203x25x76,2	8 A MEDIUM	4 500	2 700	2

MMF convolute compact wheels
for universal use

★★★ PREMIUM

Application
+ For various finishing work on all metal surfaces

We recommend
+ Use on adjustable straight grinders

Advantage
+ Surface finishing
+ Very soft structure enables the workpiece to be ground without altering the geometry
+ Universal use

	Shape		Type no.	Dimension	Design	Max. RPM	Rec. speed	VE
		1CW	34200686	152x25x25.4	2 C COARSE	6 000	3 600	2
			34200687	152x25x25.4	2 C MEDIUM	6 000	3 600	2
			34200688	152x25x25.4	5 A MEDIUM	6 000	3 600	2
			34200689	152x50x25.4	2 C COARSE	6 000	3 600	1
			34200690	152x50x25.4	2 C MEDIUM	6 000	3 600	1
			34200712	152x50x25.4	5 A MEDIUM	6 000	3 600	1
			34200716	203x25x76.2	2 C MEDIUM	4 500	2 700	2
			34200718	203x25x76.2	5 A MEDIUM	4 500	2 700	2
			34200719	203x50x76.2	2 C COARSE	4 500	2 700	1
			34200720	203x50x76.2	2 C MEDIUM	4 500	2 700	1
			34200721	203x50x76.2	5 A MEDIUM	4 500	2 700	1

★★★
PREMIUM

Accessory set
for compact wheels

Application

+ Aluminium flange for mounting convolute compact wheels

	Type no.	Dimension	VE
	34214174	76.2 FLANGE	1





Catalogue 21
Precision grinding

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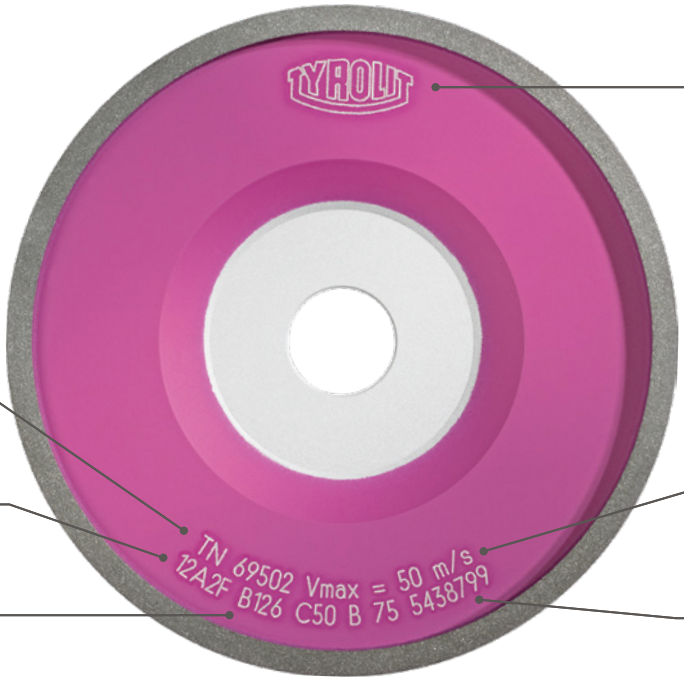
Precision tool specific **Information**

Product label





Precision tool specification
Conventional ceramic

89A 60 M 5 V 217

Bond designation	Internal code, which defines bond type
Bond	
V	vitrified bonded
B	resin bonded
E	elastic bonded
G	galvanic bonded
Structure	The higher the number, the more open the wheel
Hardness	Hardness ascends alphabetically e.g.
G	Soft
R	Hard
Grit size description	Grit size indication in mesh (sieve size per inch)
14 – 36	COARSE
46 – 60	MEDIUM
80 – 220	FINE
800 – 1 200	VERY FINE
Abrasive description	
10A	Regular aluminium oxide
50A	Mixture of 89A and 10A
52A	Semi-friable aluminium oxide
80A	Mixture of 88A and special aluminium oxide
88A	Pink aluminium oxide
89A	White aluminium oxide
91A	Red aluminium oxide
92A	Mixture of 89A and special aluminium oxide
93A	Mixture of 89A and 91A
97A	Special aluminium oxide
454A	Mixture of sintered aluminium oxide and 89A
455A	Mixture of sintered aluminium oxide and 89A
C	Green silicon carbide
1C	Black silicon carbide
50C	Silicon carbide mixture Green/black

Precision tool specification
CBN resin / Diamant

B 126 C50 B 54

	Bond designation	Internal code, which defines bond type
Bond		
	B	Resin bonded
	M	Metal bonded
Concentration		The grain concentration shows the grain volume in carat per unit volume of the grinding layer
Grit size description		Grit size indication in µm (average grit diameter according to FEPA))
35 – 181 µm		
Abrasive description		
B		CBN
D		Diamond

Pictograms


External-cylindrical grinding


Internal-cylindrical grinding


Surface grinding


Floorstand grinder


Hand-guided grinding


Tool grinding


Saw sharpening


Dressing and sharpening

Delivery time

EXPLANATION OF TERMS

Stock type

All products in the chapter “Precision grinding” that are listed with type numbers are in stock.

Recommended stock type

A standard range created by a collaboration between our application engineers and marketing managers, which guarantees optimum grinding results for various grinding applications and the materials to be processed.

Alternative stock type

Existing stock products, which – based on our global market and product experience – also guarantee good grinding results, but which are replaced in the short to MEDIUM term by recommended stock types.

Breadth of product range

Precision is our business! However, if the specifications available in stock do not provide you with the perfect solution, modifications to the recommended product range (dimensions) can also be made, i.e. grit size, hardness and structure.

Example for breadth of product range

C	60	H	5	Stock type	→	Recommended standard specification
C	46–180	F–I	5–8	5–6 weeks DT	→	Possible range of modifications for grit sizes, hardness and structure
C	80	F	8		→	Example of a possible modification

Modification on request

To ensure quicker delivery times in urgent cases, existing stock types (recommended stock types) can be modified to suit customer requirements. The current delivery time and price will be provided according to the enquiry.



Precision data sheet			Recorded by: on:	
Customer	ATDB no.:		**Country:**	
	Target group:		**Product family:**	
	Item requirements:			
	Customer: *		Classification:	
	Department:		Customer no.:	
	Contact:		Tel. / Fax:	
Customer	**Shape: ***		**1 set = item.:**	
	Dimensions (mm): *			
	Dimensions (mm):		Tolerance:	
	Specifications:			
	Manufacturer:		**Current price:**	
	Vs max. (m / s)*		Order quantity:	
Customer	**Grinding process:**			
	Machine manufacturer:			
	Vs (m / s):			
	Coolant / lubricant:			
	Dressing tool:			
	Dressing cycle:		Dressing amount:	
Workpiece	**Workpiece: ***		**Dimensions (mm): ***	
	Material group:*		**Stock (mm):**	
	Condition: *		**Hardness: ***	
Aim	**Surface roughness:**		**Contact time:**	
	Lifetime:			
	Addition:			
Probe	Specification:			
	Specification:			
	Specification:			
Info			Drawing:	
Distributor:				

* COMPULSORY fields are marked in grey



5.1 External cylindrical grinding
External cylindrical grinding tools



External cylindrical grinding

External cylindrical grinding is one of the most frequently used grinding processes, for example, in the automotive industry. In keeping with the requirements of our customers, we always offer the right tool.

The high-precision external cylindrical grinding tools from TYROLIT underlie an optimal quality assurance system and are produced using the most modern manufacturing technology and production facilities. We are therefore always able to comply with the requirements of our customers.

The decisive factor in the selection of the right product is the adaptation of the grinding wheel in the overall process to the specific requirements of the grinding application. Workpiece, tool, machine, parameters, cooling lubricant and the applied dressing technology contribute to the perfect grinding result. The choice of the correct specification, as well as adaptation of the process parameters, can be optimised by TYROLIT to suit customer requirements.

Application recommendation

Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding	Page
		Unhardened	Hardened	Unhardened	Hardened								
89A		●		●	●	●				●		●	362
B		●		●		●	●					●	363
D								●	●			●	364

● Extremely suitable ● Limited suitability

Application tips

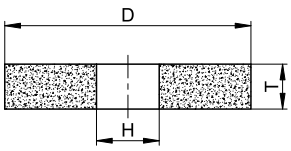
The key factor is the adjustment of the grinding wheel in the overall process (workpiece, tool, machine, parameters, coolant, dressing technology etc., as well as the specific requirements of the particular grinding applications.

- The choice of specification, such as the adjustment of process parameters, can be optimised by TYROLIT application engineers to suit customer requirements
- Recommended operating speed: 25–35 m/sec
  Workpiece peripheral speed: depends on workpiece diameter
- Overlap rate: 30–40 % of wheel width

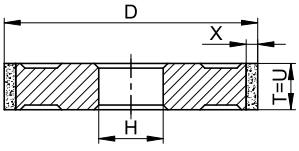
Diamond and CBN tool

- For optimised dressing, see page 446 to 455
- Longitudinal feed/overlap rate:
  30–50 % of thickness of diamond section width
- Workpiece peripheral speed: depends on workpiece diameter
- Recommended cutting speed for CBN grinding wheels for HSS and high-alloyed tool steel is 20–30 m/s
- Recommended cutting speed for diamond grinding wheels for cemented carbide and industrial ceramics is 15–25 m/s
- Concentrically trueing and sharpening of wheel before initial use with
  – unhardened structural steel shaft
  – silicon carbide grinding wheel
- Ensure good coolant supply

Shapes

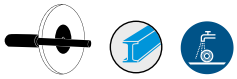


Shape 1



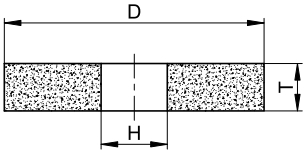
Shape 1A1

External cylindrical grinding
Conventional ceramic
For non and low-alloyed steels



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
89A		●		●	●	●				●		●

Recommended stock type



Shape 1

In many industries, external cylindrical grinding is one of the most frequently used grinding processes. In the automotive industry, for example, camshafts, crankshafts and gear shafts designed to meet the most stringent demands and requirements are produced. Use of aluminium oxide especially for non and low-alloyed steels.
The grade and structure of the wheel affect the grinding result and are tailored perfectly to use on non and low-alloyed steels. Our assortment also includes wheels for angled flute grinding.

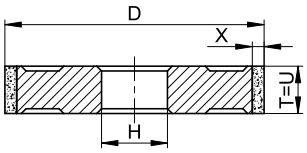
	Shape	Type no.	DxTxH	Specification	Vmax m/s	Comments
	1	690785	300x40x76.2	89A 802 J5A V217 50	50	
		39869	400x30x127	89A 802 J5A V217 50	50	
		620118	400x40x127	89A 802 J5A V217 50	50	Grit size 80 Ra approx. 0.20–0.35 µm
		39867	500x60x203.2	89A 802 J5A V217 50	50	

VIB STAR External cylindrical grinding CBN resin

For high-alloyed steels and HSS

Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
B			●		●	●	●					●

Recommended stock type



Shape 1A1

The VIB STAR external grinding wheel is made with a vibration-reducing core. This enables a consistent and quiet grinding process. A constant self-sharpening effect also guarantees consistent power consumption and therefore high economic efficiency of the tool.
Low wear results in a high level of dimensional accuracy on the workpiece, thereby reducing dimensional inspections to a minimum.

	Shape	Type no.	DxTxH	Specification	U-X	Vmax m/s
	1A1	34448298	300x20x76.2	B126C50B VIB-STAR	20-3	63
		34448299	300x20x127	B126C50B VIB-STAR	20-3	63
		34448311	350x20x127	B126C50B VIB-STAR	20-3	63
		34447898	400x20x127	B126C50B VIB-STAR	20-3	63

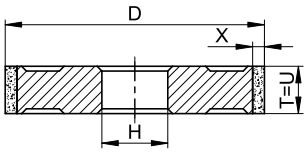
* *Please find information on dressing and sharpening from page 446.*

VIB STAR External cylindrical grinding
Diamond resin
For tungsten carbide and industrial ceramics



Specification	Aluminium	Non and low-alloyed steels	High-alloyed steels	HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened | Hardened	Unhardened | Hardened							
D						●	●			●

Recommended stock type

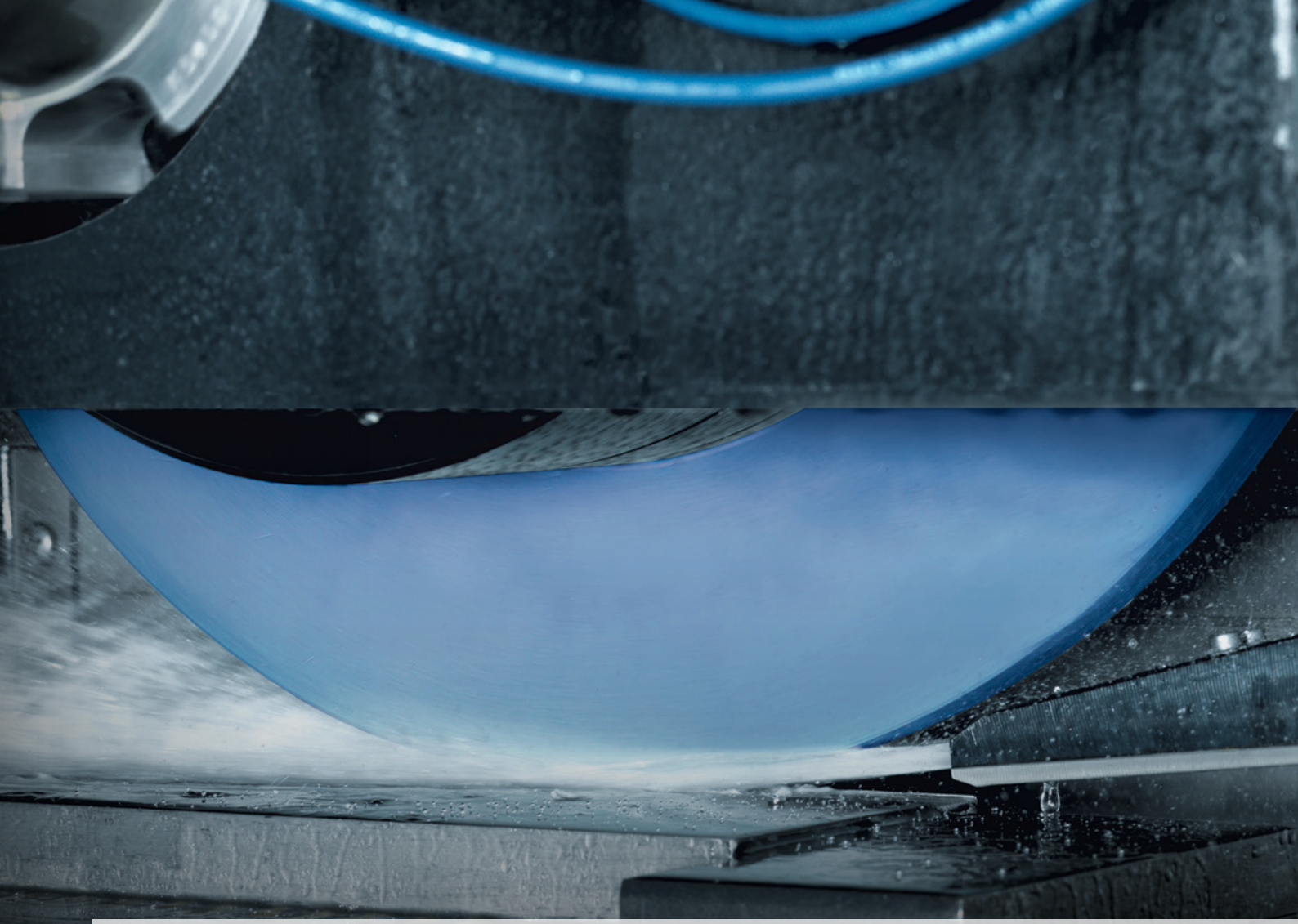


Shape 1A1

The resin-bonded diamond wheel with VIB STAR core is a particularly cost-effective solution for machining tungsten carbide. Low wear and a high level of dimensional accuracy are achieved by a constant self-sharpening effect.
A high stock removal rate due to synthetic diamonds in resinoid bonds provides a significant advantage over less expensive silicon carbide wheels.

	Shape	Type no.	DxTxH	Specification	U-X	Vmax m/s
	1A1	34448315	200x10x51	D126C75B VIB-STAR	10-3	63
		34448319	300x20x127	D126C75B VIB-STAR	20-3	63

*Please find information on dressing and sharpening from page 446.



5.2 Reciprocating surface grinding
Reciprocating surface grinding tool



Reciprocating surface grinding

Reciprocating surface grinding is the most frequently used surface grinding process. Here, a high stock removal rate with an adequate surface finish is required. Due to the relatively large contact area between the grinding wheel and the workpiece, a special grinding wheel composition is necessary.

The high-precision reciprocating surface grinding tools from TYROLIT underlie an optimal quality assurance system and are produced using the most modern manufacturing technology and production facilities. We are therefore always able to comply with the requirements of our customers. The decisive factor in the selection of the right product is the adaptation of the grinding wheel in the overall process to the specific requirements of the grinding application. Workpiece, tool, machine, parameters, cooling lubricant and the applied dressing technology contribute to the perfect grinding result. The choice of the correct specification, as well as adaptation of the process parameters, can be optimised by TYROLIT to suit customer requirements.

Application recommendation

Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding	Page
		Unhardened	Hardened	Unhardened	Hardened								
89A		●	●	●	●	●						●	368, 369
F13A			●	●	●	●						●	368, 369
454A, 97A			●		●	●	●					●	370, 370
80A		●	●	●	●		●					●	372
454A				●	●	●	●					●	372
C	●				●	●	●	●	●	●		●	373
B			●		●	●	●					●	374
D								●	●			●	375

● Extremely suitable ● Limited suitability

Application tips

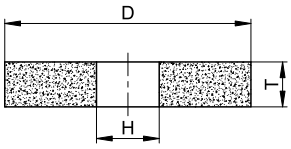
Conventional tool

- Recommended operating speed: 20–30 m/s
- Table traverse speed: 10–20 m/min
- Infeed when roughing: 0.01–0.03 mm/stroke
- Infeed when finishing: 0.002–0.004 mm/stroke
- Transverse stroke (contact width in %): 30–40 % of wheel width
- Finishing: 1–3 strokes (without infeed)
- Ensure good coolant supply

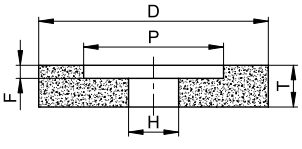
Diamond and CBN tool

- Table traverse speed: 10–20 m/min
- Transverse stroke/overlap rate: 30–40 % of thickness of diamond section
- STANDARD value for infeed: 1/10 of grinding grit size (e.g. D126 → infeed 12 µm)
- Recommended cutting speed for CBN grinding wheels for HSS and high-alloyed tool steel is 20–25 m/s
- Recommended cutting speed for diamond grinding wheels for cemented carbide and industrial ceramics is 15–25 m/s
- Concentrically trueing and sharpening of wheel before initial use with
  - unhardened structural steel block
  - AV500 dressing device with silicon carbide grinding wheel (see chapter “Dressing and sharpening”, page 449)
- Ensure good coolant supply

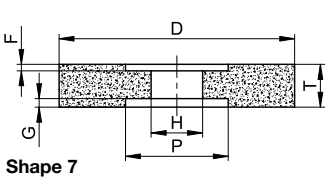
Shapes



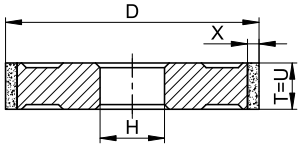
Shape 1



Shape 5



Shape 7



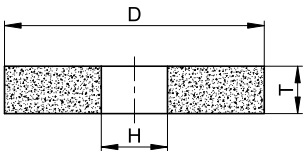
Shape 1A1

Reciprocating surface grinding
Conventional ceramic
For non and low-alloyed steels

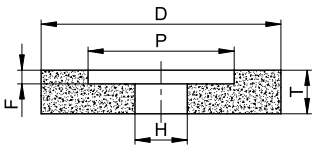


Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
89A		●	●	●	●	●						●
F13A			●	●	●	●						●

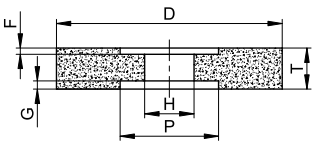
Recommended stock type



Shape 1



Shape 5



Shape 7

Reciprocating grinding wheels are primarily used for rough and FINE grinding in machine construction and mould making. The aim is to achieve even and straight workpiece surfaces. Using highly porous grinding wheels and special aluminium oxides leads to an optimum surface result and a high stock removal rate.

Exceptional grinding results are achieved thanks to grade and structure specifications tailored to non and low-alloyed steels.

	Shape	Type no.	DxTxH	PxF	Specification	Comments
	1	498701	225x25x51		89A 46 I8A V217	For rough grinding operations
		331692	250x25x76.2		89A 46 I8A V217	
		936929	300x50x127		89A 46 I8A V217	
		56484	350x50x127		89A 46 I8A V217	
		215986	350x40x127		89A 46 I8A V217	
		64598	400x50x127		89A 46 I8A V217	
		664546	250x25x51		89A 802 J8A V217	
		666533	350x40x127		89A 802 J8A V217	
	1	441403	200x20x51		F13A 46 HH11 V	For rough grinding operations
		441401	225x25x51		F13A 46 HH11 V	
		441399	250x25x51		F13A 46 HH11 V	
		665269	300x50x127		F13A 46 HH11 V	
		665282	350x40x127		F13A 46 HH11 V	
		665296	400x50x127		F13A 46 HH11 V	
		593712	400x50x127	200x10	F13A 46 HH11 V	

▶

◀

Recommended stock type

	Shape	Type no.	DxTxH	PxF/G	Specification	Comments
	7	665281	300x50x76.2	155x10/10	89A 46 I8A V217	For rough grinding operations
		664648	300x50x76.2	155x10/10	89A 802 J8A V217	For finer surface finishes
		664506	300x50x76.2	155x10/10	F13A 46 HH11 V	For rough grinding operations

Breadth of product range*

89A	46	I	8	Stock type	89	80	J	8	Stock type
89A	46–100	H–J	5–9	5–6 weeks DT	89A	46–100	H–J	5–9	5–6 weeks DT

F13A	46	HH	11	Stock type	89A	80	J	8	Stock type
F13A	46-120	FF-HH	11-12	5-6 weeks DT	89A	70-100	H-J	5-9	5-6 weeks DT

**For production reasons, the minimum quantity ordered may differ from non-stock types.*

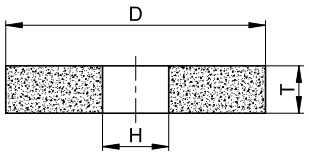
Alternative stock type

Shape	Type no.	DxTxH	Specification
1	33502	250x40x76.2	88A 46 J7A V217
	61571	350x50x127	88A 46 J7 V217
	850504	180x13x31.75	89A 60 K5A V217

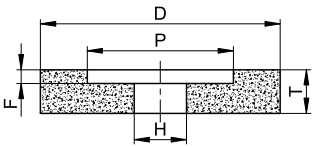
Reciprocating surface grinding
Conventional ceramic
For high-alloyed steels and HSS

Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
454A, 97A			●	●	●	●	●					●

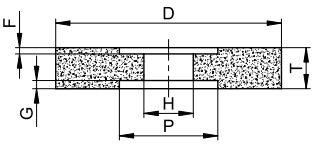
Recommended stock type



Shape 1



Shape 5



Shape 7

This reciprocating grinding wheel can be used universally on all high-alloyed steels and HSS. This is achieved by using special aluminium oxides and mixtures with sintered aluminium oxides combined with special bond systems.
Maximum stock removal rates can be achieved with sintered aluminium oxide mixtures such as 454A. The next highest quality line is the resin-bonded VIB STAR CBN wheel from TYROLIT.



Shape	Type no.	DxTxH	PxF	Specification
1	306283	200x20x32		454A 601 J10 V3
	34074562	200x20x51		454A 601 J10 V3
	664383	225x25x51		454A 602 J10 V3
	664389	250x25x76.2		454A 602 J10 V3
	494874	350x40x127		454A 602 J10 V3
	664394	350x50x127		454A 602 J10 V3
	664397	400x50x127		454A 602 J10 V3
	441342	200x20x51		97A 462 H8A V237
	664406	225x25x51		97A 801 H8A V237
	664407	250x25x51		97A 801 H8A V237
	664409	250x25x76.2		97A 801 H8A V237
	664412	300x50x127		97A 801 H8A V237
	441350	350x40x127		97A 462 H8A V237
	664419	350x40x127		97A 801 H8A V237
	664420	350x50x127		97A 801 H8A V237
	664423	400x40x127		97A 801 H8A V237
	630054	400x50x127		97A 462 H8A V237
	664426	400x50x127		97A 801 H8A V237
5	664474	350x50x127	200x10	97A 801 H8A V237
	664476	400x50x127	200x10	97A 801 H8A V237

▶

◀

	Shape	Type no.	DxTxH	PxF/G	Specification
	7	664485	300x50x76.2	155x10/10	454A 602 J10 V3
		664498	300x50x76.2	155x10/10	97A 801 H8A V237
		664504	400x80x127	190x15/15	97A 801 H8A V237

Breadth of product range*

454A	60	J	10	Stock type	97A	46	H	8	Stock type
454A	46-80	I–K	8-11	5–6 weeks DT	97A	46–100	H–J	5–9	5–6 weeks DT

97A	80	H	8	Stock type
97A	46–100	H–J	5–9	5–6 weeks DT

**For production reasons, the minimum quantity ordered may differ from non-stock types.*

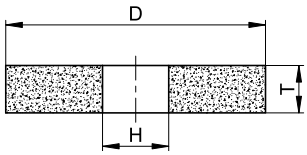
Alternative stock type

Shape	Type no.	DxTxH	Specification
1	34074549	180x13x32	454A 601 J10 V3
	34074261	180x16x32	454A 601 J10 V3
	494254	200x20x31.75	454A 601 L7G V3
	305260	200x20x32	454A 461 L7G V3
	305285	400x50x127	454A 462 H5 V3
	314990	180x13x32	89A 60 I7A V237
	344194	180x16x32	89A 46 I7A V237
	344195	180x20x32	89A 46 I7A V237
	749042	180x16x32	92A 602 H23 V237 W4 32
	57038	350x50x127	97A 462 I8A V217

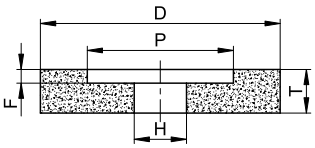
Reciprocating surface grinding
Conventional ceramic
For stainless steel

Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
80A		●	●	●	●		●					●
454A				●	●	●	●					●

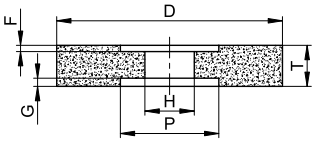
Recommended stock type



Shape 1



Shape 5



Shape 7

Special aluminium oxide and sintered aluminium oxide mixtures are a cost-effective solution for the reciprocating surface grinding of stainless steel/Inox. They offer cool grinding and excellent cutting ability thanks to a special grain shape.
A variety of shapes and dimensions mean they can cover the majority of applications.

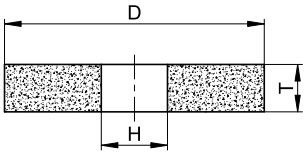
	Shape	Type no.	DxTxH	PxF/G	Specification
	1	664383	225x25x51		454A 602 J10 V3
		664397	400x50x127		454A 602 J10 V3
		27420	400x50x127		80A 54 I9A V217 P23
	7	10845	300x50x76.2	155x10/10	80A 54 I9A V217 P23

Reciprocating surface grinding
Conventional ceramic
For tungsten carbide and cast iron



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
C	●	●				●	●	●	●	●		●

Recommended stock type



Shape 1

The silicon carbide wheel is a cost-effective variant for machining tungsten carbide for secondary applications. It really comes into its own when machining castings and nonferrous metals.
This silicon carbide wheel is a good alternative for working on nitrified workpieces with simple profiles or wear-resistant thermal sprayed alloys, as it can be profiled with STANDARD diamond dressing tools.

	Shape	Type no.	DxTxH	Specification	Vmax m/s
	1	664536	400x50x127	C 801 H8A V18 50 A	50
		36890	300x20x127	C 60 J11 V18	50
		36918	300x40x127	C 60 J11 V18	50
		775149	400x40x203	C 60 J10 V18	50

Breadth of product range*

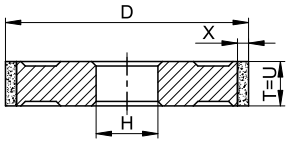
C	80	H	8	Stock type
C	46–180	F–I	5–8	5–6 weeks DT

**For production reasons, the minimum quantity ordered may differ from non-stock types.*

VIB STAR reciprocating surface grinding
CBN resin
For high-alloyed steels and HSS

Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
B			●		●	●	●					●

Recommended stock type



Shape 1A1

The VIB STAR reciprocating grinding wheel is equipped with a vibration-reducing core that ensures a consistent and quiet grinding process.The constant self-sharpening effect guarantees consistent power consumption and therefore high economic efficiency.
Low wear results in a high level of dimensional accuracy on the workpiece, thereby reducing dimensional inspections to a minimum.

	Shape	Type no.	DxTxH	Specification	U-X	Vmax m/s
	1A1	34448298	300x20x76.2	B126C50B VIB-STAR	20-3	63
		34448299	300x20x127	B126C50B VIB-STAR	20-3	63
		34448311	350x20x127	B126C50B VIB-STAR	20-3	63
		34447898	400x20x127	B126C50B VIB-STAR	20-3	63

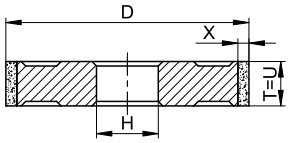
* *Please find information on dressing and sharpening from page 446.*

VIB STAR reciprocating surface grinding
Diamond resin
For tungsten carbide and industrial ceramics



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
D								●	●			●

Recommended stock type



Shape 1A1

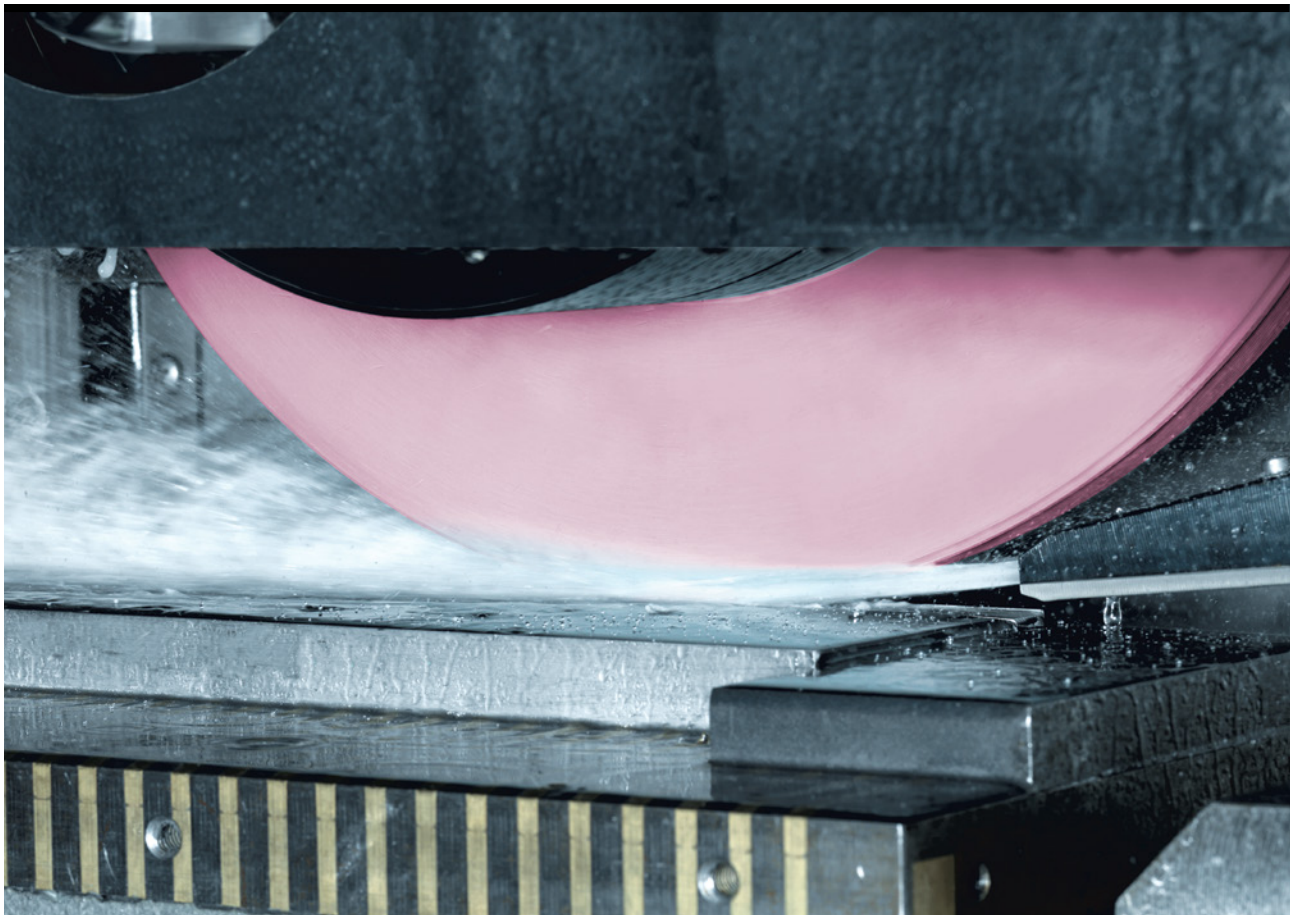
The resin-bonded diamond wheel with VIB STAR core is a particularly cost-effective solution for machining tungsten carbide. Low wear and a high level of dimensional accuracy are achieved by a constant self-sharpening effect.
The high stock removal rate of synthetic diamond in resinoid bonds provides a significant advantage over less expensive silicon carbide grinding wheels.

	Shape	Type no.	DxTxH	Specification	U-X	Vmax m/s
	1A1	34448315	200x10x51	D126C75B VIB-STAR	10-3	63
		34448319	300x20x127	D126C75B VIB-STAR	20-3	63

** Please find information on dressing and sharpening from page 446.*



5.3 Profile surface grinding
Profile surface grinding tool



Profile surface grinding

In the profile surface grinding process, pre-defined profiles are ground into the material. In order to achieve this, it is important to apply a “negative profile” through dressing of the wheel. As a system supplier, TYROLIT offers not only suitable grinding wheels, but also an appropriate dresser for this purpose.

The precise profile surface grinding tools underlie an optimal quality assurance system and are produced using the most modern manufacturing technology and production facilities. We are therefore always able to comply with the requirements of our customers.
TYROLIT produces this tool with a highly porous structure and special aluminium oxides. This enables us to offer you optimum profile retention with minimum dressing diamond wear.

Application recommendation

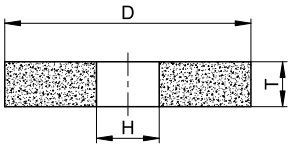
Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding	Page
		Unhardened	Hardened	Unhardened	Hardened								
80A		●	●	●	●		●					●	380

● Extremely suitable ● Limited suitability

Application tips

- Recommended operating speed: 25–30 m/s
- Infeed: 0.003–0.1 mm/stroke
- Traverse speed: 10–20 m/min
- Ensure good coolant supply
- For optimised dressing, see page 446 to 455

Shapes



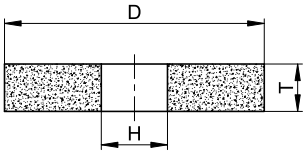
Shape 1

Profile surface grinding
Conventional ceramic



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
80A		●	●	●	●		●					●

Recommended stock type



Shape 1

For conventional ceramic profile surface grinding applications we offer wheels with special aluminium oxides and a highly porous structure. They are available in grit sizes 80 and 120 for pendulum grinding and in silicon carbide in grit size C180 for creep feed grinding.

	Shape	Type no.	DxTxH	Specification
	1	876610	180x13x32	80A 1209 I7G V112
		876616	180x6x32	80A 1209 I7G V112
		876619	200x10x32	80A 1209 I7G V112
		876618	180x10x32	80A 809 J7G V111
		876591	180x13x32	80A 809 J7G V111
		688752	200x10x32	80A 809 J7G V111



5.4 Surface grinding **with rings and segments**



Surface grinding **with rings and segments**

In contrast to peripheral surface grinding, grinding is performed on the side when using rings and segments. This is often necessary because of the machine construction and workpiece dimensions and requires a reduction in the permissible operating speed.

This process offers a particularly high grinding performance due to the COARSE grit sizes used. Because breaks in the segments often occur during grinding, this also benefits the coolant supply.However, not only particularly cool grinding, but also the self-sharpening effect of these tools make them extremely popular, especially for the grinding of planer knives. Here too, coarse and extremely porous tools with low hardness are used.

Application recommendation

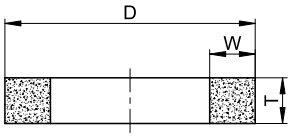
Specification	Aluminium	Non and low-alloyed steels	High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding	Page
		Unhardened	Hardened	Unhardened	Hardened							
89A ceramic		●		●	●	●						●	384
89A Bakelit		●			●	●						●	384
92A		●			●	●						●	384

● Extremely suitable ● Limited suitability

Application tips

- Recommended operating speed: 25–30 m/s
- Traverse speed: 2–10 m/min
- Infeed 0.005–0.03 mm/stroke
- Sparking out without infeed 1–3 strokes
- Ensure good coolant supply

Shapes

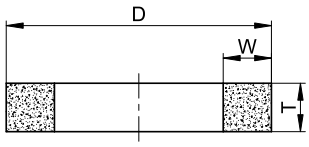


Shape 2

Surface grinding with rings
Ceramic / Conventional resin
For high-alloyed steels and HSS

Specification	Aluminium	Non and low-alloyed steels	High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened | Hardened	Unhardened	Hardened							
89A ceramic		●	●	●	●						●
89 A resin		●		●	●						●
92A		●		●	●						●

Recommended stock type



Shape 2

Rings for surface grinding are made of a highly porous vitrified bond in grit size 46 or resinoid bond in grit size 60. They are ideally suited to high-alloyed steels and HSS, and meet the most exacting surface quality requirements.
Ring wheels with a high stock removal rate are required above all for paper and planer knives. Please be aware that resin-bonded ring wheels only exhibit limited coolant resistance.



Shape	Type no.	DxTxH	Specification	Comments
2	468751	200x100-W=20	89A 46 G10A V217 B3	
	469619	250x100-W=25	89A 602 G4 B22 W4E	
	664621	200x90-W=20	92A 461 H10A V237	Göckel, Reform (Planer and chopper knives)
	664622	200x100-W=20	92A 461 H10A V237	
103	709899		103K02	Accessories: Vinapas adhesive 0.5 kg



5.5 Internal cylindrical grinding
Internal cylindrical grinding tools



Internal cylindrical grinding

The internal cylindrical grinding process is mainly used for the finishing of internal functional surfaces. The process is especially often used for the connection with an axle or shaft. For example, gears, steering systems, injection systems or hollow shafts can be machined.

With vitrified-bonded tools, TYROLIT offers you optimum profile retention and, through cool grinding, a particularly low thermal load.

Depending on the application, we recommend our diamond and CBN wheels instead of conventional grinding tools.

Application recommendation

Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding	Page
		Unhardened	Hardened	Unhardened	Hardened								
89A		●	●	●	●	●				●		●	388
97A, AT			●		●	●	●					●	389
B			●		●	●	●				●	●	390, 391
D								●	●		●	●	391

● Extremely suitable ● Limited suitability

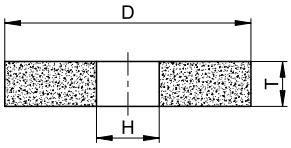
Application tips

- Recommended operating speed: 30–50 m/s
- Pre-grinding infeed: 0.02–0.05 mm/stroke
- Semi-finish grinding infeed: 0.01–0.005 mm/stroke
- Finish grinding infeed: 0.001–0.002 mm/stroke
- Spark-out infeed: 5 strokes
- Ensure good coolant supply

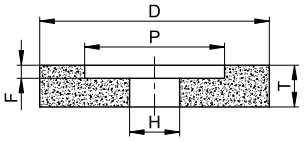
Diamond and CBN tool

- Recommended cutting speed for HSS and high-alloyed tool steel is 15–35 m/s
- Recommended cutting speed for cemented carbide and industrial ceramics is 15–25 m/s
- Cooling with emulsion recommended

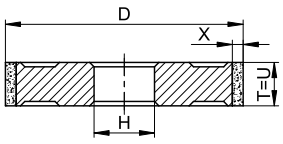
Shapes



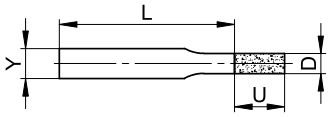
Shape 1



Shape 5



Shape 1A1

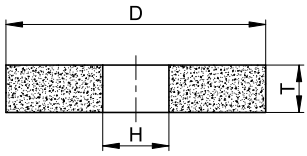


Shape 1A1W

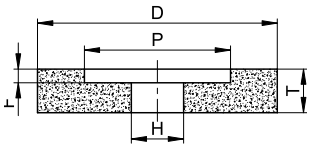
Internal cylindrical grinding
Conventional ceramic
For non and low-alloyed steels

Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
89A		●	●	●	●	●						●

Recommended stock type



Shape 1



Shape 5

These universal internal cylindrical grinding wheels made from special aluminium oxide are used for the grinding of through-holes and alignment holes. They offer high stock removal rates and excellent shape retention.
Specification 89A60 is used primarily for soft steels and 89A80 for hardened steels.

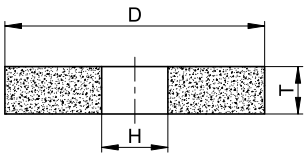
	Shape	Type no.	DxTxH	PxF	Specification	Vmax m/s	PU
	1	807005	15x15x6		89A 802 I5 V111 50	50	25
		234390	20x20x6		89A 602 J5 V111 50	50	25
		234387	50x40x16		89A 602 J5 V111 50	50	10
		664708	50x50x16		89A 602 J5 V111 50	50	10
	5	664777	32x32x10	18x16	89A 602 J5 V111 50	50	10
		664793	32x32x10	18x16	89A 802 I5 V111 50	50	10
		664780	40x40x13	20x20	89A 602 J5 V111 50	50	10
		664794	40x40x13	20x20	89A 802 I5 V111 50	50	10
		664796	50x50x16	25x25	89A 802 I5 V111 50	50	10

Internal cylindrical grinding
Conventional ceramic
For high-alloyed steels and HSS

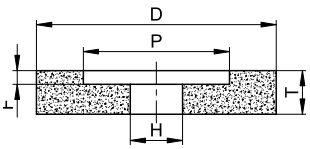
Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
97A, AT			●		●	●	●					●

▶

Recommended stock type



Shape 1



Shape 5

This vitrified internal cylindrical grinding tool offers a cost effective alternative to CBN tools with good stock removal. The specification AT60 can be used universally. Our wide range means you can choose exactly the right tool for the application.

	Shape	Type no.	DxTxH	PxF	Specification	Vmax m/s	PU
	1	664672	32x25x10		97A 802 I5 V112 80	80	10
		747519	32x32x10		97A 602 K6 V112 80	80	10
		664673	32x32x10		97A 802 I5 V112 80	80	10
		747522	40x25x10		97A 602 K6 V112 80	80	10
		664675	40x40x13		97A 802 I5 V112 80	80	10
		664677	50x40x16		97A 802 I5 V112 80	80	10
		664683	15x15x6		AT 60 J6 VCOL 80	80	25
		664684	20x20x6		AT 60 J6 VCOL 80	80	25
	5	664728	20x20x6	13x7	97A 802 I5 V112 80	80	10
		664738	25x25x10	16x10	97A 802 I5 V112 80	80	10
		664737	25x25x6	12x13	97A 802 I5 V112 80	80	10
		664742	32x32x10	18x16	97A 802 I5 V112 80	80	10
		664744	40x40x13	20x20	97A 802 I5 V112 80	80	10
		664746	50x40x16	30x13	97A 802 I5 V112 80	80	10
		664749	50x50x16	25x25	97A 802 I5 V112 80	80	10
		664757	20x20x6	13x7	AT 60 J6 VCOL 80	80	10
		664761	32x32x10	18x16	AT 60 J6 VCOL 80	80	10
		664764	40x40x13	20x20	AT 60 J6 VCOL 80	80	10
		664766	50x40x16	30x13	AT 60 J6 VCOL 80	80	10

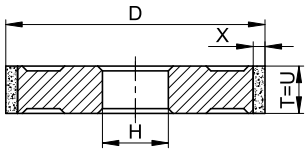
Alternative stock type

Shape	Type no.	DxTxH	PxF	Specification	Vmax m/s	PU
5	232811	40x40x10	16x20	455A 801 L6 V3 80	80	10
	747530	50x40x16	30x13	97A 602 K6 V112 80	80	10

Internal cylindrical grinding
CBN resin-bonded
For high-alloyed steels and HSS

Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
B			●		●	●	●				●	●

Recommended stock type



Shape 1A1

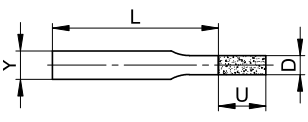
Compared to conventional ceramic grinding tools, CBN tools are characterised by a long lifetime and much shorter grinding times. They also offer a high level of dimensional accuracy.
This resin-bonded tool is primarily used for machining high-alloyed steels and HSS, but it can also be used for machining INOX.

	Shape	Type no.	DxTxH	U-X	Specification
	1A1	34937	15x10x6	10-2	B 126 C75 B 54 AL
		127356	20x10x6	10-2	B 126 C75 B 54 AL
		43017	30x10x10	10-3	B 126 C75 B 54 AL

Internal cylindrical grinding
CBN electroplated
For high-alloyed steels and HSS

Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
B			●		●	●	●				●	●

Recommended stock type



Shape 1A1W

Compared to conventional ceramic grinding tools, CBN tools are characterised by a long lifetime and much shorter grinding times. They also offer a high level of dimensional accuracy.
This resin-bonded tool is primarily used for machining high-alloyed steels and HSS, but it can also be used for machining INOX.

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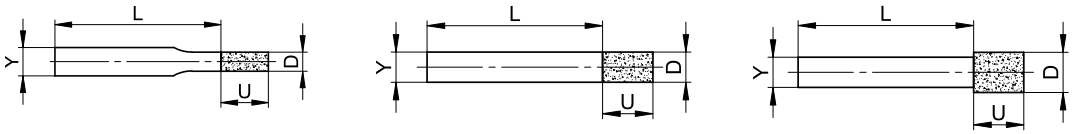
	Shape	Type no.	DxU	YxL	Specification	PU	Comments
	1A1W	477409	3x5	5xS3	B 91 GST	5	CBN, single layer
		477412	5x7	7xS3	B 126 GST	5	
		477413	6x7	7xS6	B 126 GST	5	

Internal cylindrical grinding
Diamond electroplated
For tungsten carbide and industrial ceramics

Specification	Aluminium	Non and low-alloyed steels	High-alloyed steels	HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened | Hardened	Unhardened | Hardened							
D						●	●		●	●

Recommended stock type



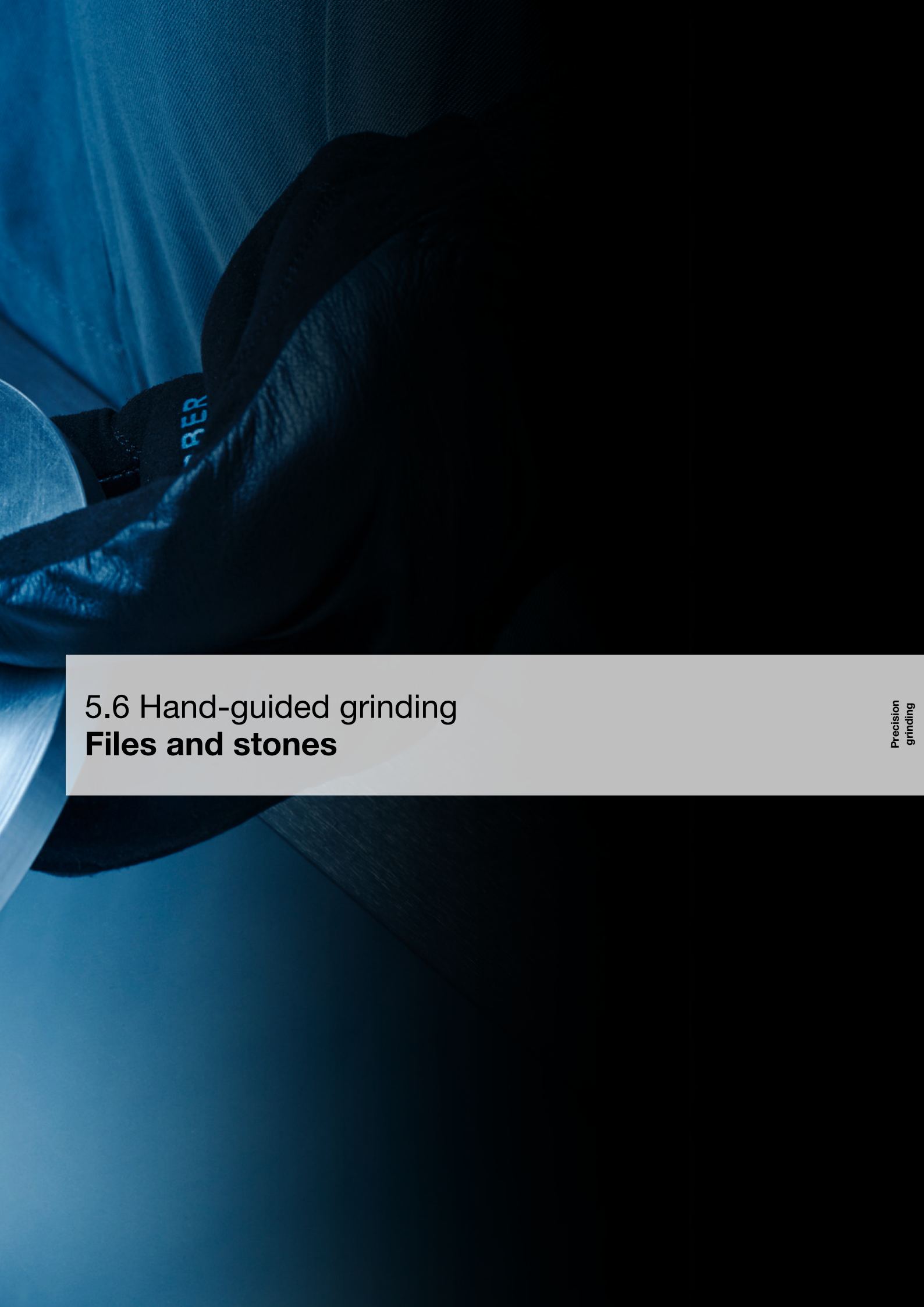
Shape 1A1W | Shape 1A1W 2 | Shape 1A1W 3

This electroplated tool is primarily used for the machining of tungsten carbide and industrial ceramics. Compared to conventional ceramic grinding tools, diamond tools are characterised by a long lifetime and much shorter grinding times.

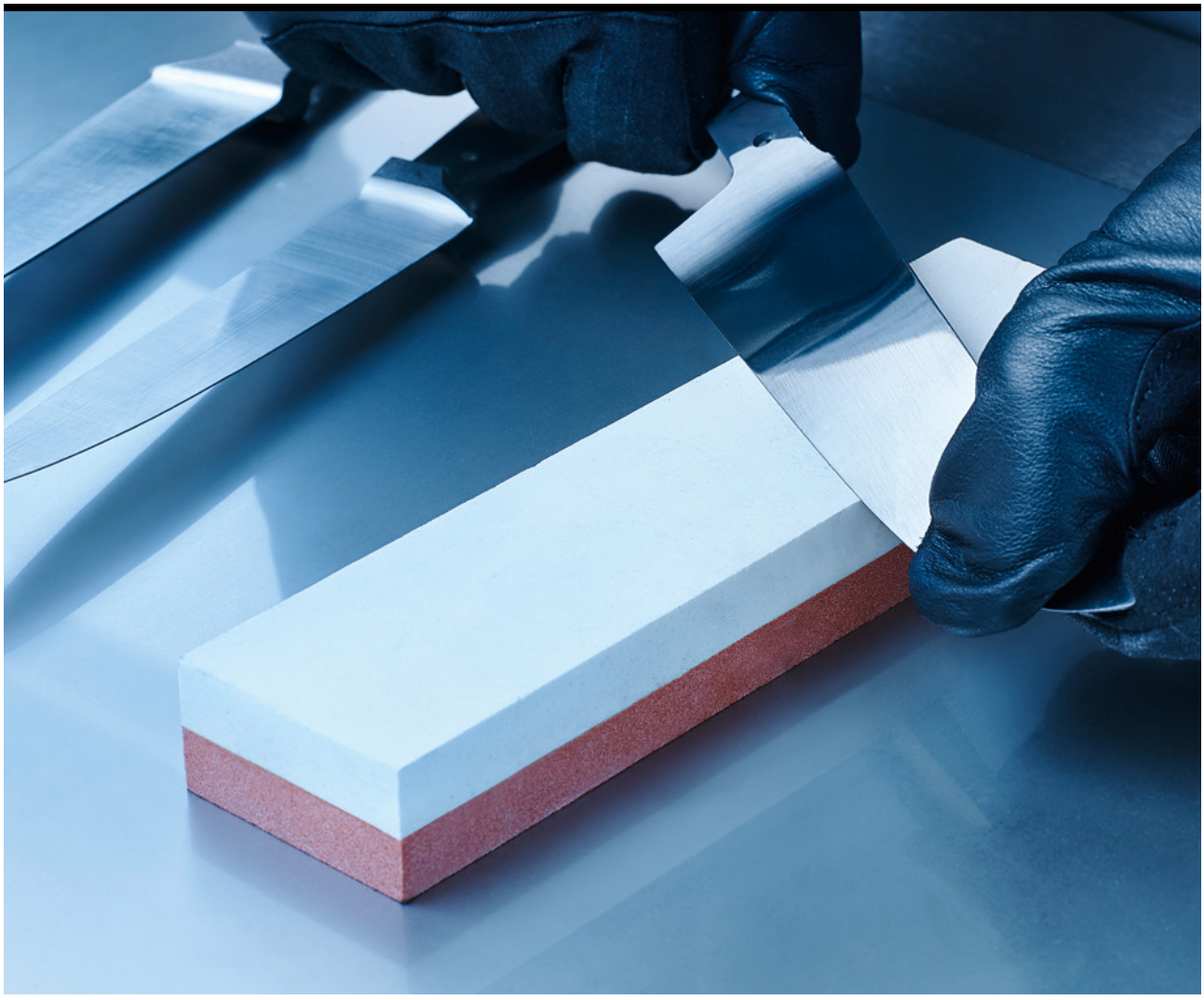
They also offer a high level of dimensional accuracy and exert a low grinding pressure. They are therefore ideally suited to machining small diameters.

	Shape	Type no.	DxU	YxL	Specification	PU	Comments
	1A1W	477342	2x4	4xS3x51	D 91 X GST	5	Diamond layer, single
		477346	3x5	5xS3x50	D 91 X GST	5	
		477349	4x5	5xS3x50	D 126 X GST	5	


TYROLIT
FA 9228339 89AFEIN



5.6 Hand-guided grinding
Files and stones

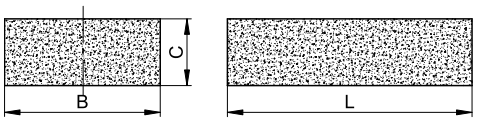


Hand-guided grinding

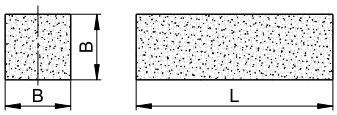
In the area of hand-guided tools, TYROLIT offers a wide selection of files, stones and hand rubbing bricks. We offer these tools in both aluminium oxide as well as silicon carbide.

Our files, bench stones, knife blade files and hollow chisel stones are available in different grit sizes from coarse to “VERY FINE”, depending on your intended area of application. A tool that is a must for every workshop is the TYFIX hand rubbing brick. This enables easy removal of dirt, rust and paint from your surfaces.

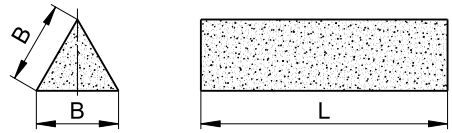
Shapes



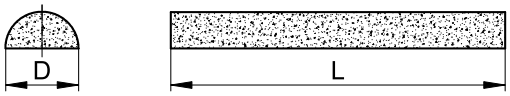
Shape 9010



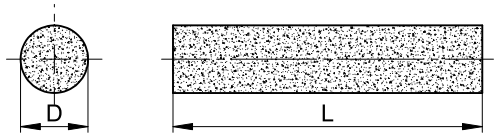
Shape 9011



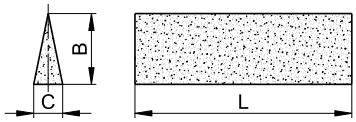
Shape 9020



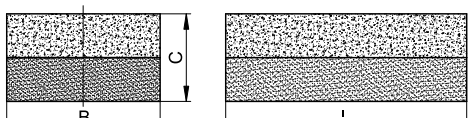
Shape 9040



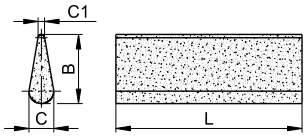
Shape 9030



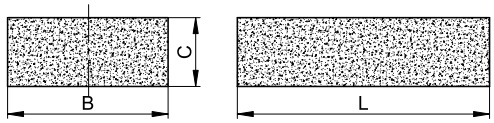
Shape 90FMK



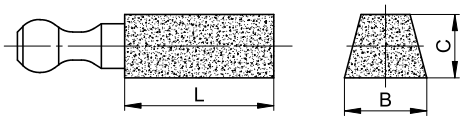
Shape 90K



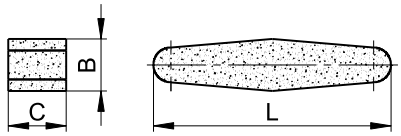
Shape 90HM



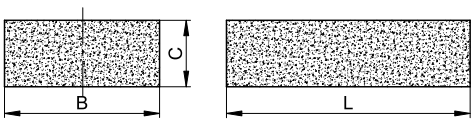
Shape 90B



Shape 90FHG

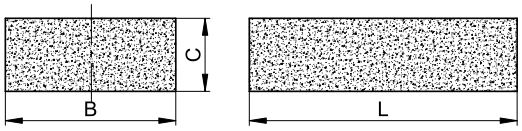


Shape 90W



Shape 90TY

Flat stick
Vitrified-bonded

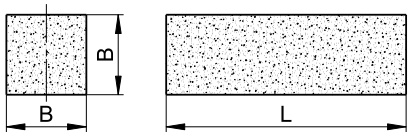


Shape 9010

These files are used in particular for machining tools in the wood and machine construction industries. Thanks to the varying grit sizes you can select the perfect tool for your application.
Silicon carbide files are primarily used for tungsten carbide or tungsten carbide tipped tools and are grey-green in colour. Orange is used primarily for all types of steels and stainless steel.

	Shape	Type no.	BxCxL	Specification	Grit size	PU
	9010	557	6x3x100	C MEDIUM	240	10
		556	6x3x100	C COARSE	120	10
		555	6x3x100	C FINE	400	10
		548	6x3x100	89A MEDIUM	240	10
		547	6x3x100	89A FINE	400	10
		566	30x13x200	C MEDIUM	240	10
		564	30x13x200	C FINE	400	10
		554	30x13x200	89A MEDIUM	240	10
		563	13x6x150	C MEDIUM	240	10
		562	13x6x150	C COARSE	120	10
		561	13x6x150	C FINE	400	10
		552	13x6x150	89A MEDIUM	240	10
		551	13x6x150	89A FINE	400	10
		560	10x5x100	C MEDIUM	240	10
		559	10x5x100	C COARSE	120	10
		558	10x5x100	C FINE	400	10
		550	10x5x100	89A MEDIUM	240	10
		549	10x5x100	89A FINE	400	10

Square file
Vitrified-bonded



Shape 9011

The square files are used primarily for efficient machining of tools in the wood and machine construction industries. Silicon carbide files are primarily used for tungsten carbide or tungsten carbide tipped tools and are grey-green in colour. Orange is used primarily for all types of steels and stainless steel.
Thanks to the varying grit sizes you can select the perfect tool for your application.

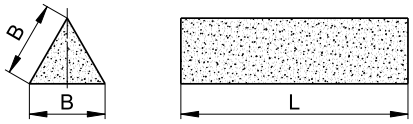
	Shape	Type no.	BxCxL	Specification	Grit size	PU
	9011	728	6x100	89A FINE	400	10
		729	6x100	89A MEDIUM	240	10
		747	6x100	C FINE	400	10
		749	6x100	C MEDIUM	240	10
		732	10x100	89A MEDIUM	240	10
		733	10x100	89A FINE	400	10
		752	10x100	C FINE	400	10

◀

	Shape	Type no.	BxCxL	Specification	Grit size	PU
	9011	754	10x100	C MEDIUM	240	10
		738	13x150	89A FINE	400	10
		739	13x150	89A MEDIUM	240	10
		758	13x150	C FINE	400	10
		760	13x150	C MEDIUM	240	10
		741	16x150	89A FINE	400	10
		742	16x150	89A MEDIUM	240	10
		761	16x150	C FINE	400	10
		763	16x150	C MEDIUM	240	10
		746	20x200	89A MEDIUM	240	10
		767	20x200	C FINE	400	10
		768	20x200	C COARSE	120	10
		769	20x200	C MEDIUM	240	10
		6341	20x200	89A FINE	400	10

Triangular file
Vitrified-bonded





Shape 9020

These files are used in particular for machining tools in the wood and machine construction industries. Thanks to the varying grit sizes you can select the perfect tool for your application. Silicon carbide files are primarily used for tungsten carbide or tungsten carbide tipped tools and are grey-green in colour. Orange is used primarily for all types of steels and stainless steel.

	Shape	Type no.	BxL	Specification	Grit size	PU
	9020	501	6x100	89A MEDIUM	240	10
		518	6x100	C FINE	400	10
		519	6x100	C MEDIUM	240	10
		505	10x100	89A FINE	400	10
		504	10x100	89A MEDIUM	240	10
		523	10x100	C FINE	400	10
		525	10x100	C MEDIUM	240	10
		511	13x150	89A FINE	400	10
		510	13x150	89A MEDIUM	240	10
		531	13x150	C FINE	400	10
		533	13x150	C MEDIUM	240	10
		8807	16x150	89A FINE	400	10
		512	16x150	89A MEDIUM	240	10
		534	16x150	C FINE	400	10
		536	16x150	C MEDIUM	240	10
		8808	20x200	89A FINE	400	10
		516	20x200	89A MEDIUM	240	10
		540	20x200	C FINE	400	10
		542	20x200	C MEDIUM	240	10

Half round file
Vitrified-bonded

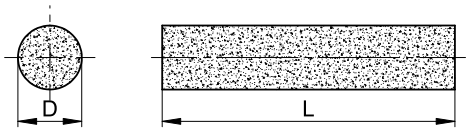


Shape 9040

The half round files are used primarily for efficient machining of tools in the wood and machine construction industries. Silicon carbide files are primarily used for tungsten carbide or tungsten carbide tipped tools and are grey-green in colour. Orange is used primarily for all types of steels and stainless steel.
Thanks to the varying grit sizes you can select your tool based on the application.

	Shape	Type no.	DxL	Specification	Grit size	PU
	9040	6313	6x100	89A MEDIUM	240	10
		603	10x100	89A MEDIUM	240	10
		607	13x150	89A MEDIUM	240	10
		629	13x150	C FINE	400	10
		610	16x150	89A MEDIUM	240	10
		632	16x150	C FINE	400	10
		633	16x150	C MEDIUM	240	10
		637	20x200	C MEDIUM	240	10

Round file
Vitrified-bonded

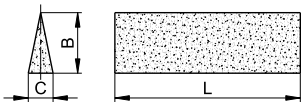


Shape 9030

These files are used in particular for machining tools in the wood and machine construction industries. Thanks to the varying grit sizes you can select the perfect tool for your application. Silicon carbide files are primarily used for tungsten carbide or tungsten carbide tipped tools and are grey-green in colour. Orange is used primarily for all types of steels and stainless steel.

	Shape	Type no.	DxL	Specification	Grit size	PU
	9030	614	6x100	C FINE	400	10
		616	6x100	C MEDIUM	240	10
		660	6x100	89A FINE	400	10
		656	10x100	C FINE	400	10
		664	10x100	89A FINE	400	10
		666	10x100	89A MEDIUM	240	10
		657	13x150	89A FINE	400	10
		671	13x150	89A MEDIUM	240	10
		691	13x150	C FINE	400	10
		693	13x150	C MEDIUM	240	10
		674	16x150	89A MEDIUM	240	10
		696	16x150	C FINE	400	10
		698	16x150	C MEDIUM	240	10

Knife blade file
Vitrified-bonded

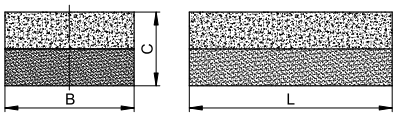


Shape 90FMK

The ceramic knife blade file is used for grinding and whetting knife blades. It is ideally suited to machining blades made of HSS and high-alloyed steels.
Thanks to the varying grit sizes you can select your tool based on the application.

	Shape	Type no.	BxCxL	Specification	Grit size	PU
	90FMK	6321	25x3x100	89A FINE	400	10
		6322	25x3x100	89A MEDIUM	240	10
		6324	25x3x100	C MEDIUM	240	10

Combination stone
Vitrified-bonded

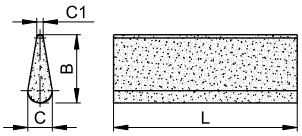


Shape 90K

You can use the TYROLIT combination stone for deburring various workpieces. Due to its two different grit sizes, you will always be equipped for the respective application.
This product can also be used for whetting magnetic tables.

	Shape	Type no.	BxCxL	Specification	Grit size	PU
	90K	185988	18x10x75	89A KOMBI	120/400	10
		186109	18x10x75	C KOMBI	120/400	10
		642	25x13x100	C KOMBI	120/400	10
		6314	25x13x100	89A KOMBI	120/400	10
		6317	40x20x125	C KOMBI	120/400	10
		640	40x20x125	89A KOMBI	120/400	10
		644	50x25x150	C KOMBI	120/400	10
		645	50x25x200	C KOMBI	120/400	10
		6315	50x25x150	89A KOMBI	120/400	10
		6316	50x25x200	89A KOMBI	120/400	10
	90SK	6318	25x20x100	C KOMBI	150/400	10

Hollow chisel stone
Vitrified-bonded

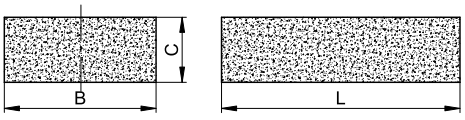


Shape 90HM

The ceramic hollow chisel stones are ideally suited to whetting narrow-toothed tools.
Thanks to the varying grit sizes you can select your tool based on the individual application.
Due to the conical shape it is possible for you to grind and deburr right down to the tooth base.

	Shape	Type no.	BxC/C1xL	Specification	Grit size	PU
	90HM	576	25x6/1x100	89A FINE	400	10
		577	25x6/1x100	89A MEDIUM	240	10
		583	25x6/1x100	C FINE	400	10
		584	25x6/1x100	C MEDIUM	240	10
		579	45x6/2x115	89A MEDIUM	240	10
		587	45x6/2x115	C MEDIUM	240	10
		9017	45x6/2x115	C FINE	400	10
		15885	45x6/2x115	89A FINE	400	10
		578	45x10/3x100	89A FINE	400	10
		586	45x10/3x100	C MEDIUM	240	10
		6309	45x10/3x100	89A MEDIUM	240	10
		6310	45x10/3x100	C FINE	400	10
		28465	45x10/3x100	89A SUPER T3	1200	10
		20332	50x16/5x150	C FINE	400	10

Bench stone
Vitrified-bonded



Shape 90B

The TYROLIT bench stones are primarily used for sharpening and whetting knives and blades. They are therefore perfectly suited for all gardening and woodwork tools.
Thanks to the varying grit sizes you can select your tool based on the individual application.

	Shape	Type no.	BxCxL	Specification	Grit size	PU
	90B	469	25x13x100	C MEDIUM	240	10
		8804	25x13x100	89A MEDIUM	240	1
		20313	25x13x100	C FINE	400	10
		20311	25x6x100	C FINE	400	10
		28466	45x13x100	89A SUPER T3	1200	1
		456	50x25x150	89A MEDIUM	240	1
		457	50x25x150	89A FINE	400	1
		479	50x25x150	C FINE	400	1
		481	50x25x150	C MEDIUM	240	1

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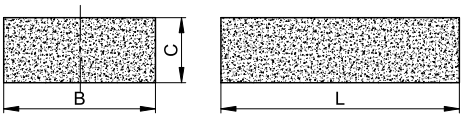
	Shape	Type no.	BxCxL	Specification	Grit size	PU
	90B	28467	50x25x150	89A SUPER T3	1200	1
		461	50x25x200	89A FINE	400	1
		462	50x25x200	89A MEDIUM	240	1
		485	50x25x200	C MEDIUM	240	1
		486	50x25x200	C FINE	400	1

COARSE bench stone

Vitrified-bonded



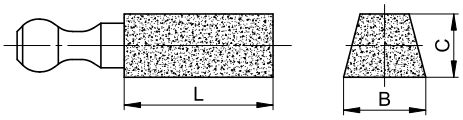
Shape 90B

COARSE bench stones from TYROLIT can be used to deburr large workpieces that have no surface quality requirements.
For example, these bench stones are used for pre-grinding large woodwork tools such as wood splitters.

	Shape	Type no.	BxCxL	Specification	Grit size	PU
	90B	29382	50x25x200	1C 24 M5 V15	24	10
		103622	50x25x200	1C 36 L5 V15	36	10
		28869	50x50x200	1C 24 M5 V15	24	10

File with handle

Vitrified-bonded

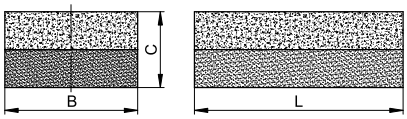


Shape 90FHG

The file with handle from TYROLIT can be used to deburr large workpieces that have no surface quality requirements.
For example, these bench stones are used for pre-grinding large woodwork tools such as wood splitters.

	Shape	Type no.	BxCxL	Specification
	90FHG	79664	40x30x230	C 70 O5 V18

Combined rubbing brick for tiles
Vitrified-bonded

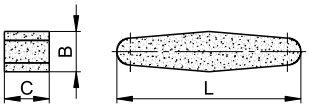


Shape 90K

The rubbing brick for tiles in shape 90K facilitates deburring and creating a bevelled edge on flags and tiles. Using the rubbing brick in shape 90RH you can machine and smooth floor screeds, concrete and plaster mixtures with ease.
You can achieve even surfaces when smoothing window and door lintels before coating them. It is also possible to work difficult-to-reach places with ease.

	Shape	Type no.	BxCxL	Specification
	90K	175220	80x30x160	C 24 M5 V15/C 70 L5 V15
		146640	120x30x200	C 24 M5 V15/C 70 L5 V15
	90RH	20450	90x40x205	1C 24 L5 V15

Whetstone
Vitrified-bonded

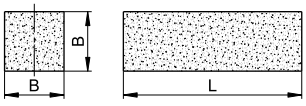


Shape 90W

Our whetstones are used for re-sharpening scythes and sickles. This tool is only available in a silicon carbide design.

	Shape	Type no.	BxCxL	Specification
	90W	362775	35x13x230	AC-V

Square file
Elastic-bonded

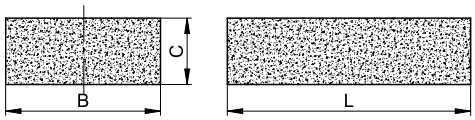


Shape 9011

The elastic-bonded square file can be used to lightly deburr and polish workpieces. Due to its composition it can be used on the widest variety of materials.
Select coarse grain for light deburring or fine grain for polishing depending on the application.

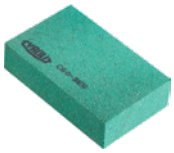
	Shape	Type no.	BxL	Specification	PU	Comments
	9011	35677	15x100	C 80 - BE15	10	Deburring (COARSE)
		6335	20x100	C 400 - BE15	10	Polishing (FINE)

TYFIX hand rubbing brick
Elastic-bonded



Shape 90TY

The TYFIX hand rubbing brick is an eraser used to improve surfaces. Its main tasks include deburring, polishing, and removing rust, dirt and paint.
The TYFIX is especially suited for use in the home to clean domestic appliances, pans, etc. made of stainless steel and aluminium. It can also be used to clean tile joints.



Shape	Type no.	BxCxL	Specification	Grit size	Colour
90TY	1870	40x20x50	C 100–BE5	100	GREEN
	501861	40x20x80	C MEDIUM	100	GREY
	1872	50x20x80	C 60–BE5	60	GREEN
	1873	50x20x80	C 100–BE5	100	GREEN
	1874	50x20x80	C 240–BE5	240	GREEN
	502437	55x30x110	C MEDIUM	100	DARK-BLUE
	502457	55x30x110	C FINE	240	LIGHT-BLUE

Lappers
Resin-bonded

The resin-bonded lappers are primarily used for deburring and lapping extremely hard materials. They are therefore the common choice for whetting tungsten carbide cutting edges.

This product is only available in a diamond grain design with a grit size of D35.



Shape	Type no.	L	L2-W-X	Specification
90H	91963	150	40-10-2	11D 35 C50 B 52 AL
	95717	150	25-10-2	11D 35 C50 B 52 AL

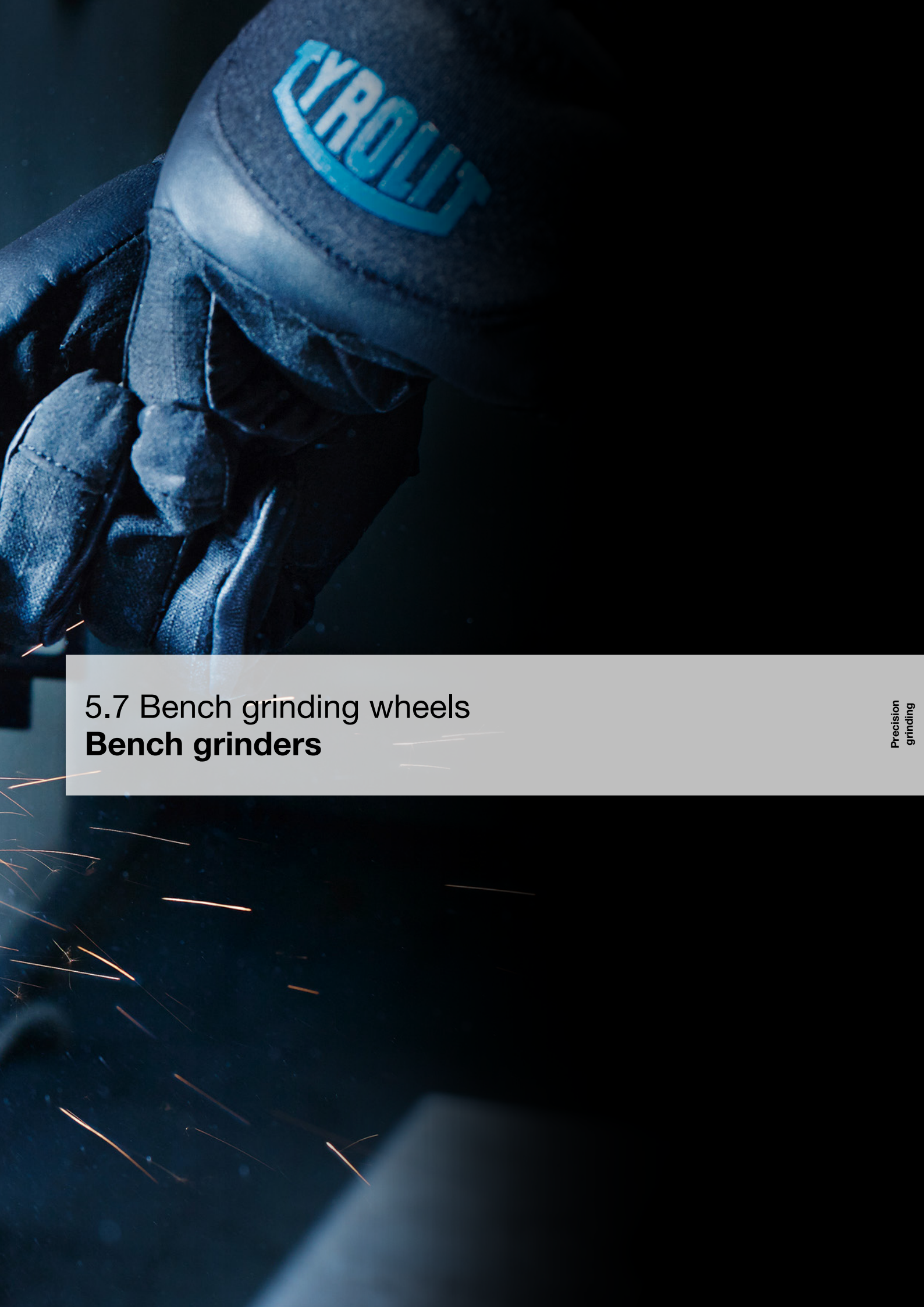
Diamond files
Galvanic-bonded

These galvanic-bonded diamond files are primarily used for machining hardened steels and tungsten carbide. However, they are also suitable for glass, ceramics and materials above 40 HRC.
This product is only available in a diamond grain design with a grit size of D126 and is standard equipment for every toolmaker. FINE grit sizes are available on request.



Shape	Type no.	L	L2-W-XxY/AUFN	Specification	File shape
90N	136535	140	70-3.6-1.5x2.92X70	D 126 GST	Square
	477283	140	70-2.4x3X70	D 126 GST	Half round
	477289	140	70-5-1.5x3X70	D 126 GST	Flat point
	477422	140	70-5-1.5x3X70	D 126 GST	Triangular
	477430	140	70-5-2x3X70	D 126 GST	Flat





5.7 Bench grinding wheels
Bench grinders



Bench grinding wheels

The bench grinder is a versatile machine used in many workshops for machining various materials. The TYROLIT range of bench grinding wheels therefore contains the right wheel for every material.

The wheels with the universal application specification impress in particular through their smooth running and easy handling. A reduction bush set is included in each package for proper assembly. The packaging itself is suitable for stacking on racks and thus saves space and storage costs.

Application recommendation

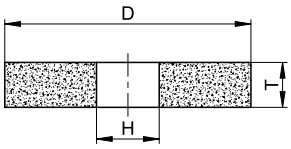
Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding	Page
		Unhardened	Hardened	Unhardened	Hardened								
10A		●	●							●	●		408
89A			●	●	●	●				●	●		409, 410
C	●	●			●	●	●	●		●	●		411, 412, 413

● Extremely suitable ● Limited suitability

Application tips

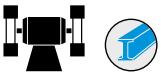
- Grinding unhardened, low-alloyed steels with regular aluminium oxide = 10A
- Regrinding HSS tools with white aluminium oxide = 89A
- Sharpening cemented carbide tipped tools only with silicon carbide = C

Shapes



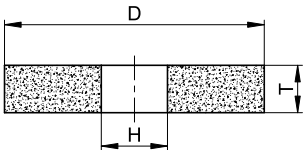
Shape 1

Bench grinding wheels
Conventional ceramic
For non and low-alloyed steels



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
10A		●	●							●	●	

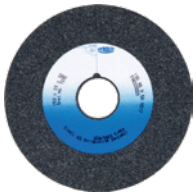
Recommended stock type



Shape 1

Vitrified bonded bench grinding wheels are primarily used in workshops and repair companies. They can be used universally for grinding and sharpening various components. The tailored specifications enable them to be used for a wide range of applications, from coarse to fine grinding.

These wheels are supplied in packaging suitable for retailers so that they take up minimum space in storage. A reduction bush set is included in the packaging or can be reordered.

	Shape	Type no.	DxTxH	Specification	Vmax m/s
	1	7205	150x20x32	10A 46 N5A V217	40
		2693	150x20x32	10A 60 M5A V217	40
		52223	150x25x32	10A 46 N5A V217	40
		2758	150x25x32	10A 60 M5A V217	40
		2962	175x25x32	10A 60 M5A V217	40
		68134	175x25x51	10A 60 M5A V217	40
		548815	175x32x32	10A 60 M5A V217	40
		600134	200x20x32	10A 36 N5A V217	40
		15842	200x20x32	10A 46 N5A V217	40
		15839	200x20x32	10A 60 M5A V217	40
		781702	200x20x51	10A 60 M5A V217	40
		31694	200x25x32	10A 46 N5A V217	40
		9572	200x25x32	10A 60 M5A V217	40
		3217	200x25x32	10A 80 M5A V217	40
		116708	200x25x51	10A 46 N5A V217	40
		718361	200x25x51	10A 60 M5A V217	40
		664256	200x32x51	10A 36 N5A V217	40
		675264	200x32x51	10A 46 N5A V217	40
		516594	200x32x51	10A 60 M5A V217	40
		3474	250x25x32	10A 60 M5A V217	40
		664261	250x32x32	10A 36 N5A V217	40
		3538	250x32x32	10A 60 M5A V217	40
		737812	250x32x51	10A 60 M5A V217	40
		110032	300x40x51	10A 60 M5A V217	40
		34983	300x40x76	10A 60 M5A V217	40

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Alternative stock type

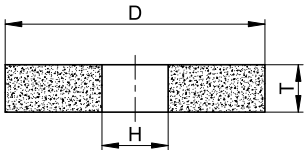
Shape	Type no.	DxTxH	Specification	Vmax m/s
1	34046758	125x15x32	10A 36 M5A V17	40
	34046770	125x15x32	10A 60 M5A V17	40
	147626	125x20x32	10A 60 M5A V17	40
	147698	125x20x32	10A 36 M5A V17	40
	34046759	150x15x32	10A 36 M5A V17	40
	34046772	150x15x32	10A 60 M5A V17	40
	146965	150x20x32	10A 601 M5A V217	40
	147574	150x20x32	10A 36 P5A V17	40
	147601	150x25x32	10A 36 P5A V17	40
	16577	175x20x32	10A 36 P5A V17	40
	147600	175x25x32	10A 36 P5A V17	40
	147656	200x20x40	10A 36 P5A V17	40
	146910	200x25x32	10A 361 P5A V17	40
	147652	200x25x51	10A 36 P5A V17	40
	34046763	200x32x40	10A 36 P5A V17	40
	34046781	200x32x40	10A 60 M5A V17	40
	34046764	250x25x40	10A 36 P5A V17	40
	34046765	250x32x40	10A 36 P5A V17	40
	147701	250x32x51	10A 36 P5A V17	40
	34046785	300x40x40	10A 60 M5A V17	40
	32981	350x50x127	10A 24 Q5A V17	40

Bench grinding wheels
Conventional ceramic
For high-alloyed steels and HSS



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
89A			●	●	●	●				●	●	

Recommended stock type



Shape 1

This wheel is preferable for grinding and sharpening temperature-sensitive steels and HSS tools. The use of aluminium oxide results in particularly cool grinding so that the workpiece is not subjected to additional thermal load.

We offer a wide spectrum of dimensions to cover the most common applications. A reduction bush set is included in the packaging or can be reordered.

▶

Recommended stock type

	Shape	Type no.	DxTxH	Specification	Vmax m/s
	1	34046786	125x15x32	89A 60 L5A V217	40
		2536	125x20x32	89A 60 M5A V217	40
		281719	125x20x32	89A 80 M5A V217	40
		449559	125x20x32	89A 46 M5A V217	40
		664052	150x13x25	89A 80 M5A V217	40
		34046788	150x15x32	89A 60 L5A V217	40
		2697	150x20x32	89A 46 M5A V217	40
		2699	150x20x32	89A 60 M5A V217	40
		764468	150x20x32	89A 80 M5A V217	40
		2762	150x25x32	89A 60 M5A V217	40
		147614	150x25x32	89A 80 L5A V217	40
		853353	150x25x32	89A 46 M5A V217	40
		2916	175x20x32	89A 60 M5A V217	40
		543615	175x20x32	89A 80 M5A V217	40
		2973	175x25x32	89A 80 L5A V217	40
		16022	175x25x32	89A 60 M5A V217	40
		377415	175x25x51	89A 80 M5A V217	40
		723118	175x25x51	89A 60 M5A V217	40
		3020	175x32x32	89A 60 M5A V217	40
		918448	175x32x32	89A 80 M5A V217	40
		471114	200x20x31.75	89A 60 M5A V217	40
		3142	200x20x32	89A 46 M5A V217	40
		3145	200x20x32	89A 60 M5A V217	40
		820958	200x20x32	89A 80 M5A V217	40
		664048	200x20x51	89A 46 M5A V217	40
		826839	200x20x51	89A 80 M5A V217	40
		841086	200x20x51	89A 60 M5A V217	40
		3220	200x25x32	89A 46 M5A V217	40
		39540	200x25x32	89A 60 M5A V217	40
		129550	200x25x32	89A 80 M5A V217	40
		33435	200x25x51	89A 80 L5A V217	40
		50184	200x25x51	89A 46 M5A V217	40
		534539	200x25x51	89A 60 M5A V217	40
		34046791	200x32x40	89A 60 L5A V217	40
		78379	200x32x51	89A 80 M5A V217	40
		99864	200x32x51	89A 46 M5A V217	40
		723117	200x32x51	89A 60 M5A V217	40
		831179	250x25x32	89A 60 M5A V217	40
		3545	250x32x32	89A 60 M5A V217	40
		126665	250x32x32	89A 80 M5A V217	40

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	Shape	Type no.	DxTxH	Specification	Vmax m/s
	1	111799	250x32x51	89A 60 M5A V217	40
		34046794	300x40x40	89A 60 L5A V217	40
		867598	300x40x51	89A 60 M5A V217	40
		30840	300x40x76	89A 60 M5A V217	40

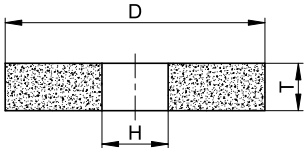
Alternative stock type

Shape	Type no.	DxTxH	Specification	Vmax m/s
1	73667	150x10x20	89A 80 L5A V55	40
	103872	150x20x16	89A 60 M5A V55	40
	413774	150x20x20	89A 60 L5A V217	40
	7210	150x20x32	89A 60 K5A V217	40
	122996	200x20x20	89A 60 L5A V217	40
	184247	200x20x20	89A 60 M5A V55	40
	3144	200x20x32	89A 60 K5A V217	40
	16615	200x20x32	89A 46 K5A V217	40
	68340	200x25x20	89A 60 M5A V55	40
	122997	200x25x20	89A 60 L5A V217	40
	3222	200x25x32	89A 60 K5A V217	40
	7374	200x25x32	89A 80 L5A V217	40
	146630	200x25x32	89A 461 K5A V217	40
	407610	250x10x32	89A 60 K5A V217	40
	127554	300x32x127	89A 602 K5A V217	40

Bench grinding wheels
Conventional ceramic
For tungsten carbide and cast iron

Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
C					●	●	●	●		●	●	

Recommended stock type



Shape 1

When sharpening solid carbide or tungsten carbide tipped tools, only wheels with silicon carbide specifications should be used. Due to their special grain shape you can achieve good results even on extremely hard workpieces.

This wheel can also be used for cast iron. A reduction bush set is included in the packaging or can be reordered.

▶

Recommended stock type

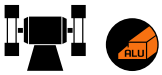
	Shape	Type no.	DxTxH	Specification	Vmax m/s
	1	706631	125x15x32	C 602 J5 V15	40
		2529	125x20x32	C 80 J5 V15	40
		664185	150x13x25	C 80 J5 V15	40
		56155	150x16x32	C 80 J5 V15	40
		2658	150x20x20	C 80 J5 V15	40
		2680	150x20x32	C 46 K5 V15	40
		123633	150x20x32	C 80 J5 V15	40
		861009	150x20x32	C 60 K5 V15	40
		2751	150x25x32	C 46 K5 V15	40
		2753	150x25x32	C 80 J5 V15	40
		333180	150x25x32	C 60 K5 V15	40
		34165304	150x32x32	C 602 J5 V15	40
		2905	175x20x32	C 80 J5 V15	40
		2956	175x25x32	C 80 J5 V15	40
		9653	175x25x51	C 80 J5 V15	40
		7348	200x20x20	C 80 J5 V15	40
		154428	200x20x31.75	C 80 J5 V15	40
		3132	200x20x32	C 46 K5 V15	40
		3135	200x20x32	C 80 J5 V15	40
		596597	200x20x32	C 60 K5 V15	40
		837436	200x20x51	C 46 K5 V15	40
		872497	200x20x51	C 80 J5 V15	40
		3186	200x25x20	C 80 J5 V15	40
		3206	200x25x32	C 46 K5 V15	40
		3210	200x25x32	C 80 J5 V15	40
		819893	200x25x32	C 60 K5 V15	40
		263506	200x25x51	C 60 K5 V15	40
		822622	200x25x51	C 80 J5 V15	40
		103851	200x25x76.2	C 80 J5 V15	40
		34165307	200x32x40	C 602 J5 V15	40
		9651	200x32x51	C 80 J5 V15	40
		879608	200x32x51	C 46 K5 V15	40
		75079	250x25x32	C 80 J5 V15	40
		49680	250x25x76	C 80 J5 V15	40
		58964	250x32x32	C 80 J5 V15	40
		822623	250x32x51	C 80 J5 V15	40
		822624	300x40x51	C 80 J5 V15	40
		9652	300x40x76	C 80 J5 V15	40

◀

Alternative stock type

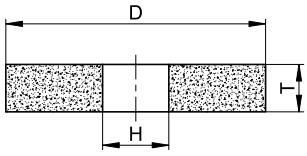
Shape	Type no.	DxTxH	Specification	Vmax m/s
1	11182	150x20x32	C 120 J5 V15	40
	146906	150x20x32	C 801 J5 V15	40
	450328	150x20x32	C 60 J5A V15	40
	146644	150x25x32	C 801 J5 V15	40
	3208	200x25x32	C 60 J5 V15	40
	72045	203x20x32	C 120 J5 V15	40
	59861	203x25x32	C 120 J5 V15	40
	28584	350x32x127	C 60 J5 V15	40

Bench grinding wheels
Conventional ceramic
For nonferrous metals



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
C	●										●	

Recommended stock type



Shape 1

An inhouse-developed clean-cutting specification for bench grinding wheels enables the grinding of nonferrous metals such as aluminium, aluminium base alloys, bronze, copper, copper alloys and titanium. High-quality silicon carbide provides for effortless surface grinding and deburring of workpieces. Through minimal clogging of the grinding wheel, dressing times are reduced and dressing cycles prolonged.

	Shape	Type no.	DxTxH	Specification	Vmax m/s
	1	34287483	150x20x32	C46H5AV18	40
		34287486	175x25x32	C46H5AV18	40
		34287490	200x25x51	C46H5AV18	40

Floorstand grinder accessories

Reduction bushes

The enclosed reduction bush set minimises the range of tools required and saves on storage space. Reduction bushes are available free of charge to be used with all bench grinding wheels, see table.

	Shape	Type no.	DxTxH
	100RR	111434	32x19x16
		667841	51x10x31.75
		911408	51x9x32
		111436	76x9x40



5.8 Sharpening and polishing wheels
Bench grinders



Sharpening and polishing wheels

The bench grinder is a versatile machine used in many workshops for machining various materials. The TYROLIT range of bench grinding wheels therefore contains the right wheel for every material.

TYROLIT sharpening and polishing wheels are particularly supple and provide for easy profiling. On the basis of their structure, they can quickly create the finest surfaces. When used at the recommended speed, they provide for a long tool life and particularly cool grinding. Through their use, you improve the cutting ability of your cutting tools and benefit from the easiest handling. In this way, your tool cutting edges are quickly resharpened.

Application recommendation

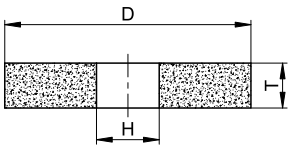
Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding	Page
		Unhardened	Hardened	Unhardened	Hardened								
C		●	●	●	●	●	●	●			●		418
C	●	●	●	●	●	●	●	●	●	●	●		419

● Extremely suitable ● Limited suitability

Application tips

- Polishing steel, nonferrous heavy metal, precious metal and sintered metal or plastic (C240-BE15)
- Fine grinding of various precision mechanical components, like watches, glasses, medical technology (C150-BE13)
- Effect grinding (C46-BE16 and C46-BE19F)
- Deburring (C80-BE15)
- Whetting of all kinds of kitchen and pocket knives (C400-BE15)
- Not suitable for sharp edges, large burrs or high stock removal
- For whetting, deburring and sharpening knives, splitting tools and axes (C400-BE15)
- Dressing stone (ceramic bond) for elastic grinding wheels (see chapter “Dressing and sharpening”)
- Vs = 16–32 m/s maximum operating speed for floor-stand grinding

Shapes



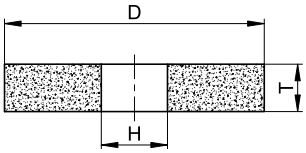
Shape 1

Sharpening wheel for cutting tool

For steel, HSS, stainless steel and tungsten carbide

Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
C		●	●	●	●	●	●	●			●	

Recommended stock type



Shape 1

This product was specially developed for sharpening whittlers. Its grit size and tailored bond system enable you to achieve particularly cool grinding. Its fine surface improves the cutting ability and lifetime of the cutting tools.
Ensure that you pay attention to the direction of rotation of the wheel when in use. **The sharpening wheel must always move away from the cutting edge. In addition, the wheel flange diameter must be at least two thirds of the wheel diameter.**

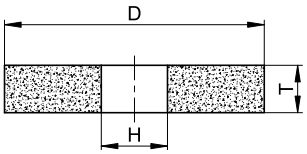
	Shape	Type no.	DxTxH	Specification	Vmax m/s	Degree of hardness	Comments
	1	10016	125x20x32	C 800 - BE11	25	Medium	Sharpening of whittlers
		7133	125x25x20	C 800 - BE11	25	Medium	
		2540	125x25x32	C 800 - BE11	25	Medium	
		669110	150x20x20	C 800 - BE11	25	Medium	
		7204	150x20x32	C 800 - BE11	25	Medium	
		669109	175x20x32	C 800 - BE11	25	Medium	

Fine grinding and polishing wheels

For steel, HSS, stainless steel, tungsten carbide and cast iron

Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
C	●	●	●	●	●	●	●	●	●	●	●	

Recommended stock type



Shape 1

The soft elastic specification of this wheel means it perfectly follows the contours of the workpiece and does not alter the surface geometry. It can be used for polishing, fine grinding, effect grinding, deburring, matting and whetting. However, it is not suitable for large burrs or high stock removal rates.

	Shape	Type no.	DxTxH	Specification	Vmax m/s	Degree of hardness	PU	Comments
	1	19435	125x20x20	C 400 - BE15	20	Medium	1	Sharpening of kitchen knives
		7203	150x20x32	C 400 - BE15	20	Medium	1	
		22411	200x25x32	C 400 - BE15	20	Medium	1	
		802276	150x10x25	C 150 - BE13	16	Soft	1	Surface improvement on pre-ground workpieces (low stock removal)
		2661	150x20x20	C 150 - BE15	20	Medium	1	
		71212	150x20x20	C 400 - BE16	32	Hard	1	
		7186	150x20x20	C 80 - BE15	20	Medium	1	
		22257	150x20x32	C 150 - BE16	32	Soft	1	
		320369	200x25x20	C 240 - BE15	20	Medium	1	
		7362	200x25x20	C 80 - BE15	20	Medium	1	
		32765	200x25x32	C 150 - BE15	20	Medium	1	





5.9 Saw sharpening tools
Saw sharpening



Saw sharpening

Only a sharp tool is a good tool. For this reason, TYROLIT produces an extensive range of grinding wheels for sharpening saws.

This spans everything from conventional grinding wheels through to diamond and CBN grinding tools. In conjunction with its proven application engineering service, TYROLIT provides specific solutions that ensure maximum customer benefit. Specially selected grain qualities and innovative bond systems with efficient grinding wheel design guarantee optimum quality at the cutting edges. TYROLIT is therefore your competent partner in the saw industry.

Application recommendation

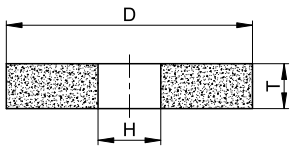
Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding	Page
		Unhardened	Hardened	Unhardened	Hardened								
SA				●		●					●	●	425, 426, 427
A		●	●								●	●	425
88A, 89A, 50A			●	●		●					●	●	424, 425, 426, 427, 428
455A, 765A				●								●	426, 427, 428
52A		●									●	●	425, 426, 428
454A						●							428
C						●		●					428

● Extremely suitable ● Limited suitability

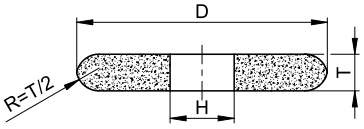
Application tips

- Operating speed: 25–40 m/s

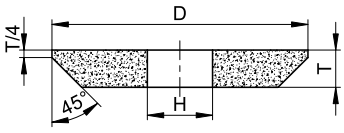
Shapes



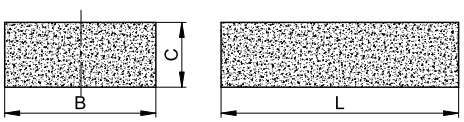
Shape 1



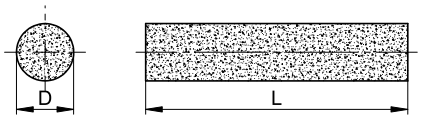
Shape 1F



Shape 1C



Shape 54SCHP / 90B



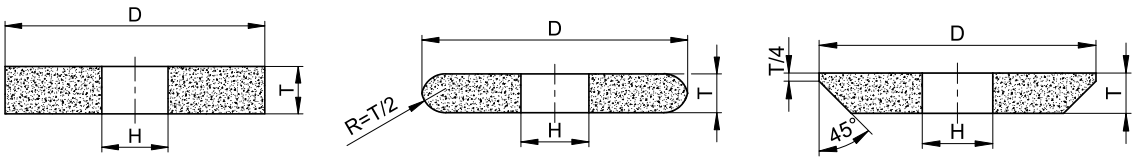
Shape 9030

Grinding tools for automatic saw

For circular saws, stellite band and gang saws

Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
SA				●		●					●	●
A		●	○								●	●
88A, 89A			●	●		●					●	●
455A, 765A				●								●
52A		●									●	●

Recommended stock type



Shape 1 | Shape 1F | Shape 1C

TYROLIT sells a wide assortment of tools tailored to various grinding machines and tooth pitches. They are suitable for dry and wet grinding for HSS, chrome vanadium and stellite saws.

The products are available with different edge profiles; shape 1, 1F, 1C, in diameters ranging from 150 to 350 mm.

Precision grinding

	Shape	Type no.	DxTxH	Specification	Vmax m/s	PU	Comments
	1	18825	150x3x30	88A 80 M5A V217	40	10	
		55375	150x3x32	88A 80 M5A V217	40	10	
		9293	150x4x20	88A 80 M5A V217	40	10	
		291120	150x4x32	88A 80 M5A V217	40	10	
		719904	150x6x38	88A 60 K5A V217	40	10	
		490222	150x6x38	88A 80 K5A V217	40	10	
	1	10265	150x10x32	89A 60 M5A V217	40	10	
		455124	150x8x32	89A 60 M5A V217	40	10	
		719906	175x3x51	89A 60 M5A V217	40	10	
		123222	175x6x51	89A 60 M5A V217	40	10	
		50845	175x8x51	89A 60 M5A V217	40	10	
		3085	200x10x20	89A 60 M5A V217	40	10	
		3091	200x10x32	89A 60 K5A V217	40	10	
		3092	200x10x32	89A 60 M5 V217	40	10	
		608080	200x10x32	89A 60 M5A V217	40	10	Lateral face impregnation
		762445	200x10x32	89A 60 M5A V217 E5	40	10	
		51494	200x13x32	89A 60 M5A V217	40	10	
		448603	200x2x32	88A 80 M5A V217	40	10	

▶

Recommended stock type



Shape	Type no.	DxTxH	Specification	Vmax m/s	PU	Comments
1	7318	200x3x32	88A 80 M5 V217	40	10	
	3070	200x6x20	89A 60 M5A V217	40	10	
	110554	200x6x32	89A 60 K5A V217	40	10	
	7328	200x6x32	89A 60 M5 V217	40	10	
	107050	200x6x32	89A 60 M5 V227	40	10	
	3077	200x8x20	89A 60 M5A V217	40	10	
	525686	200x8x32	89A 60 M5A V217	40	10	
	3424	250x10x20	89A 60 M5A V217	40	10	
	461239	250x10x32	89A 60 M5A V217 E5	40	10	Lateral face impregnation
	33249	250x13x20	89A 60 M5A V217	40	10	
	719922	250x13x32	89A 60 M5A V217	40	10	
1C	28549	200x10x32	89A 40 M5S V217	40	10	
	935730	150x2x32	SA 80 L4 VN-M OD	63	10	
	47009	150x3x32	SA 80 L4 VN-M OD	63	10	
	226295	150x3x32	SA 80 L5 VN-M OD	63	10	
	159000	150x4x32	SA 80 L5 VN-M OD	63	10	
	667182	150x5x32	SA 80 L5 VN-M OD	63	10	
	946904	150x6x32	SA 60 L5 VN-M OD	63	10	
	47005	150x6x32	SA 80 L4 VN-M OD	63	10	
	17256	150x6x38	SA 60 K5 VN-M OD	63	10	
	441302	150x8x32	SA 60 L5 VN-M OD	63	10	
	922647	200x1.5x32	SA 80 L4 VN-M OD	63	10	
	804979	200x10x32	SA 60 L5 VN-M OD	63	10	
	867603	200x2.5x32	SA 80 L4 VN-M OD	63	10	
	922857	200x2x32	SA 80 L4 VN-M OD	63	10	
	804957	200x3.5x32	SA 80 L5 VN-M OD	63	10	
	922860	200x3x32	SA 80 L5 VN-M OD	63	10	
	804945	200x4x32	SA 80 L5 VN-M OD	63	10	
	804993	200x5x32	SA 60 L5 VN-M OD	63	10	
	805000	200x6x32	SA 60 L5 VN-M OD	63	10	
	804976	200x8x32	SA 60 L5 VN-M OD	63	10	
	901252	250x3x32	SA 80 L4 VN-M OD	63	10	
	901254	250x4x32	SA 80 L4 VN-M OD	63	10	
	901256	250x5x32	SA 60 L5 VN-M OD	63	10	
	901258	250x6x32	SA 60 L5 VN-M OD	63	10	
	437634	250x10x32	52A 54 M5A V217 E5	63	10	Lateral face impregnation
	19117	150x4x20	A 60 N4 B2	50	10	

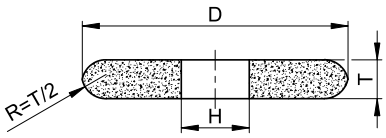
◀

Recommended stock type

	Shape	Type no.	DxTxH	Specification	Vmax m/s	PU	Comments
	1C	237227	250x10x32	M455A 609 M7 B82	63	1	For stellite band and gang saws
		527875	300x10x32	M455A 609 L7 B82	63	1	
		241857	300x10x32	M455A 809 K6 B22	63	1	
		313636	300x10x40	M455A 609 M7 B82	63	1	
		179959	300x10x40	M455A 80 M6 B22	63	1	
		226679	350x10x127	M455A 802 M6 B22	63	1	
		226680	350x13x127	M455A 802 M6 B22	63	1	
		34340596	350x10x127	765A 801 P6 B100	63	1	
	1F	150403	200x10x32	M455A 609 M7 B82	63	1	For stellite band and gang saws
		476545	250x12x32	M455A 609 M7 B82	63	1	
		150402	300x10x32	M455A 609 L7 B82	63	1	
	1F	805007	200x8x32	SA 60 K5 VN-M OD	63	10	
		805008	200x10x32	SA 60 K5 VN-M OD	63	10	
		805015	250x13x32	SA 60 K5 VN-M OD	63	10	
		805017	250x8x32	SA 60 K5 VN-M OD	63	10	
		805018	250x10x32	SA 60 K5 VN-M OD	63	10	
		805019	250x12x32	SA 60 K5 VN-M OD	63	10	
		804983	200x10x32	SA 60 L5 VN-M OD	63	10	
		804986	200x8x32	SA 60 L5 VN-M OD	63	10	
	1C	161678	250x10x20	88A 60 N4A V217/ 89A 60 M5A V217	63	10	Two-layer wheels
		172352	175x8x20	88A 60 N4A V217/ 89A 60 M5A V217	63	10	
		719918	200x10x20	88A 60 N4A V217/ 89A 60 M5A V217	63	10	
		720012	200x10x32	88A 60 N4A V217/ 89A 60 M5A V217	63	10	
	1	20917	125x2x32	SA80J5VN-MOD	63	10	
		78052	150x4.76x15.87	SA80J5VN-MOD	63	10	
		27867	150x6x32	SA80J5VN-MOD	63	10	
		680277	150x6x38	SA80J5VN-MOD	63	10	
		740907	150x6x38	SA80J5VN-MOD	63	10	
		740912	150x6x38	SA80J5VN-MOD	63	10	
		614332	175x3x51	SA80J5VN-MOD	63	10	
		761917	200x1.5x32	SA80J5VN-MOD	63	10	
		922858	200x2.25x32	SA80J5VN-MOD	63	10	
		54153	250x10x32	SA80J5VN-MOD	63	10	
	1	14515	150x4x20	89A60J5AV217	40	10	
		455120	150x5x32	89A60M5AV217	40	10	
		305800	150x6x32	89A60M5AV217	40	10	
		50844	175x4x51	89A60M5AV217	40	10	
		760612	200x6x51	89A60K5AV217	40	10	

Grinding tool for chain saw sharpening machines

For steel



Shape 1F

With this wheel you receive a precise product that will significantly increase the lifetimes of your chain saws. The profile radius of this product corresponds to half the wheel width and is optimally tailored to the tooth base radius.

This tool is suited to dry grinding with edge profile shape 1F and a 140 mm diameter.

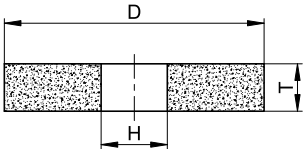
	Shape	Type no.	DxTxH	Specification	Vmax m/s
	1F	740908	140x3.2x12	88A 54 K5A V217	63
		244477	140x4.5x12	88A 54 K5A V217	63
		123716	140x3.8x12	50A 541 K5A V217	63

Vitrified-bonded and CBN resin-bonded profile grinding wheels

For tungsten carbide and HSS

Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
89A, 455A						●						●

Recommended stock type



Shape 1

For profile grinding of HSS you can use aluminium oxide or CBN wheels. Tungsten carbide should however only be ground using diamond. For pre-grinding we recommend using grit size 54 in aluminium oxide and sintered aluminium oxide mixture.

Grit size 100 should be used for finish grinding and fine profiles, or alternatively B151 in CBN. Finer grit sizes are usually used for tungsten carbide.

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Recommended stock type

	Shape	Type no.	DxTxH	Specification	Comments
	1	30806	225x5x60	89A 54 I5A V53	
		102804	225x5x60	89A 100 H5 V111	
	1	619872	225x5x60	455A 541 L6 V3 50	Weinig Rondamat for HSS tools

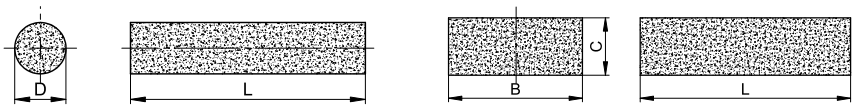
Vitrified-bonded and resin-bonded jointing stones

For tungsten carbide and HSS



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
454A						●						
C						●		●				

Recommended stock type



Shape 9030 Shape 90B | 54SCHP

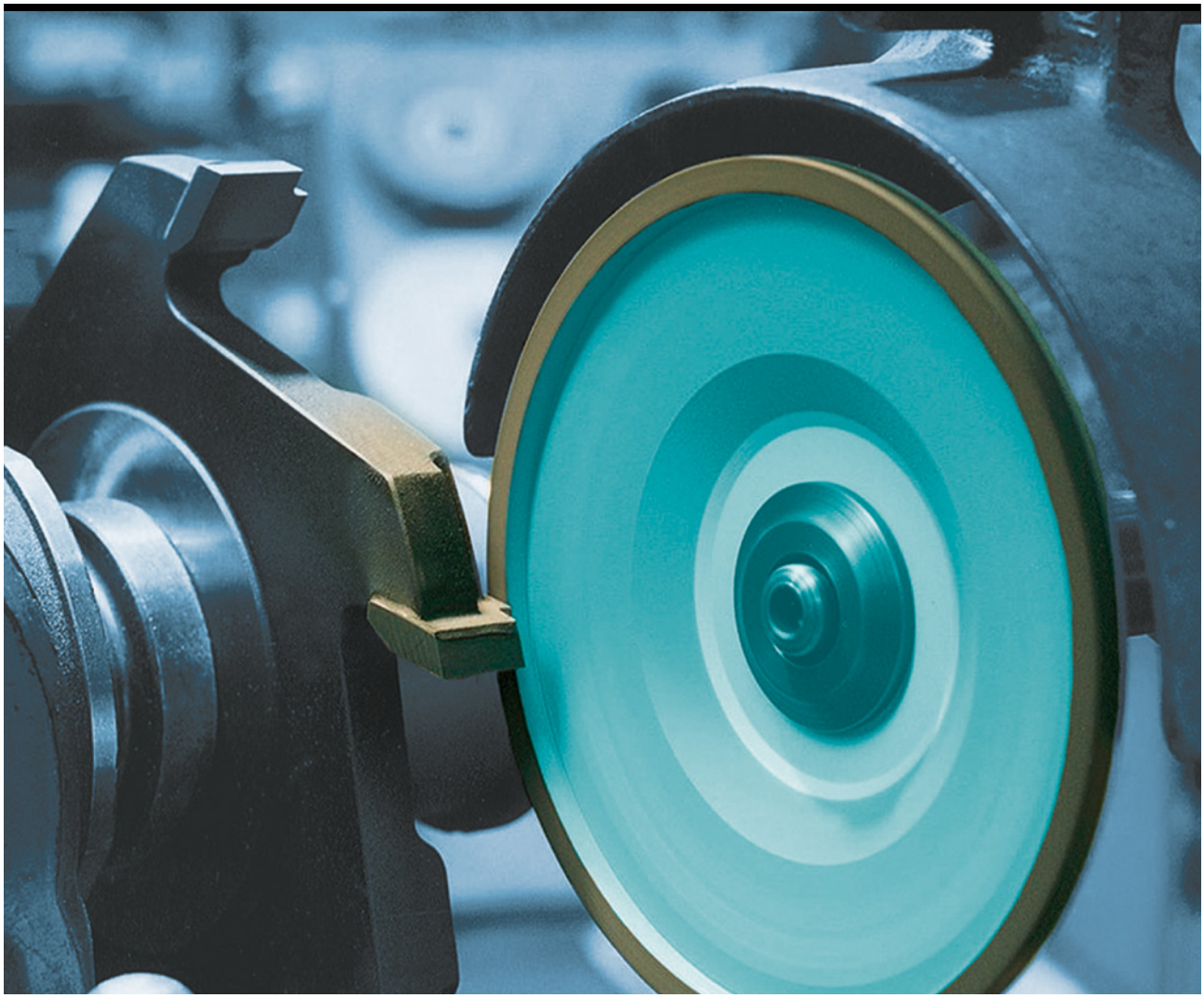
To achieve the highest planing quality, micro-size planer heads are levelled with jointing stones. Products from TYROLIT achieve optimum dressing effects.

It is possible to level HSS and tungsten carbide planer knives with this product.

	Shape	Type no.	BxCxL	Specification	PU
	9030	775476	12x32	C 280 J5 V18	10
	54SCHP	917288	60x15x160	454A 500 D2 B22	10



5.10 Tools
Universal tool grinding



Universal tool grinding

TYROLIT offers a comprehensive range of grinding tools for tool grinding. This makes a high-quality range available for tool production as well as tool regrinding.

It includes conventional grinding wheels as well as diamond and CBN grinding tools for wet and dry grinding. Grain qualities adapted to the grinding process and innovative bond systems combined with efficient grinding wheel design always guarantee optimum quality of your tools.

Application recommendation

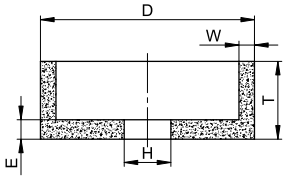
Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding	Page
		Unhardened	Hardened	Unhardened	Hardened								
89A		●		●		●					●		433, 434
91A						●					●		434
454A				●		●					●		433
C								●			●		435
AMIGO, B		●		●		●					●		437
DIAGO, D								●			●		438

● Extremely suitable

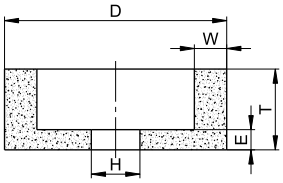
Application tips CBN

- Recommended operating speed for cemented carbide: 16–22 m/s
- Recommended operating speed for HSS: 20–25 m/s

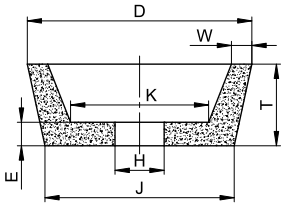
Shapes



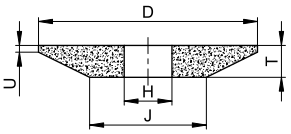
Shape 6



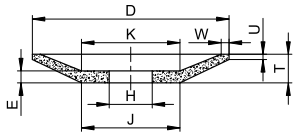
Shape 6BB



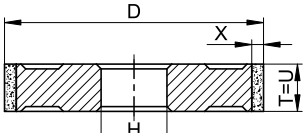
Shape 11



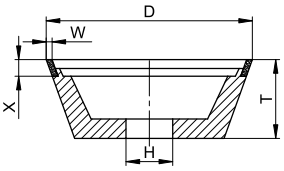
Shape 3



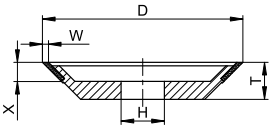
Shape 12



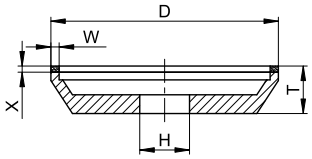
Shape 1A1



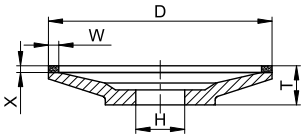
Shape 11V9



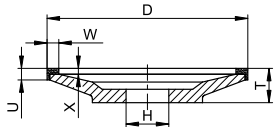
Shape 12V9



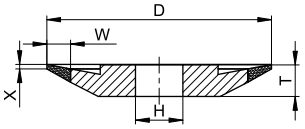
Shape 12A2D



Shape 12A2F



Shape 12C2F



Shape 4BT9

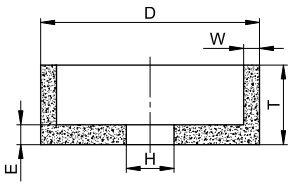
Conventional ceramic for dry grinding

For non and low-alloyed steels, high-alloyed steels and HSS.

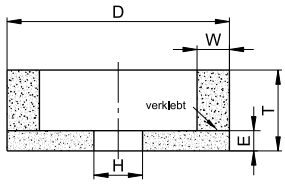


Specification	Aluminium	Non and low-alloyed steels	High-alloyed steels	HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened | Hardened	Unhardened | Hardened							
89A		●	●	●					●	
91A				●					●	
454A			●	●					●	

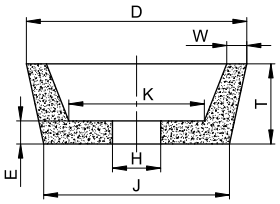
Recommended stock type



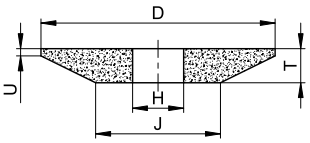
Shape 6



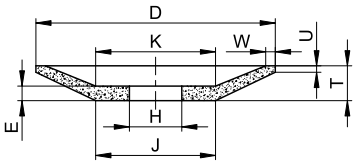
Shape 6BS



Shape 11



Shape 3



Shape 12

With this tool you can grind all cutting tools for the wood and metal industry and a range of shear blades. These products are disc and cup wheels with fused white aluminium oxide or sintered aluminium oxide mixtures that are used in dry grinding.

The tailored specification of this tool prevents discolouration on the workpieces.

	Shape	Type no.	DxTxH	W/E	Specification	Comments
	6	34048152	80x40x20	W6/E10	454A 801 N5 V3 U5	With peripheral impregnation
		34048027	100x50x20	W10/E10	454A 801 K5 V3 U5	
	6	5843	80x40x20	W6/E10	89A 60 K5A V53	
		34924	100x50x20	W10/E10	89A 462 K5A V53	
		19040	100x50x20	W8/E10	89A 542 I5A V53	
		5886	100x50x20	W10/E10	89A 60 J5A V53	
		5887	100x50x20	W10/E10	89A 60 K5A V53	
		49273	100x50x20	W10/E10	89A 60 M5A V53	
		9627	100x50x20	W10/E10	89A 80 I7A V53	
		568265	100x50x20	W10/E10	89A 80 I7A V53 U5	With peripheral impregnation
		5889	100x50x20	W10/E10	89A 80 J5A V53	
		8641	100x50x20	W10/E10	89A 80 K5A V53	
		54820	100x50x20	W10/E10	89A 80 L5 V55	
		131991	125x50x32	W13/E13	89A 60 K5 V53	

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	Shape	Type no.	DxTxH	W/E	Specification	Comments
	6	451151	125x63x20	W8/E13	89A 542 I5A V53	
		78847	150x50x32	W12/E15	89A 60 K5 V53	
		77824	150x60x50	W15/E15	89A 36 H7 V217	
		84809	150x70x28	W17/E16	89A 36 H8 V217	
		186445	150x80x32	W10/E16	89A 60 J5A V217	
		365824	150x80x50	W10/E16	89A 461 H7A V53	
		54119	175x75x76.2	W17.5/E17	89A 36 J8 V217	
		126245	175x75x78	W15/E18	89A 36 H7A V217	
		712490	175x75x78	W15/E18	89A 36 J10A V237 P22	
		91441	175x75x78	W15/E18	89A 46 H7 V217	
		587026	175x80x32	W13/E20	89A 46 G10A V217	
		305227	200x80x30	W17.5/E20	89A 60 K7A V227	Mower knife
		210314	200x80x35	W20/E20	89A 46 J8A V53	Sickle
		70128	200x80x78	W20/E20	89A 36 H7 V217	
		798715	200x80x78	W20/E20	89A 36 J10A V237 P22	
		122989	100x50x20	W10/E10	91A 80 L5A V217	
	6	438088	150x63x32	W15/E16	91A 46 G9A V217 P3	
		75803	165x60x32	W15/E15	91A 46 G9A V217 P3	

Precision grinding

	Shape	Type no.	D/JxTxH	W/E/K	Comments
	11	338237	80/57x32x20	W6/E8/K46	89A 601 K5A V53
		4917	100/71x40x20	W8/E10/K56	89A 462 J5A V53
		4924	100/71x40x20	W8/E10/K56	89A 601 K5A V53
		631057	100/71x40x32	W8/E10/K56	89A 601 J5A V53
		63195	100/80x50x32	W9/E13/K67	89A 60 K5 V53
		31675	125/96x40x20	W8/E10/K81	89A 462 K5A V53
		331500	125/96x40x32	W8/E10/K81	89A 601 J5A V53
		203176	150/114x50x32	W10/E13/K96	89A 462 I5A V53
		498229	150/114x50x32	W10/E13/K96	89A 601 J5A V53
	3	31009	150/75x8/2x20		89A 601 J5A V53
	12	9398	150/75x16/3x20	W10/E10/K85	89A 601 J5A V53
		19659	100/50x13/3x20	W5/E7/K50	89A 601 K5A V53
		216789	125/63x13.3/3x20	W6/E7/K63	89A 461 J5A V53
		364685	125/63x13/3x20	W6/E7/K63	89A 601 I5A V53
		9833	175/85x18/3x20	W10/E10/K85	89A 601 I5A V53

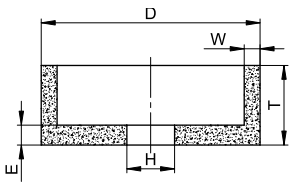
Conventional ceramic for dry grinding

For tungsten carbide

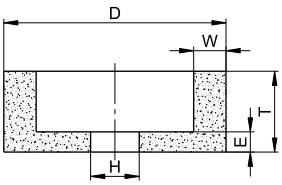


Specification	Aluminium	Non and low-alloyed steels	High-alloyed steels	HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened | Hardened	Unhardened | Hardened							
C						●			●	

Recommended stock type



Shape 6



Shape 6BB

This silicon carbide wheel is a cost-effective variant for machining tungsten carbide for secondary applications. It is primarily used for working on castings and nonferrous metals.

It is ideally suited to grinding mining drills and re-sharpening tools in stonemasons' workshops.

	Shape	Type no.	DxTxH	W/E	Specification	Comments
	6	139155	100x50x20	W10/E10	C 80 I5 V15	For HM and coated tools
	6BB	24299	127x63x32	W22.5/E13	C 46 J5 V15	For mining drill grinding machines
		108479	200x100x32	W25.5/E20	C 46 J5 V15	

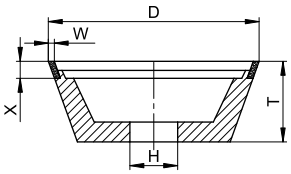
CBN resin-bonded for dry grinding

For non and low-alloyed steels, high-alloyed steels and HSS

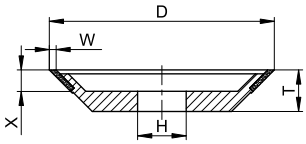


Specification	Aluminium	Non and low-alloyed steels	High-alloyed steels	HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened | Hardened	Unhardened | Hardened							
AMIGO, B		●	●	●					●	

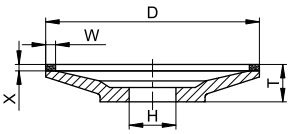
Recommended stock type



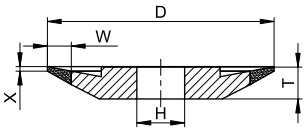
Shape 11V9



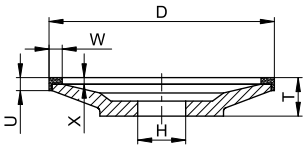
Shape 12V9



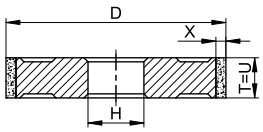
Shape 12A2F



Shape 4BT9



Shape 12C2F



Shape 1A1

With this tool you can grind all cutting tools for the wood and metal industry and a range of shear blades. These products are disc and cup wheels in the CBN grit size range B181 - B91.

Compared to conventional aluminium oxide wheels, CBN wheels exhibit significantly less wear and higher dimensional accuracy.

	Shape	Type no.	DxTxH	W-X	Specification
	11V9	640777	75x30x20	2-10	B 126 C75 B AMIGO
		641854	125x40x20	2-10	B 126 C75 B AMIGO
		666288	100x35x20	2-10	B 181 C75 B AMIGO
		617388	100x35x20	2-10	B 126 C75 B AMIGO
		636398	100x35x20	3-10	B 126 C75 B AMIGO
	12V9	703242	75x20x20	2-6	B 126 C75 B AMIGO
		636658	100x20x20	2-10	B 126 C75 B AMIGO
		840506	125x25x20	2-10	B 126 C75 B AMIGO
		337051	150x18x20	4-3	B 126 C75 B 54 AL
	12A2F	69502	125x23x20	5-4	B 126 C50 B 75 AL

Precision grinding

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	Shape	Type no.	DxTxH	W-X	Specification
	4BT9	119325	100x10x20	10-1	B 126 C75 B 75 AL

	Shape	Type no.	DxTxH	W/U-X	Specification
	12C2F	641839	125x23x20	5/5-4	B 151 C75 B AMIGO

	Shape	Type no.	DxTxH	U-X	Specification
	1A1	620464	100x10x20	10-6	B 126 C50 B 54 BA

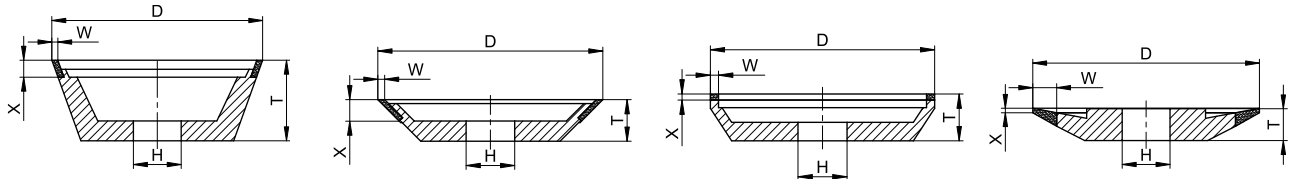
Diamond resin-bonded for dry grinding

For tungsten carbide



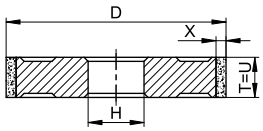
Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
DIAGO, D								●			●	

Recommended stock type



Shape 11V9 | Shape 12V9 | Shape 12A2D | Shape 4BT9

▶



Shape 1A1

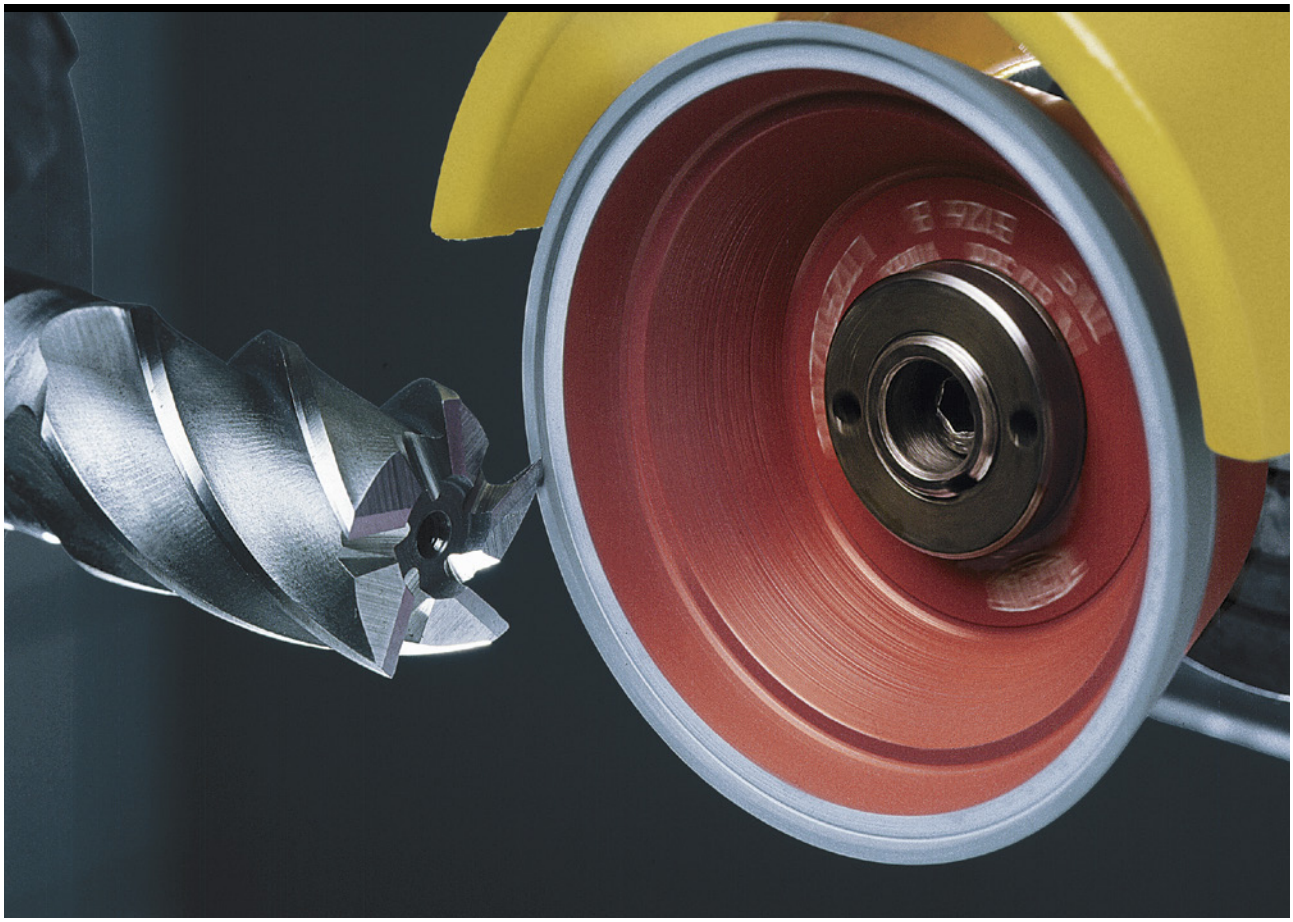
With this tool you can grind all tungsten carbide cutting tools for the wood and metal industry and a variety of shear blades. These products are disc and cup wheels in the diamond grain size range D181 - D64.

Compared to conventional silicon carbide wheels, diamond wheels exhibit significantly less wear and higher dimensional accuracy.

	Shape	Type no.	DxTxH	W-X	Specification	Comments
	11V9	679634	75x30x20	2-10	D 126 C75 B DIAGO	
		721301	75x30x20	2-10	D 64 C50 B DIAGO	
		679946	125x40x20	3-10	D 126 C75 B DIAGO	
		335803	100x35x31.75	2-10	D126B DIAGO	
		5028	100x35x20	3-10	D 126 C75 B 52 BG	Long-life B52
		675309	100x35x20	2-10	D 126 C75 B DIAGO	
		675318	100x35x20	3-10	D 126 C75 B DIAGO	
		676589	100x35x20	2-10	D 181 C75 B DIAGO	
		675272	100x35x20	2-10	D 64 C50 B DIAGO	
		721303	100x35x20	3-10	D 64 C50 B DIAGO	
	12V9	696324	75x20x20	2-6	D 126 C75 B DIAGO	
		721319	75x20x20	2-6	D 64 C50 B DIAGO	
		689930	100x20x20	2-10	D 126 C75 B DIAGO	
		194540	100x20x20	2-10	D91B DIAGO	
	12A2D	28162	100x25x20	6-2	D 126 C75 B 52 AL	
		38012	100x25x20	6-2	D 64 C50 B 52 AL	
		104376	100x25x20	5-3	D 91 C75 B 52 AL	
		779789	100x25x20	10-3	D 91 C75 B 52 AL	
		102902	125x23x20	5-4	D126B DIAGO	
		731387	125x23x20	5-4	D 64 C50 B DIAGO	
		731399	125x23x20	5-4	D 151 C75 B DIAGO	
		416671	150x22x20	4-3	D 64 C50 B 52 AL	
	Shape	**Type no.**	**DxTxH**	**U-X**	**Specification**	**Comments**
	4BT9	255835	100x10x20	10-1	D 91 C75 B 73 AL	
	1A1	640978	100x10x20	10-6	D 64 C50 B 52 BA	



5.11 Tools
CNC tool grinding



CNC tool grinding

Productivity demands are constantly growing for applications that involve machining an extremely wide range of different materials. At the same time, quality requirements are also increasing. Both of these requirements demand perfectly ground cutting tools that have been manufactured on the most modern CNC tool grinding machines.

For this purpose, TYROLIT provides you with a perfectly tailored range of products. This ensures that you fully exploit the advantages of the CNC machines used in the manufacturing of cutting tools. You therefore increase your productivity and, at the same time, fulfil the high quality requirements.
In the following, you can find grinding tools that fulfil the requirements of the tool manufacturer just as well as those of the tool regrinder.

Application recommendation

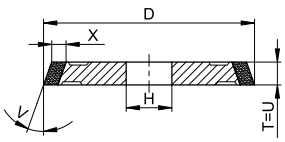
Specification	Aluminium	Non and low-alloyed steels	High-alloyed steels	HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding	Page
		Unhardened | Hardened	Unhardened | Hardened								
STARTEC-BASIC, B			●	●						●	442
STARTEC-BASIC, D						●				●	442, 443
START EC- XP-P, D						●				●	444

● Extremely suitable

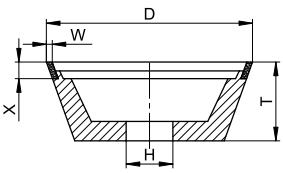
Application tips

- Cutting speed for CBN cup grinding wheels should be up to 30 % higher than for diamond wheels
- Optimum peripheral speed for CBN grinding wheels (for flute grinding) 20–25 m/s
- Cutting speed recommendation for flute grinding
  Solid carbide: 16–18 m/s
  HSS: 20–25 m/s
- Cutting speed recommendation for cup grinding wheels
  Solid carbide: 18–24 m/s
  HSS 20–30 m/s
- Use STARTEC XP-P for optimum cutting performance
- Use STARTEC HP for standard applications
- Always ensure enough coolant is available
- Dressing and sharpening instructions see page 446

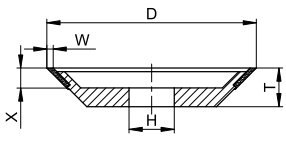
Shapes



Shape 1V1



Shape 11V9



Shape 12V9

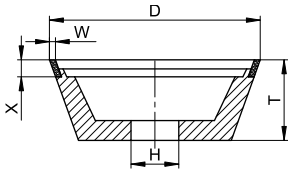
CNC tool grinding with resin-bonded CBN for wet grinding

For non and low-alloyed steels, high-alloyed steels and HSS



Specification	Aluminium	Non and low-alloyed steels	High-alloyed steels	HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened | Hardened	Unhardened | Hardened							
STARTEC-BASIC, B			●	●						●

Recommended stock type



Shape 11V9

With this tool you can grind all cutting tools for the wood and metal industry and a variety of shear blades.

The wear-resistant bond and a high grain concentration significantly increase lifetimes compared to dry-grinding wheels.

	Shape	Type no.	DxTxH	W-X	Specification	V opt. m/s
	11V9	75669	75x30x20	2-10	BL1263PD STARTEC-BASIC	25-30
		494985	100x35x20	2-10	BL763PD STARTEC-BASIC	25-30

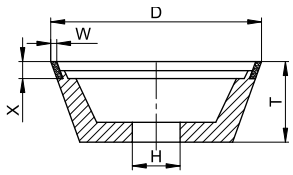
CNC tool grinding with resin-bonded diamond for wet grinding

For tungsten carbide

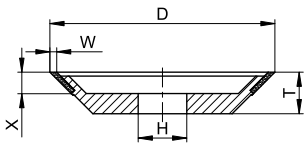


Specification	Aluminium	Non and low-alloyed steels	High-alloyed steels	HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened | Hardened	Unhardened | Hardened							
STARTEC-BASIC, D						●				●

Recommended stock type



Shape 11V9



Shape 12V9

With this diamond wheel you can grind all tungsten carbide cutting tools for the wood and metal industry and a variety of shear blades. Grinding wheel sets for complete machining in the diamond grain size range D126 - D54.

The wear-resistant bond and a high grain concentration significantly increase lifetimes compared to dry-grinding wheels.

	Shape	Type no.	DxTxH	W-X	Specification	V opt. m/s	Comments
	11V9	390970	75x30x20	2-10	DE643BS STARTEC-BASIC	18-25	
		357223	100x35x20	2-10	DE643BS STARTEC-BASIC	18-26	
		532514	100x35x20	3-10	DE643BS STARTEC-BASIC	18-27	
	12V9	532510	100x20x20	2-10	DE643BS STARTEC-BASIC	18-25	
		532540	125x25x20	3-10	DE643BS STARTEC-BASIC	18-25	
		495044	125x25x20	15-3	D 54 C75 B 48 AL	18-25	

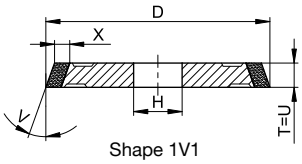
CNC tool grinding with metal-bonded diamond for wet grinding

For tungsten carbide

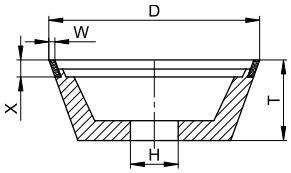


Specification	Aluminium	Non and low-alloyed steels	High-alloyed steels	HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened | Hardened	Unhardened | Hardened							
STARTEC-XP-P, D STARTEC-HP, D						●				●

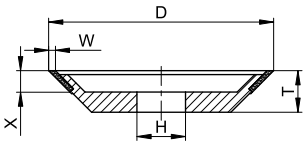
Recommended stock type



Shape 1V1



Shape 11V9

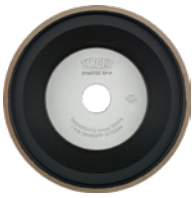


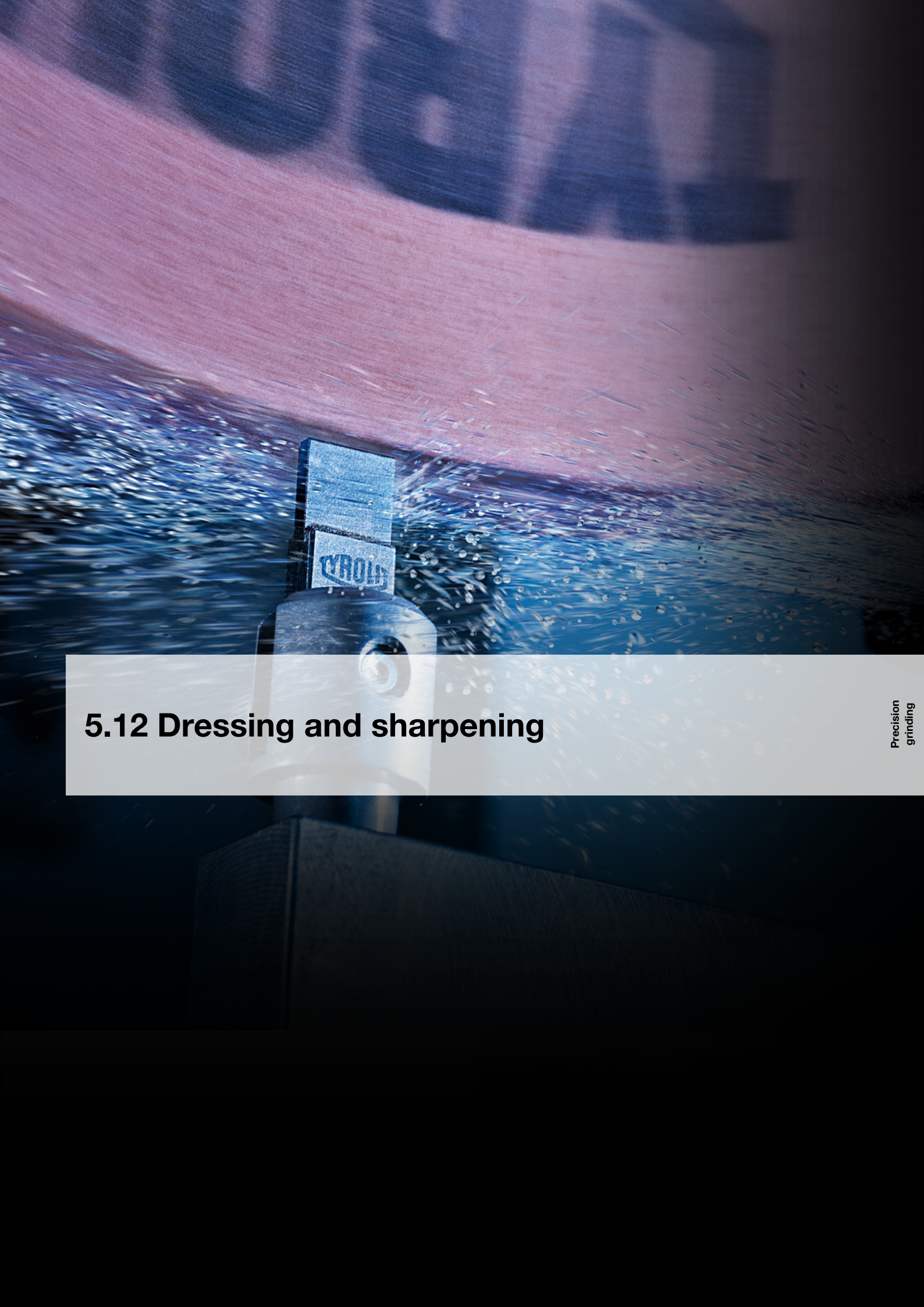
Shape 12V9

With this diamond wheel you can grind all tungsten carbide cutting tools for the wood and metal industry and a variety of shear blades. Grinding wheel sets for complete machining in the diamond grain size range D64 - D46. It is important that this wheel is only used for deep grinding.

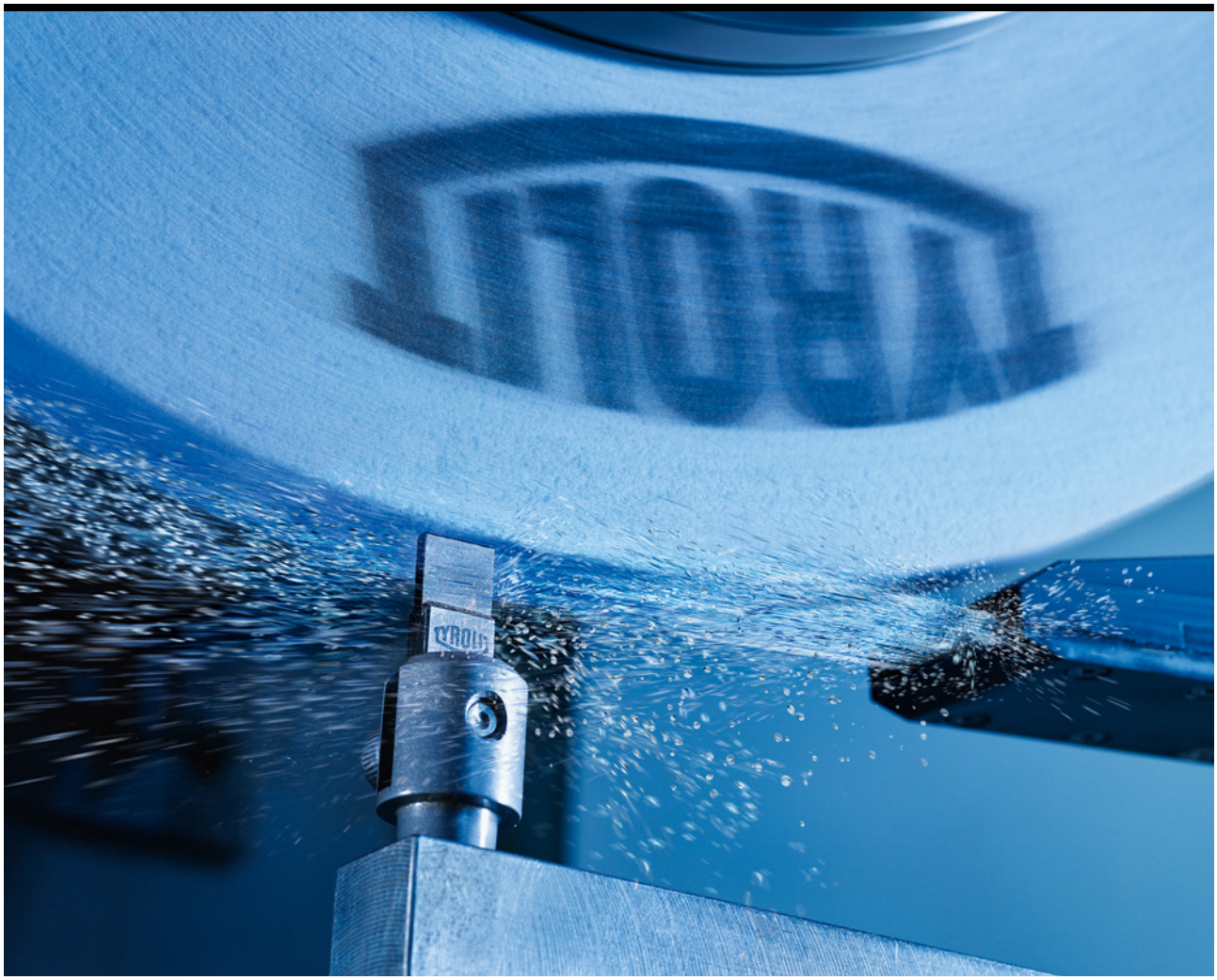
The perfect combination of grit size, concentration and bond delivers exceptionally long tool lifetimes and a high level of profile accuracy.

	Shape	Type no.	DxTxH	U-X V	Specification	V opt. m/s
	1V1	680115	125x10x20	10-10 V45	D54MXPP STARTEC-XP-P	16-18

	Shape	Type no.	DxTxH	W-X	Specification	V opt. m/s
	11V9	34039198	75x30x20	3-10	D64BXPP STARTEC-XP-P	18-24
		34039199	100x35x20	3-10	D64BXPP STARTEC-XP-P	18-24
	12V9	34044248	100x20x20	3-10	D64BXPP STARTEC-XP-P	18-24
		34056064	125x25x20	3-10	D64BXPP STARTEC-XP-P	18-24



5.12 Dressing and sharpening



Dressing and sharpening

As a result of changes in the bond, the abrasive grain and the shape of the grinding wheel caused by wear to the wheel, grinding is an ever-changing process.

The changes affect grinding forces, workpiece surfaces and geometric accuracy. To ensure the grinding wheel is always able to provide optimum grinding results, a periodic conditioning cycle must be maintained. This cycle enables the grinding capability of the grinding body to be reproduced. By “conditioning” a grinding wheel correctly, the subsequent grinding process can be optimised in terms of performance, efficiency and surface finish.

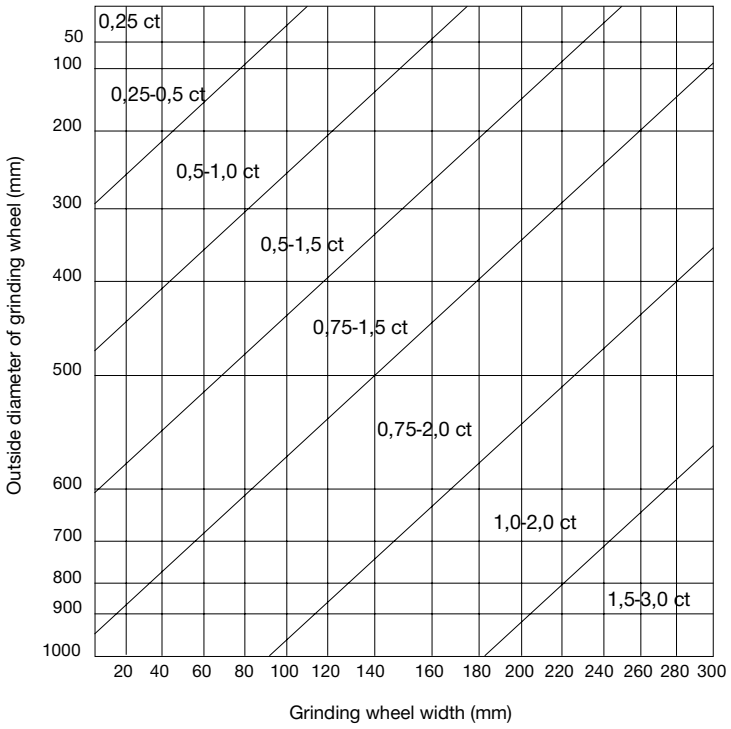
Choosing the right dresser

	Dressing tool		Grinding wheel profile	Grinding process/production type
	Photo	Detailed description		
Single-edge		Single-grain dresser	Linear (cylindrical, conical)Single-profile (convex, concave radii)	External cylindrical, surface, internal cylindrical and centreless grinding Single and small-lot production
Single-edge		Profile diamond	Multi-profile (complex profiles with steep flanks and narrow radii)	Axternal cylindrical, surface and centreless grinding Single and small-lot production
Multi-edge		Multi-set diamond dresser	Linear (cylindrical, conical)	Surface and external cylindrical grinding Single and small-lot production
Multi-edge		Multi-grain diamond dresser	Linear (cylindrical, conical)	Surface and external cylindrical grinding Single and small-lot production
Multi-edge		Diamond grain dressing plate	Linear (cylindrical, conical) Single-profile (convex, concave radii)	External cylindrical, surface and centreless grinding Single to large-scale production
Multi-edge		Needle dressing plates	Linear (cylindrical, conical) Single-profile (convex, concave radii)	External cylindrical, surface and centreless grinding Single to large-scale production
Multi-edge		Dressing plates with MCD rods	Linear (cylindrical, conical) Single-profile (convex, concave radii)	External cylindrical, internal cylindrical, surface and centreless grinding Single to large-scale production

Prevention of common errors when dressing

+ Return strokes with the dressing tool smooth the grinding wheel surface and reduce the cutting ability.
+ The free clamping length of the dresser is too large. Vibrations arise and the grinding wheel surface becomes irregular. This topography is reproduced on the workpiece in the subsequent grinding process.
+ The dressing infeed selected (ae > 0.03 mm) is too high. This results in fracture of the bond bridges in the grinding wheel and the grains break out prematurely. The consequences are: a rough workpiece surface and increased dressing tool wear.
+ The cooling system is switched on too late: high temperatures lead to thermal deterioration and high wear. Remedy: the cooling system must be switched on before the first contact with the dressing tool.
+ Strongly rounded single-grain diamonds permanently alter the dressing results and the cutting ability of the wheel is consequently reduced.

Diamond size (carat) in relation to grinding wheel dimensions



Interrelationship of profile radius | grit size

The table below provides an overview of which grit size can achieve a minimum profile radius. As a standard value, it can be assumed that three abrasive grains are required to maintain a minimum profile radius. To achieve a profile radius of 0.3 mm, an approximate grit size diameter of 0.1 mm is required.

Grit size		**36**	**46**	**60**	**80**	**100**	**120**	**150**	**180**	**220**
Min. profile radius	**mm**	1	0.80	0.60	0.45	0.30	0.20	0.15	0.12	0.10
	Inches	0.04	0.03	0.03	0.02	0.10	0.01	0.01	0.01	0.00

Interrelationship of surface roughness | grit size

The table below will help you select the right grit size to achieve the required surface roughness result. Variable process parameters (e.g. the dressing method) have a significant effect as to which surface roughness can be achieved with a certain grit size. For this reason, the following table also lists the surface areas/grit size.

You should take into account that large grit sizes facilitate the removal of chips (material). It is not necessary to select the finest grain for each initial selection of the grit size.

Surface		Grit size								
Micro inch CLA	**µm Ra**	**36**	**46**	**60**	**80**	**100**	**120**	**150**	**180**	**220**
42	1.10	●								
32	0.80	●	●							
26	0.70		●							
21	0.50		●	●						
16	0.40			●						
14	0.35			●	●					
11	0.25				●					
8	0.20				●	●				
7	0.17					●				
6	0.14					●	●			
5	0.12						●	●		
4	0.10							●	●	
3	0.08								●	●
2	0.05									●

Application tips

- Ensuring sufficient coolant supply while dressing increases lifetime (to prevent thermal overload of dressing diamonds)
- The active width (bd) describes the effective diamond width of the dressing tool for a certain infeed depth when dressing
- With the overlap rate (Ud), surfaces and stock removal rates can be significantly influenced
- The overlap rate (Ud) defines the number of grinding wheel rotations during which the dressing tool has deployed to its active width
- An increased overlap rate makes the grinding wheel surface smoother and, as a consequence, the actual surface roughness lower

◀

- STANDARD values for the overlap rate:
  - Roughing 2–3
  - STANDARD grinding 4–6
  - Fine grinding ≥7

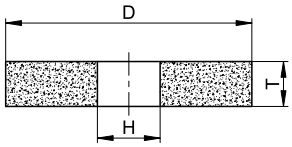
The formulas specified only apply to dressers with defined effective widths bd (single-grain dresser, dressing plate)

$$U_d = \frac{\text{Diamond effective width}}{\text{Tool feed}} = \frac{b_d \cdot n_s}{v_d}$$

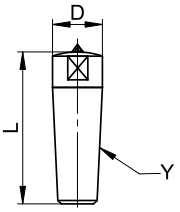
$$v_d = \frac{n_s \cdot b_d}{u_d}$$

b_d = dressing tool effective width
n_s = wheel speed
v_d = feed speed of dresser

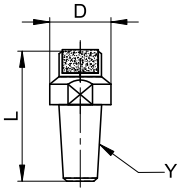
Shapes



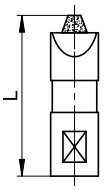
Shape 1



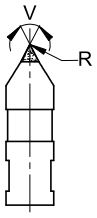
Shape 50EA

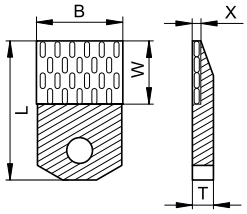


Shape 50MA

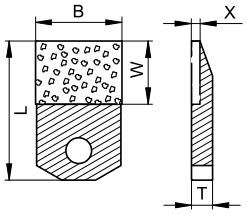


Shape 50PD

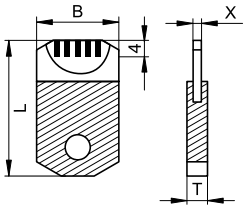




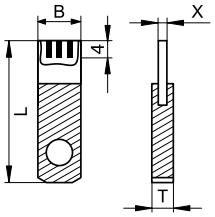
Shape 50AP 1



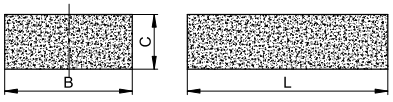
Shape 50AP 2



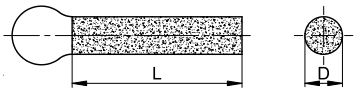
Shape 50AP 3



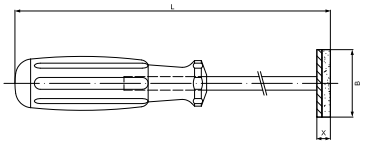
Shape 50AP 4



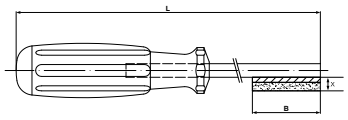
Shape 90AS



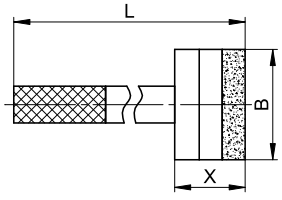
Shape 90AR



Shape STSEG A



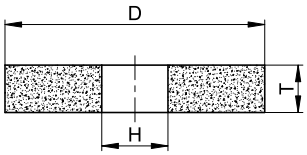
Shape STSEG C



Shape 50HAG

Brake dressing

Dressing wheels for diamond and wheels



Shape 1

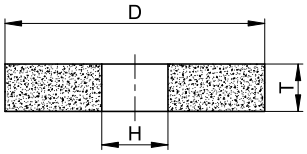
These dressing wheels are used for dressing all types of diamond and CBN grinding wheels, regardless of their bond systems. Sensitive layers can also be dressed with minimal grinding pressure.

Please be aware that electroplated wheels cannot be dressed with them. The silicon carbide wheels are available in 200–250 mm diameters.

	Shape	Type no.	DxTxH	Specification	PU	Comments
	1	34163206	200x20x20	C 120 J5 V15	1	For grit sizes ≤ D91
		413027	250x12x51	C 120 H5A V18	1	For grit sizes ≤ D91
		250491	250x12x51	C 80 H8 V15	1	STANDARD hardness, for grain sizes D151-D64
		619701	250x12x51	C 80 J5 V15	1	Harder than standard, for grit sizes D151-D64

Dressing device for brake dressing

Dressing wheels for diamond and CBN grinding wheels



Shape 1

These dressing wheels are used for dressing all types of diamond and CBN grinding wheels, regardless of their bond systems. The AV500 dressing device is ideally suited to dressing resin and metal-bonded wheels during dry grinding.

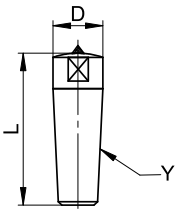
The silicon carbide wheels are available in a 75 mm diameter. Use the 1C70M5V15 specification for robust layers only.

	Shape	Type no.	Decription	PU	Comments
	96	96821	AV500		For concentrically trueing resin and metal-bonded diamond and CBN grinding wheels. Optimum results up to grinding wheel diameter of 250 mm
		34045604	AVB	3	Replacement brake pads

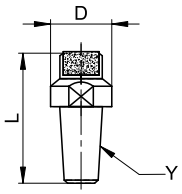
	Shape	Type no.	DxTxH	Specification	PU	Comments
	1	7035	75x25x12,7	1C 70 M5 V15	10	Long life, for wider layers, D151-D64
		443944	75x25x12,7	1C 80 G7 V15	10	STANDARD hardness, for grain sizes D151-D64
		448482	75x25x12,7	C 80 J5 V18	10	Harder than standard, for grit sizes D151-D64

Stationary dressing

Single-grain dresser, multi-grain dresser, multi-grain diamond dresser



Shape 50EA



Shape 50MA/50VA

The TYROLIT single-grain, multi-grain and multi-grain diamond dressers are ideal for dressing all aluminium oxide and silicon carbide wheels. Multi-grain and multi-grain diamond dressers are often used for surface and external cylindrical grinding wheels. Large and wide wheels require a higher carat number to reduce diamond wear.

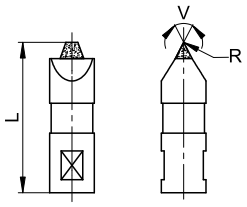
Single-grain dressers are graded according to diamond size. Multi-grain and multi-grain diamond dressers therefore have a higher carat content.

	Shape	Type no.	DxLxY	Y/AUFN	Specification	Comments
	50EA	856232	9.3x31.5x8	MK0	DD 10 ST	For conventional tools; Single dressers for cylindrical and surface grinding machines; Wrench width for MK0 and MK1 only
		331997	14x57x12	MK1	ED 15 ST	
		313466	12.4x49x10	MK1	BD 5 ST	
		316272	12.4x49x10	MK1	BD 10	
		313127	8x90	8ZYL	BD 5 ST	
		363249	10x90	10ZYL	ED 5 ST	
		611499	10x90	10ZYL	ED 10 ST	
	50MA	446432	12x50	10x10x37	M65	Diamond grains set in layers
		446453	12x90	10x10x77	M65	
		315877	14x57x12	10xMK1	M65	
		316286	14x57x12	10xMK1	M125	
	50VA	34173161	10x60	10ZYL	V800-8X11	Irregular distribution of diamond grains
		34172978	14x42x12	11xMK0	V800-8X11	
		34172980	14x57x12	11xMK1	V800-8X11	

Precision grinding

Stationary dressing

Profile diamonds



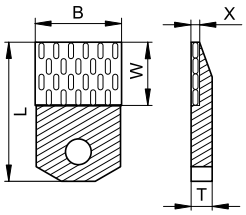
Shape 50PD

Profile diamonds are used for dressing all conventional profile grinding wheels made of aluminium oxide or silicon carbide. The huge advantage of profile diamonds is that they can be reground using a special process. They are frequently used with Diaform and CNC-controlled grinding machines.

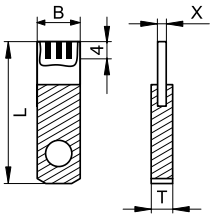
	Shape	Type no.	B/L2xY/AUFN/V/R	Specification
	50PD	475960	44.5xDF/V40/R250	D 0.4 ST
		477837	44.5xDF/V60/R750	D 0.4 ST

Stationary dressing

Diamond dressing plates/CSS dressing plates



Shape 50AP 1



Shape 50AP 4

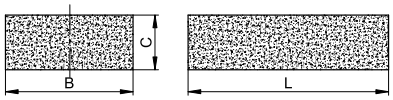
The dressing plates are a high-quality alternative to conventional single-grain diamonds. They are ideal for dressing all aluminium oxide and silicon carbide wheels. They are primarily used for dressing wide wheels and profile wheels with a shallow edge.

By using dressing plates it is possible to achieve maximum precision in the dressing process.

	Shape	Type no.	BxLxT	W-X	Specification	Comments
	50AP 1	477755	10x33x5	15-1.8	B180	Needle dressing plates
		477760	20x28x5	10-1.8	C180	
	50AP 4	853704	10x33x5	10-2	W3R071004	For aluminium oxide wheels; long life; 3 dia rods

Hand-operated dressing

Dressing sticks for aluminium oxide and silicon carbide grinding wheels

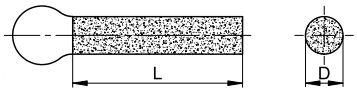


Shape 90AS

Dressing sticks are ideal for dressing all aluminium oxide and silicon carbide wheels. They can be used as an inexpensive dressing tool for vitrified-bonded bench grinding wheels.
Dressing sticks are only available in black silicon carbide.

	Shape	Type no.	BxCxL	Specification
	90AS	43311	25x25x150	C COARSE
		9009	50x20x150	C COARSE
		153	50x25x200	C MEDIUM
		6216	50x25x200	C COARSE

Hand-operated dressing
Dressing tubes

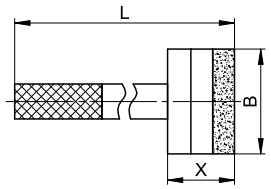


Shape 90AR

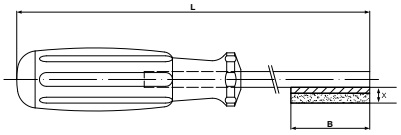
The dressing tubes are ideal for dressing all aluminium oxide and silicon carbide wheels. They can be used as an inexpensive dressing tool for vitrified-bonded bench grinding wheels.
Dressing tubes are only available in green silicon carbide.

	Shape	Type no.	DxL	Specification
	90AR	351767	17x290	C 16 - B

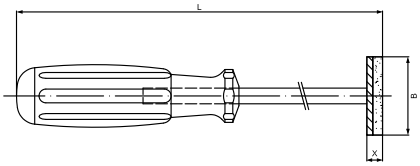
Hand-operated dressing
Diamond dresser



Shape 50HAG



Shape STSEG C



Shape STSEG A

This diamond dresser provides you with a high-quality dressing tool for bench grinding wheels in the precision machining sector. Depending on their design they can be used for peripheral or lateral face machining.

The diamond dressers therefore have either a diamond segment soldered on the face or longitudinally.

	Shape	Type no.	LxBxX	Specification	Comments
	50HAG	477724	185x20x8	D 30 ST	Steel shaft, diamond segment face
		477726	185x30x10	D 26 ST	
		477254	250x40x10	D 35 ST	
	STSEG	195112	185x40x8	HA_DIA	Plastic handle, diamond segment face
		34057995	185x40x8	HA_DIA	Plastic handle, diamond segment longitudinally

Hand-operated dressing
Grinding wheel dresser set

This dresser set is used primarily for large resin-bonded bench grinding wheels and above all in the foundry industry. Steel rollers enable you to achieve efficient dressing and sharpening of the wheel.

The huge advantage of this dressing tool is that it can be quickly and easily re-equipped with replacement rollers.

◀

	Shape	Type no.	Specification	D	T max	Grit size	Hardness
	100AKO	15321	S3510	120-250	40	24-80	H-Q
		74497	S3511	300-600	63	16-60	H-Q
		117871	S3512	300-600	63	16-60	H-Q
	100AKO	126781	S3513	300-600	70	16-60	H-Q

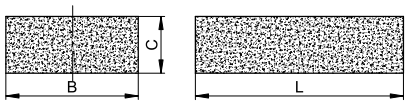
Replacement parts

	Shape	Type no.	DxTxH	Specification	PU	Comments
	100ARO	74492	36x21x8	S3610	1	Replacement rollers
		74493	55x39x12	S3611	1	
		75915	55x65x12	S3612	1	
		886902	40x2x10	S3613	250	

Hand-operated dressing

Sharpening sticks for diamond and CBN grinding wheels





Shape 90AS

The TYROLIT sharpening sticks sharpen and clean all CBN and diamond grinding wheels, and are used in production and re-sharpening applications. The sticks are made of aluminium oxide and are available in grit sizes 120–600. They can be used for hand-operated and mechanical applications.

	Shape	Type no.	BxCxL	Specification	Grit size	PU
	90AS	845593	24x13x100	89A 120 H7A V17	≥ 126	10
		845594	24x13x100	89A 120 J7A V17	≥ 126	10
		845595	24x13x100	89A 240 J7A V17	> 46 and < 126	10
		577953	24x13x200	89A 600 J5A V83	≤ 46	10
		678953	24x13x200	A 240 STARTEC	STARTEC XP-P and HP	10
		33531	25x13x100	89A 600-25 V83	≤ 46	10
		932780	25x13x200	89A 240 H5A V83	> 46 and < 126	10
		112055	50x25x200	50C 2208 C4 B22	> 46 and < 126	1
		251584	50x25x200	89A 600-25 V83	≤ 46	1
		391718	50x25x200	89A 240-35 V83	> 46 and < 126	1
		395773	50x25x200	89A 120 H7A V17	≥ 126	1
		460976	50x25x200	89A 120 J7A V17	≥ 126	1
		464290	50x25x200	89A 240 J7A V17	> 46 and < 126	1


TYROLIT
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HYDROSTRESS



Catalogue 21 Diamond tools and machines

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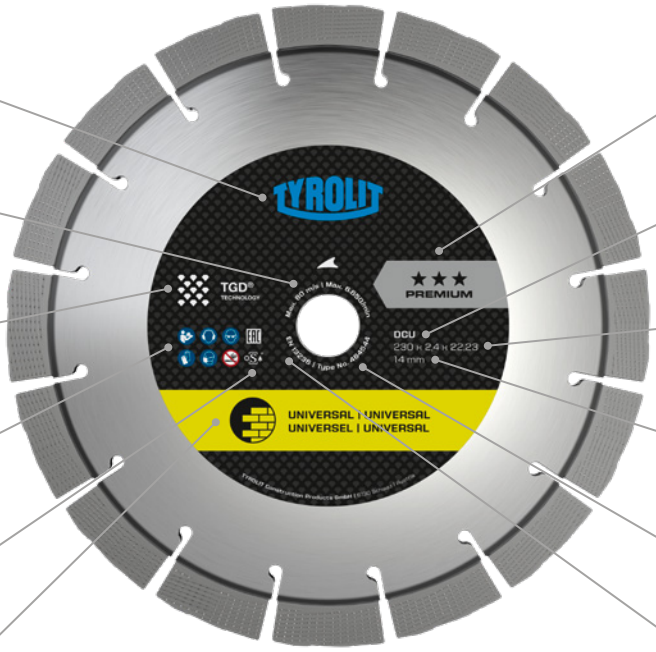
Specific information
Diamond tools

Product label

NEW



Registered trademark

Max. speed

TGD® Technology

Application and safety pictograms

TYROLIT, founding member of oSa®

Material suitability

Quality line

Specification

Dimensions: external x internal Ø

Segment height

Type number

EN 13236

Colour codes

Label	Universal	Plastic	Concrete	Hard stone	Tiles	Marble	Asphalt	Abrasive materials	Cast iron
Colour code	Yellow	Yellow	Red	Blue	Green	Green	Grey	Grey	Violet
Material	Universal building materials	Plastic	Concrete	Hard stone	Tiles, ceramic materials	Soft stone, marble	Abrasive materials	Abrasive materials	Cast iron

Specification

DCU-FASTCUT

	FC	FASTCUT
	S	SILENT
	LL	LONGLIFE
A+C		Asphalt/Concrete
U		Universal building materials
C		Concrete
H		Hard stone
A		Asphalt
M		Marble, soft stone
T		Soft stone, ceramics
DC		Dry cutting
TS		Table sawing
DG		Dry grinding
HS		Hand sawing
RS		Ring sawing

Machines


Angle grinder


Petrol cutting saw


Table saw


Wet core drill


Dry core drill


Joint cutter


Electrical hand saw

Convincing, **technologies**

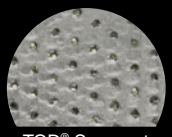


TGD®
TYROLIT GRAIN DISTRIBUTION

TGD® – TYROLIT GRAIN DISTRIBUTION

TYROLIT diamond tools with TGD® technology feature intelligently distributed diamonds that enable even load distribution, optimised cooling and a constantly high cutting performance. This significantly extends the tool lifetime and the load on the machines is reduced.

+ Long lifetime
+ High cutting ability
+ Enhanced efficiency



TGD® Segment



Conventional segment

Products with these technologies are identified by these icons on the following pages.

P2®
PERMANENT
POWER

P2® - PERMANENT POWER

P2® - PERMANENT POWER - is a high-frequency technology registered by TYROLIT, which combines the compact design of electrical systems with the reliability and performance of hydraulic systems in a single machine to optimum effect. This innovative drive concept is based on the principle of drive motors with permanent magnets and enables operation at a high torque, with simultaneously reduced motor speeds. The maintenance-friendly layout of the compact devices makes servicing easier and reduces costs.

+ High reliability
+ Powerful performance
+ Compact design



Modular
System

Modular System

Thanks to the TYROLIT Modular System, individual components can be used for the same area of application and for different applications. This not only makes the work easier and more efficient, it also saves on costs. One part of the TYROLIT Modular System is the ModulDrill™ quick clamping system, for example, which enables our drill motors to be rapidly attached to different TYROLIT drill rigs.



+ High cost efficiency
+ Efficient working
+ Easy operation


TYROLIT
TYROLIT
WORK WEAR



6.1 Dry cutting saw blades
Angle grinder



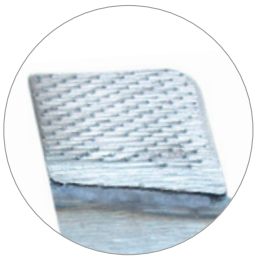
Dry cutting saw blades **for angle grinders**

TYROLIT provides laser welded and directly sintered dry cutting saw blades that meet the highest standards of quality and safety.

With TYROLIT dry cutting saw blades, plastics, fibreglass or bullet-proof glass can be machined in addition to countless standard materials, such as hard stone, concrete or asphalt. Innovative products, such as ultra-thin and sound-insulated dry cutting saw blades, underline the continuous further development and optimisation of diamond products.

TGD®-technology

TGD® (TYROLIT GRAIN DISTRIBUTION) is a unique technology developed by TYROLIT, which ensures consistently fast cutting rates, an extremely long lifetime and noticeable smooth running through optimised grain distribution. This provides for clean cuts that require no reworking. Furthermore, significantly less vibration is generated, resulting in less strain on the operator and the machine. These advantages are particularly economically evident in continuous operation: The operator can distribute his effort evenly over the day and machines remain serviceable longer.



TGD®
TYROLIT GRAIN DISTRIBUTION

Service

+ Quick delivery
+ Available in all relevant diameters
+ Conventional dimensions on stock

Remarks / Recommendations

+ Observe safety and user instructions
+ On request safety instructions may also be sent separately
+ Maximum working speed 80 m/s

★★★
PREMIUM

Dry cutting saw blade

DCU | in TGD®-Technology

+ Low cutting costs because of high cutting speed.

+ Universal use on concrete, hard stone, abrasive materials and steel.



+ Reduced load for the user as a result of unique smooth running.

Materials able to be machined: Universal building materials, such as concrete, natural stone, clay brick, cellular concrete, etc. Details: the DCU dry cutting saw blade impresses with excellent results when cutting concrete, hard stone, abrasive materials and steel.
The possibility for universal use offers the user a product which is ready-to-use at any time without a wheel change and ensures the successful completion of a project.

NEW ★★★ PREMIUM

Dry cutting saw blade

DCU | in TGD®-Technology

	Shape		Type no. old	Type no. new	Dimension	Segment height
		C73W	704617	34468871	230x2.4x22.23	14

NEW ★★★ PREMIUM

Dry cutting saw blade
DCU

Materials able to be machined: Universal building materials, such as concrete, clay brick, natural stone, steel, etc.

	Shape		Type no. old	Type no. new	Dimension	Segment height
		C73W	464537	34430790	115x2.4x22.23	10
			464539	34425401	125x2.4x22.23	10
			464540	34430832	150x2.6x22.23	12
			464543	34430833	180x2.6x22.23	12
			464544	34434386	230x2.6x22.23	12

★★★ PREMIUM

Dry cutting saw blade
DCU FASTCUT

	Shape		Type no.	Dimension	Segment height
		C6R	474743	115x2x22.23	10
			474746	125x2x22.23	10
			474751	150x2.4x22.23	9
			474752	180x2.4x22.23	9
			474753	230x2.4x22.23	9

★★★ PREMIUM

Dry cutting saw blade
DCU | in SILENT design

	Shape		Type no.	Dimension	Segment height
		C3G	474771	230x2.6x22.23	9

★★★ PREMIUM

Cutting and chamfering disc
DCCI Combi

The new cutting and chamfering disc DCCI Combi has been especially developed for the treatment of plastic pipes. The galvanized cutting edge and the diamond-coated chamfering enable a constant and clean cutting and chamfering at the same time. A cutting depth stop serves as an additional aid.

	Shape		Type number	Dimension	Segment height
		UC3	34228075	125x3x22.23	3

★★ STANDARD

Dry cutting saw blade
DCU

Materials able to be machined: Universal building materials, such as concrete, clay brick, natural stone, steel, etc.

	Shape		Type number	Dimension	Segment height
		C3	467443	115x2x22.23	7
			467444	125x2x22.23	7
			467445	150x2.6x22.23	9
			467446	180x2.6x22.23	9
			467448	230x2.6x22.23	9
DCU-FASTCUT					
		C3R	467414	115x2x22.23	7
			467416	125x2x22.23	7
		C3R	467428	150x2.4x22.23	9
			467430	180x2.4x22.23	9
			467431	230x2.4x22.23	9

★ BASIC

Dry cutting saw blade
DCU

Materials able to be machined: Universal building materials, such as concrete, clay brick, natural stone, etc. Details: A 20–16 mm reduction bush is supplied with a disc diameter of 105 mm.

	Shape		Type number	Dimension	Segment height
		C3	466082	105x2x20	7
			466083	115x2x22.23	7
			466084	125x2x22.23	7
			466086	150x2.6x22.23	9
			466087	180x2.6x22.23	9
			466090	230x2.6x22.23	9
DCU-FASTCUT					
		C3R	467266	105x2x20	7
			467267	115x2x22.23	7
			467268	125x2x22.23	7
		C3R	467271	150x2.4x22.23	9
			467273	180x2.4x22.23	9
			467276	230x2.4x22.23	9

NEW ★★★ PREMIUM

Dry cutting saw blade
DCC

Materials able to be machined: concrete, reinforced concrete, concrete products, hard materials, etc.

	Shape		Type no. old	Type no. new	Dimension	Segment height
		C73W	465489	34468731	125x2.4x22.23	10
			465492	34468734	230x2.6x22.23	12

★★★ PREMIUM

Dry cutting saw blade
DCC-FASTCUT Wall chaser blade

Materials able to be machined: Concrete, clay brick, cellular concrete.
Details: tool for the milling of slots in concrete and masonry.

For use with all common wall chasers.

	Shape		Type number	Dimension	Segment height
		C3R	598008	125x2x22.23	7
			598010	140x2.4x22.23	9
			598011	150x2.4x22.23	9

★★ STANDARD

Dry cutting saw blade
DCC

Materials able to be machined: concrete, reinforced concrete, concrete products, hard materials, etc.

	Shape		Type number	Dimension	Segment height
		C3	474775	125x2x22.23	7
			474780	230x2.6x22.23	9

★★★
PREMIUM

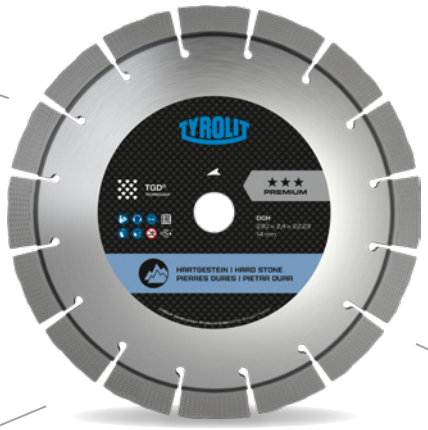
Dry cutting saw blade

DCH | in TGD®-Technology

+ Low cutting costs because of high cutting speed.

+ No reworking due to very clean cutting edges.

+ Reduced load for the user as a result of unique smooth running.



+ Consistently very fast cutting performance, very long life-time and noticeable smooth running with TGD©-Technology (TYROLIT Grain Distribution), a unique technology developed by TYROLIT for the optimised distribution of grain.

Materials able to be machined: Concrete blocks, granite, gneiss, porphyry, paving slab, etc. Details: the DCH dry cutting saw blade, specially developed using TGD® Technology for hard stone, impresses with its cutting ability and smooth running. Reduced effort over the entire lifetime allows for higher productivity. The perfectly optimised segments for the application create very clean, chip-free edges and ensure a flawless result.

NEW ★★★ PREMIUM

Dry cutting saw blade

DCH | in TGD®-Technology

	Shape		Type no. old	Type no. new	Dimension	Segment height
		C73W	707365	34468872	230x2,4x22,23	14

NEW ★★★ PREMIUM

Dry cutting saw blade
DCH

Materials able to be machined: Granite, gneiss, porphyry, paving slab, hard limestone, etc.

	Shape		Type no. old	Type no. new	Dimension	Segment height
		C73W	–	34475858	115x2.4x22,23	10
			464698	34475856	125x2,4x22,23	10

★★★ PREMIUM

Dry cutting saw blade
DCH-FASTCUT

The DCH-FASTCUT from TYROLIT enables the user to carry out cutting work swiftly and to precise dimensions, without any great exertion. The DCH-FASTCUT is an ultra-thin diamond cut-off wheel with a segment thickness of 1.2 or 1.9 mm. It is distinguished by an extremely high cutting ability with minimal dust generation and extremely smooth running.

	Shape		Type number	Dimension	Segment height
		C3	475790	115x1.2x22.23	7
			475793	125x1.2x22.23	7
		C3W	475797	180x1.9x22.23	9
			475800	230x1.9x22.23	9

★★★ PREMIUM

Dry cutting saw blade
DCT

Materials able to be machined: Ceramic tile, fine stoneware, porcelain. Details: A 20–16 mm reduction bush is supplied with a disc diameter of 105 mm.

	Shape		Type number	Dimension	Segment height
		1A1R	639558	105x1x20	10
			639559	115x1.2x22.23	10
			639560	125x1.2x22.23	10
			639634	180x1.4x22.23	10
			676791	200x1.6x22.23	10
			639635	230x1.6x22.23	10

★ BASIC

Dry cutting saw blade
DCT

Materials able to be machined: Ceramic tiles.

	Shape		Type number	Dimension	Segment height
		1A1R	475975	100x1.6x22.23	7
			475978	115x1.6x22.23	7
			475980	125x1.6x22.23	7
			475983	180x2x22.23	9
			475986	230x2x22.23	9

Accessories dry cutting saw blade
Sharpening plate for tiles

		Type number	Dimension
	SP6	662791	55x25x320

★★★
PREMIUM

Roofer’s cutting wheel

+ Universal use for all common roofing materials.
+ Overheating-free even in the case of high loads.



+ Ribbed cutting rim for minimal cutting pressure.
+ Ensures straight cuts and clean-cut edges.

The TYROLIT roofer’s cutting wheel was specially developed for the wide-ranging roofing application scenarios and is suitable for cutting all common roofing materials – from concrete and clay roof tiles through to fibre cement. The ribbed cutting rim and the hardened steel core ensure minimum cutting pressures and clean straight cuts throughout the wheel life.

★★★
PREMIUM

Roofer’s cutting wheel

	Shape		Type number	Dimension	Segment height
		C6R	103283	230x2.4x22.23	9



6.2 Diamond cup wheel
Angle grinder



Diamond cup wheel **for angle grinders**

TYROLIT diamond cup wheels enable quick and accurate grinding of uneven concrete, stone and floor pavement surfaces. In addition to their universal range of applications, high stock removal rates and a long lifetime are main characteristics of TYROLIT diamond cup wheels.

Service

+ Quick delivery
+ Available in all relevant diameters
+ Conventional dimensions on stock

Remarks / Recommendations

+ Observe safety and user instructions
+ On request safety instructions may also be sent separately

★★★ PREMIUM

Diamond cup wheel
DGU

Materials able to be machined: Concrete, natural stone and general building materials. Details: with PU foam coating for quiet grinding and shaping of corners and edges.

	Shape	Type number	Dimension	Segment height
	 STHD	348387	125x18x22,23	5
		828013	180x19x22,23	5

★★ STANDARD

Diamond cup wheel
DGU Single row

Materials able to be machined: Concrete, natural stone and general building materials. Details: single row segments for high stock removal. A 22, 23–16 mm reduction bush is supplied.

	Shape	Type number	Dimension	Segment height
	 STS-S	494333	100x18x22.23	5

★★ STANDARD

Diamond cup wheel
DGU Double row

Materials able to be machined: Concrete, natural stone and general building materials. Details: double row segments for medium stock removal and long lifetime. A 22, 23–16 mm reduction bush is supplied with wheel diameters of 100 and 110 mm.

	Shape	Type number	Dimension	Segment height
	 STS-D	494339	100x18x22.23	5
		494349	110x18x22.23	5
		494361	125x18x22.23	5
		494394	180x32x22.23	5

★★ STANDARD

Diamond cup wheels
DGU-Turbo

Machinable materials: Concrete, natural stone and general building materials. Details: Turbo style arranged segments for a fine grinding surface pattern and shaping of corners and edges.

Quick dust removal. A 22.23–16 mm reduction bush is supplied with a wheel diameter of 100 mm.

	Shape	Type number	Dimension	Segment height
	 STS-T	494342	100x18x22.23	5
		494365	125x20x22.23	5
		494391	180x32x22.23	5

★★ STANDARD

Diamond cup wheels
DGU-T | Continuous

Machinable materials: Concrete, natural stone and general building materials. Details: Turbo style arranged segments for exceptional surface finish and high grinding power.

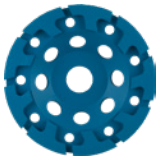
	Shape	Type number	Dimension	Segment height
	 STS-TC	34247005	100x18.5x22.23	6
		34247126	115x18.5x22.23	6
		34247127	125x18.5x22.23	6
		34247128	180x18.5x22.23	6

★★ STANDARD

Diamond cup wheels
DGAB | T-Segment

Machinable materials: Abrasive concrete, cellular concrete, floor pavement, plaster, pumice stone, etc.

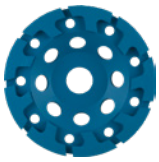
Details: Grinding disc with T segment for abrasive materials. Excellent grinding power.

	Shape	Type number	Dimension	Segment height
	 STS-TS	34247129	100x21x22.23	5
		34247130	115x21x22.23	5
		34247151	125x21x22.23	5
		34247152	180x30.2x22.23	5

★★ STANDARD

Diamond cup wheels
DGC | T-Segment

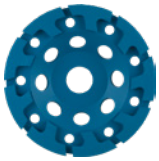
Machinable materials: Concrete and general building materials. Details:
Grinding disc with T segment for universal use. Excellent grinding power.

	Shape	Type number	Dimension	Segment height
	 STS-TS	34247153	100x21x22.23	5
		34247154	115x21x22.23	5
		34247155	125x21x22.23	5
		34247156	180x30.2x22.23	5

★★ STANDARD

Diamond cup wheels
DGH | T-Segment

Machinable materials: Natural stone, granite and hard building materials. Details:
Grinding disc with T segment for hard materials. Excellent grinding power.

	Shape	Type number	Dimension	Segment height
	 STS-TS	34247157	100x21x22.23	5
		34247158	115x21x22.23	5
		34247159	125x21x22.23	5
		34247160	180x30.2x22.23	5

★★ STANDARD

Diamond cup wheels
DGU-FASTCUT | L-Segment

Machinable materials: Concrete and general building materials. Details:
Grinding disc with L segment, with particularly large holes for better extraction, for universal use.

Fast Cut Version – very high stock removal rate.

	Shape	Type number	Dimension	Segment height
	 STS-LS	34247161	100x20.5x22.23	5
		34247162	115x20.5x22.23	5
		34247164	125x20.5x22.23	5
		34247165	180x30x22.23	5


TYROLIT



6.3 Dry cutting saw blades
Petrol saws



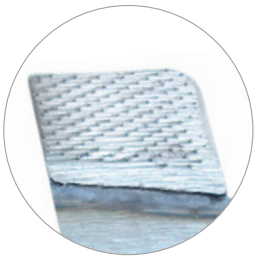
Dry cutting saw blades **for petrol saws**

TYROLIT provides laser welded and directly sintered dry cutting saw blades that meet the highest standards of quality and safety.

With TYROLIT dry cutting saw blades, plastics, fibreglass or bullet-proof glass can be machined in addition to countless standard materials, such as hard stone, concrete or asphalt. Innovative products, such as ultra-thin and sound-insulated dry cutting saw blades, underline the continuous further development and optimisation of diamond products.

TGD®-technology

TGD® (TYROLIT GRAIN DISTRIBUTION) is a unique technology developed by TYROLIT, which ensures consistently fast cutting rates, an extremely long lifetime and noticeable smooth running through optimised grain distribution. This provides for clean cuts that require no reworking. Furthermore, significantly less vibration is generated, resulting in less strain on the operator and the machine. These advantages are particularly economically evident in continuous operation: The operator can distribute his effort evenly over the day and machines remain serviceable longer.



TGD®
TYROLIT GRAIN DISTRIBUTION

Service

+ Quick delivery
+ Available in all relevant diameters
+ Conventional dimensions on stock

Remarks / Recommendations

+ Observe safety and user instructions
+ On request safety instructions may also be sent separately
+ Maximum working speed 80 m/s

★★★
PREMIUM

Dry cutting saw blade

DCU | in TGD®-Technology

+ Low cutting costs because of high cutting speed.

+ Universal use on concrete, hard stone, abrasive materials and steel.



+ Reduced load for the user as a result of unique smooth running.

Materials able to be machined: Universal building materials, such as concrete, natural stone, clay brick, cellular concrete, etc. Details: the DCU dry cutting saw blade impresses with excellent results when cutting concrete, hard stone, abrasive materials and steel.
The possibility for universal use offers the user a product which is ready-to-use at any time without a wheel change and ensures the successful completion of a project.

NEW ★★★ PREMIUM

Dry cutting saw blade

DCU | in TGD®-Technology





Shape		Type no. old	Type no. new	Dimension	Segment height
C73W		736088	34434257	300x2.6x20	14
		22373	34462046	300x2.6x22.23	14
		59580	34462047	300x2.6x25.4	14
		736102	34435145	350x3.2x20	14
		-	34462048	350x3.2x22.23	14
		22377	34462049	350x3.2x25.4	14
		59543*	34435148*	400x3.2x20	14
		59545*	34462050*	400x3.2x25.4	14

*Only permitted for wet grinding

NEW ★★★ PREMIUM

Dry cutting saw blade
DCU

Materials able to be machined: Universal building materials, such as concrete, clay brick, natural stone, steel, etc.



Shape		Type no. old	Type no. new	Dimension	Segment height
	C73W	464545	34428610	300x2,6x20	12
		464546	34431007	300x2,6x22,23	12
		464549	34431008	300x2,6x25,4	12
		464551	34430834	350x3,2x20	12
		464552	34430835	350x3,2x22,23	12
		464553	34430836	350x3,2x25,4	12
		464555	34428721	400x3,2x20	12
		464556	34431009	400x3,2x25,4	12

★★ STANDARD

Dry cutting saw blade
DCU

Materials able to be machined: Universal building materials, such as concrete, clay brick, natural stone, steel, etc.



Shape		Type no.	Dimension	Segment height
	C3	464853	300x2.6x20	10
		464854	300x2.6x22.23	10
		464855	300x2.6x25.4	10
		464858	350x3x20	10
		464859	350x3x25.4	10
		465667	400x3.2x20	10

★★ STANDARD

Dry cutting saw blade
DCU FASTCUT



Shape		Type no.	Dimension	Segment height
	C3R	467433	300x3x20	10
		467434	300x3x22.23	10
		467435	300x3x25.4	10
		467436	350x3x20	10
		467439	350x3x25.4	10

BASIC

Dry cutting saw blade
DCU

Materials able to be machined: Universal building materials, such as concrete, clay brick, natural stone, etc. Details: A 20–16 mm reduction bush is supplied with a disc diameter of 105 mm.

	Shape		Type no.	Dimension	Segment height
		C3	466093	300x2.6x20	10
			466094	300x2.6x22.23	10
			466095	300x2.6x25.4	10
			466096	350x3x20	10
			466098	350x3x22.23	10
			466099	350x3x25.4	10
			529399	400x3.2x25.4	10
			529401	450x3.2x25.4	10

BASIC

Dry cutting saw blade
DCU FASTCUT

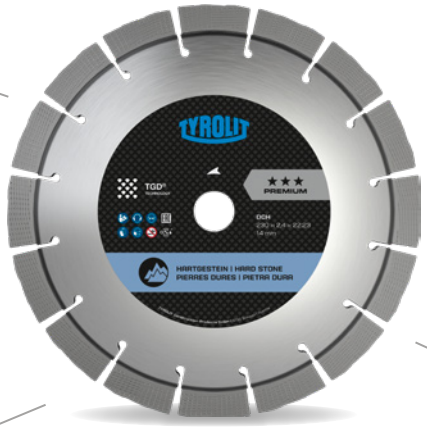
	Shape		Type no.	Dimension	Segment height
		C3R	467280	300x3x20	10
			467281	300x3x22.23	10
			467282	300x3x25.4	10
			467285	350x3x20	10
			467288	350x3x22.23	10
			467289	350x3x25.4	10

★★★
PREMIUM

Dry cutting saw blade

DCH | in TGD®-Technology

+ Low cutting costs because of high cutting speed.
+ No reworking due to very clean cutting edges.
+ Reduced load for the user as a result of unique smooth running.



+ Consistently very fast cutting performance, very long life-time and noticeable smooth running with TGD©-Technology (TYROLIT GRAIN DISTRIBUTION), a unique technology developed by TYROLIT for the optimised distribution of grain.

Materials able to be machined: Concrete blocks, granite, gneiss, porphyry, paving slab, etc. Details: the DCH dry cutting saw blade, specially developed using TGD® Technology for hard stone, impresses with its cutting ability and smooth running. Reduced effort over the entire lifetime allows for higher productivity. The perfectly optimised segments for the application create very clean, chip-free edges and ensure a flawless result.

NEW ★★★ PREMIUM

Dry cutting saw blade

DCH | in TGD®-Technology

	Shape		Type no. old	Type no. new	Dimension	Segment height
		C3W	736095	34435150	300x2.6x20	14
			43485	34462092	300x2.6x25.4	14
			736105	34435151	350x3.2x20	14
			43490	34462093	350x3.2x25.4	14

★★★
PREMIUM

Dry cutting saw blade

DCA+C

+ Increased flexibility suitable for cutting stone and concrete.

+ Can also be used on floor saws and for wet cutting thanks to optimised specification.



+ Inclined protective segments guard against segment loss
reduce the effect of the undercutting of the core.

Materials able to be machined: asphalt, green concrete with soft to hard material aggregates and a small amount of cured concrete. Details: protective segments against the undercutting-effect.

NEW ★★★ PREMIUM

Dry cutting saw blade

DCA+C

	Shape		Type number	Dimension	Segment height
		C73SW	34472010	300x2.6x20	10
			34472008	350x3.2x25.4	10

★★ STANDARD

Dry cutting saw blade
DCA+C

Materials able to be machined: asphalt, green concrete with soft to hard material aggregates and a small amount of cured concrete.

Details: protective segments against the undercutting-effect.

	Shape		Type number	Dimension	Segment height
		C1SW	34168634	300x2.8x20	10
			34237091	300x2.8x25.4/20	10
			34168635	350x3x20	10
			34237092	350x3x25.4/20	10

★ BASIC

Dry cutting saw blade
DCA+C

Materials able to be machined: asphalt, green concrete with soft to hard material aggregates and a small amount of cured concrete.

Details: protective segments against the undercutting-effect.

	Shape		Type number	Dimension	Segment height
		C1SW	736309	300x2.8x20	10
			736311	300x2.8x25.4	10
			736313	350x3x20	10
			80653	350x3x25.4	10



6.4 Table saw blades
Table sawing



Diamond saw blades **for table saws**

TYROLIT table saw blades impress with an excellent cutting performance and a long lifetime. They are optimised for the relevant material or application.

TYROLIT table saw blades are developed to work perfectly with TYROLIT Hydrostress machines and therefore meet all cutting work challenges and deliver the best results.

Application recommendation

Performance Level	Specification	Universal	Hard stone	Tiles	Pages
★★★ PREMIUM	TSU	●			490
	TSU-SILENT	●			491
	TSH		●		491
	TSH-SILENT		●		491
	DCT			●	491

Service

+ Quick delivery
+ Available in all relevant diameters
+ All relevant dimensions on stock
+ Designed to perfectly harmonise with TYROLIT Hydrostress machines
+ Reduction bushes for various machine types

Remarks / Recommendations

+ Please observe the safety and user instructions
+ On request safety instructions may also be sent separately
+ Maximum working speed 63 m/s
+ Tools only to be used for wet-cutting (exceptions are explicitly stated)

★★★
PREMIUM

Table saw blade

TSU

+ Universal use for various building materials, such as clay brick, concrete, sand-lime brick, etc.

+ Maximum performance and lifetime.



+ Broad product range.

Materials able to be machined: Cellular concrete, sand-lime brick, pumice stone, clay brick, etc. Details: 35–30 mm and 30–25.4 mm reduction bushes are included with disc diameters up to 550 mm. A 60–55 mm reduction bush is supplied with disc diameters of 625 mm and upwards.

★★★
PREMIUM

Table saw blade
TSU

	Shape		Type number	Dimension	Segment height
		C2W	34180849	250x2.2x35	10
			34180294	300x2.4x35	10
			34180293	350x2.8x35	10
			34180291	400x3.2x35	10
			34180270	450x3.2x35	10
			34218744	500x3.6x35	10
			34180268	550x3.6x35	10
		C1W	34180263	625x3.6x60/55	10
			34171018	650x3.9x60/55	10
			34171019	700x3.9x60/55	10
			34171020	900x4.8x60/55	10
			34171031	1000x4.8x60/55	10

★★★ PREMIUM

Table saw blade
TSU-SILENT

Materials able to be machined: Cellular concrete, sand-lime brick, pumice stone, clay brick, etc. Details: 35–30 mm and 30–25.4 mm reduction bushes are included with disc diameters up to 550 mm. A 60–55 mm reduction bush is supplied with disc diameters of 625 mm and upwards.

	Shape		Type number	Dimension	Segment height
		C2GW	34180292	350x2.8x35	10
		C1GW	34181275	625x3.6x60	10
			34180295	700x3.9x60/55	10
			34305288	900x4.8x60/55	10

★★★ PREMIUM

Table saw blade
TSH

Materials able to be machined: Granite, gneiss, hard sand-lime brick, hard clay brick. Details: 35–30 mm and 30–25.4 mm reduction bushes are supplied.

	Shape		Type number	Dimension	Segment height
		C2	34277672	250x2.2x35	10
			34221327	300x2.8x35	14
			34221325	350x2.8x35	14
TSH-SILENT					
		C2G	34221324	300x2.8x35	14
			34097755	350x2.8x35	14

★★★ PREMIUM

Table saw blade
DCT

Materials able to be machined: Ceramic tiles, fine stoneware, porcelain, terrazzo slabs. Details: ultra-thin saw blades with excellent properties. 35–30 mm and 30–25.4 mm reduction bushes are supplied.

	Shape		Type number	Dimension	Segment height
		1A1R	639566	180x1.4x35	10
			701934	200x1.6x35	10
			639568	230x1.6x35	10
			639569	250x1.6x35	10
			639570	300x2x35	10
			639571	350x2x35	10

★★★
PREMIUM

Tile saw TRE250

Cutting depth up to 60 mm





Cutting length up to 1 m for cutting large tiles



Clean cuts thanks to precise saw head guide and robust design



Safe and easy transport thanks to folding feet and transport wheels

The TRE250 tile saw enables the cutting of various tile sizes and types to a cutting length of 1 m. A range of adjustment and application options ensure maximum flexibility. The robust design and precise saw head guide guarantee a clean cut. Transport wheels and folding table feet facilitate transport and position at the location of use.

System & Accessories

Technical data

Saw blade	
Max. cutting depth	60 mm
Max. saw blade Ø	250 mm
Cutting length	940 mm (1 050 mm)*
Saw blade speed	2 800 rpm
Saw blade holder Ø	25.4 mm

** Plunge cut*

Drive	
Drive / motor	Electric
Output	1.3 kW
Standard voltage / frequency	230 V / 50 Hz
Optional voltage / frequency	110 V / 60 Hz
Engine cooling	Air cooling
Saw blade drive	Direct

Design
Infinitely adjustable cutting depths
Angle cutting function (angle stop)
Mitre cutting function
Cap cutting function
Electric water pump
Folding legs

Dimensions & Weight	
Length	1 375 mm
Width	740 mm
Height	1 275 mm
Weight	79 kg

System & Accessories

Tile saw TRE250	
10989500	Tile saw TRE250 / 230 V
10989100	Tile saw TRE250 / 110 V

Accessories	
10995459	Side splash guard
10995489	Parallel guide

★★
STANDARD

Masonry saw TBE400

Cutting depth up to 125 mm





Swivelling saw head enables 45° mitre cuts



Folding feet, transport wheels and carrying handles ensure total manoeuvrability at the location of use



Angle stop provided for cuts of 30° to 90°

The TBE400 table saw offers an uncompromising price-performance ratio as well as high flexibility through numerous settings and application options. A sturdy saw table with anti-slip support guarantees clean cuts. The swivelling saw head allows mitre cuts to be made with ease. Transport wheels and folding table feet facilitate transport and position at the location of use.

System & accessories

Technical data

Saw blade	
Max. cutting depth	125 mm
Max. saw blade Ø	400 mm
Cutting length	600 mm
Saw blade speed	2 800 rpm
Saw blade arbour Ø	25.4 mm

Drive	
Drive / motor	Electric
Power	2.2 kW
Voltage / standard frequency	230 V / 50 Hz
Motor cooling	Air cooling
Saw blade drive	Direct

Design
Continuously variable cutting depth
Angle cutting function (angle stop)
Mitre cutting function (swivelling saw head)
Cap cutting function
Water tank made of powder-coated steel
Easy to replace electric water pump
Folding feet and transport handles

Dimensions & weight	
Length	1 210 mm
Width	655 mm
Height	1 285 mm
Weight	86 kg

System & accessories

Masonry saw TBE400	
10998400	Masonry saw TBE400 / 230 V

★★★
PREMIUM

Masonry saw TME700

Cutting depth up to 270 mm

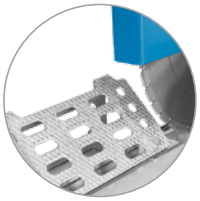




Removable water tank for easier cleaning



Sturdy, balanced transport hook for easy crane transport



Precise mitre cutting thanks to mitre stop

The TME700 convinces through maximum stability and robustness. The precise stainless-steel saw table guide guarantees a clean cut. Construction-site suitable leading pulleys, forklift guides and a crane hook ensure trouble-free transport.

The anti-contamination positioning of the water pump reduces servicing requirements to a minimum and ensures permanent tool cooling. The intelligent blade guard construction enables quick and easy blade installation.

System & Accessories

Technical data

Saw blade	
Max. cutting depth	270 mm
Max. saw blade Ø	700 mm
Cutting length	600 mm
Saw blade speed	1 380 rpm
Saw blade holder Ø	60 mm
Carrier Ø	11.5 mm
Reference circle Ø	120 mm

Drive	
Drive / motor	Electric
Output	5.5 kW
Standard voltage / frequency	400 V / 50 Hz
Engine cooling	Air cooling
Saw blade drive	Direct

Design
Infinitely adjustable cutting depths
Angle cutting function (angle stop)
Mitre cutting function (swiveling saw head)
Transport hook and fork lift guides
Pull-out water tank
Electric water pump

Dimensions & Weight	
Length	1 470 mm
Width	910 mm
Height	1 350 mm
Weight	220 kg

System & Accessories

Masonry saw TME700	
10989600	Masonry saw TME700 / 400 V

Accessories	
10978735	Mitre stop (Jolly table)

★★★
PREMIUM

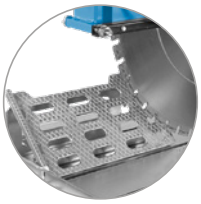
Masonry saw TME1000

Cutting depth up to 380 mm





Large cutting depths to 380 mm possible (with saw blade Ø 1 000 mm)



Precise mitre cutting due to mitre stop



Fork lift guides for easy and secure transport

The TME1000 convinces through maximum stability and robustness. The precise stainless-steel saw table guide guarantees a clean cut. Construction-site suitable leading pulleys, forklift guides and a crane hook ensure trouble-free transport.

The intelligent blade guard construction enables quick and easy blade installation. Servicing requirements are reduced to a minimum due to low-maintenance saw blade drive via a transmission.

System & Accessories

Technical data

Saw blade	
Max. cutting depth	380 mm
Max. saw blade Ø	1 000 mm
Cutting length	660 mm
Saw blade speed	910 rpm
Saw blade holder Ø	60 mm
Carrier Ø	11.5 mm
Reference circle Ø	120 mm

Drive	
Drive / motor	Electric
Output	7.5 kW
Standard voltage / frequency	400 V / 50 Hz
Engine cooling	Air cooling
Saw blade drive	Via gears

Design
Infinitely adjustable cutting depths
Angle cutting function (angle stop)
Mitre cutting function (optional mitre stop)
Transport hook and fork lift guides
Pull-out water tank
Electric water pump

Dimensions & Weight	
Length	1 800 mm
Width	1 030 mm
Height	1 500 mm
Weight	324 kg

System & Accessories

Masonry saw TME1000	
10989800	Masonry saw TME1000 / 400 V

Accessories	
10978735	Mitre stop (Jolly table)


TYROLIT
LWA
96 dB



6.6 Floor saw blades
Floor sawing



Floor saw blades

Decades of experience in the production and application of floor saws and machines give TYROLIT the edge in the marketplace. As a result, our products can be seen as innovative solutions for large-scale projects while remaining cost-effective for everyday construction site use.

TYROLIT floor saw blades are designed to work perfectly with TYROLIT Hydrostress machines as well as all common floor saws.

+ Exceptional and consistent cutting performance coupled with a long service life
+ Universal use
+ Innovative diamond segment design
+ Quiet when working on reinforced concrete
+ Clean cutting edges
+ Large product range: diameters from 300–1.200 mm in various segment widths

Application recommendation

Performance Level	Specification	Cured concrete	Asphalt	Pages
★★★ PREMIUM	FSC	●		506
	FSA		●	506

Information / Recommendations

+ Optimum application conditions / peripheral speed

Asphalt		55–60 m/s
Cured concrete	soft aggregates with little reinforcement	40–50 m/s
Cured concrete	hard aggregates	35–45 m/s
Green concrete		50–55 m/s

+ The safety and operating instructions sent with the machine must be observed at all times when using floor saws. The safety manual will be sent to you on request

Service

+ Bores and drive holes for special machines are available on request

Floor saw blade | Cured concrete
FSC

★★★ PREMIUM



Machines up to 15 kW | soft to medium-hard aggregates. Details: Laser welded up to a diameter of 600 mm. Equipped with measuring bore for easy wear control of the segment height. A 35–25.4 mm reduction bush is supplied for saw blades with a 35 mm bore.

	Shape	Type number	Dimension	Segment height
	 C7W	574854	350x3.2x25.4	12
		574855	400x3.2x25.4	12
		574856	450x3.6x25.4	12

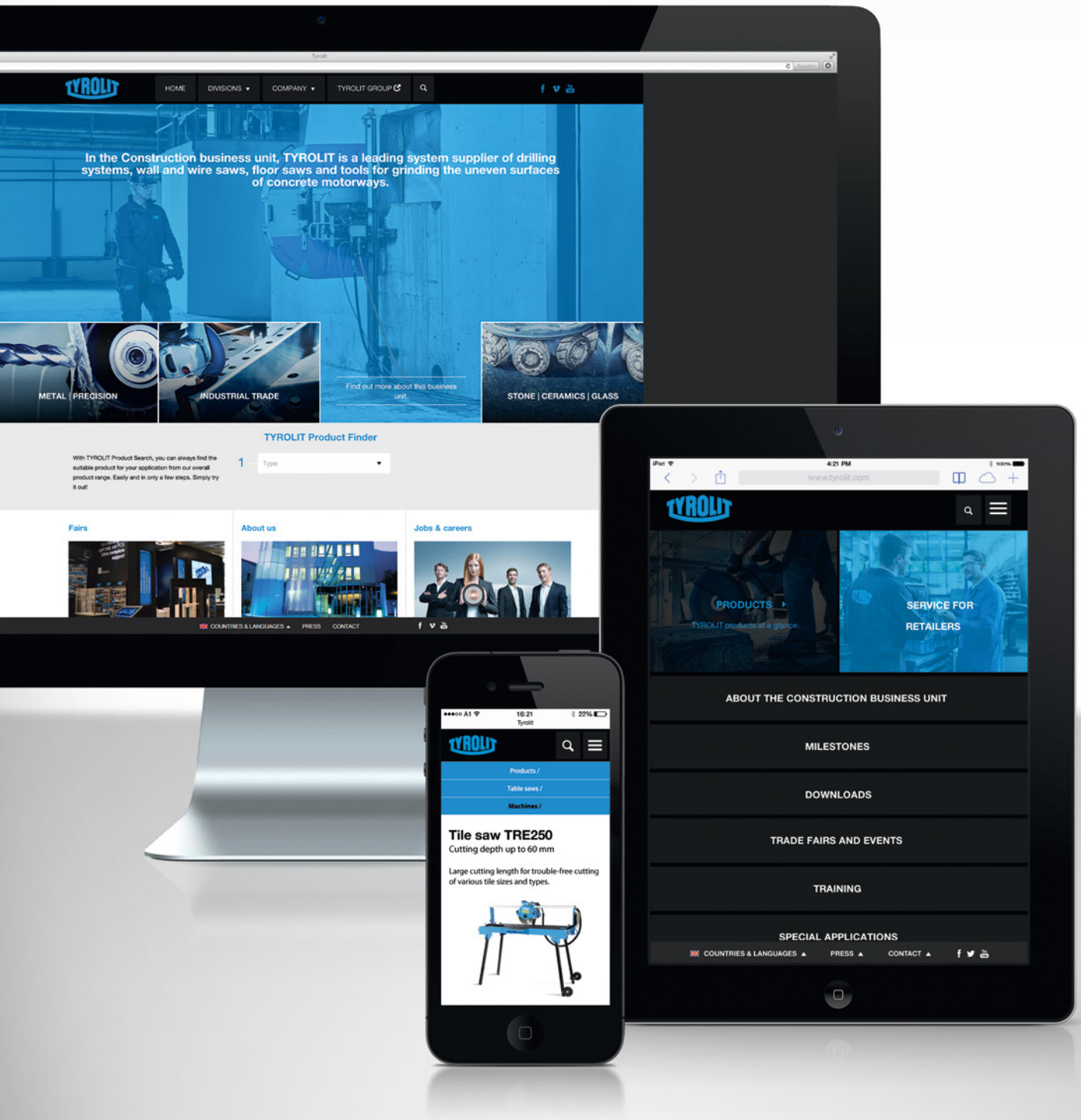
Floor saw blade | Asphalt
FSA

★★★ PREMIUM



Machines up to 15 kW | soft to very hard aggregates. Details: Laser welded up to a diameter of 600 mm. With protective segments to guard against premature steel blade wear in the contact zone – (undercutting-effect) and measuring bore for easy wear control of the segment height. A 35–25.4 mm reduction bush is supplied for saw blades with a 35 mm bore.

	Shape	Type number	Dimension	Segment height
	 C7SW	574844	350x3.2x25.4	9
		574845	400x3.2x25.4	9
		574846	450x3.6x25.4	9



Diamond tool

www.tyrolit.com

★★★
PREMIUM

Floor saw FSG513

Cutting depth up to 170 mm





User-friendly cutting depth setting and convenient speed control



Optimised centre of gravity above the shaft



Universal field of application with left and right cutting function

Thanks to its extremely robust, high-quality chassis, the FSG513 is highly robust and flexible thanks to the left- and right-handed as well as corner flush cutting functions. The reliable Honda petrol engine is equipped with a cyclone air filter.

System & Accessories

Saw blade

Saw blade	
Max. cutting depth	170 mm
Max. saw blade Ø	450 mm
Saw blade speed	2 600 rpm
Saw blade uptake Ø	25.4 mm
Carrier Ø	11.5 mm
Reference circle Ø	57.4 mm

Drive	
Drive / motor	Petrol
Type	Honda
Power	8.2 kW / 11 HP
Fuel	Lead free
Fuel tank	6.1 l
Engine cooling	Air cooling
Feed	Manual
Blade drive	Via V-belt

Design
Manual, cutting depth adjustment via spindle
Cutting depth indicator
Tool cooling using water fork
Left and right hand cutting function
Flush corner cut function
25 l water tank

Dimensions & Weight	
Length	1 136 mm
Width	578 mm
Height	1 016 mm
Weight	113 kg

System & Accessories

Floor saw FSG513	
10988800	Floor saw FSG513 incl. water tank kit


TYROLIT
HYDROSTRESS



6.8 Diamond wet drill bits
Core drilling



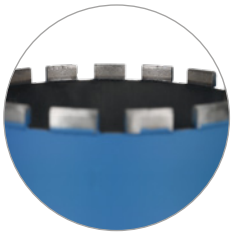
Drill bits
for wet drilling

Decades of experience in the production and application of core drill bits and core drill systems give TYROLIT the edge in the marketplace.

As a result, our products can be viewed as innovative solutions for large-scale projects while remaining cost-effective for everyday construction site use. Especially suitable for drilling reinforced or normal concrete. Can be operated on a drill rig or hand-held. TYROLIT core drill bits are designed to work perfectly with TYROLIT Hydrostress machines.

TGD®-Technology

The TYROLIT GRAIN DISTRIBUTION achieves a constant and high cutting performance due to optimum diamond grain distribution.



TGD®
TYROLIT GRAIN DISTRIBUTION

Speeds

Diameter	Speed	Drive power
	Concrete (2–3 m/s)	
mm	min–1	kW
18	2.100–3.200	1
32	1.200–1.800	1
42	900–1.400	1
52	750–1.100	1
62	620–950	2
72	550–800	2
82	470–700	2
102	370–550	2
122	310–470	3
152	250–380	3
162	240–350	3
182	210–320	4
202	190–280	4
250	150–230	4
300	130–190	4
400	100–140	4
500	80–120	4

Service

+ Products for concrete (asphalt, masonry, steel and special applications on request)
+ Mountings and connection threads available to comply with local standards and tailored to suit all types of motors (electric, hydraulic)
+ Perfect system solution in conjunction with TYROLIT Hydrostress drill motors and drill rigs
+ Extensive range of accessories available
+ Special dimensions and individual solutions available on request
+ We will be pleased to provide technical support and system solutions for special construction sites

Information / Recommendations

+ Highest levels of performance at peripheral speeds of 2–3 m/s on concrete (1.2–1.8 m/s on reinforced concrete, 3.2–3.8 m/s on very abrasive materials)
+ For core drills with a diameter of 450 mm or more, we recommend to use the drill flange GR-F. The core drill program with GR-F flange is available on request
+ The correct drill rig mounting is essential
+ The correct coolant quantity is also important for the optimum drilling performance (“milky” consistency of the water)
+ The machine safety and user instructions must be read and understood before starting work. The drilling safety manual will be sent to you on request

Application recommendation
TYROLIT wet drill bits

Material properties

Quality line	Specification	Aggregates				Abrasiveness			Reinforcement		
		soft	medium	hard	very hard	low	medium	high	low	medium	high
★★ STANDARD	**CDL**	◑	◑	○		○	◑	◑	◑	○	
	CDM	○	◑	●	●		○	●	◑	●	●
		Limestone Granite	Quartz Granite	Rhine gravel Danube gravel	Flint						

Machine power

Specification	Machine power			Speed		
	–2.4 kW	–3.5 kW	>3.5 kW	low	medium	high
CDL	◑	◑	○	○	◑	◑
CDM	○	◑	●	◑	●	○

Suitability

Optimal	●
Good	◑
Acceptable	○
Not suitable	

Diamond tool

★★ STANDARD

Wet drill bits
CDL

Drill motors up to 3 kW | soft to medium-hard concrete aggregates. Details: Quality tools for everyday use. An impressive drilling speed-lifetime ratio. Universal use, lasting quality.

Laser welded segments up to a diameter of 250 mm for maximum safety.



	Type number	Dimension	Segment height
HOHL3	475019	32x400xR½"	7
	475024	42x450xR½"	7
HOHL1D	34292638	52x450x1¼"	11.3
	34292640	62x450x1¼"	11.3
	34292816	72x450x1¼"	11.3
	34292820	82x450x1¼"	11.3
	34292821	92x450x1¼"	11.3
	34292823	102x450x1¼"	11.3
	34292824	107x450x1¼"	11.3
	34292826	112x450x1¼"	11.3
	34292827	122x450x1¼"	11.3
	34292828	127x450x1¼"	11.3
	34292829	132x450x1¼"	11.3
	34292830	142x450x1¼"	11.3
	34292831	152x450x1¼"	11.3
	34292832	162x450x1¼"	11.3
	34292833	182x450x1¼"	11.3
	34292834	202x450x1¼"	11.3
	34292835	250x450x1¼"	11.3

★★ STANDARD

Wet drill bits
CDM

Drill motors up to 3 kW | soft to medium-hard concrete aggregates. Details: Quality tools for everyday use. An impressive drilling speed-lifetime ratio. Universal use, lasting quality.

Laser welded segments up to a diameter of 250 mm for maximum safety.



	Type number	Dimension	Segment height
HOHL1D	34293083	52x450x1¼"	11,3
	34293087	62x450x1¼"	11,3
	34293089	72x450x1¼"	11,3
	34293111	82x450x1¼"	11,3
	34293115	92x450x1¼"	11,3
	34293116	102x450x1¼"	11,3
	34293120	107x450x1¼"	11,3

▶

● = low ● = medium

★★ STANDARD

Wet drill bits
CDM

		Type number	Dimension	Segment height
	HOHL1D	34293122	112x450x1¼"	11,3
		34293124	122x450x1¼"	11,3
		34293125	127x450x1¼"	11,3
		34293129	132x450x1¼"	11,3
		34293130	142x450x1¼"	11,3
		34293132	152x450x1¼"	11,3
		34293137	162x450x1¼"	11,3
		34293139	182x450x1¼"	11,3
		34293140	202x450x1¼"	11,3
		34293149	250x450x1¼"	11,3

★ BASIC

Wet drill bits
B1

Drill motors up to 3 kW | soft to medium-hard concrete aggregates. Details: Quality tools for everyday use. An impressive drilling speed-lifetime ratio. Universal use, lasting quality.

Laser welded segments up to a diameter of 250 mm for maximum safety.

		Type number	Dimension	Segment height
	HOHL1D	34239241	47x450x1¼"	11,3
		34239244	52x450x1¼"	11,3
		34239245	57x450x1¼"	11,3
		34206245	62x450x1¼"	11,3
		34206246	67x450x1¼"	11,3
		34239181	72x450x1¼"	11,3
		34206248	77x450x1¼"	11,3
		34206249	82x450x1¼"	11,3
		34239183	92x450x1¼"	11,3
		34203877	102x450x1¼"	11,3
		34206261	107x450x1¼"	11,3
		34206262	112x450x1¼"	11,3
		34206263	122x450x1¼"	11,3
		34239093	127x450x1¼"	11,3
		34206265	132x450x1¼"	11,3
		34239186	142x450x1¼"	11,3
		34239187	152x450x1¼"	11,3
		34206267	162x450x1¼"	11,3
		34239188	172x450x1¼"	11,3
		34206269	182x450x1¼"	11,3

Diamond tool

● = low ● = medium

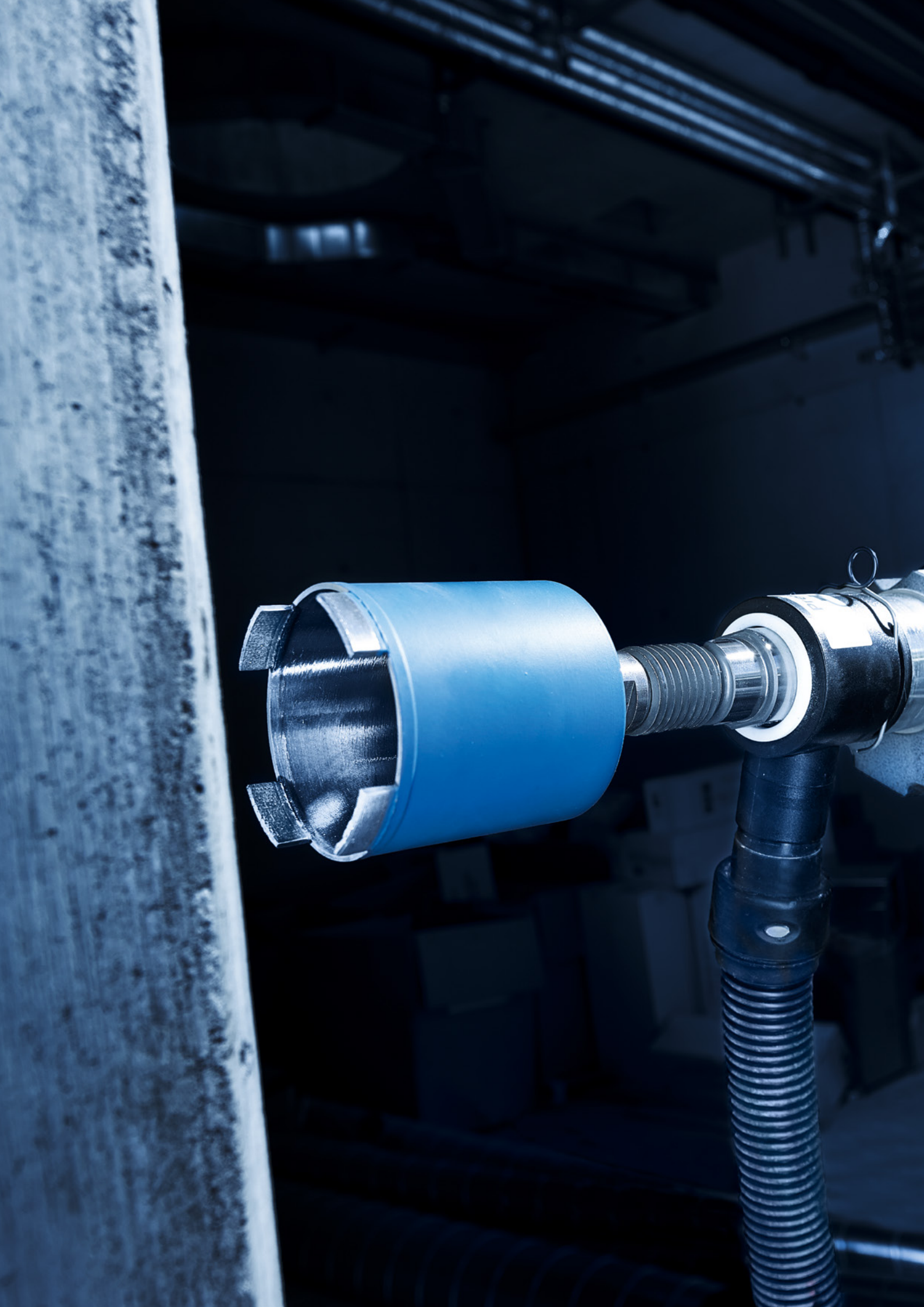
◀

		Type number	Dimension	Segment height
	HOHL1D	34239189	202x450x1¼"	11,3
		34240086	212x450x1¼"	11,3
		34240087	250x450x1¼"	11,3

Accessories wet drill bits

Sharpening plates

		Type number	Dimension
	SP1	484627	160x30x320
		484672	320x55x320





6.9 Diamond dry drill bits
Core drilling



Drill bits
for dry drilling

Decades of experience in the production and application of core drill bits and core drill systems give TYROLIT the edge in the marketplace.

As a result, our products can be viewed as innovative solutions for large-scale projects while remaining cost-effective for everyday construction site use. Especially suitable for drilling reinforced or normal concrete. Can be operated on a drill rig or hand-held.

TYROLIT core drill bits are designed to work perfectly with TYROLIT Hydrostress machines.

Selecting the right dry drill bit

Plasterboard Cellular concrete Plastic tubes (PVC, PP, PE) Soft fire-resistant bricks Sandstone, porous natural stone Tiles Roof tiles Clinker Fine stoneware	Without hammer operation
Soft sand-lime brick Clay brick Lightweight concrete slabs Woodchip-concrete blocks and slabs Fireclay bricks	Hammer operation recommended (no percussion drills)
Concrete block Hard sand-lime brick Terrazzo Concrete Lightly reinforced concrete	Hammer operation required (no percussion drills)

Service

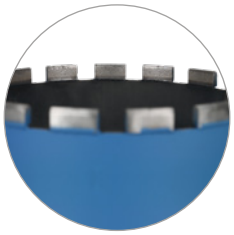
+ Whole product range ex stock
+ From a diameter of 91 mm onwards an additional distance washer is included for optional use of a vacuum-suction hood

Information / Recommendations

+ For use with drilling motors within the range of 1.000–2.000 W with or without soft impact
+ Do not use rotary percussion drills as it will destroy the tool
+ Observe the safety and user instructions shipped with the tool
+ On request these safety instructions may also be sent separately

TGD®-Technology

The TYROLIT GRAIN DISTRIBUTION achieves a constant and high cutting performance due to optimum diamond grain distribution.



TGD®
TYROLIT GRAIN DISTRIBUTION

★★★ PREMIUM

Dry drill bits
DDL-HH | in TGD®-Technology

The newly developed PREMIUM*** dry drill bit for hand-guided drilling impresses in many respects. With TGD®-Technology (TYROLIT GRAIN DISTRIBUTON), a unique technology developed by TYROLIT for the optimised distribution of grain.

		Type number	Dimension	Segment height
	HOHLT	34074200	52x250x1¼"	8
		34074212	62x250x1¼"	8
		34074213	68x250x1¼"	8
		34074214	82x250x1¼"	8
		34074215	92x250x1¼"	8
		34074216	102x250x1¼"	8
		34074217	107x250x1¼"	8
		34074218	112x250x1¼"	8
		34074219	122x250x1¼"	8
		34074220	127x250x1¼"	8
		34074221	132x250x1¼"	8
		34074223	142x250x1¼"	8
		34074224	152x250x1¼"	8
		34074225	161x250x1¼"	8

★★★ PREMIUM

Dry drill bits
DDE | in TGD®-Technology

Perfect tool for installing sockets and junction boxes as well as smaller breakthrough jobs.

		Type number	Dimension	Segment height
	HOHLT	34201286	68x70xM16	11.3
		34201288	82x70xM16	11.3

★★ STANDARD

Dry drill bits
DDL

Quality tool for daily use, impressive performance and lifetime.

		Type number	Dimension	Segment height
	HOHLT	899272	32x150xM16	6.5
		899271	42x150xM16	6.5
		252911	52x150xM16	6.5
		252912	56x150xM16	6.5

▶

◀

		Type number	Dimension	Segment height
	HOHLT	252913	62x150xM16	6.5
		252914	68x150xM16	6.5
		252915	72x150xM16	6.5
		252916	82x150xM16	6.5
		252917	92x150xM16	6.5
		252918	102x150xM16	6.5
		252919	107x150xM16	6.5
		252920	117x150xM16	6.5
		252921	127x150xM16	6.5
		252923	162x150xM16	6.5
		252924	200x150xM16	6.5

★ BASIC

Dry drill bits
DDL



Tool for installing sockets and junction boxes as well as smaller breakthrough jobs.

		Type number	Dimension	Segment height
	HOHLT	650292	68x70xM16	6.5
		650293	82x70xM16	6.5





6.10 Tile drills
Core drilling

★★★
PREMIUM

Tile drills

DDT

+ Maximum drilling comfort thanks to optimised moistening of the diamonds with water and easy core removal.

+ Fast, accurate drilling no edge chipping.



+ **Universal use** for ceramictiles, fine stoneware and marble slabs.

TYROLIT vacuum brazed diamond coring bit for all ceramic tiles, fine stoneware and marble slabs. Maximum drilling comfort, suitable for universal use with M14 connection for angle grinders, and adapter for drilling machines. Suitable for dry and wet drilling. Perfect, chip-free drilling in tiled and sanitary areas.

★★★
PREMIUM

Tile drills
DDT

		Type number	Dimension	Segment height
	HOHLT	34180136	5x35xHEX	4
		69833	6x35xHEX	4
		69848	8x35xHEX	4
		69855	10x35xHEX	4
		69856	12x35xHEX	4
		69860	14x35xHEX	4

★★★
PREMIUM

Tile drills
DDT

		Type number	Dimension	Segment height
	HOHLT	69769	20x45xM14	4
		34214903	25x45xM14	4
		34214904	35x45xM14	4
		69768	38x45xM14	4

▶

◀

		Type number	Dimension	Segment height
	HOHLT	34214905	42x45xM14	4
		69767	52x45xM14	4
		69766	65x45xM14	4
		51392	75x45xM14	4

★★★ PREMIUM

Tile drills with paraffin
DDT

		Type number	Dimension	Segment height
	HOHLT	34251679	6x35xM14	10
		34251680	8x35xM14	10
		34251711	10x35xM14	10
		34251712	12x35xM14	10
	HOHLT	34393075	5x67xHEX	10
		34393071	6x67xHEX	10
		34393072	8x80xHEX	10
		34393073	10x80xHEX	10
		34393074	12x80xHEX	10
		34393076	14x80xHEX	10

★★★ PREMIUM

Tile drill-set HEX
5-14 DDT

	Type number	Content
	34215809	Tile drills Ø 5, 6, 8, 10, 12, 14 mm
		Allen key

★★★ PREMIUM

Tile drill-set HEX Ø 5-14 with paraffin
DDT

		Type number	Content
	HOHLT	34393131	Tile drills Ø 5, 6, 8, 10, 12, 14 mm
			Allen key

Tile drill-Kit HEX
★★★ PREMIUM
DDT



Type number	Content
34215843	Tile drills Ø 5, 6, 8, 10, 12, 14 mm
	Water bottle 1 l (Type No. 34215846)
	Drilling aid (Type No. 34215847)
	Allen key

Tile drill-set M14 Ø 20+
★★★ PREMIUM
DDT



	Type number	Content
HOHLT	34229331	Tile drills Ø 20, 25, 35, 38, 42, 52, 65, 75 mm
		Adapter M14/HEX, M14/SDS
		Allen key
		Pilot drill 7x110
		Open ended spanner SW19

Tile drill-set M14
★★★ PREMIUM
DDT



Type number	Content
34294535	Tile drills Ø 6, 8, 10, 12, 20, 25, 35 mm
	Wrench

Tile drill-set XL
★★★ PREMIUM
DDT



Type number	Content
34245899	Tile drills HEX wet Ø 5, 6, 8, 10, 12, 14 mm
	Tile drills M14 dry Ø 20, 38, 52, 65, 75 mm
	69774 SDS Adapter on request
	69801 HEX Adapter on request
	Center Drill Ø 7
	Open-ended spanner SW 19
	Hex key
	34215846 1 l water bottle (hose included)
	34215847 drilling aid



Diamond tool


HYDROSTRESS
TYROLIT
HYDROSTRESS



6.11 Core drill systems
Core drilling

Selecting guide
for core drill systems

	Power in kW	Application		Drill diameter range in mm m/s	Drill rig recommendation
 DME19DP	1.8		52	162	 DRU160
 DME22SU	2.2		20	180	 DRA150
 DME20PU	2.0		15	180	 DRU160
 DME20PW	2.0		15	180	 DRU160
 DRS162	2.5		40	160	Integriert
 DRS 250	2.5		40	250	Integriert
 DME24MW. DME24UW	2.2		40	250	 DRU250  DRA250

wet *dry* *also handheld*

Diamond tool

Accessories

 Adaptor M16	 Dust vacuum adaptor, M16	 Centering spike	 Vakuum fixing	 Fastening bolt assembly	 Quick grip device	 Celling prop	 Watertank	 Water retention ring	 Extension	 ModulDrill™-distance plate	 Antifriction-Element	Trolley chassis
●	●	●	●	●					●			
	●	●	●	●			●	●	●			
		●	●	●	●		●	●	●		●	
		●	●	●	●		●	●	●		●	
			●	●			●		●		●	
			●	●	●	●	●	●	●		●	●
				●	●	●	●	●	●		●	●

● *available / suitable*

★★
STANDARD

Core drilling system DRS162

Core drilling up to Ø 162 mm

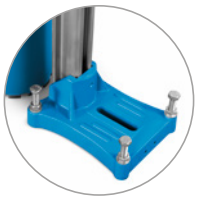




Powerful 2.5 kW Motor



One speed for drilling diameters up to 162 mm



Space-saving attachment facility via dowel foot

The DRS162 drill system is the ideal core drill entry model. The drill motor and drill rig complement each other perfectly and form a single unit. The preset speed and compact, lightweight construction guarantee easy handling and user-friendliness. An integrated PRCD safety switch ensures maximum safety. Optional vacuum plate offers more flexibility in fixing the system.

System & Accessories

Technical data

Drill rig (integrated)	
Bore hole diameter	40–162 mm
Max. drill bit length	556 mm

Drill rig (integrated)	
Drill diameter range in concrete ca.	40–162 mm
Nominal power	2.5 kW
Nominal current	11.5 A
Nom. voltage / frequency standard	230 V / 50 Hz
Load speed	450 rpm
Cooling	Air cooling
Tool attachment external thread	1 ¼"
Tool attachment internal thread	½"
Operation	Drill rig operation
Application	Wet
Electronic overload cut-out	
Mechanical overload cut-out	
PRCD protection switch	

Design
Aluminium dowel foot
Feed using hand crank
Adjustable feet (M12)
1 handle
Motor fixed integrated

Dimensions & Weight	
Length	365 mm
Width	185 mm
Height	855 mm
Weight (drilling system)	15.5 kg

System & Accessories

Core drilling system DRS162	
10990700	Core drilling system DRS162 / 230 V (dowel feet)
10993966	Fastening bolt assambly

Accessories	
974270	Extraction device for core bits
977353	Extraction device for cores
10991465	Water tank 10 l
10993961	Vacuum plate complete
984035	Vacuum pump CV 45 l/min, 0.8 bar EU
975372	Vacuum pump CV 45 l/min, 0.8 bar CH
975381	Vacuum hose complete 3 m

★★
STANDARD

Core drilling system DRS250

Core drilling up to Ø 250 mm

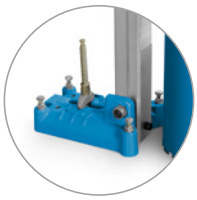




Drilling diameter up to 250 mm with 2-speed gearbox



Powerful 2.5 kW motor



Space-saving fixing option via dowel foot

The DRS250 drilling system combines simplicity with a large drill diameter range. The drill motor and drill rig complement each other and form a single unit. 2-speed oil bath gearbox insures perfect lubrication in all working positions, as well as optimal torque-to-speed ratio. Compact and lightweight construction guarantees easy handling and user-friendliness. Mechanical overload clutch and integrated PRCD safety switch ensure maximum safety. Optional vacuum plate offers more flexibility in fixing the system.

System & Accessories

Technical data

Drill rig (integrated)	
Bore hole diameter	50 - 250 mm
Max. drill bit length	600 mm

Drill rig (integrated)	
Nominal power	2.5 kW
Nominal current	11.5 A
Nom. voltage / frequency	230 V / 50 - 60 Hz
Load speed	360 / 850 rpm
Cooling	Air cooling
Tool attachment	1 ¼"
Operation	Drill rig operation
Application	Wet
Mechanical overload cut-out	
PRCD protection switch	

Design
Aluminium dowel foot
Feed using hand crank
Adjustable feet (M12)
Carrying handle
Detachable motor

Dimensions & Weight	
Length	295 mm
Width	195 mm
Height	1 069 mm
Weight (drilling system)	25.6 kg

System & Accessories

Core drilling system DRS250	
10999880	Core drilling system DRS250 / 230 V (dowel feet)
10993966	Fastening bolt assembly

Accessories	
974270	Extraction device for core bits
977353	Extraction device for cores
10991465	Water tank 10 l
975378	Vacuum plate complete
984035	Vacuum pump CV 45 l/min, 0.8 bar EU
975372	Vacuum pump CV 45 l/min, 0.8 bar CH
975381	Vacuum hose complete 3 m
11000617	Trolley chassis DRS250


DEMAG 250kg
HYMO
DEMAG



Notes

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Safety cutting and grinding

Safetybrand TYROLIT

We strive to provide operators products with maximum safety. We achieve this through our work as the founder member of the “Organisation for the Safety of Abrasives (oSa)”, through close cooperation with the safety authorities and through practical communication with our operators across the globe.

aim of oSa®

The main aim of oSa® is defined in terms of absolute protection for the users of grinding tools, whereby members undertake to provide a consistently high level of quality, adopt a rigorous approach towards quality assurance and strive to develop new, improved standards of safety.

TYROLIT quality management system

The TYROLIT quality management system has been certified to ISO 9001:2015 for the entire production area by an external authorised body. The products are manufactured and tested in line with European safety standards:

- EN 12413 for grinding wheels made of bonded abrasives
- EN 13236 for grinding wheels made of diamond or boron nitride
- EN 13743 for special abrasives on an underlay such as vulcanised fibre grinding wheels, flap grinding wheels, flap discs and mounted points

On account of the fact that in the approval principles (EN-STANDARD) very high requirements are set on the grinding tools concerning defined technical grinding parameters, TYROLIT basically delivers all grinding tools corresponding to these principles. As a result we guarantee a constantly high safety level, also in countries without compulsory approvals.

Final inspection – checks at TYROLIT

TYROLIT carries out final inspections in accordance with EN safety standards. In addition, internal testing procedures are also used to determine efficiency and material properties.

Resin bonded products undergo a final inspection regarding a visual and identification test, a geometry, imbalance, bursting and side load test as well as a control grinding and cutting process.

Resin and ceramic bonded products undergo a final inspection regarding a visual and identification test, a geometry, imbalance, bursting and side load test as well as a test run, a sound test.

Notes

Safety

The following plays an equal part when it comes to safety when grinding: machine manufacturer, grinding wheel producer and user.

Grinding wheels are subject to a high load during the grinding process. This is why grinding machines, grinding bodies, handling and application must be optimally harmonised to ensure safe grinding. For the grinding machines, it is generally important to observe the machine conditions and the stipulation of the protection cover.

Whereas the manufacturer implements the safety measures in line with regulations in relation to the grinding machine and grinding wheels, the user is responsible for safety when grinding through use of the grinding machine for the intended purpose, as well as through correct handling and application of the grinding wheels.

The following must be observed:

- Checking of grinding bodies on delivery
- Handling and storage of grinding bodies
- Labelling, synchronisation with machine data
- Checking of grinding wheels prior to clamping
- Clamping methods for grinding wheels
- Test run of grinding bodies prior to start-up
- Eye protection and protective clothing (see also FEPA safety code)

Storage of the grinding wheels

Grinding wheels are to be stored in suitable racks or containers so that they are not damaged and so that it is easily possible to remove wheels without disturbing the storage setup. Older stock should be used first.

During storage, the following must be noted

Store the grinding wheels in a dry, rust-free condition and do not expose grinding wheels to large temperature fluctuations.

Storage for different types of grinding bodies

- Store cut-off wheels on a level underlay without intermediate layers and weigh them down with a steel or cast iron plate
- Store large straight grinding wheels in an upright position and make sure they cannot roll away
- Stack cylinder wheels, cylindrical grinding discs and grinding plates using soft intermediate layers
- Stack grinding discs, shape 11, in each cases faces or bases together
- Store small grinding wheels in suitable containers

Checking of grinding wheels on delivery

Check packaging on delivery. If damage is visible on the packaging, the grinding wheel should be checked particularly thoroughly for any possible transport damage.

Identification of the grinding wheels

The purpose of the identification is to give people, in particular those who carry out the clamping of the grinding wheels, information for safe use and proper application.

Grinding wheels may only be used if they are identified with the following minimum information

- Manufacturer
- Dimensions of grinding wheel
- Material (at least the type of bond)
- Maximum permissible RPM of new grinding wheel and maximum operating speed in m/s

The user is obliged to match the machine speed to the maximum permissible speed given in the identification.

Notes

Checking of grinding wheels prior to clamping

Each time before clamping, the grinding wheels must be cleaned and checked for damage by means of visual inspection.

The sound test should be repeated. Damaged grinding wheels must not be mounted.

For the sound test, lightweight grinding wheels are pushed onto a mandrel or shaft, heavy grinding wheels are placed on a firm floor.

The grinding wheel is tapped with a non-metal object at several points.

An undamaged grinding wheel gives a clear ring, while a damaged on gives a dull or clanking sound.

All contact surfaces on grinding wheels, intermediate layers and wheel flanges must be level (flat) and be free from foreign bodies. Foreign particles between grinding wheels and wheel flanges create pressure points and stresses, which can lead to breakage of the grinding wheel.

Clamping methods for grinding wheels

Depending on the type of machine and grinding method, as well as the grinding wheel shape, a distinction can be made between the following clamping methods

- Mounting in the central bore using wheel flanges
- Mounting using embedded fixing elements
- Mounting using support plates
- Mounting using clamping head

Mounting in the central bore using wheel flanges

A distinction should be made between the following wheel flange types for central bores

- Recessed wheel flange
- Straight wheel flanges for portable grinding machines
- Special flanges
- Stepped flanges
- Locating flanges and tapered wheel flanges

The purpose of the wheel flanges is to transfer drive forces. They must therefore be in such a condition that there is no deformation of the wheel flange during clamping. The contact surfaces must be level (flat) and must not show any burring, and the run-out of the grinding wheel must be safeguarded.

Only wheel flanges that have the same external diameter and the same shape on the contact side may be used. They must be recessed so that only a ring-shaped area of the wheel flange is on the surface.

Clamping using embedded fixing elements

The grinding wheels are fixed using embedded fixing ele- ments on the grinding machine. Examples of this are the clamping of cylindrical and taper cup wheels, or the fixing of mounted points with embedded steel shafts in collets on portable grinding machines.

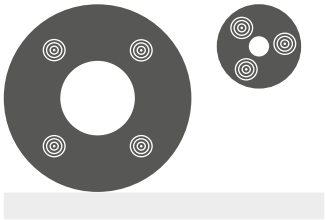
Clamping of grinding wheels on support plates

The grinding wheels are either cemented or fixed with inserted nuts.

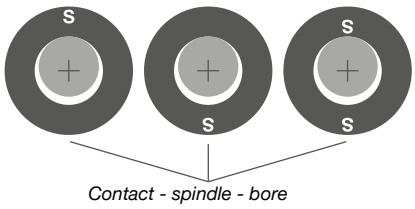
Clamping of grinding segments in clamping heads

Grinding segments are clamped to one grinding unit (segment head) in clamping heads. On the contact surfaces between the grinding segments and the clamping pieces, adhesive strips can be placed on the grinding segments to avoid stresses in the grinding segments.

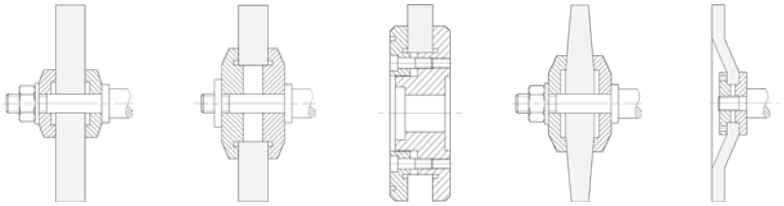
Notes



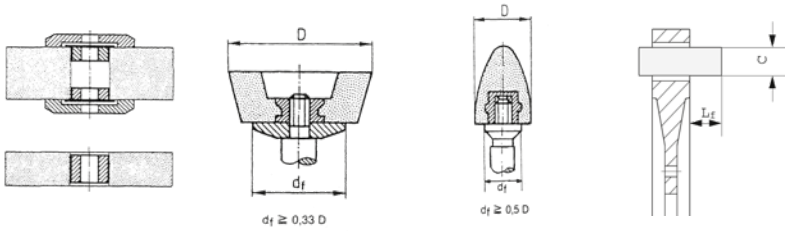
Examples of tapping points during the sound test



Examples of identifying wheel orientation



Recessed wheel flange | Stepped flange | Locating flange | Tapered wheel flange | Straight wheel flange



Example of the correct way to use reducing rings | Clamping of taper cup wheels with a thread insert | Clamping of a grinding cone, shape 16, with a thread insert | Clamping of grinding segments in clamping heads Lf = 1.5 C

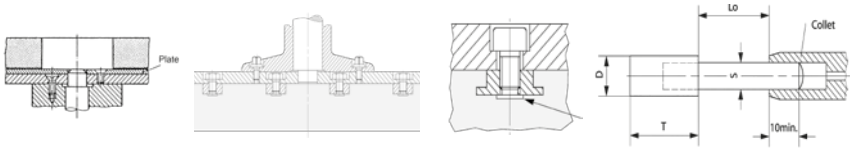


Figure 1 | Figure 2 | Figure 3 | Figure 4

Fig. 1: Grinding wheel, cemented
Fig. 2: Grinding wheel with inserted nuts
Fig. 3: Correct bolt connection, bolt end must not touch the base of the grinding wheel
Fig. 4: Clamping of mounted points

Test run prior to start-up

Every grinding wheel without a diameter restriction must undergo a test run at maximum operating speed before being used for the first time and after every re-clamping.

The duration of a test run is one minute.

The test run may only be carried out once the danger zone has been secured and – where the grinding wheel must be used with the machine guard – this has been placed on it. The grinding wheel can only be used for the intended work once the test run has been passed without complaint.

Eye protection and protective clothing

All grinding tasks where people are at risk form flying particle off grinding wheels or workpieces must only be carried out using eye protection (safety glasses) and when necessary, other protective clothing (e.g. leather apron and leather gloves).

Summary

The most important points for safe use of grinding wheels are summarised again below:

- Adjustment of the machine data to the identification data
- Checking of grinding wheels prior to mounting
- Mounting carried out by skilled people
- Checking of the functionality of the machine guard
- Test run of grinding wheels prior to grinding work
- Personal safety

Notes

Safety information


Use gloves


Use dust mask


Wet grinding


Not permitted for side grinding


Use eye protection


Declaration of conformity, EN safety standard


Dry grinding


No freehand work


Use ear protection


Pay attention to the safety recommendations


Do not use damaged wheels



Free from Fe, S, Cl

Do’s & don’ts

- ✓ Handle and store grinding tools carefully; use the oldest tools first.
- ✓ Prior to mounting or use, grinding wheels must be cleaned and undergo a visual check for cracks or possible damage.
- ✓ Ceramic bonded grinding tools must undergo a sound check before mounting.
- ✓ Make sure that the speed of the machine (RPM) does not exceed the maximum operating speed specified on the packaging or on the abrasive.
- ✓ Ensure that the bore of the grinding tool – with or without thread – fits the shaft of the machine perfectly; and that the wheel flanges are clean, flat, the same size and suitable for the grinding tool to be clamped.
- ✓ As intended or supplied, use the intermediate layers between the grinding wheel and wheel flanges.
- ✓ Only use machines with protection/guards and ensure their proper condition and fixture before the machine is switched on.
- ✓ After each mounting, carry out a test run for at least one minute at the operating speed and ensure machine guard is mounted correctly. In doing so, ensure that any fragments would not be able to hit you or someone else in the event of a possible breakage.
- ✓ Eye protection is always recommended for all grinding processes. For off-hand grinding, protective goggles or a safety mask is recommended.
- ✓ When working with cut-off or roughing wheels, ensure that the air supply and protective measures sufficiently correspond with the material to be processed. Suitable extraction systems should be fitted for all dry grinding processes.
- ✓ Only use machines that are also suitable for grinding tools with hub.
- ✓ Before stopping the machine, cut off the supply of cooling lubricant and remove the excess cooling lubricant from the grinding wheel.

- × Do not use abrasives that are exposed to particularly humid/wet conditions or high temperatures prior to mounting.
- × Never use abrasives that have been dropped, damaged or that look like they would not be fit for purpose.
- × Never exceed the maximum permissible operating speed specified.
- × Do not use wheel flanges with surfaces that are not free of foreign bodies (e. g. grinding swarf), flat or burrfree.
- × Do not tighten the clamping device or wheel flange too much.
- × Do not use recessed wheel flanges or flanges with recesses for grinding discs or cones.
- × Never use force when clamping and do not make any changes to the grinding tool.
- × Only use one-way adapters (hubs) once.
- × Only switch on the machine when the protection cover is correctly and securely fixed (machine guards or covers should be set in such a way that they divert sparks and grinding particles away from the body).
- × Only start the machine if there is no contact between the workpiece and the grinding tool.
- × Never work with grinding tools without sufficient air supply (never without breathing apparatus and ear protection, particularly in enclosed spaces) and without personal safety equipment (see pictogram).
- × Use a suitable grinding tool – an unsuitable product can create excessive grinding particles and dust.
- × Avoid mechanical damage to the grinding wheel as a result of force effects, jolting or heating.
- × Never use grinding machines in an improper condition or that contain faulty components.
- × Do not use cut-off wheels for grinding work (do not exert a lateral load on any cut-off wheels of shape 41 or 42).
- × Never mount more than one grinding tool on one shaft.
- × Never use grinding tools after the indicated expiry date. This is expressed as a month and year (e.g. 04/2016) and is usually located on the metal ring around the bore on cut-off or roughing wheels. On other tool types (e.g. cup wheels), the expiry date may also be located on the label.

Notes

Speed recommendations

Rotational speeds and peripheral speeds depending on the external diameter Ø=D of the grinding wheels.

	Rotations n per minute min-1 depends on external diameter D of grinding wheel and the maximum operating speed V_s										
	Maximum operating speed V_s in m/s										
D in mm	**16**	**20**	**25**	**32**	**35**	**40**	**50**	**63**	**80**	**100**	**125**
3											
4	75 300	95 400									
5	61 100	76 300	95 400								
6	50 900	63 600	79 500								
8	38 100	47 700	59 600	76 300	83 500	95 400					
10	30 500	38 100	47 700	61 100	66 800	76 300	95 400				
13	23 500	29 300	36 700	47 000	51 400	58 700	73 400	92 500			
16	19 000	23 800	29 800	38 100	41 700	47 700	59 600	75 200	95 400		
20	15 200	19 000	23 800	30 500	33 400	38 100	47 700	60 100	76 300	95 400	
25	12 200	15 200	19 000	24 400	26 700	30 500	38 100	48 100	61 100	76 300	95 400
32	9 540	11 900	14 900	19 000	20 800	23 800	29 800	37 600	47 700	59 600	74 600
35	8 730	10 900	13 600	17 400	19 000	21 800	27 200	34 300	43 600	54 400	68 200
40	7 630	9 540	11 900	15 200	16 700	19 000	23 800	30 000	38 100	47 700	59 600
50	6 110	7 630	9 540	12 200	13 300	15 200	19 000	24 000	30 500	38 100	47 700
63	4 850	6 060	7 570	9 700	10 600	12 100	15 100	10 000	24 200	30 300	37 800
80	3 810	4 770	5 960	7 630	8 350	9 540	11 900	15 000	19 000	23 800	29 800
100	3 050	3 810	4 770	6 110	6 680	7 630	9 540	12 000	15 200	19 000	23 800
115	2 650	3 320	4 150	5 310	5 810	6 640	8 300	10 400	13 200	16 600	20 700
125	2 440	3 050	3 810	4 880	5 340	6 110	7 630	9 620	12 200	15 200	19 000
150	2 030	2 540	3 180	4 070	4 450	5 090	6 360	8 020	10 100	12 700	15 900
175	1 740	2 180	2 720	3 490	3 810	4 360	5 450	6 870	8 730	10 900	13 600
180	1 690	2 120	2 650	3 390	3 710	4 240	5 300	6 680	8 480	10 600	13 200
200	1 520	1 900	2 380	3 050	3 340	3 810	4 770	6 010	7 630	9 540	11 900
225	1 350	1 690	2 120	2 710	2 970	3 390	4 240	5 340	6 790	8 480	10 600
230	1 320	1 660	2 070	2 650	2 900	3 320	4 150	5 230	6 640	8 300	10 300
250	1 220	1 520	1 900	2 440	2 670	3 050	3 810	4 810	6 110	7 630	9 540
300	1 010	1 270	1 590	2 030	2 220	2 540	3 180	4 010	5 090	6 360	7 950
350	870	1 090	1 360	1 740	1 900	2 180	2 720	3 430	4 360	5 450	6 820
400	760	950	1 190	1 520	1 670	1 900	2 380	3 000	3 810	4 770	5 960
450	670	840	1 060	1 350	1 480	1 690	2 120	2 670	3 390	4 240	5 300
500	610	760	950	1 220	1 330	1 520	1 900	2 400	3 050	3 810	4 770
600	500	630	790	1 010	1 110	1 270	1 590	2 000	2 540	3 180	3 970
700	430	540	680	870	950	1 090	1 360	1 710	2 180	2 720	3 410
750	400	500	630	810	890	1 010	1 270	1 600	2 030	2 540	3 180
800	380	470	590	760	830	950	1 190	1 500	1 900	2 380	2 980
900	330	420	530	670	740	840	1 060	1 330	1 690	2 120	2 650
1 000	300	380	470	610	660	760	950	1 200	1 520	1 900	2 380
1 060	280	360	450	570	630	720	900	1 130	1 440	1 800	2 250
1 250	250	310	390	500	550	630	790	1 000	1 270	1 590	1 980
1 500	200	250	310	400	440	500	630	800	1 010	1 270	1 590

Notes



Safety diamond tool

Notes

Diamond tool
Recommended RPM

	Revolutions per minute [RPM] depending on the external tool diameter [D] and the operating speed [V_s]						
	Recommended operating speed V_s in m/s						
	Drilling		**Sawing**			**Dry-cutting**	
D in mm	**2**	**3**	**40**	**50**	**60**	**80**	**100**
14	2 730	4 090					
16	2 390	3 580					
20	1 910	2 860					
25	1 530	2 290					
32	1 190	1 790					
42	910	1 360					
52	730	1 100					
62	620	920					
72	530	800					
82	470	700					
100	380	570	7 640	9 550	11 460	15 280	19 100
115	330	500	6 640	8 300	9 960	13 290	16 610
125	310	460	6 110	7 640	9 170	12 220	15 280
150	250	380	5 090	6 370	7 640	10 190	12 730
180	210	320	4 240	5 310	6 370	8 490	10 610
200	190	290	3 820	4 770	5 730	7 640	9 550
230	170	250	3 320	4 150	4 980	6 640	8 300
250	150	230	3 060	3 820	4 580	6 110	7 640
300	130	190	2 550	3 180	3 820	5 090	6 370
350	110	160	2 180	2 730	3 270	4 370	5 460
400	100	140	1 910	2 390	2 860	3 820	4 770
450	80	130	1 700	2 120	2 550	3 400	4 240
500	80	110	1 530	1 910	2 290		
600	60	100	1 270	1 590	1 910		
700	50	80	1 090	1 360	1 640		
800	50	70	950	1 190	1 430		
900	40	60	850	1 060	1 270		
1 000	40	60	760	950	1 150		
1 200	30	50	640	800	950		

Notes

Trouble-shooting
Wet core drill

1. Excessive wear of diamond segments

- Insufficient coolant supply. Adjust the water supply and/or check the water lines.
- The operating speed of the core drill is too low. Increase the RPM (see RPM recommendations).
- The engine power is too high. Match the motor power to the drilling diameter.
- The machine is vibrating. Fix the drill rig and/or check the general state of the machine (e.g. bearings and rollers).
- The selected core drill may not be suitable for the material being drilled, or the material is too abrasive. Use a harder specification (e.g. CDL - CDM).

2. Excessive wear of the steel tube

- The machine is vibrating. Fix the drill rig and/or check the general state of the machine (e.g. bearings and rollers) .
- The core drill is warped / is not running true.
- The core drill is not fixed properly. Check if the core drill is aligned with the motor spindle.
- There are remains in the hole, which have not been removed by the coolant. Increase the coolant supply temporarily.
- You are drilling in loose material (e.g. gravel).

3. Broken segments

- In case of brazed segments, a short interruption of the cooling can lead to overheating and thus to a destruction of the soldered joint.
- The core drill has struck multiple times against reinforcements or fragments. Remove all loose steel and segment parts before introducing a new core drill.
- The core drill is cutting into loose reinforcement. Reduce the RPM when drilling reinforcements in order to avoid damage to the core drill.

4. Drill bit does not drill

segments are overloaded

Flat segment surface, possible deformation of the segments, high number of pull-outs (>50 %), drill chatters.

- The operating speed is too low. Increase the RPM.
- The grinding pressure is too high. Reduce the pressure.
- The material may be too soft and abrasive for the used specification. Use a harder specification (e.g. CDL - CDM).

5. Drill bit does not drill

segments are underchallenged

Smooth segment surface, polished diamonds (shining, no sharp edges)

- The diamond segments are smooth (polished).
- Re-sharpen the drill bit by drilling into soft, abrasive material or use a TYROLIT sharpening plate.
- The operating speed is too high. Reduce the RPM.
- The grinding pressure is too low. Increase the pressure.
- The engine power is too low. Match the motor power to the drilling diameter.
- Excessive coolant supply, only clear water is coming out of the drill hole (no slurry). Reduce the coolant supply and check the consistency (should be milky/cloudy).
- The material may be too hard for the used specification. Use a softer specification (e.g. CDL - CDM).

6. The core drill is jammed

- Debris is blocked between the core and the tube wall (steel, pieces of material). Remove the drill rig and, using a wrench, turn the core drill alternately in both directions until it can be removed. Take the debris out of the drill hole before introducing a new core drill.
- The drill rig was not fixed correctly and has moved during drilling. Drill rig and core drill are no longer aligned. Align and re-fix the drill rig.

Trouble-shooting **Diamond saw blade**

1. Excessive wear

- The saw blade is not suitable for the material being cut. Use a harder specification.
- Insufficient water supply. Adjust the water supply and/or check the water lines.
- The blade is pounding, which accelerates the wearing. The reasons could be poor bearings, a worn spindle shaft or the use of a too hard specification for the material being cut. Check the state of the machine or use a softer specification.
- The operating speed (RPM) is too low. Use the correct RPM for the diameter of the blade (see RPM recommendations).

2. Undercutting

Undercutting is a condition in which the steel center wears faster than the diamond segment, especially in the areas where the segment and core are joined. This is caused by highly abrasive material grinding against the blade during the sawing operation. Finally this can lead to segment loss.

- Be sure to have sufficient water supply. Only with sufficient water the abrasive grinding slurry will be transported out of the contact zone and will thus reduce the undercutting effect.
- Do not cut into the sub base of the pavement (lose gravel or sand). The loose material scrubs strongly on the body and tips it below the segments.

Caution! For safety reasons, do not use the saw blade any longer!

3. The blade does not cut

- The saw blade is too hard for the material being cut. Check if the specification is appropriate. A glazed blade can be sharpened by cutting into soft, abrasive material.
- The output power of the machine is insufficient to permit the blade to cut properly. Make sure that the specification is appropriate for the machine power and the material being cut. Repeatedly check the tension of the V-belt in order to guarantee an optimal transmission of power.
- The speed is too high. To reduceThe speed. Should theSpeed can not be changedcan perform the cut inseveral deliveries.
- The blade is not mounted correctly. Look for the correct oneDirection of the saw (direction of rotation arrow).

4. Overheating

Overheating may lead to several problems like loss of core tension, cracks in the steel core and segment loss (in case of brazed segments). Overheating can be identified by a discoloration (blue and/or black oxidation) of the blade or the segments.

- Make sure that wet-cutting saws have a sufficient water supply. Check the water lines and make sure flow is adequate on both sides of blade.
- An excessive cutting pressure leads to overheating of dry-cutting tools. Use several passes of 2 to 5 cm deep for cutting solid materials. On a regular basis, release the pressure on the diamond blade and allow it to rotate freely for cooling in the air. Do not use excessive pressure – the weight of the machine is sufficient.

5. Loss of blade segment

- The machine was not held firmly or the material was not fixed, which caused the blade to twist or jam in the cut. Secure the material firmly while cutting and and maintain a firm grip on the machine.
- The blade is too hard for the material being cut which causes the blade to chatter. Use a softer specification.
- The blade has been undercut. Make sure that there is sufficient water supply and do not cut into the base layer of the pavement (gravel).
- In case of brazed segments, a short interruption of the cooling can lead to overheating and thus to a destruction of the soldered joint.
- The saw has not been mounted correctly and starts to chatter.

Caution! For safety reasons, do not use the saw blade any longer!

Notes

6. Cracks in the segment

- The saw blade is too hard for the material being cut; the saw blade starts to chatter during cutting. Use a softer specification.
- Insufficient cooling supply (overheating). Adjust the water supply and/or check the water lines.

7. Cracks in the steel core

- The saw blade is too hard for the material being cut. Use a softer specification.
- Excessive cutting pressure. Extreme strain on the blade can create material fatigue, which can then lead to a fracture in the steel core.
- The saw blade is chattering. Check the state of the machine (e.g. spindle and bearings) and the mounting of the saw blade.
- The cut is not straight which results in friction and heat. Properly align the machine and do not exert excessive side pressure on the handles as a method of steering. Check the alignment of the drive shaft.

Caution! For safety reasons, do not use the saw blade any longer!

8. Uneven segment wear

- Make sure that wet-cutting saws have a sufficient water supply. Check the water lines and make sure flow is adequate on both sides of blade.
- The saw blade is irregularly worn due to defective bearings, a damaged blade bore or machine spindle. Exchange or repair the bearings and/or spindle. Ensure the engine runs smoothly and does not cause the blade to chatter on a regular cycle basis.
- The cut is not straight which results in friction and heat. Properly align the machine and do not exert excessive side pressure on the handles as a method of steering. Check the alignment of the drive shaft.

9. Loss of tension

- Blade has been overheated. Make sure that wet-cutting saws have sufficient water cooling.
- The saw blade is too hard for this application. The reason for the loss of tension is a high lateral friction.
- Check if the correct RPM has been chosen and if the proper flanges are being used.
- Ensure that the saw blade has been fixed correctly on the spindle. Make sure that drive pins are used for all machines.
- The cut is not straight which results in tension and heat. Properly align the machine and do not exert excessive side pressure on the handles as a method of steering. Check the alignment of the drive shaft.

In case of loss of tension send the saw blade back to the manufacturer for repair.

10. Damaged bore

- The flanges or the spindle are worn out. Check the flanges and spindle for wearing and replace the worn parts.
- The saw blade has not been mounted properly. Ensure that the blade is mounted on the proper diameter of spindle.Fix the wheel flanges properly (with a wrench, not by hand). Do not remove the drive pins, because they guarantee an optimal transmission of power.

Send the saw blade back to the manufacturer for repair.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Quick product search

Notes

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30741	9003170307413	9009010307414	36
30806	9003170308069		428
30840	9003170308403		411
31009	9003170310093	9009010310094	434
31675	9003170316750	9009010316751	434
31694	9003170316941		408
32141	9003170321419	9009010321410	36
32142	9003170321426	9009010321427	36
32765	9003170327657	9009010327658	419

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33199	9003170331999	9009010331990	93
33249	9003170332491	9009010332492	425
33435	9003170334358		410
33531	9003170335317	9009010335318	455
34924	9003170349246	9009010349247	433
34937	9003170349376	9009010349377	390
34983	9003170349833		408
35677	9003170356770	9009010356771	402
35937	9003170359375	9009010359376	32
35944	9003170359443	9009010359444	32
35946	9003170359467	9009010359468	32
35950	9003170359504	9009010359505	32
36890	9003170368902		373
36918	9003170369183		373
38012	9003170380126	9009010380127	438
39110	9003170391108	9009010391109	63
39128	9003170391283	9009010391284	114
39321	9003170393218	9009010393219	36
39540	9003170395403		410
39624	9003170396240	9009010396241	35
39867	9003170398671		362
39869	9003170398695		362
41489	9003170414890	9009010414891	32
41491	9003170414913	9009010414914	32
41492	9003170414920	9009010414921	32
41493	9003170414937	9009010414938	32
41494	9003170414944	9009010414945	32
41495	9003170414951	9009010414952	32
41499	9003170414999	9009010414990	32
41501	9003170415019	9009010415010	32
41504	9003170415040	9009010415041	32
41505	9003170415057	9009010415058	32
41506	9003170415064	9009010415065	32
41507	9003170415071	9009010415072	32
41508	9003170415088	9009010415089	32
41509	9003170415095	9009010415096	32
41511	9003170415118	9009010415119	32
42808	9003170428088	9009010428089	63
42809	9003170428095	9009010428096	64

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43485	9003170434850	9009010434851	484
43490	9003170434904	9009010434905	484
45421	9003170454216	9009010454217	115
45422	9003170454223	9009010454224	115
46586	9003170465861	9009010465862	85
46633	9003170466332	9009010466333	63
47005	9003170470056		425
47009	9003170470094		425
49273	9003170492737	9009010492738	433
49680	9003170496803		412
49856	9003170498562	9009010498563	276
50184	9003170501842		410
50801	9003170508018	9009010508019	206
50845	9003170508452	9009010508453	424
51392	9003170513920	9009010513921	524
51494	9003170514941	9009010514942	424
52223	9003170522236		408
52433	9003170524339	9009010524330	251
52679	9003170526791	9009010526792	157
54119	9003170541190		434
54820	9003170548205	9009010548206	433
55375	9003170553759	9009010553750	424
56155	9003170561556		412
56895	9003170568951	9009010568952	99
57004	9003170570046	9009010570047	93
57005	9003170570053	9009010570054	93
57006	9003170570060	9009010570061	93
58157	9003170581578	9009010581579	61
58158	9003170581585	9009010581586	63
58293	9003170582933	9009010582934	157
58964	9003170589642		412
59543	9003170595438	9009010595439	481
59545	9003170595452	9009010595453	481
59580	9003170595803	9009010595804	481
59861	9003170598613		413
60159	9003170601597	9009010601598	336
60170	9003170601702	9009010601703	336
60184	9003170601849	9009010601840	336
60185	9003170601856	9009010601857	336
60337	9003170603379	9009010603370	336
60351	9003170603515	9009010603516	336
60352	9003170603522	9009010603523	336
60354	9003170603546	9009010603547	336
60572	9003170605724	9009010605725	64
62144	9003170621441	9009010621442	336
62153	9003170621533	9009010621534	336
62154	9003170621540	9009010621541	336
62155	9003170621557	9009010621558	336
62178	9003170621786	9009010621787	336
62180	9003170621809	9009010621800	342
62181	9003170621816	9009010621817	342
62190	9003170621908	9009010621909	342
62194	9003170621946	9009010621947	342
62197	9003170621977	9009010621978	342
62202	9003170622028	9009010622029	342
62212	9003170622127	9009010622128	342
62239	9003170622394	9009010622395	342
62353	9003170623537	9009010623538	342
62384	9003170623841	9009010623842	342
62409	9003170624091	9009010624092	342
62416	9003170624169	9009010624160	342
62419	9003170624190	9009010624191	342
62434	9003170624343	9009010624344	342
62436	9003170624367	9009010624368	342
62437	9003170624374	9009010624375	342
62448	9003170624480	9009010624481	342
62453	9003170624534	9009010624535	342
62471	9003170624718	9009010624719	342
62518	9003170625180	9009010625181	342
62548	9003170625487	9009010625488	342
62694	9003170626941	9009010626942	115
62874	9003170628747	9009010628748	64
63195	9003170631952	9009010631953	434
66490	9003170664905	9009010664906	60
66491	9003170664912	9009010664913	60
66493	9003170664936	9009010664937	60
68134	9003170681346	9009010681347	408
68340	9003170683401		411

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69768	9003170697682	9009010697683	524
69769	9003170697699	9009010697690	524
69833	9003170698337	9009010698338	524
69848	9003170698481	9009010698482	524
69855	9003170698559	9009010698550	524
69856	9003170698566	9009010698567	524
69860	9003170698603	9009010698604	524
70128	9003170701280	9009010701281	434
71212	9003170712125	9009010712126	419
72045	9003170720458		413
73667	9003170736671		411
74492	9003170744928	9009010744929	455
74493	9003170744935	9009010744936	455
74497	9003170744973	9009010744974	455
74499	9003170744997	9009010744998	116
75020	9003170750202	9009010750203	50
75079	9003170750790		412
75193	9003170751933	9009010751934	196
75306	9003170753067	9009010753068	63
75647	9003170756471	9009010756472	115
75669	9003170756693		442
75803	9003170758031	9009010758032	434
75915	9003170759151	9009010759152	455
75934	9003170759342	9009010759343	53
75935	9003170759359	9009010759350	53
75936	9003170759366	9009010759367	53
75937	9003170759373	9009010759374	53
75938	9003170759380	9009010759381	53
76253	9003170762533		172
76618	9003170766180	9009010766181	172
76628	9003170766289	9009010766280	172
76648	9003170766487	9009010766488	172
77824	9003170778244	9009010778245	434
78379	9003170783798	9009010783799	410
78847	9003170788472	9009010788473	434
79292	9003170792929	9009010792920	172
79664	9003170796644	9009010796645	401
79957	9003170799577	9009010799578	63
80653	9003170806534	9009010806535	486
82078	9003170820783	9009010820784	277
82079	9003170820790	9009010820791	277
82646	9003170826464	9009010826465	36
83585	9003170835855	9009010835856	99
84809	9003170848091		434
86734	9003170867344	9009010867345	
87910	9003170879101	9009010879102	279
88905	9003170889056	9009010889057	113
89383	9003170893831	9009010893832	99
89504	9003170895040	9009010895041	115
91441	9003170914413	9009010914414	434
91963	9003170919630	9009010919631	403
94134	9003170941341	9009010941342	337
94204	9003170942041	9009010942042	337
94210	9003170942102	9009010942103	337
94223	9003170942232	9009010942233	337
94234	9003170942348	9009010942349	337
94237	9003170942379	9009010942370	337
95717	9003170957175	9009010957176	403
96205	9003170962056	9009010962057	64
96821	9003170968218	9009010968219	451
97785	9003170977852	9009010977853	115
99864	9003170998642		410
100660	9003171006605	9009011006606	65
100758	9003171007589	9009011007580	113
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101508	9003171015089	9009011015080	114
102804	9003171028041		428
102813	9003171028133	9009011028134	38
102814	9003171028140	9009011028141	61
102831	9003171028317	9009011028318	61
102850	9003171028508	9009011028509	61
102859	9003171028591	9009011028592	61
102902	9003171029024	9009011029025	438
103283	9003171032833	9009011032834	472
103394	9003171033946	9009011033947	114
103622	9003171036220	9009011036221	401
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104604	9003171046045	9009011046046	112
104894	9003171048940	9009011048941	115
104962	9003171049626	9009011049627	111
104968	9003171049688	9009011049689	111
105009	9003171050097	9009011050098	114
105367	9003171053678	9009011053679	112
106372	9003171063721	9009011063722	115
107050	9003171070507	9009011070508	425
108261	9003171082616	9009011082617	112
108262	9003171082623	9009011082624	112
108479	9003171084795	9009011084796	435
109381	9003171093810		172
110032	9003171100327		408
110554	9003171105544	9009011105545	425
111434	9003171114348	9009011114349	414
111436	9003171114362	9009011114363	414
111567	9003171115673	9009011115674	260
111570	9003171115703	9009011115704	260
111577	9003171115772	9009011115773	260
111584	9003171115840	9009011115841	260
111585	9003171115857	9009011115858	260
111611	9003171116113	9009011116114	260
111631	9003171116311	9009011116312	260
111799	9003171117998	9009011117999	411
112055	9003171120554		455
112204	9003171122046	9009011122047	261
112205	9003171122053	9009011122054	261
112242	9003171122428	9009011122429	261
112254	9003171122541	9009011122542	261
112273	9003171122732	9009011122733	261
112283	9003171122831	9009011122832	261
112298	9003171122985	9009011122986	261
112398	9003171123982	9009011123983	258
112401	9003171124019	9009011124010	258
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112469	9003171124699	9009011124690	259
112471	9003171124712	9009011124713	259
112486	9003171124866	9009011124867	259
112493	9003171124934	9009011124935	259
112494	9003171124941	9009011124942	259
112510	9003171125108	9009011125109	259
112527	9003171125276	9009011125277	259
112532	9003171125320	9009011125321	259
112542	9003171125429	9009011125420	113
112543	9003171125436	9009011125437	262
112546	9003171125467	9009011125468	262
112550	9003171125504	9009011125505	262
112551	9003171125511	9009011125512	262
112581	9003171125818	9009011125819	262
112588	9003171125887	9009011125888	262
112589	9003171125894	9009011125895	262
112590	9003171125900	9009011125901	262
112591	9003171125917	9009011125918	262
112592	9003171125924	9009011125925	262
112593	9003171125931	9009011125932	262
112599	9003171125993	9009011125994	262
112602	9003171126020	9009011126021	264
112603	9003171126037	9009011126038	264
112917	9003171129175	9009011129176	260
112918	9003171129182	9009011129183	260
112923	9003171129236	9009011129237	260
112924	9003171129243	9009011129244	260
112928	9003171129281	9009011129282	260
112934	9003171129342	9009011129343	260
112935	9003171129359	9009011129350	260
112937	9003171129373	9009011129374	260
112947	9003171129472	9009011129473	260
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113031	9003171130317	9009011130318	260
113057	9003171130577	9009011130578	260
113059	9003171130591	9009011130592	260
113299	9003171132991	9009011132992	117
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116065	9003171160659	9009011160650	257
116097	9003171160970	9009011160971	257
116111	9003171161113	9009011161114	257
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116127	9003171161274	9009011161275	257
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116152	9003171161526	9009011161527	257
116708	9003171167085		408
116725	9003171167252	9009011167253	113
116973	9003171169737	9009011169738	114
117064	9003171170641	9009011170642	81
117065	9003171170658	9009011170659	81
117068	9003171170689	9009011170680	81
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117071	9003171170719	9009011170710	81
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117074	9003171170740	9009011170741	81
117871	9003171178715		455
119325	9003171193251	9009011193252	437
119395	9003171193954	9009011193955	65
120033	9003171200331	9009011200332	113
120653	9003171206531	9009011206532	313
120667	9003171206678	9009011206679	313
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120674	9003171206746	9009011206747	313
120676	9003171206760	9009011206761	313
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120688	9003171206883	9009011206884	313
120689	9003171206890	9009011206891	313
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120772	9003171207729	9009011207720	321
120774	9003171207743	9009011207744	321
120777	9003171207774	9009011207775	321
120779	9003171207798	9009011207799	321
120781	9003171207811	9009011207812	321
120787	9003171207873	9009011207874	321
121878	9003171218787	9009011218788	25
122868	9003171228687	9009011228688	114
122989	9003171229899	9009011229890	434
122996	9003171229967		411
122997	9003171229974		411
123222	9003171232226	9009011232227	424
123633	9003171236330	9009011236331	412
123644	9003171236446	9009011236447	112
123696	9003171236965	9009011236966	112
123716	9003171237160		427
126245	9003171262452	9009011262453	434
126460	9003171264609	9009011264600	112
126665	9003171266658		410
126781	9003171267815		455
127356	9003171273564	9009011273565	390
127554	9003171275544		411
127775	9003171277753	9009011277754	115
128345	9003171283457	9009011283458	171
129260	9003171292602	9009011292603	112
129550	9003171295504		410
130009	9003171300093	9009011300094	114
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131779	9003171317794	9009011317795	265
131783	9003171317831	9009011317832	265
131784	9003171317848	9009011317849	265
131786	9003171317862	9009011317863	265
131991	9003171319910	9009011319911	433
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136193	9003171361933	9009011361934	282
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136777	9003171367775	9009011367776	58
139155	9003171391558		435
139648	9003171396485	9009011396486	206
139651	9003171396515	9009011396516	206
139653	9003171396539	9009011396530	206
140022	9003171400229	9009011400220	58
141512	9003171415124	9009011415125	50
146601	9003171466010	9009011466011	115
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146640	9003171466409	9009011466400	402
146644	9003171466447		413
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147701	9003171477016		409
148132	9003171481327	9009011481328	65
148517	9003171485172	9009011485173	115
148718	9003171487183	9009011487184	281
148722	9003171487220	9009011487221	282
150085	9003171500851	9009011500852	114
150402	9003171504026		426
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154545	9003171545456	9009011545457	88
157800	9003171578003	9009011578004	65
159000	9003171590005		425
160229	9003171602296	9009011602297	200
160230	9003171602302	9009011602303	200
160235	9003171602357	9009011602358	200
160240	9003171602401	9009011602402	200
160242	9003171602425	9009011602426	200
160244	9003171602449	9009011602440	200
160245	9003171602456	9009011602457	200
160246	9003171602463	9009011602464	200
160247	9003171602470	9009011602471	200
160249	9003171602494	9009011602495	201
160251	9003171602517	9009011602518	201
160252	9003171602524	9009011602525	201
160254	9003171602548	9009011602549	201
160255	9003171602555	9009011602556	201
160256	9003171602562	9009011602563	201
161678	9003171616781	9009011616782	426
164485	9003171644852	9009011644853	64
165940	9003171659405	9009011659406	62
167205	9003171672053	9009011672054	62
167207	9003171672077	9009011672078	62
167215	9003171672152	9009011672153	62
167226	9003171672268	9009011672269	62
167333	9003171673333	9009011673334	62
167334	9003171673340	9009011673341	62
167339	9003171673395	9009011673396	62
169096	9003171690965	9009011690966	113
169543	9003171695434	9009011695435	112
170599	9003171705997	9009011705998	93
172352	9003171723526	9009011723527	426
175220	9003171752205	9009011752206	402
179959	9003171799590		426
184247	9003171842470		411
185988	9003171859881	9009011859882	399

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186109	9003171861099	9009011861090	399
186445	9003171864458	9009011864459	434
194540	9003171945409	9009011945400	438
195112	9003171951127	9009011951128	454
196324	9003171963243	9009011963244	58
199657	9003171996579	9009011996570	176
199678	9003171996784	9009011996785	179
199682	9003171996821	9009011996822	177
199689	9003171996890	9009011996891	178
202159	9003172021591	9009012021592	63
203176	9003172031767	9009012031768	434
205056	9003172050560	9009012050561	219
205058	9003172050584	9009012050585	219
205060	9003172050607	9009012050608	219
205822	9003172058221	9009012058222	64
210314	9003172103143		434
216789	9003172167893	9009012167894	434
220394	9003172203942	9009012203943	64
222042	9003172220420	9009012220421	37
222043	9003172220437	9009012220438	89
222044	9003172220444	9009012220445	31
222045	9003172220451	9009012220452	51
222858	9003172228587	9009012228588	79
222860	9003172228600	9009012228601	79
222861	9003172228617	9009012228618	79
222863	9003172228631	9009012228632	80
222865	9003172228655	9009012228656	80
222868	9003172228686	9009012228687	80
222870	9003172228709	9009012228700	80
222873	9003172228730	9009012228731	89
222889	9003172228891	9009012228892	89
222898	9003172228983	9009012228984	89
222997	9003172229973	9009012229974	30
222998	9003172229980	9009012229981	30
222999	9003172229997	9009012229998	30
223000	9003172230009	9009012230000	30
223002	9003172230023	9009012230024	30
223012	9003172230122	9009012230123	37
223015	9003172230153	9009012230154	37
223019	9003172230191	9009012230192	37

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223021	9003172230214	9009012230215	31
223022	9003172230221	9009012230222	31
223023	9003172230238	9009012230239	31
223025	9003172230252	9009012230253	37
223027	9003172230276	9009012230277	37
223029	9003172230290	9009012230291	37
223031	9003172230313	9009012230314	37
223032	9003172230320	9009012230321	59
223033	9003172230337	9009012230338	59
223035	9003172230351	9009012230352	51
223037	9003172230375	9009012230376	51
223039	9003172230399	9009012230390	51
223040	9003172230405	9009012230406	51
223042	9003172230429	9009012230420	51
223043	9003172230436	9009012230437	51
223129	9003172231297	9009012231298	54
223132	9003172231327	9009012231328	54
223134	9003172231341		54
223136	9003172231365	9009012231366	54
226295	9003172262956		425
226679	9003172266794		426
226680	9003172266800		426
227165	9003172271651	9009012271652	63
227435	9003172274355	9009012274356	171
227450	9003172274508	9009012274509	113
230691	9003172306919	9009012306910	64
232811	9003172328119		389
233756	9003172337562	9009012337563	86
233757	9003172337579	9009012337570	86
233759	9003172337593	9009012337594	86
233760	9003172337609	9009012337600	86
233762	9003172337623	9009012337624	86
233765	9003172337654	9009012337655	86
233768	9003172337685	9009012337686	86
233771	9003172337715	9009012337716	86
233773	9003172337739	9009012337730	86
233774	9003172337746	9009012337747	86
233776	9003172337760	9009012337761	86
233777	9003172337777	9009012337778	86
233778	9003172337784	9009012337785	86

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234390	9003172343907		388
236318	9003172363189	9009012363180	89
236319	9003172363196	9009012363197	89
236320	9003172363202	9009012363203	89
237227	9003172372273		426
239448	9003172394480	9009012394481	282
241413	9003172414133	9009012414134	98
241857	9003172418575		426
243069	9003172430690	9009012430691	206
243071	9003172430713	9009012430714	206
244477	9003172444772		427
246982	9003172469829	9009012469820	256
246984	9003172469843	9009012469844	256
246985	9003172469850	9009012469851	256
246986	9003172469867	9009012469868	256
246987	9003172469874	9009012469875	207
246988	9003172469881	9009012469882	207
246990	9003172469904	9009012469905	207
246994	9003172469942	9009012469943	207
246995	9003172469959	9009012469950	207
246996	9003172469966	9009012469967	207
246998	9003172469980	9009012469981	207
247001	9003172470016		207
247165	9003172471655	9009012471656	207
247175	9003172471754	9009012471755	207
247366	9003172473666	9009012473667	207
250165	9003172501659	9009012501650	30
250169	9003172501697	9009012501698	30
250491	9003172504919		451
251584	9003172515847	9009012515848	455
252911	9003172529110	9009012529111	520
252912	9003172529127	9009012529128	520
252913	9003172529134	9009012529135	521
252914	9003172529141	9009012529142	521
252915	9003172529158	9009012529159	521
252916	9003172529165	9009012529166	521
252917	9003172529172	9009012529173	521
252918	9003172529189	9009012529180	521
252919	9003172529196	9009012529197	521

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252921	9003172529219	9009012529210	521
252923	9003172529233	9009012529234	521
252924	9003172529240	9009012529241	521
255451	9003172554518	9009012554519	50
255835	9003172558356	9009012558357	438
261732	9003172617329		172
263249	9003172632490	9009012632491	282
263506	9003172635064		412
272894	9003172728940	9009012728941	58
275634	9003172756349	9009012756340	99
278979	9003172789798	9009012789799	65
281719	9003172817194	9009012817195	410
282079	9003172820798	9009012820799	63
282085	9003172820859	9009012820850	63
282110	9003172821108	9009012821109	63
282111	9003172821115	9009012821116	63
282113	9003172821139	9009012821130	63
282114	9003172821146	9009012821147	64
282149	9003172821498	9009012821499	32
282150	9003172821504	9009012821505	32
289327	9003172893273	9009012893274	256
289329	9003172893297	9009012893298	256
289330	9003172893303	9009012893304	256
291120	9003172911205	9009012911206	424
291587	9003172915876	9009012915877	32
291588	9003172915883	9009012915884	32
291948	9003172919485	9009012919486	31
293641	9003172936413	9009012936414	251
293643	9003172936437	9009012936438	251
293644	9003172936444	9009012936445	251
293645	9003172936451	9009012936452	251
293737	9003172937373	9009012937374	251
293738	9003172937380	9009012937381	251
293739	9003172937397	9009012937398	251
293740	9003172937403		252
293790	9003172937908	9009012937909	251
299269	9003172992693	9009012992694	44
299270	9003172992709	9009012992700	45
307876	9003173078761	9009013078762	50

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309469	9003173094693	9009013094694	58
309471	9003173094716	9009013094717	61
310183	9003173101834	9009013101835	98
310184	9003173101841	9009013101842	98
310303	9003173103036	9009013103037	149
310305	9003173103050	9009013103051	150
310504	9003173105047	9009013105048	112
310980	9003173109809	9009013109800	99
310992	9003173109922	9009013109923	100
310993	9003173109939	9009013109930	100
310994	9003173109946	9009013109947	100
310995	9003173109953	9009013109954	100
310997	9003173109977	9009013109978	98
311096	9003173110966	9009013110967	98
313127	9003173131275	9009013131276	452
313466	9003173134665	9009013134666	452
313636	9003173136362		426
314463	9003173144633	9009013144634	99
315877	9003173158777	9009013158778	452
316272	9003173162729	9009013162720	452
316286	9003173162866	9009013162867	452
317307	9003173173077	9009013173078	99
318070	9003173180709	9009013180700	99
320074	9003173200742	9009013200743	100
320075	9003173200759	9009013200750	100
320369	9003173203699	9009013203690	419
321211	9003173212110	9009013212111	100
321395	9003173213957	9009013213958	98
323970	9003173239704	9009013239705	44
323976	9003173239766	9009013239767	44
323978	9003173239780	9009013239781	44
324303	9003173243039	9009013243030	45
324402	9003173244029	9009013244020	44
324404	9003173244043	9009013244044	44
325212	9003173252123	9009013252124	44
325219	9003173252192	9009013252193	45
325222	9003173252222	9009013252223	45
325224	9003173252246	9009013252247	45
325228	9003173252284	9009013252285	45
326214	9003173262146	9009013262147	100

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330772	9003173307724	9009013307725	115
331500	9003173315002	9009013315003	434
331997	9003173319970	9009013319971	452
333180	9003173331804		412
335803	9003173358030		438
336499	9003173364994	9009013364995	100
337051	9003173370513	9009013370514	436
338237	9003173382370	9009013382371	434
342583	9003173425831	9009013425832	99
348387	9003173483879	9009013483870	475
351386	9003173513866	9009013513867	98
351767	9003173517673	9009013517674	454
355251	9003173552513	9009013552514	53
357223	9003173572238		443
362775	9003173627754	9009013627755	402
363249	9003173632499	9009013632490	452
363478	9003173634783	9009013634784	50
364685	9003173646854	9009013646855	434
365824	9003173658246	9009013658247	434
366888	9003173668887	9009013668888	36
367377	9003173673775	9009013673776	75
367545	9003173675458	9009013675459	84
367546	9003173675465	9009013675466	89
367548	9003173675489	9009013675480	84
367549	9003173675496	9009013675497	89
367550	9003173675502	9009013675503	84
367551	9003173675519	9009013675510	84
367552	9003173675526	9009013675527	89
367553	9003173675533	9009013675534	84
367554	9003173675540	9009013675541	84
367556	9003173675564	9009013675565	84
367557	9003173675571	9009013675572	89
367565	9003173675656	9009013675657	22
367566	9003173675663	9009013675664	37
367569	9003173675694	9009013675695	22
367572	9003173675724	9009013675725	37
367574	9003173675748	9009013675749	22
367575	9003173675755	9009013675756	33
367577	9003173675779	9009013675770	34
367578	9003173675786	9009013675787	22

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367582	9003173675823	9009013675824	34
367583	9003173675830	9009013675831	22
367585	9003173675854	9009013675855	37
367771	9003173677711	9009013677712	75
367772	9003173677728	9009013677729	75
367773	9003173677735	9009013677736	75
367775	9003173677759	9009013677750	75
367776	9003173677766	9009013677767	33
367777	9003173677773	9009013677774	34
367781	9003173677810	9009013677811	22
367782	9003173677827	9009013677828	37
367783	9003173677834	9009013677835	34
367785	9003173677858	9009013677859	22
367786	9003173677865	9009013677866	22
367787	9003173677872	9009013677873	37
367788	9003173677889	9009013677880	34
367789	9003173677896	9009013677897	22
367791	9003173677919	9009013677910	34
367800	9003173678008	9009013678009	22
367801	9003173678015	9009013678016	37
367802	9003173678022	9009013678023	34
367803	9003173678039	9009013678030	22
367804	9003173678046	9009013678047	37
372339	9003173723395	9009013723396	281
373520	9003173735206	9009013735207	64
377415	9003173774151	9009013774152	410
377664	9003173776643	9009013776644	98
384753	9003173847534	9009013847535	50
384754	9003173847541	9009013847542	50
384755	9003173847558	9009013847559	50
384756	9003173847565	9009013847566	50
384757	9003173847572	9009013847573	50
384758	9003173847589	9009013847580	50
384759	9003173847596	9009013847597	54
384764	9003173847640	9009013847641	54
386002	9003173860021	9009013860022	50
388126	9003173881262	9009013881263	281
390531	9003173905319	9009013905310	59
390532	9003173905326	9009013905327	59

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391718	9003173917183	9009013917184	455
395773	9003173957738	9009013957739	455
396678	9003173966785	9009013966786	58
407610	9003174076100		411
408229	9003174082293	9009014082294	58
408496	9003174084969	9009014084960	33
413027	9003174130277		451
413774	9003174137740		411
416671	9003174166719		438
422374	9003174223740	9009014223741	61
424846	9003174248460	9009014248461	100
433020	9003174330202	9009014330203	278
433039	9003174330394	9009014330395	278
436472	9003174364726	9009014364727	
437634	9003174376347	9009014376348	425
438088	9003174380887	9009014380888	434
439059	9003174390596	9009014390597	104
439061	9003174390619	9009014390610	104
441033	9003174410331	9009014410332	117
441203	9003174412038	9009014412039	104
441204	9003174412045	9009014412046	104
441206	9003174412069	9009014412060	104
441207	9003174412076	9009014412077	104
441219	9003174412199	9009014412190	104
441223	9003174412236	9009014412237	104
441224	9003174412243	9009014412244	104
441226	9003174412267	9009014412268	104
441231	9003174412311	9009014412312	104
441233	9003174412335	9009014412336	104
441241	9003174412410	9009014412411	104
441243	9003174412434	9009014412435	104
441245	9003174412458	9009014412459	104
441247	9003174412472	9009014412473	105
441248	9003174412489	9009014412480	105
441250	9003174412502	9009014412503	105
441302	9003174413028		425
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443944	9003174439448	9009014439449	451
446432	9003174464327		452

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448482	9003174484820	9009014484821	451
448603	9003174486039	9009014486030	424
449559	9003174495598		410
450328	9003174503286		413
451151	9003174511519	9009014511510	434
454393	9003174543930	9009014543931	206
454396	9003174543961	9009014543962	206
455124	9003174551249	9009014551240	424
455303	9003174553038	9009014553039	206
455312	9003174553120	9009014553121	206
455314	9003174553144	9009014553145	206
457370	9003174573708	9009014573709	281
458028	9003174580287	9009014580288	201
458029	9003174580294	9009014580295	201
458030	9003174580300	9009014580301	201
458031	9003174580317	9009014580318	201
458033	9003174580331	9009014580332	201
458034	9003174580348	9009014580349	201
458587	9003174585879	9009014585870	206
460744	9003174607441	9009014607442	60
460976	9003174609766	9009014609767	455
461239	9003174612391	9009014612392	425
464290	9003174642909	9009014642900	455
464537	9003174645375	9009014645376	466
464539	9003174645399	9009014645390	466
464540	9003174645405	9009014645406	466
464543	9003174645436	9009014645437	466
464544	9003174645443	9009014645444	466
464545	9003174645450	9009014645451	482
464546	9003174645467	9009014645468	482
464549	9003174645498	9009014645499	482
464551	9003174645511	9009014645512	482
464552	9003174645528	9009014645529	482
464553	9003174645535	9009014645536	482
464555	9003174645559	9009014645550	482
464556	9003174645566	9009014645567	482
464698	9003174646983	9009014646984	470
464853	9003174648536	9009014648537	482
464854	9003174648543	9009014648544	482

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464855	9003174648550	9009014648551	482
464858	9003174648581	9009014648582	482
464859	9003174648598	9009014648599	482
465489	9003174654896	9009014654897	468
465492	9003174654926	9009014654927	468
465667	9003174656678	9009014656679	482
466082	9003174660828	9009014660829	467
466083	9003174660835	9009014660836	467
466084	9003174660842	9009014660843	467
466086	9003174660866	9009014660867	467
466087	9003174660873	9009014660874	467
466090	9003174660903	9009014660904	467
466093	9003174660934	9009014660935	483
466094	9003174660941	9009014660942	483
466095	9003174660958	9009014660959	483
466096	9003174660965	9009014660966	483
466098	9003174660989	9009014660980	483
466099	9003174660996	9009014660997	483
466744	9003174667445	9009014667446	81
466749	9003174667490	9009014667491	81
466754	9003174667544	9009014667545	81
466762	9003174667629	9009014667620	81
467266	9003174672661	9009014672662	467
467267	9003174672678	9009014672679	467
467268	9003174672685	9009014672686	467
467271	9003174672715	9009014672716	467
467273	9003174672739	9009014672730	467
467276	9003174672760	9009014672761	467
467280	9003174672807	9009014672808	483
467281	9003174672814	9009014672815	483
467282	9003174672821	9009014672822	483
467285	9003174672852	9009014672853	483
467288	9003174672883	9009014672884	483
467289	9003174672890	9009014672891	483
467414	9003174674146	9009014674147	467
467416	9003174674160	9009014674161	467
467428	9003174674283	9009014674284	467
467430	9003174674306	9009014674307	467
467431	9003174674313	9009014674314	467
467433	9003174674337	9009014674338	482

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467434	9003174674344	9009014674345	482
467435	9003174674351	9009014674352	482
467436	9003174674368	9009014674369	482
467439	9003174674399	9009014674390	482
467443	9003174674436	9009014674437	467
467444	9003174674443	9009014674444	467
467445	9003174674450	9009014674451	467
467446	9003174674467	9009014674468	467
467448	9003174674481	9009014674482	467
468751	9003174687511	9009014687512	384
469619	9003174696193		384
471114	9003174711148		410
474524	9003174745242	9009014745243	82
474526	9003174745266	9009014745267	82
474527	9003174745273	9009014745274	87
474531	9003174745310	9009014745311	87
474532	9003174745327	9009014745328	87
474533	9003174745334	9009014745335	87
474534	9003174745341	9009014745342	87
474535	9003174745358	9009014745359	87
474743	9003174747437	9009014747438	466
474746	9003174747468	9009014747469	466
474751	9003174747512	9009014747513	466
474752	9003174747529	9009014747520	466
474753	9003174747536	9009014747537	466
474771	9003174747710	9009014747711	466
474775	9003174747758	9009014747759	468
474780	9003174747802	9009014747803	468
475019	9003174750192	9009014750193	513
475024	9003174750246	9009014750247	513
475790	9003174757900	9009014757901	470
475793	9003174757931	9009014757932	470
475797	9003174757979	9009014757970	470
475800	9003174758006	9009014758007	470
475960	9003174759607	9009014759608	452
475975	9003174759751	9009014759752	471
475978	9003174759782	9009014759783	471
475980	9003174759805	9009014759806	471
475983	9003174759836	9009014759837	471
475986	9003174759867	9009014759868	471

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476545	9003174765455		426
477254	9003174772545	9009014772546	454
477283	9003174772835	9009014772836	403
477289	9003174772897	9009014772898	403
477342	9003174773429	9009014773420	391
477346	9003174773467	9009014773468	391
477349	9003174773498	9009014773499	391
477409	9003174774099	9009014774090	391
477412	9003174774129	9009014774120	391
477413	9003174774136	9009014774137	391
477422	9003174774228		403
477430	9003174774303	9009014774304	403
477724	9003174777243	9009014777244	454
477726	9003174777267	9009014777268	454
477755	9003174777557	9009014777558	453
477760	9003174777601	9009014777602	453
477837	9003174778370	9009014778371	452
484627	9003174846277	9009014846278	515
484672	9003174846727	9009014846728	515
490222	9003174902225	9009014902226	424
493199	9003174931997	9009014931998	63
494333	9003174943334	9009014943335	475
494339	9003174943396	9009014943397	475
494342	9003174943426	9009014943427	476
494349	9003174943495	9009014943496	475
494361	9003174943617	9009014943618	475
494365	9003174943655	9009014943656	476
494391	9003174943914	9009014943915	476
494394	9003174943945	9009014943946	475
494701	9003174947011	9009014947012	64
494985	9003174949855		442
495044	9003174950448		443
498229	9003174982296	9009014982297	434
501861	9003175018611	9009015018612	403
502437	9003175024377	9009015024378	403
502457	9003175024575	9009015024576	403
514338	9003175143382	9009015143383	58
514745	9003175147458	9009015147459	50
515988	9003175159888	9009015159889	83
515989	9003175159895	9009015159896	83

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516594	9003175165940	9009015165941	408
519212	9003175192120	9009015192121	204
519213	9003175192137	9009015192138	204
519214	9003175192144	9009015192145	204
519215	9003175192151	9009015192152	204
519232	9003175192328	9009015192329	60
525355	9003175253555	9009015253556	36
525686	9003175256860	9009015256861	425
527875	9003175278756		426
529392	9003175293926	9009015293927	63
529399	9003175293995	9009015293996	483
529401	9003175294015	9009015294016	483
532510	9003175325108		443
532514	9003175325146		443
532540	9003175325405		443
534539	9003175345397	9009015345398	410
537021	9003175370214	9009015370215	206
537084	9003175370849	9009015370840	206
537089	9003175370894	9009015370895	206
537093	9003175370931	9009015370932	206
537095	9003175370955	9009015370956	206
537097	9003175370979	9009015370970	206
537110	9003175371105	9009015371106	206
537111	9003175371112	9009015371113	206
537112	9003175371129	9009015371120	206
537113	9003175371136	9009015371137	206
537114	9003175371143	9009015371144	206
537115	9003175371150	9009015371151	206
538503	9003175385034	9009015385035	60
540688	9003175406883	9009015406884	201
540689	9003175406890	9009015406891	201
543615	9003175436156		410
548169	9003175481699	9009015481690	114
548815	9003175488155		408
549002	9003175490028	9009015490029	64
551616	9003175516162	9009015516163	60
553403	9003175534036	9009015534037	99
559743	9003175597437	9009015597438	60
567352	9003175673520	9009015673521	88
567353	9003175673537	9009015673538	88

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570473	8032973219075	9009015704737	281
570485	8032973219112	9009015704850	281
572473	9003175724734	9009015724735	206
574844	9003175748440	9009015748441	504
574845	9003175748457	9009015748458	504
574846	9003175748464	9009015748465	504
574854	9003175748549	9009015748540	504
574855	9003175748556	9009015748557	504
574856	9003175748563	9009015748564	504
575635	9003175756353	9009015756354	206
576049	9003175760497	9009015760498	85
576050	9003175760503	9009015760504	85
577953	9003175779536		455
580650	9003175806508	9009015806509	206
587026	9003175870264		434
591103	9003175911035	9009015911036	63
591104	9003175911042	9009015911043	63
594360	9003175943609	9009015943600	63
594362	9003175943623	9009015943624	63
596597	9003175965977		412
596848	9003175968480	9009015968481	62
597041	9003175970414	9009015970415	62
597383	9003175973835	9009015973836	62
598008	9003175980086	9009015980087	468
598010	9003175980109	9009015980100	468
598011	9003175980116	9009015980117	468
599666	9003175996667	9009015996668	64
600134	9003176001346		408
603284	9003176032845	9009016032846	65
603818	9003176038182	9009016038183	149
608080	9003176080808	9009016080809	424
611499	9003176114992	9009016114993	452
614644	9003176146443	9009016146444	39
615549	9003176155490	9009016155491	58
617388	9003176173883	9009016173884	436
619701	9003176197018		451
619872	9003176198725		428
620118	9003176201180	9009016201181	362
620464	9003176204648	9009016204649	437

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630537	9003176305376	9009016305377	58
631057	9003176310578	9009016310579	434
633286	9003176332860	9009016332861	58
635268	9003176352684	9009016352685	38
636398	9003176363987	9009016363988	436
636658	9003176366582	9009016366583	436
636789	9003176367893	9009016367894	84
637066	9003176370664	9009016370665	20
637067	9003176370671	9009016370672	21
637068	9003176370688	9009016370689	21
637069	9003176370695	9009016370696	21
637070	9003176370701	9009016370702	21
637071	9003176370718	9009016370719	21
637072	9003176370725	9009016370726	21
637073	9003176370732	9009016370733	21
637074	9003176370749	9009016370740	21
638253	9003176382537		172
639076	9003176390761	9009016390762	58
639558	9003176395582	9009016395583	470
639559	9003176395599	9009016395590	470
639560	9003176395605	9009016395606	470
639566	9003176395667	9009016395668	491
639568	9003176395681	9009016395682	491
639569	9003176395698	9009016395699	491
639570	9003176395704	9009016395705	491
639571	9003176395711	9009016395712	491
639634	9003176396343	9009016396344	470
639635	9003176396350	9009016396351	470
640777	9003176407773	9009016407774	436
640978	9003176409784		438
641839	9003176418397	9009016418398	437
641854	9003176418540	9009016418541	436
642626	9003176426262	9009016426263	196
642627	9003176426279	9009016426270	196
642628	9003176426286	9009016426287	196
643371	9003176433710	9009016433711	58
643803	9003176438036	9009016438037	204
643805	9003176438050	9009016438051	204
643807	9003176438074	9009016438075	204
643823	9003176438234	9009016438235	205

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645132	9003176451325	9009016451326	212
645135	9003176451356	9009016451357	212
645137	9003176451370	9009016451371	212
645145	9003176451455	9009016451456	205
647259	9003176472597	9009016472598	58
647260	9003176472603		58
647377	9003176473778	9009016473779	60
647389	9003176473891	9009016473892	60
647549	9003176475499	9009016475490	85
647550	9003176475505	9009016475506	85
648425	9003176484255	9009016484256	277
650292	9003176502928	9009016502929	521
650293	9003176502935	9009016502936	521
661085	9003176610852	9009016610853	276
662430	9003176624309	9009016624300	63
662791	9003176627911	9009016627912	471
664048	9003176640484		410
664052	9003176640521		410
664185	9003176641856		412
664256	9003176642563	9009016642564	408
664261	9003176642617		408
664536	9003176645366		373
664621	9003176646219		384
664622	9003176646226		384
664672	9003176646721		389
664673	9003176646738		389
664675	9003176646752		389
664677	9003176646776		389
664683	9003176646837		389
664684	9003176646844		389
664708	9003176647087		388
664728	9003176647285		389
664737	9003176647377		389
664738	9003176647384		389
664742	9003176647421		389
664744	9003176647445		389
664746	9003176647469		389
664749	9003176647490		389
664757	9003176647575		389

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664766	9003176647667		389
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664780	9003176647803		388
664793	9003176647933		388
664794	9003176647940		388
664796	9003176647964		388
666221	9003176662219	9009016662210	256
666276	9003176662769	9009016662760	256
666279	9003176662790	9009016662791	256
666280	9003176662806	9009016662807	256
666288	9003176662882	9009016662883	436
666421	9003176664213	9009016664214	256
667182	9003176671822		425
667841	9003176678418		414
667995	9003176679958	9009016679959	65
668630	9003176686307	9009016686308	196
668631	9003176686314	9009016686315	196
668632	9003176686321	9009016686322	196
668633	9003176686338	9009016686339	196
668634	9003176686345	9009016686346	196
668635	9003176686352	9009016686353	196
668637	9003176686376	9009016686377	196
668638	9003176686383	9009016686384	196
668640	9003176686406	9009016686407	196
668641	9003176686413	9009016686414	196
668642	9003176686420	9009016686421	204
668644	9003176686444	9009016686445	204
668649	9003176686499	9009016686490	204
668663	9003176686635	9009016686636	204
668664	9003176686642	9009016686643	204
668665	9003176686659	9009016686650	204
668670	9003176686703	9009016686704	204
668672	9003176686727	9009016686728	204
668673	9003176686734	9009016686735	204
668679	9003176686796	9009016686797	196
668681	9003176686819	9009016686810	196
668683	9003176686833	9009016686834	196
668686	9003176686864	9009016686865	205

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668692	9003176686925	9009016686926	205
668693	9003176686932	9009016686933	205
668694	9003176686949	9009016686940	205
668696	9003176686963	9009016686964	205
668697	9003176686970	9009016686971	205
668698	9003176686987	9009016686988	205
669109	9003176691097		418
669110	9003176691103		418
671090	9003176710903	9009016710904	51
671093	9003176710934	9009016710935	51
671108	9003176711085	9009016711086	51
675264	9003176752644		408
675272	9003176752729	9009016752720	438
675283	9003176752835	9009016752836	63
675309	9003176753092	9009016753093	438
675318	9003176753184	9009016753185	438
676423	9003176764234	9009016764235	51
676428	9003176764289	9009016764280	51
676589	9003176765897	9009016765898	438
676791	9003176767914	9009016767915	470
678953	9003176789534	9009016789535	455
679634	9003176796341	9009016796342	438
679662	9003176796624	9009016796625	256
679663	9003176796631	9009016796632	256
679664	9003176796648	9009016796649	256
679946	9003176799465	9009016799466	438
680115	9003176801151		444
680369	9003176803698	9009016803699	199
680373	9003176803735	9009016803736	199
680376	9003176803766	9009016803767	199
680377	9003176803773	9009016803774	199
680379	9003176803797	9009016803798	199
680380	9003176803803	9009016803804	199
680383	9003176803834	9009016803835	199
680386	9003176803865	9009016803866	199
680387	9003176803872	9009016803873	199
680388	9003176803889	9009016803880	199
680389	9003176803896	9009016803897	199

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682103	9003176821036	9009016821037	111
682104	9003176821043	9009016821044	111
682105	9003176821050	9009016821051	111
682106	9003176821067	9009016821068	111
682107	9003176821074	9009016821075	111
682110	9003176821104	9009016821105	111
682111	9003176821111	9009016821112	111
682112	9003176821128	9009016821129	111
688752	9003176887520		380
689930	9003176899301	9009016899302	438
690785	9003176907853		362
696324	9003176963248	9009016963249	438
699330	9003176993306	9009016993307	44
699984	9003176999841	9009016999842	196
701439	9003177014390	9009017014391	85
701515	9003177015151	9009017015152	85
701518	9003177015182	9009017015183	85
701934	9003177019340	9009017019341	491
703242	9003177032424	9009017032425	436
704198	9003177041983	9009017041984	44
704617	9003177046179	9009017046170	465
705824	9003177058240	9009017058241	310
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705831	9003177058318	9009017058319	310
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705839	9003177058394	9009017058395	310
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705842	9003177058424	9009017058425	310
705843	9003177058431	9009017058432	310
705844	9003177058448	9009017058449	310

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705850	9003177058509	9009017058500	310
705851	9003177058516	9009017058517	310
705852	9003177058523	9009017058524	310
705853	9003177058530	9009017058531	310
705854	9003177058547	9009017058548	310
705855	9003177058554	9009017058555	310
705856	9003177058561	9009017058562	310
705857	9003177058578	9009017058579	310
705858	9003177058585	9009017058586	310
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705862	9003177058622	9009017058623	310
705863	9003177058639	9009017058630	310
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705873	9003177058738	9009017058739	311
705874	9003177058745	9009017058746	311
705875	9003177058752	9009017058753	311
705876	9003177058769	9009017058760	311
705877	9003177058776	9009017058777	311
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766126	9003177661266	9009017661267	127
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766140	9003177661402	9009017661403	127
766145	9003177661457	9009017661458	127
766147	9003177661471	9009017661472	127
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766155	9003177661556	9009017661557	126
766156	9003177661563	9009017661564	126
766160	9003177661600	9009017661601	127
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768752	9003177687525	9009017687526	128
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769683	9003177696831	9009017696832	126
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775476	9003177754760		428
779426	9003177794261	9009017794262	58
779428	9003177794285	9009017794286	58
779789	9003177797897	9009017797898	438
780938	9003177809385	9009017809386	58
781702	9003177817021		408
785339	9003177853395	9009017853396	21
788700	9003177887000	9009017887001	64
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795077	9003177950773	9009017950774	196
798715	9003177987151	9009017987152	434
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829026	9003178290267	9009018290268	149
829292	9003178292926	9009018292927	142
829293	9003178292933	9009018292934	142
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890756	9003178907561	9009018907562	160
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890761	9003178907615	9009018907616	161
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890835	9003178908353	9009018908354	164
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34239183	9003172021256	9009012011890	514
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34239195	9003172013565	9009012002768	198
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34239198	9003172013510	9009012002805	198
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34247151	9003172016207	9009012003789	476
34247152	9003172016214	9009012003796	476
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34247154	9003172016030	9009012003819	477
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34277672	9003172021690	9009012079777	491
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34474187	9003173035061	9009012268874	205
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