MIRKA

PRECISION GRINDING SOLUTIONS

mirka.com

MIRKA

Mirka Ltd is a world leader in surface finishing technology and offers a broad range of groundbreaking sanding solutions for the surface finishing and precision grinding business.

Since 1943, Mirka has built its development on a clear mission: to enable everyone to achieve better performance. It has done so with an approach oriented toward quality, continuous improvement and the search for the most innovative solutions, capable of completely revolutionize the world of abrasives, as happened with dustless sanding systems.

At the end of the 2000s, Mirka began to invest in the precision grinding business as well, expanding expertise by acquiring several companies complementary to the Mirka brand and in line with its core values: Responsibility, Innovation, Respect and Commitment.

In 2017, Cafro was acquired, a renowned Italian company with a range of superabrasive products perfectly in line with that of Mirka. A few years later, Mirka acquired UrmaRolls, another renowned Italian company specializing in dressing rolls and grinding wheels for high precision.

Today, Mirka has more than 1,500 employees, with subsidiaries in Europe, the Middle East, North America, South America and Asia.

More than 97 percent of Mirka's production is exported, with products distributed in more than 100 countries. Mirka's headquarters and production facilities are located in Finland. All products for precision grinding Mirka® Cafro and Mirka® UrmaRolls are manufactured in Italy at the Mirka Superabrasives plants in Fino Mornasco and Turin.

CONTENT

PRODUCT RANGE

The Mirka® Cafro range includes a wide selection of quality solutions: from grinding wheels always available off-the-shelf (Stocklist) to those made according to the Customer's specific needs, with the constant support of our experts.

Resin bonded wheels

Resin bonded grinding wheels are offered in a wide assortment, with a wide selection of standard shapes and products. We offer diamond wheels for grinding carbides, cermets, ceramics, graphite, precious stones, sintered materials and many others. CBN wheels are designed for grinding hardened steels, cast iron, stellites, nickel alloys for high temperatures, piston rings for automotive engines, stainless steels and Ni-Ti alloys for medical use.

We offer a very large resin bond choice, with the Bond System enabling easy orientation and application. The Stocklist program helps to optimize wheels for the most popular operations in tool manufacturing, sharpening, profiling, surface grinding and outer and inner diameter grinding.

MIRKA CAFRO BOND SYSTEM

Wheels from diameter 10 to 900 mm (over diameter 750 mm segmented only)
Mounted points from diameter 2.5 to 20 mm – Available also files, honing stones and pellets

Hybrid wheels

Hybrid wheels are the fastest growing bond family. With specific sintering machinery we develop high quality products with natural or artificial porosity, reaching very high removal rates at optimal conditions.

Dimensions range from 20 mm to 220 mm in diameter, available in all shapes and rim widths for manufacturing carbide and HSS tools with plunge grinding. We offer diamond wheels for efficient grinding of carbide, cermets, optical glass and electronics manufacturing. CBN wheels are available for grinding HSS and stainless steel rotating tools. We have a wide choice of off-the-shelf products, with the possibility of custom-made and reprofiled wheels to enable complex geometries.

THE FASTEST GROWING BOND FAMILY

Wheels from diameter 20 to 220 mm

Metal bonded wheels

Metal bonded wheels are the best option for high corner retention wheels for profiling. They are available in continuous rim diameter up to 350 mm, and segmented, executed in continuous rim up to 500 mm in diameter.

Metal bonded diamond wheels are for grinding ceramics, graphite, abrasive materials, carbide and dressing VIT wheels. CBN wheels are, for instance, intended for untreated stainless steels for medical use. Metal bonded wheels can be tailored to customer's needs, reprofiled in radius with complex angles and geometries.

EXTREMELY SMALL TIP RADIUS

Wheels from diameter 8 to 500 mm (over diameter 350 mm segmented only)
Mounted points from diameter 2.5 to 25 mm – Honing stones (from 20 to 125 mm length) files and pellets

Vitrified wheels

FOR HIGHER SPEED
& PRECISION GRINDING

Vitrified wheels are a growing bond family, as machine development enables higher speeds and higher precision grinding. Grinding speeds can reach 140m/s, with very high material removal while maintaining profile stability.

All vitrified wheels can be dressed in the operating machine, in the way of conventional abrasives. The broad product range includes rim diameters up to 605mm, and segmented continuous rims up to 700 mm in diameter. Vitrified wheels are mainly special products, with PCD and internal grinding wheels kept in stock. Diamond wheels are manufactured for grinding PCD and PCBN, ceramics and carbide. CBN wheels are for manufacturing auto- motive engine parts, such as camshafts and crankshafts, for hard steel rolls, for jet engine maintenance, for manufacturing HSS tools, outer, inner and surface grinding. Replating service is offered for substituting rims on valuable steel bodies.

Wheels from diameter 10 to 700 mm (over diameter 605 mm segmented only)
Mounted points from diameter 5 to 20 mm

Electroplated wheels

Electroplated wheels cover a very broad wheel range, in segmented or continuous rim, suitable for nonwheel products such as files, dressers, blocks, drivers, spindles and dermatology tools. Grit sizes range from D 30 to D 1152 for diamond and B 46 to B 427 for CBN. We keep electroplated mandrels in DIA and CBN and pantograph chisel sharpening wheels in stock. We also offer plating and replating services, as well as designing special wheels and plated tools. Steel-bodied items can be replated.

Wheels from diameter 10 to 615 mm
Mounted points from diameter 0.6 to 127 mm
Available also files and adjustable honing stones

PCD and PCBN tools

PCD tool program is directed towards milling carbon fibres in the aircraft industry, aluminium in the automotive industry, and even turning Teflon and aluminium when manufacturing cookware. PCBN tools are used in oil well drilling, in turning drilling crowns made of hard steel, as well as hard stellite coatings and hardened cast iron in automotive applications. We also offer regrinding and reprofiling as well as special custommade tools.

PCD drills from 1.2 to 16 mm
PCD endmills from 4 to 41 mm
PCD countersinks from 10 to 31.8 mm
Also available inserts, boring tools, anti-wear parts, customized tools

Mirka® Cafro

Bond System

Choosing the ideal wheel for your application has never been so easy

9 bond families for infinite applications.

HARDNESS

09	**METAL** Highest edge retention	Hardest bonds, ideal when excellent profile retention and minimum wear are required,even on abrasive materials.
08	**HYBRID** Top performance on CNC machines	Mirka® Cafro Hybrid bonds with natural or indused porosity ensure high performances in carbide tools' construction; they have been optimized both for the profile retention of 11V9 and 12V9 wheels that for high-removal, single-pass creep-feed grinding.
07	**EDG** Optimized for microtools	First developed for micro-tools, those bonds have a continuously expanding application range, thanks to their heat resistance characteristics.
06	**SUPERFIN** Mirror finish surfaces on CNC	One of Mirka® Cafro's success stories: specifically developed for tungsten carbide endmills' and drills' lapping, achieving surface roughness. Ra < 0,05 µ and Rz < 0,4 µ.
05	**TOP** The highest edge retention among the resin bonds	A new family in the Mirka® Cafro Bond System for the best heat transfer from the workpiece, in order to allow corner stability and a reduced cutting pressure.
04	**PRO** Profile holding and removal	This Mirka® Cafro Bond System family allows the best compromise between cutting ability and profile holding, together with a silent grinding.
03	**CNC** High removal on CNC machines	Optimized for applications on CNC machines where high removal rate coupled with profile retention and low absorption are required.
02	**UNI** Universal use on manual machines	A strong free cutting ability allows its use in a wide range of applications: ideal for example for large diameter wheels and centerless grinding.
01	**DRY** Free-cutting for dry grinding	Developed for dry grinding, thanks to its cold cutting ability DRY it is suggested also for applications with large contact areas.

Mirka® Cafro Bond System

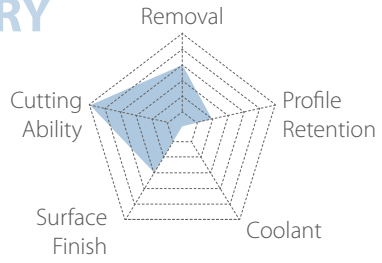
Mirka® Cafro BOND SYSTEM is the innovative managing method of Mirka® Cafro's resin bonds: 6 bond families dedicated to specific application fields, each divided in a numeric scale – odd numbers for Diamond and even numbers for CBN – which defines quickly, easily and intuitively the optimized solution to your specific grinding operation.

HARDNESS ↑ / CUTTING ABILITY ↓

DIAMOND	OPERATION	CBN
EDG 7 EDG 5	Best edge retention	EDG 8 EDG 6
EDG 3 EDG 1		EDG 4 EDG 2
TOP 7 TOP 5	Edge Retention	TOP 8 TOP 6
TOP 3 TOP 1		TOP 4 TOP 2
PRO 7 PRO 5	Profiling	PRO 8 PRO 6
PRO 3 PRO 1		PRO 4 PRO 2
CNC 7 CNC 5	High removal	CNC 8 CNC 6
CNC 3 CNC 1	CNC grinding	CNC 4 CNC 2
UNI 7 UNI 5	Manual grinding	UNI 8 UNI 6
UNI 3 UNI 1	Surface grinding	UNI 4 UNI 2
DRY 7 DRY 5	Dry grinding	DRY 8 DRY 6
DRY 3 DRY 1	Large contact areas	DRY 4 DRY 2

HARDNESS ↑ / CUTTING ABILITY ↓

DRY



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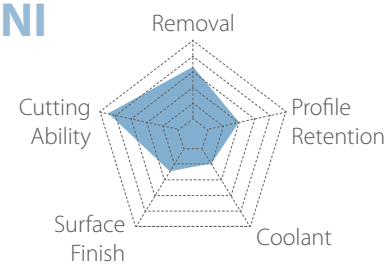

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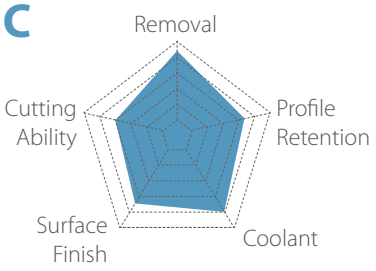

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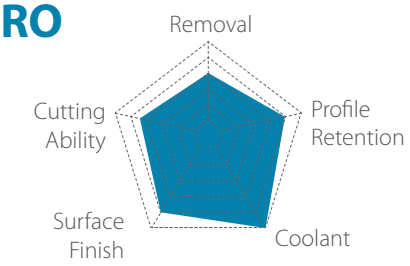

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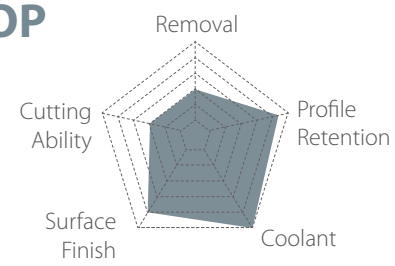

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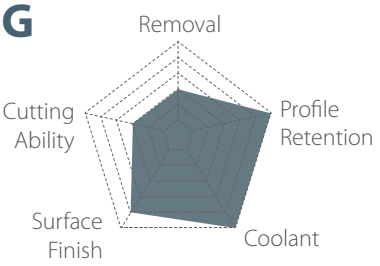
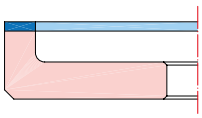
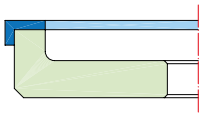
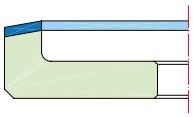
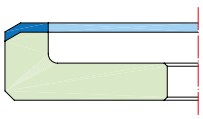
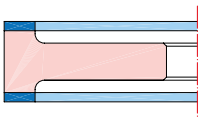
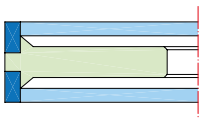
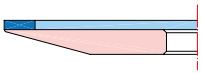
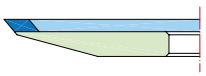
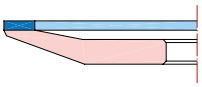
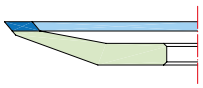
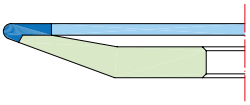
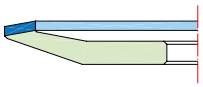
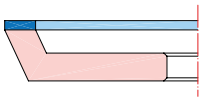
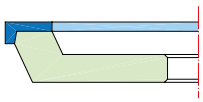
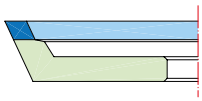
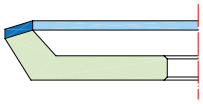
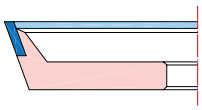
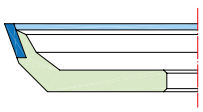
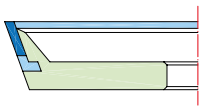
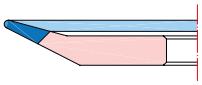
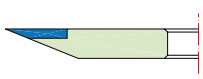
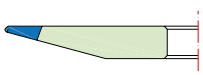
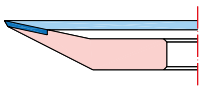
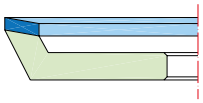
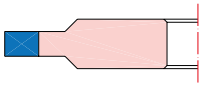
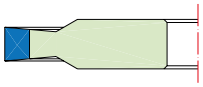
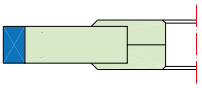
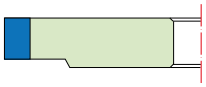
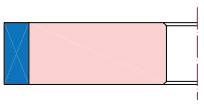
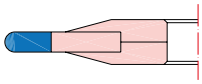
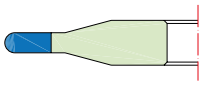
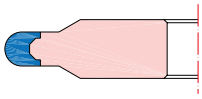
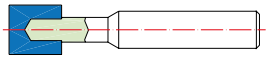
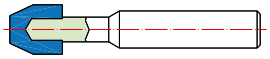
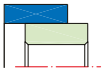
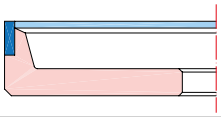
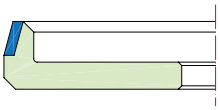
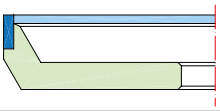
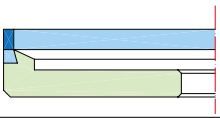
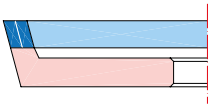
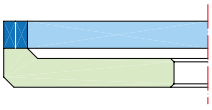
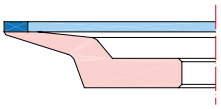
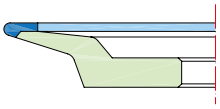
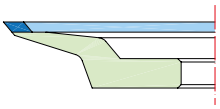
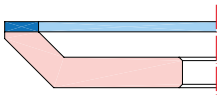
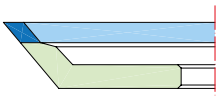
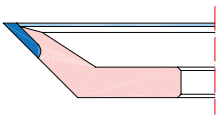
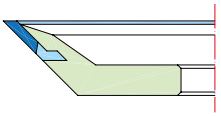
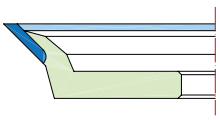
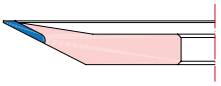
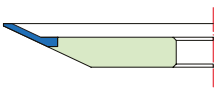
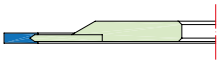
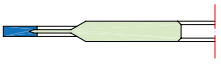
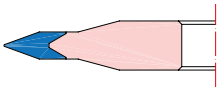
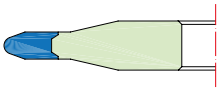
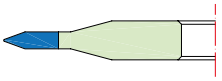
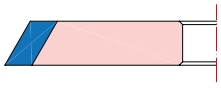
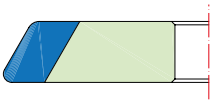
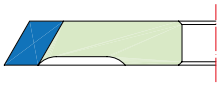
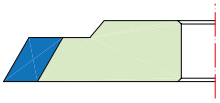
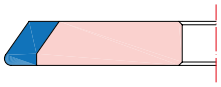
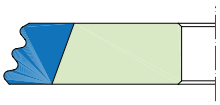
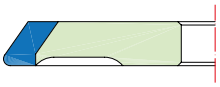
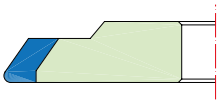
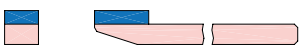
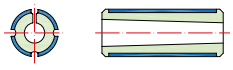
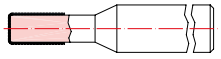
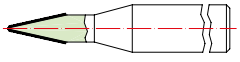
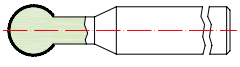


Feel free to contact your Mirka representative for the Stocklist program, the assortment of wheels ready for immediate delivery, optimized with the Mirka® Cafro Bond System.

FEPA Shapes

Standard shape	Some of the most common derived shapes		
6A2 	6C2 	6V5 	6Y2 
9A3 	9A9 		
4A2 	4V2 	1A2 	1V2 
13A2 	13V2 	13BH2 	4V5 
11A2 	11C2 	11V2 	11V5 
11V9 	15V9 	11V9G 	
4BT9 	4B9 	4B2 	4ET9 
12V4 	11V4 		
14A1 	14D1V 	14A1Q 	3A1 
1A1  ≥75mm Ø	1D1V 	1Q1 	1M1 
14F1Q 	1F1R 	14F1 	1P1 
14FF1 	1FF1 	1GG1 	1L1 
1A1W 	1U1W 	1DD1W 	1E1W 
1A1  <75mm Ø	1A8 	6A9P 	

Standard shape	Some of the most common derived shapes		
6A9 	6V9 	11A9 	6A2P 
11VV2 	3AA1 	14AA1 	6AA2 
10A2 		10BH2 	10V2 
12A2 			12V2 
12V9 		12V9P 	10V9 
13V9 		SHARK 	4V9 
1A1R 	1A1X 	3A1R 	14A1R 
14EE1 	14EF1 	1DD1 	14E1 
1V1 	1VL1 	1V1P 	3V1 
1VF1 	1S1 	1VF1P 	3VF1 
L 			
PL 		PMR 	
1U1W 		1EE1W 	1R1W 

Designation according to the standard ISO 6106-2005 and FEPA 2005

Grit Size

A comparative table for the measurement of diamond and CBN grit size distribution. The columns refer to the international standards for super-abrasive grit size definition.

FEPA	U.S.	MESH	DIN	GRIT SIZE CLASS
7	2500	-	7	MICRON
10	2000	-		
12	1500	-		
15	1200	-	15	
20	1000	-		
25	800	-		
30	600	500/600	30	VERY FINE
35	500	400/500		
46	400	325/400	35	
54	325	270/325	45 } 50	FINE
64	280	230/270	55	
76	220	200/230	60 } 70	
91	180	170/200	85	
107	150	140/170	90 } 100	MEDIUM
126	120	120/140	140	
151	100	100/120	120 } 150	LARGE
181	80	80/100	180	
252	60	60/80	200/250	VERY LARGE
301	50	50/60	280	
427	40	40/50	350	SPECIAL USE
602	30	30/40		
852	20	20/30		
1182	16	16/20		

FEPA

ISO 6106-2005 standard, issued according to FEPA (Federation of European Producers of Abrasives) recommendations

MESH

ANSI B74.16-2002 American standard

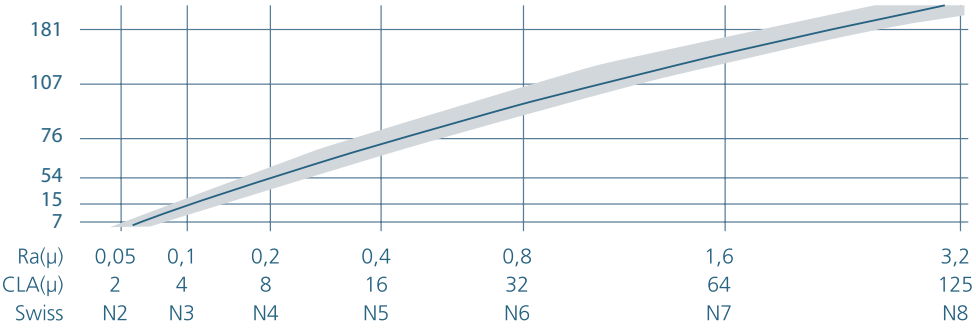
DIN

DIN 848-65 German standard

GRIT SIZE CLASS

An indicative description referred to precision grinding

Grain - Roughness Ratio



Just as an indication, you can find right here a table of the various types of roughness that can be reached on carbide surface grinding (cutting speed approx. 24 m/sec - table speed 15 m/min) coolant: water based emulsion

Abrasive Concentration

The abrasive concentration is expressed in carats / cc, and it stands for the ratio between its weight and the volume of the abrasive conglomerate; the weight of the grit cladding, if present, is not taken into account.

Concentration	35	45	50	68	75	90	100	125	150
Ct/cm³	**1,5**	**2,0**	**2,2**	**3,0**	**3,3**	**4,0**	**4,4**	**5,5**	**6,6**

Mirka® Cafro Stocklist


CBN
B 91 SA 125 HP4
3742193/52 H.4B

Mirka® Cafro

Wheel Decoding

Always focusing on simplification and on customers' needs, Mirka® Cafro presents here the decoding of its wheels' description, allowing to define univocally shape, dimensions and abrasive rim specifications of its wheels. It is now possible to identify quickly the wheel necessary for your application, to verify its availability at stock or to simplify the request for custom-made wheels.

Wheel dimensions							Superabrasive rim specifications			
11V9G	**20°**	**100**	**10**	**3**	**35**	**20**	**D 64**	**SR**	**125**	**M414**
F	α	ØD	W	X	T	ØH	G	Q	C	L

F Shape according to FEPA norm (see pages 6–7)

α Eventually rim angle or hub material

ØD Outside Diameter

W Width of superabrasive rim

X Depth of superabrasive rim

T Total wheel height

ØH Bore or shaft diameter

G Superabrasive grit size dimension (D=Diamond, B=CBN)

Q Superabrasive Quality (CAFRO code)

C Superabrasive concentration

L Bond (CAFRO code)

EDG Bond

With Mirka® Cafro products, precision meets dedication. We offer the best edge retention and corner stability on the market, giving you a better finish in less time – all for your peace of mind.

Longer dressing intervals

The Mirka Cafro EDG bond offers higher productivity due to optimal edge retention.

Improved wheel lifetime

The Mirka Cafro EDG bond offers higher productivity due to optimal edge retention.

Lower power requirements

Reduced power consumption for sustainability.

Higher material removal

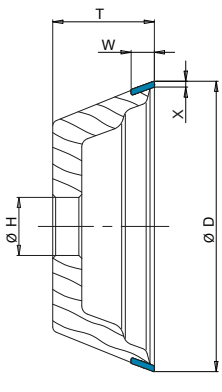
Shorter cycle times enable increased productivity: The Mirka Cafro EDG bond can retain corner radius at higher removal rates for extended periods.

Superior finish

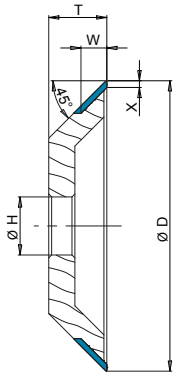
Optimal superabrasive rim specification.

"EDG" DIAMOND WHEELS FOR CARBIDE TOOLS

"EDG" cup wheels with higher corner holding ability and finishing – preferably on CNC machines												Polymide bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Qual.	Code	Conc.	Bond	Code
A.01	11V9G/AP	70°	75	10	2	35	20	D 64	W	125	EDG7	E913600211628ED7.16
A.03	11V9G/AP	70°	100	10	2	35	20	D 46	W	125	EDG7	E949800191628ED7.16
A.02	11V9G/AP	70°	100	10	2	35	20	D 64	W	125	EDG7	E949800211628ED7.16
A.04	11V9G/AP	70°	100	10	3	35	20	D 64	W	125	EDG7	E877500211628ED7.16
A.05	12V9P/AP	45°	100	10	2	20	20	D 64	W	125	EDG7	E913700211628ED7.16
A.06	12V9P/AP	45°	125	10	2	25	20	D 64	W	125	EDG7	E913800211628ED7.16
A.10	14A1	-	125	3	6	8	20	D30	S	100	EDG7	003120016W625ED7.16
A.11	14A1	-	125	3	6	8	20	D35	W	100	EDG7	0031200171625ED7.16
A.12	14A1	-	125	3	6	8	20	D46	W	125	EDG7	0031200191628ED7.16
A.14	14A1	-	125	4	6	8	20	D35	W	100	EDG7	0165402171625ED7.16
A.15	14A1	-	125	4	6	8	20	D46	W	125	EDG7	0165402191628ED7.16
A.16	14A1	-	125	6	6	8	20	D46	W	125	EDG7	0165401191628ED7.16



11V9



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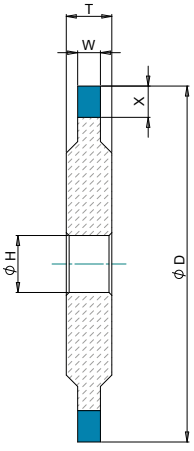


14A1

SUPERFIN series

MIRROR FINISHING

Perfect for tool polishing

In some tool grinding applications, such as the production of tungsten carbide cutters, it can be necessary to achieve a mirror finish. Mirka® Cafro's SUPERFIN grinding wheels are designed specifically to make this possible.

Reach an Ra below 0,05 µm

The SUPERFIN bond is designed for quickly polishing and achieving mirror finishes, reaching an Ra below 0.05 µm and an Rz below 0.4 µm.

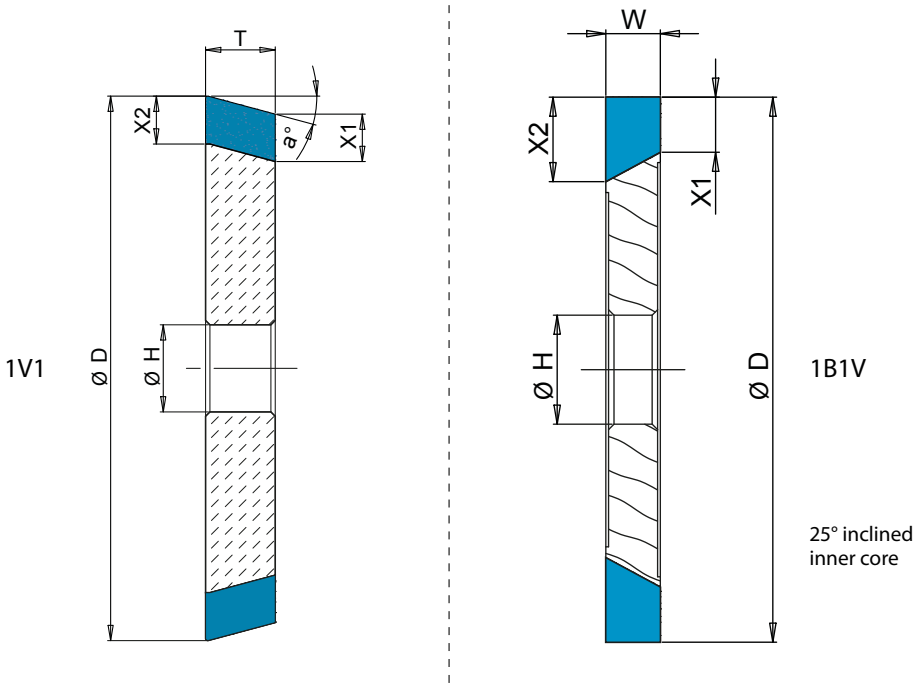
DIAMOND WHEELS FOR POLISHING CARBIDE TOOLS

SUPERFIN rotating tools mirror finishing wheels for CNC machines | Resin bond

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Qual.	Code
S.21	14A1	-	100	4	6	8	20	SUPERFIN1	0389006SUPERFIN1.16
S.14	14A1	-	100	6	6	10	20	SUPERFIN1	0389040SUPERFIN1.16
S.22	14A1	-	100	8	6	10	20	SUPERFIN1	0389050SUPERFIN1.16
S.23	1A1	-	100	12	6	12	20	SUPERFIN1	0151303SUPERFIN1.16
S.24	14A1	-	125	4	6	8	20	SUPERFIN1	0338820SUPERFIN1.16
S.25	14A1	-	125	6	6	10	20	SUPERFIN1	0338813SUPERFIN1.16
S.26	14A1	-	125	8	6	13	20	SUPERFIN1	0338808SUPERFIN1.16
S.27	1A1	-	125	12	6	12	20	SUPERFIN1	0511708SUPERFIN1.16
S.18	1V1/	20°	100	10	6	10	20	SUPERFIN1	0040204SUPERFIN1.16
S.19	1V1/	15°	100	10	6	10	20	SUPERFIN1	0069908SUPERFIN1.16
S.20	1V1/	20°	125	10	6	10	20	SUPERFIN1	0345005SUPERFIN1.16
* S.15	1B1V	-	100	10	6/8	9	20	SUPERFIN1	E409700SUPERFIN1.16
* S.16	1B1V	-	125	10	6/8	9	20	SUPERFIN1	E409900SUPERFIN1.16
S.11	11V9G	70°	100	10	2	35	20	SUPERFIN1	0339807SUPERFIN1.16
S.12	12V9P	45°	100	10	2	20	20	SUPERFIN1	0800503SUPERFIN1.16
S.13	12V9P	45°	125	10	2	25	20	SUPERFIN1	0800603SUPERFIN1.16

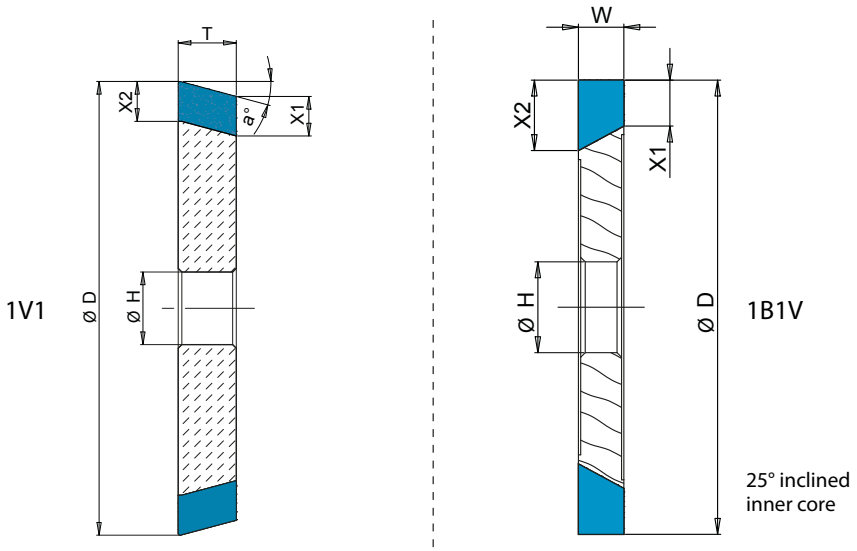
*) E.g. '6/8 : $X_1 = 6$ / $X_2 = 8$



HYBRID BOND WHEELS SERIES M404/M405/M413 FOR TOOL MANUFACTURING ON CNC MACHINES – HIGH PERFORMANCE

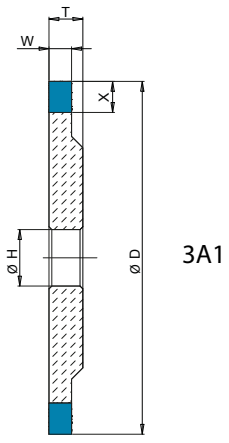
1V1 peripheral wheels with inclined rim for gashing and fluting – low power CNC machines / up to 8 bar coolant pressure											Hybrid bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
H.50	1V1/	10°	100	10	10	10	20	D 64	SY	125	M404	E7521031L8D28404.16
H.72	1V1/	15°	100	10	10	10	20	D 64	SY	125	M404	E7521011L8D28404.16
H.51	1V1/	20°	100	10	10	10	20	D 64	SY	125	M404	E7521021L8D28404.16
H.52	1V1/	30°	100	10	10	10	20	D 64	SY	125	M404	E7521041L8D28404.16
H.56	1V1/	15°	100	12	10	12	20	D 64	SY	125	M404	E7547021L8D28404.16
H.58	1V1/	15°	100	15	10	12	20	D 64	SY	125	M404	E6867001L8D28404.16
H.60	1V1/	10°	125	10	10	10	20	D 64	SY	125	M404	E7551011L8D28404.16
H.73	1V1/	15°	125	10	10	10	20	D 64	SY	125	M404	E7551021L8D28404.16
H.61	1V1/	20°	125	10	10	10	20	D 64	SY	125	M404	E7551031L8D28404.16
H.62	1V1/	30°	125	10	10	10	20	D 64	SY	125	M404	E7551051L8D28404.16
H.66	1V1/	15°	125	12	10	12	20	D 64	SY	125	M404	E7552021L8D28404.16
H.70	1V1/	10°	125	15	10	15	20	D 64	SY	125	M404	E7553011L8D28404.16
H.PV	1V1/	45°	100	10	10	10	20	D64	SQ	125	M413	E80250021J328413.16
H.06	1V1/	45°	125	10	10	10	20	D 64	SQ	125	M413	E57140021J328413.16

Peripheral wheels with trapezoidal rim 1B1V for getting < 30° shapes – low power CNC machines / up to 8 bar coolant pressure											Hybrid bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
* H.44	1B1V	-	100	10	10/15	10	20	D 64	SY	125	M404	E7521001L8D28404.16
* H.45	1B1V	-	100	12	10/15	12	20	D 64	SY	125	M404	E7547001L8D28404.16
* H.46	1B1V	-	100	15	10/15	15	20	D 64	SY	125	M404	E7549001L8D28404.16
* H.47	1B1V	-	125	10	10/15	10	20	D 64	SY	125	M404	E7551001L8D28404.16
* H.49	1B1V	-	125	15	10/15	15	20	D 64	SY	125	M404	E7553001L8D28404.16

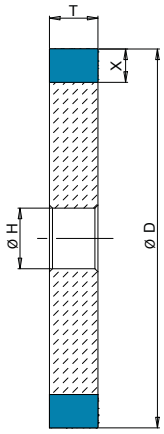


Peripheral wheels – rotating tools fluting – low power / up to 8 bar coolant pressure											Hybrid bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
H.20	1A1	-	75	10	10	10	20	D 64	SQ	125	M405	E51710021J328405.16
H.09	1A1	-	100	8	10	8	20	D 64	SQ	125	M405	E59720021J328405.16
H.37	1A1	-	100	10	10	10	20	D 64	SQ	125	M404	E59730021J328404.16
H.38	1A1	-	100	12	10	12	20	D 64	SQ	125	M404	E50950021J328404.16
H.39	1A1	-	100	15	10	15	20	D 64	SQ	125	M404	E18880021J328404.16
H.40	1A1	-	125	10	10	10	20	D 64	SQ	125	M404	E60720021J328404.16
H.41	1A1	-	125	12	10	12	20	D 64	SQ	125	M404	E63690021J328404.16
H.42	1A1	-	125	15	10	15	20	D 64	SQ	125	M404	E62190021J328404.16
H.43	1A1	-	150	12	10	12	20	D 64	SQ	125	M404	E74570021J328404.16

Narrow rim peripheral wheels – small Ø endmill fluting											Hybrid bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
H.07	3A1	-	100	4	10	8	20	D 64	SQ	125	M413	E57590121J328413.16
H.36	3A1	-	100	6	10	10	20	D 64	SY	125	M405	E5759001L8D28405.16



3A1



1A1

HP Hybrid Bond

HIGHER REMOVAL IN LESS TIME

Mirka® Cafro´s new HP hybrid bond sets the new industry standard for high material removal.

30% faster feed rate during grinding

The HP hybrid bond allows a faster feed rate with an improved surface finish that increases your throughput and lowers your costs.

25% less energy used

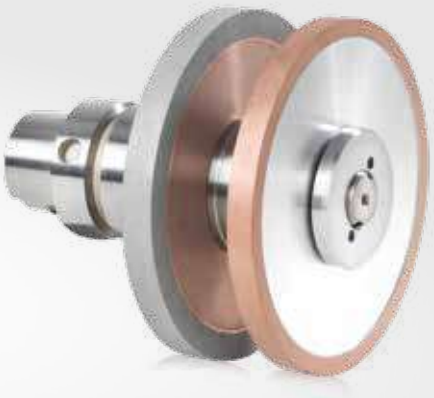
By reducing the amount of energy you use, the HP hybrid bond keeps cost low.

40% less time spent on sharpening and dressing

Less time spent dressing by using the HP hybrid bond means more time grinding tools and a longer-lasting wheel.

Self-Cleaning

Thanks to its high porosity it does not require frequent cleaning during the production process as necessary for all the traditional grinding wheels. A coolant pressure equal or greater than 12 bar is recommended.



Mirka® Cafro HP hybrid and SUPERFIN resin bonded diamond wheels for hard metal tool construction (fluting and polishing).

HYBRID BOND WHEELS SERIES HP FOR TOOL MANUFACTURING ON CNC MACHINES – HIGH PERFORMANCE

1V1 peripheral wheels with inclined rim for gashing and fluting – high performance CNC machines – coolant pressure equal or more than 12 bar											Hybrid bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
H.53	1V1/	10°	100	10	10	10	20	D 64	SY	125	HP3	E7521031L8D28H3P.16
H.74	1V1/	15°	100	10	10	10	20	D 64	SY	125	HP3	E7521011L8D28H3P.16
H.54	1V1/	20°	100	10	10	10	20	D 64	SY	125	HP3	E7521021L8D28H3P.16
H.55	1V1/	30°	100	10	10	10	20	D 64	SY	125	HP3	E7521041L8D28H3P.16
H.76	1V1/	10°	100	12	10	12	20	D 64	SY	125	HP3	E7547011L8D28H3P.16
H.57	1V1/	15°	100	12	10	12	20	D 64	SY	125	HP3	E7547021L8D28H3P.16
H.77	1V1/	20°	100	12	10	12	20	D 64	SY	125	HP3	E7547031L8D28H3P.16
H.78	1V1/	30°	100	12	10	12	20	D 64	SY	125	HP3	E7547051L8D28H3P.16
H.79	1V1/	10°	100	15	10	12	20	D 64	SY	125	HP3	E6867041L8D28H3P.16
H.59	1V1/	15°	100	15	10	12	20	D 64	SY	125	HP3	E6867001L8D28H3P.16
H.81	1V1/	30°	100	15	10	12	20	D 64	SY	125	HP3	E6867031L8D28H3P.16
H.63	1V1/	10°	125	10	10	10	20	D 64	SY	125	HP3	E7551011L8D28H3P.16
H.75	1V1/	15°	125	10	10	10	20	D 64	SY	125	HP3	E7551021L8D28H3P.16
H.64	1V1/	20°	125	10	10	10	20	D 64	SY	125	HP3	E7551031L8D28H3P.16
H.65	1V1/	30°	125	10	10	10	20	D 64	SY	125	HP3	E7551051L8D28H3P.16
H.82	1V1/	10°	125	12	10	12	20	D 64	SY	125	HP3	E7552011L8D28H3P.16
H.68	1V1/	15°	125	12	10	12	20	D 64	SY	125	HP3	E7552021L8D28H3P.16
H.69	1V1/	20°	125	12	10	12	20	D 64	SY	125	HP3	E7552031L8D28H3P.16
H.83	1V1/	30°	125	12	10	12	20	D 64	SY	125	HP3	E7552051L8D28H3P.16
H.71	1V1/	10°	125	15	10	15	20	D 64	SY	125	HP3	E7553011L8D28H3P.16
H.84	1V1/	15°	125	15	10	15	20	D 64	SY	125	HP3	E7553021L8D28H3P.16
H.85	1V1/	20°	125	15	10	15	20	D 64	SY	125	HP3	E7553031L8D28H3P.16
H.86	1V1/	30°	125	15	10	15	20	D 64	SY	125	HP3	E7553041L8D28H3P.16

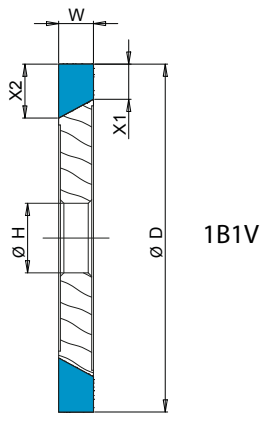
Peripheral wheels with trapezoidal rim 1B1V for getting < 30° shapes – high performance CNC machines											Hybrid bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
* H.PE	1B1V	-	100	10	10/15	10	20	D 64	SY	125	HP3	E7521001L8D28H3P.16
* H.PG	1B1V	-	100	15	10/15	15	20	D 64	SY	125	HP3	E7549001L8D28H3P.16
* H.PL	1B1V	-	125	10	10/15	10	20	D 64	SY	125	HP3	E7551001L8D28H3P.16
* H.PM	1B1V	-	125	12	10/15	12	20	D 64	SY	125	HP3	E7552001L8D28H3P.16
* H.PN	1B1V	-	125	15	10/15	15	20	D 64	SY	125	HP3	E7553001L8D28H3P.16

*) es. 10/15 : X_1 = 10 / X_2 = 15

CBN peripheral wheels with trapezoidal rim for getting < 30° shapes / natural porosity											Hybrid bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
* H.1B	1B1V	-	100	10	10/15	10	20	B 76	SA	125	HP4	E75210022Z628H4P.16
* H.2B	1B1V	-	100	15	10/15	15	20	B 91	SA	125	HP4	E75490023Z628H4P.16
* H.3B	1B1V	-	125	10	10/15	10	20	B 76	SA	125	HP4	E75510022Z628H4P.16
* H.4B	1B1V	-	125	15	10/15	15	20	B 91	SA	125	HP4	E75530023Z628H4P.16
* H.5B	1A1	-	100	20	10	20	20	B107	SA	125	HP4	E82100024Z628H4P.16

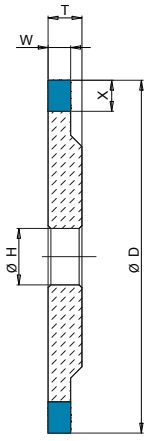
*) es. 10/15 : X_1 = 10 / X_2 = 15

Peripheral wheels – rotating tools fluting – high performance CNC machines – coolant pressure equal or more than 12 bar											Hybrid bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
H.PT	3A1	-	100	6	10	10	20	D64	SQ	125	HP7	E57590021J328H7P.16
H.PP	1A1	-	100	8	10	8	20	D64	SQ	125	HP5	E55940021J328H5P.16
H.PA	1A1	-	100	10	10	10	20	D 64	SQ	125	HP3	E59730021J328H3P.16
H.PB	1A1	-	100	12	10	12	20	D 64	SQ	125	HP3	E50950021J328H3P.16
H.PC	1A1	-	100	15	10	15	20	D 64	SQ	125	HP3	E18880021J328H3P.16
H.PR	1A1	-	100	20	10	20	20	D64	SQ	125	HP3	E82100021J328H3P.16
H.PU	1A1	-	125	6	10	10	20	D64	SQ	125	HP7	E70470021J328H7P.16
H.PQ	1A1	-	125	8	10	8	20	D64	SQ	125	HP5	E68710021J328H5P.16
H.PH	1A1	-	125	10	10	10	20	D 64	SQ	125	HP3	E60720021J328H3P.16
H.PJ	1A1	-	125	12	10	12	20	D 64	SQ	125	HP3	E63690021J328H3P.16
H.PK	1A1	-	125	15	10	15	20	D 64	SQ	125	HP3	E62190021J328H3P.16
H.PO	1A1	-	150	12	10	12	20	D 64	SQ	125	HP3	E74570021J328H3P.16

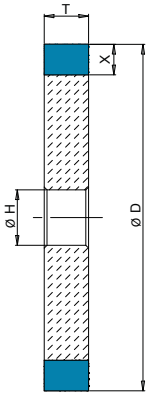


1B1V

25° inclined inner core



3A1



1A1

Inner support rim produced with an innovative resin that wears down alongside the abrasive rim

New lead-free metal alloy

Hybrid bond **Mirka® Cafro E-Cup 11**

MORE PRODUCTION EFFICIENCY, LESS ENVIRONMENTAL IMPACT

Thanks to new materials and manufacturing processes, E-Cup 11 hybrid bond wheels bring improved efficiency to your grinding operations with reduced impact on the environment. Try them today!

IMPROVED EFFICIENCY

The body of the new Mirka® Cafro E-Cup 11 hybrid grinding wheels wears at the same rate as the abrasive rim, so it is no longer necessary to stop the machine, remove the wheel, and re-shape the body. This saves time, increasing overall productivity. Specially-chosen diamond grains and hybrid bond ensure maximum precision while maintaining the profile. In addition, due to the new materials employed, the grinding wheel provides fantastic stability during machine operations.

IMPROVED SUSTAINABILITY

Sustainability of processes and products is a key part of Mirka's vision. In the new Mirka® Cafro E-Cup 11 hybrid grinding wheels, we use materials that reduce our impact on the environment. The body is made from a lead-free metal alloy. Eliminating a dangerous pollutant while providing excellent performance. The support rim is made of a special resin that is much more sustainable than other commonly used resins. A step forward in both performance and environmental responsibility

MIRKA® CAFRO E-CUP 11 WHEELS

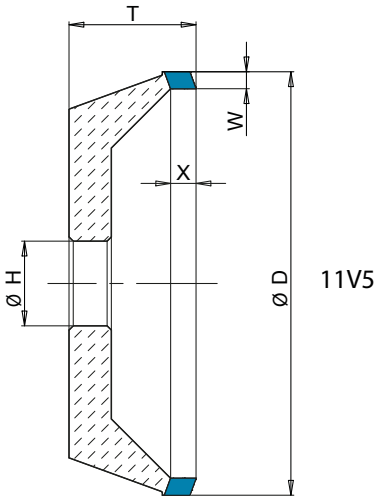
Cup wheels for CNC machines – rotating tools, clearance angles												Hybrid bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
H.03E	11V9G	70°	75	8	2	35	20	D 64	SR	125	M414	F23300021Z128414.16
H.01E	11V9G	70°	100	10	3	35	20	D 46	SR	100	M414	E74210119Z125414.16
H.02E	11V9G	70°	100	10	3	35	20	D 64	SR	125	M414	E74210121Z128414.16

CUP WHEELS

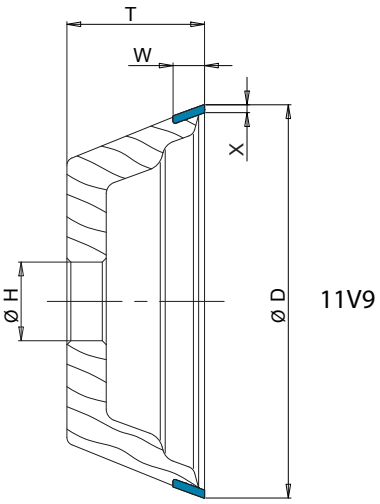
Cup wheels for CNC machines – rotating tools, clearance angles												Hybrid bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
H.03	11V9G	70°	75	8	2	35	20	D 64	SR	125	M414	E40880021Z128414.16
H.01	11V9G	70°	100	10	3	35	20	D 46	SR	100	M414	E39820019Z125414.16
H.02	11V9G	70°	100	10	3	35	20	D 64	SR	125	M414	E39820021Z128414.16

Cup wheels for CNC machines – gashing												Hybrid bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
H.04	12V9	45°	100	10	2	20	20	D 64	SR	125	M413	E40890021Z128413.16
H.05	12V9	45°	125	10	2	20	20	D 64	SR	125	M413	E41640021Z128413.16

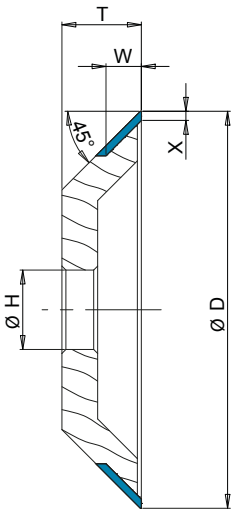
Inclined rim cup wheels for CNC machines – rotating tools, spherical clearance angles												Hybrid bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
H.PS	11V5/	20°	100	4	6	30	20	D46	SR	100	M414	E73750019Z125414.16
H.22	11V5/	20°	100	4	6	30	20	D 64	SR	125	M414	E73750021Z128414.16



11V5



11V9



12V9

DIAMOND WHEELS FOR CARBIDE PROFILING

V-profile wheels for CNC machines – profile grinding | Metal bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
M.05	14EE1/	20°	100	3	8	8	20	D 25	SP	125	M17	E306506151U28102.16
M.04	14EE1/	20°	125	2	8	10	20	D35	S	125	M17	E40320017U829102.16
M.03	14EE1/	30°	125	3	8	8	20	D46	S	125	M17	E468700191029102.16

Peripheral wheel for Rollomatic NP5 – peel grinding : roughing operation | Metal bond

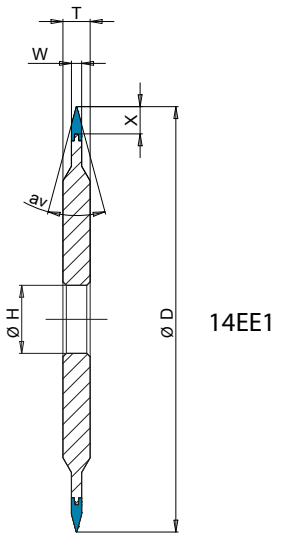
PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
R.01	4B9/	11°	250	8	6	19,5	31,75	D 91	S	175	M11	E547500R5U832M11.24

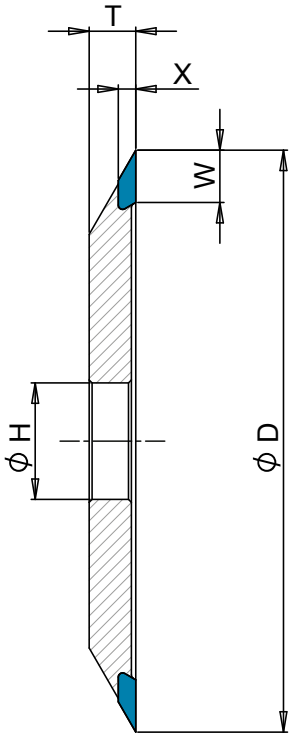
Peripheral wheel for Rollomatic NP5 – peel grinding : finishing operation | Resin bond

PREMIUM QUALITY

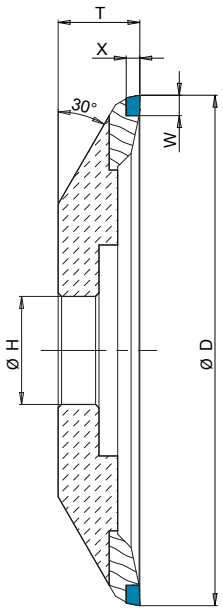
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
R.02	12B9/	11°	150	6	4	24	31,75	D 25	SR	150	TOP7	E39320015J530TP7.24



14EE1



4B9



12B9

DIAMOND & CBN PERIPHERAL WHEELS

Peripheral wheels for o.d. and surface grinding — Resin bond

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
E.30	1A1	-	400	20	5	20	127	D 20	SR	50	RL4	E818800134L13793.42
E.12	14A1	-	175	10	6	15	31,75	D 126	WN	75	UNI3	0053205254S19UN3.24
E.13	1A1	-	200	15	5	15	32	D 126	WN	75	UNI3	0701001254S19UN3.25
E.14	14A1	-	300	15	6	22	127	D 126	WN	100	DRY7	018990125 4S25DR7.42
E.25	14A1	-	300	20	6	27	127	D126	WN	75	UNI3	0189900254S19UN3.42
E.18	1A1	-	350	20	5	20	127	D 126	WN	75	UNI3	E881800254S19UN3.42
E.26	1A1/ASB	-	350	25	5	25	127	D126	WN	75	UNI3	0659902254S19UN3.42
E.16	3A1	-	400	15	6	22	127	D 126	WN	75	DRY7	0628303254S18DR7.42
E.19	14A1/ASB	-	400	20	6	25	127	D126	WN	75	UNI3	0333403254S19UN3.42
E.22	14A1/ASB	-	400	20	6	20	127	D151	KR	100	UNI3	033340326Z425UN3.42

CBN peripheral wheels for o.d. and surface grinding — Resin bond

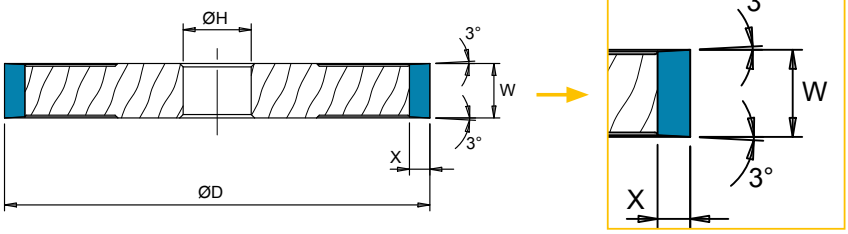
PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
E.21	1A1	-	200	10	6	10	32	D126	W	75	UNI3	0142408251618UN3.25
E.23	1A1/ASB	-	175	12	6	12	32	D126	X	75	UNI3	0302201251319UN3.25
E.17	14A1/ASB	-	400	20	4	26	127	B 126	W	50	DRY8	0260301252212DR8.42

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
E.08	14A1	-	175	10	6	15	31,75	B 151	WD	75	UNI4	005320526X619UN4.24
E.09	1D1V/	-	300	20	4	20	76	B 126	WD	60	UNI4	092740025X614UN4.37
E.31	1D1V/	-	300	20	4	20	127	B 126	WD	75	DRY8	092740025X619DR8.42
E.15	14A1	-	350	20	4	28	127	B 126	WD	75	DRY8	062280025X618DR8.42
E.27	1A1/ASB	-	350	25	4	25	127	B126	WD	75	DRY6	061600225X619DR6.42
E.10	1D1V/	-	400	30	6	30	127	B 126	WD	75	UNI4	E38800025X618UN4.42

1D1V



DIAMOND WHEELS FOR DRY OR WET GRINDING ON CNC MACHINES

Dry grinding – or Ø reduction on CNC machines — Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
D.30	1A1	-	125	10	6	10	20	D 46	W	100	DRY5	0511707191624DR5.16
D.31	1A1	-	125	10	6	10	20	D 126	W	100	DRY5	0511707251624DR5.16
D.51	1A1	-	150	10	6	10	20	D126	W	100	DRY5	0477810251624DR5.16

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
D.50	1A1	-	125	10	6	10	20	D64	WN	75	DRY7	0511707214S19DR7.16
D.33	1A1	-	100	10	6	10	20	D 107	WN	100	DRY5	0465406244S25DR5.16
D.32	1A1	-	125	10	6	10	20	D 107	WN	100	DRY5	0511707244S25DR5.16
D.55	1A1	-	125	10	6	10	20	B126	WD	75	DRY6	051170725X619DR6.16

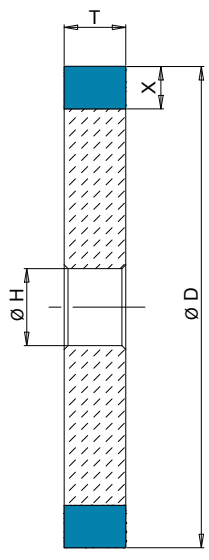
Wet grinding on CNC machines — Resin bond

PREMIUM QUALITY

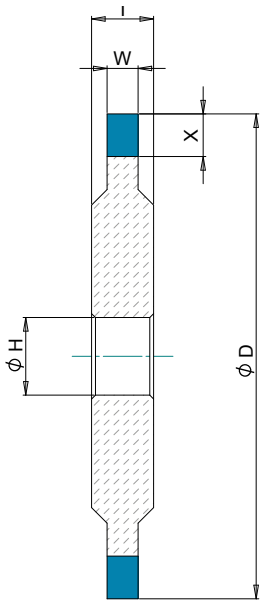
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
F.01	14A1	-	75	6	6	10	20	D 64	W	125	CNC3	0049804211628CN3.16
F.03	14A1	-	100	8	6	10	20	D 76	W	125	CNC3	0389050221628CN3.16
F.04	1A1	-	100	10	6	10	20	D 91	W	125	CNC3	0465406231628CN3.16
F.05	1A1	-	100	12	6	12	20	D 91	W	125	CNC3	0151303231628CN3.16

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
F.19	1A1	-	75	10	6	10	20	D 76	WN	125	CNC3	0463002224S28CN3.16
F.20	14A1	-	100	8	6	10	20	D 76	WN	125	CNC3	0389050224S28CN3.16
F.21	14A1	-	125	8	6	13	20	D 76	WN	125	CNC3	0338808224S28CN3.16



1A1



14A1

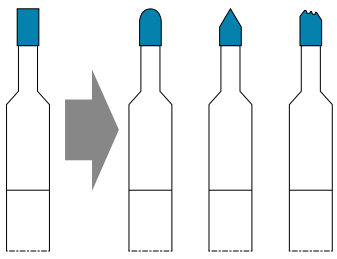
DIAMOND WHEELS TO BE PROFILED

Peripheral wheels for general purpose – if requested, trued & dressed according to customer's profile	Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
P.01	3A1	-	75	4	5	6	20	D 64	W	125	RPK	0199709211628291.16
P.02	3A1	-	75	5	5	6	20	D 64	W	125	RPK	0199710211628291.16
P.25	14A1	-	100	2	6	8	20	D64	W	125	RPK	0389009211629291.16
P.13	14A1	-	100	3	6	8	20	D 64	W	125	PRO7	0389008211628PR7.16
P.03	14A1	-	100	3	6	8	20	D 64	W	125	RPK	0389008211628291.16
P.14	14A1	-	100	4	6	8	20	D 64	W	125	PRO7	0389006211628PR7.16
P.04	14A1	-	100	4	6	8	20	D 64	W	125	RPK	0389006211628291.16
P.15	14A1	-	100	6	6	10	20	D 76	W	125	PRO7	0389040221628PR7.16
P.05	14A1	-	100	6	6	10	20	D 76	W	125	RPK	0389040221628291.16
P.16	1A1	-	100	10	6	10	20	D64	W	125	RFK	0465406211628253.16
P.26	14A1	-	125	2	6	8	20	D64	W	125	RPK	E665901211629291.16
P.06	14A1	-	125	3	6	8	20	D 64	W	125	RFK	0338810211628253.16
P.07	14A1	-	125	4	6	8	20	D 64	W	125	RFK	0338820211628253.16
P.08	14A1	-	125	6	6	12	20	D 76	W	125	RFK	0338806221628253.16
P.17	1A1		125	10	6	10	20	D64	W	125	RFK	0511707211628253.16
P.09	14A1	-	150	3	6	6	20	D 64	W	125	RFK	0299405211628253.16
P.10	14A1	-	150	4	6	10	20	D 64	W	125	RFK	0299414211628253.16
P.11	14A1	-	150	6	6	10	20	D 76	W	125	RFK	0299430221628253.16
P.18	14A1	-	125	2	6	8	20	D107	W	125	TOP7	E665901241628TP7.16
P.19	14A1	-	125	3	6	8	20	D107	W	125	TOP7	0338810241628TP7.16
P.20	14A1	-	125	5	6	8	20	D107	W	125	TOP7	0338830241628TP7.16
P.24	4BT9 r=0,5	20°	100	10	1	10	20	D91	W	125	TOP7	0381200231628TP7.16
P.23	4BT9 r=0,5	20°	100	10	1	10	20	B126	W	125	TOP8	0381200252228TP8.16

Profile modification service



DIAMOND WHEELS FOR PRODUCTION AND REGRINDING ON CNC

Peripheral 1V1/ wheels for fluting — Resin bond

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
F.30	1V1/	20°	100	10	6	10	20	D 91	WN	125	CNC3	0040204234S28CN3.16
F.31	1V1/	20°	100	12	6	12	20	D 91	WN	125	CNC3	0040209234S28CN3.16
F.32	1V1/	20°	125	10	6	10	20	D 91	WN	125	CNC3	0345005234S28CN3.16

Peripheral wheels for CNC machines – rotating tools, gashing — Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
C.12	1V1/	45°	125	10	6	10	20	D 76	W	100	PRO7	0758000221624PR7.16
C.40	1V1/	45°	125	10	6	10	20	D 76	W	100	TOP7	0758000221624TP7.16

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
C.59	1V1/	45°	100	10	6	10	20	D76	WN	100	PRO7	E059400224S25PR7.16
C.48	1V1/	45°	125	10	6	10	20	D 76	WN	100	PRO7	0758000224S25PR7.16
C.53	1V1/	45°	125	10	6	10	20	D 76	WN	100	TOP7	0758000224S25TP7.16

Peripheral wheels with trapezoidal rim for getting 1B1V < 30° shapes — Resin bond

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
* F.25	1B1V	-	100	10	6/8	9	20	D 91	WN	125	CNC3	E409700234S28CN3.16
* F.26	1B1V	-	100	12	6/10	11	20	D 91	WN	125	CNC3	E409800234S28CN3.16
* F.27	1B1V	-	125	10	6/8	9	20	D 91	WN	125	CNC3	E409900234S28CN3.16
* F.28	1B1V	-	125	12	6/10	11	20	D 91	WN	125	CNC3	E410000234S28CN3.16

*) E.g. '6/8 : $X_1 = 6$ / $X_2 = 8$

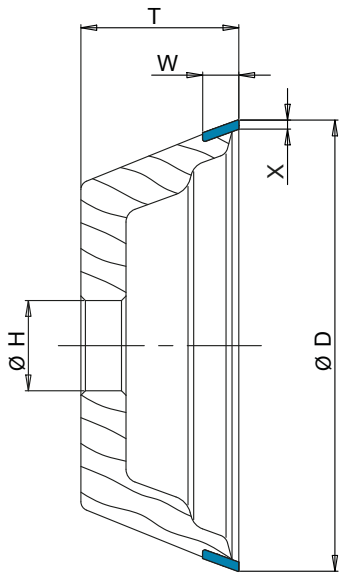
Cup wheels for CNC machines – rotating tools, clearance angles | Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
C.60	11V9G	70	75	10	2	35	20	D 46	W	125	RPK	0204570191628291.16
C.01	11V9G	70°	75	10	2	35	20	D 64	W	125	PRO7	0845403211628PR7.16
C.15	11V9G	70°	75	10	2	35	20	D 64	W	125	TOP7	0845403211628TP7.16
C.02	11V9G	70°	100	10	2	35	20	D 46	W	125	PRO7	0339807191628PR7.16
C.37	11V9G	70°	100	10	2	35	20	D 46	W	125	TOP7	0339807191628TP7.16
C.61	11V9G	70	75	10	2	35	20	D 46	W	125	RPK	0204570191628291.16
C.03	11V9G	70°	100	10	2	35	20	D 64	W	125	PRO7	0339807211628PR7.16
C.16	11V9G	70°	100	10	2	35	20	D 64	W	125	TOP7	0339807211628TP7.16
C.04	11V9G	70°	100	10	2	35	20	D 126	W	125	PRO7	0339807251628PR7.16
C.38	11V9G	70°	100	10	2	35	20	D 126	W	125	TOP7	0339807251628TP7.16
C.05	11V9G	70°	100	10	3	35	20	D 64	W	125	PRO7	0339811211628PR7.16
C.17	11V9G	70°	100	10	3	35	20	D 64	W	125	TOP7	0339811211628TP7.16
C.06	11V9G	70°	100	10	3	35	20	D 91	W	125	PRO7	0339811231628PR7.16
C.39	11V9G	70°	100	10	3	35	20	D 91	W	125	TOP7	0339811231628TP7.16

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
C.43	11V9G	70°	75	10	2	35	20	D 64	WN	125	PRO7	0845403214S29PR7.16
C.50	11V9G	70°	75	10	2	35	20	D 64	WN	125	TOP7	0845403214S29TP7.16
C.44	11V9G	70°	100	10	2	35	20	D 64	WN	125	PRO7	0339807214S29PR7.16
C.51	11V9G	70°	100	10	2	35	20	D 64	WN	125	TOP7	0339807214S29TP7.16
C.45	11V9G	70°	100	10	3	35	20	D 64	WN	125	PRO7	0339811214S29PR7.16
C.52	11V9G	70°	100	10	3	35	20	D 64	WN	125	TOP7	0339811214S29TP7.16



11V9

Cup wheels for CNC machines – rotating tools, gashing

Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
C.09	12V9P	45°	100	10	2	20	20	D 64	W	125	PRO7	0800503211628PR7.16
C.07	12V9P	45°	100	10	2	20	20	D 64	W	125	TOP7	0800503211628TP7.16
C.10	12V9P	45°	125	10	2	25	20	D 64	W	125	PRO7	0800603211628PR7.16
C.08	12V9P	45°	125	10	2	25	20	D 64	W	125	TOP7	0800603211628TP7.16
C.57	12V9P	45°	125	10	3	25	20	D 64	W	125	TOP7	0800606211628TP7.16
C.62	12V9P	45°	125	10	3	25	20	D 91	W	125	RFK	0800606231628253.16

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
C.46	12V9P	45°	100	10	2	20	20	D 64	WN	125	PRO7	0800503214S29PR7.16
C.55	12V9P	45°	100	10	2	20	20	D 64	WN	125	TOP7	0800503214S29TP7.16
C.47	12V9P	45°	125	10	2	25	20	D 64	WN	125	PRO7	0800603214S29PR7.16
C.56	12V9P	45°	125	10	2	25	20	D 64	WN	125	TOP7	0800603214S29TP7.16
C.58	12V9P	45°	125	10	3	25	20	D 64	WN	125	TOP7	0800606214S29TP7.16

Inclined rim cup wheels for CNC machines – rotating tools, spherical clearance angles

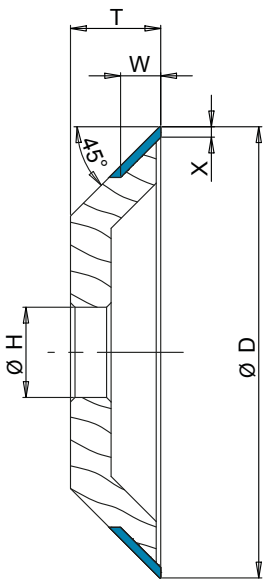
Resin bond

PREMIUM QUALITY

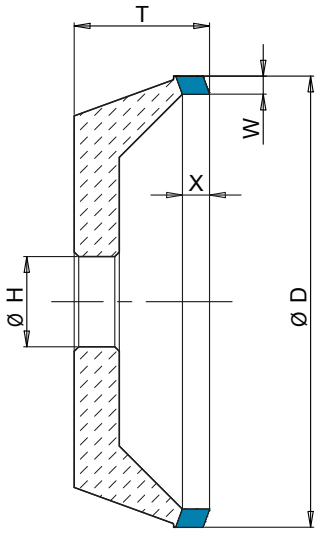
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
C.41	11V5/	20°	100	4	6	30	20	D 46	W	125	TOP7	E194700191628TP7.16
C.14	11V5/	20°	100	4	6	30	20	D 46	W	125	PRO7	E194700191628PR7.16

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
C.49	11V5/	20°	100	4	6	30	20	D 64	WN	125	PRO7	E194700214S29PR7.16
C.54	11V5/	20°	100	4	6	30	20	D 64	WN	125	TOP7	E194700214S29TP7.16



12V9



11V5

CBN WHEELS FOR PRODUCTION AND REGRINDING ON CNC MACHINES

CBN peripheral wheels with inclined rim - gashing and fluting — Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
B.01	1V1/	45°	125	10	6	10	20	B 107	W	100	PRO8	0758000242224PR8.16
B.28	1V1/	45°	125	10	6	10	20	B 107	W	100	TOP8	0758000242224TP8.16

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
B.55	1V1/	20°	125	10	6	10	20	B 91	WD	125	CNC2	034500523X628CN2.16
B.40	1V1/	45°	125	10	6	10	20	B 107	WD	100	PRO8	075800024X625PR8.16

Peripheral wheels for general purpose — Resin bond

STANDARD QUALITY

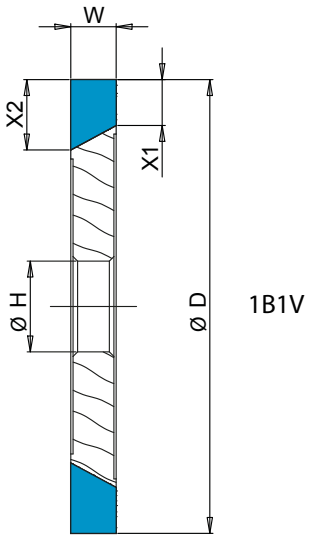
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
B.50	1A1	-	75	6	4	6	20	B 91	WD	100	CNC6	049420423X625CN6.16
B.51	1A1	-	75	8	4	8	20	B 91	WD	100	CNC6	049420523X625CN6.16
B.35	1A1	-	75	10	6	10	20	B 91	WD	125	CNC2	046300223X628CN2.16
B.52	3A1	-	100	4	6	8	20	B 91	WD	100	CNC6	076830123X625CN6.16
B.53	1A1	-	100	6	6	6	20	B 91	WD	100	CNC6	046540423X625CN6.16
B.54	1A1	-	100	8	6	8	20	B 91	WD	100	CNC6	046540523X625CN6.16
B.36	1A1	-	100	12	6	12	20	B 91	WD	125	CNC2	015130323X628CN2.16
B.37	1A1	-	125	12	6	12	20	B 91	WD	125	CNC2	051170823X628CN2.16

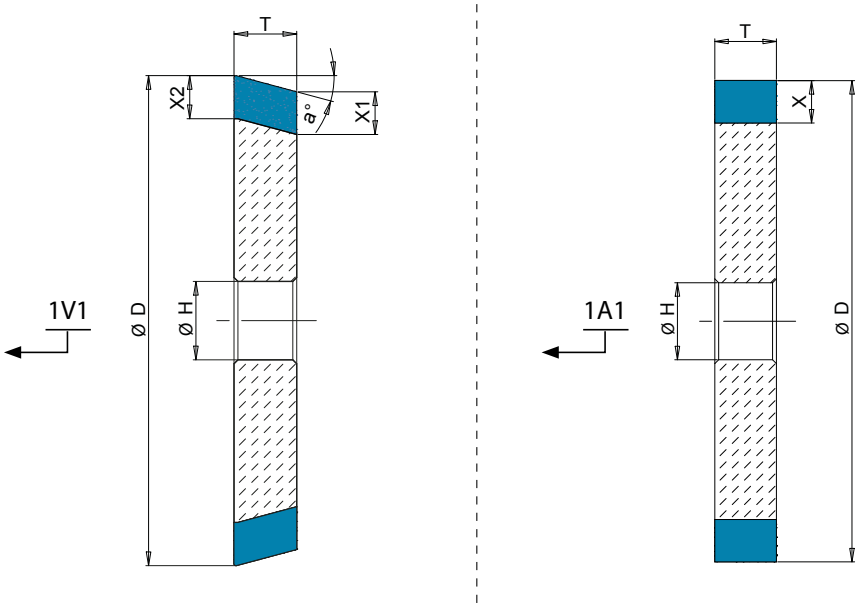
Peripheral wheels with trapezoidal rim for getting 1V1 < 30° shapes | Resin bond

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
* B.38	1B1V	-	100	10	6/8	9	20	B 91	WD	125	CNC2	E40970023X628CN2.16
* B.39	1B1V	-	125	10	6/8	9	29	B 91	WD	125	CNC2	E40990023X628CN2.16

*) E.g. '6/10 : $X_1 = 6$ / $X_2 = 10$





DIAMOND WHEELS FOR MANUAL MACHINES

Conical cup wheels 70° for dry grinding (suggested speed : 3.000 rpm) — Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
D.03	11V9	70°	100	10	2	35	20	D 91	W	75	DRY5	0170670231618DR5.16
D.04	11V9	70°	100	10	2	35	20	D 126	W	75	DRY5	0170670251618DR5.16
D.05	11V9	70°	100	10	3	35	20	D 91	W	75	DRY5	0175550231618DR5.16
D.06	11V9	70°	100	10	3	35	20	D 126	W	75	DRY5	0175550251618DR5.16
D.07	11V9	70°	100	10	3	35	20	D 126	W	75	UNI3	0175550251618UN3.16
D.26	11V9	70°	125	10	3	35	20	D 181	W	75	DRY7	0312608271618DR7.16

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
D.40	11V9	70°	100	10	2	35	20	D 91	WN	100	DRY5	0170670234S25DR5.16
D.41	11V9	70°	100	10	2	35	20	D 126	WN	100	DRY5	0170670254S25DR5.16
D.42	11V9	70°	100	10	3	35	20	D 91	WN	100	DRY5	0175550234S25DR5.16
D.43	11V9	70°	100	10	3	35	20	D 126	WN	100	DRY5	0175550254S25DR5.16
D.52	11V9	70°	125	10	3	35	20	D91	WN	100	UNI5	0312608234S25UN5.16

Conical cup wheels 45° for dry grinding (suggested speed 3.000 rpm) | Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
D.08	12V9P	45°	100	8	2	20	20	D 91	W	100	DRY5	0800501231624DR5.16
D.09	12V9P	45°	100	8	2	20	20	D 126	W	100	DRY5	0800501251624DR5.16
D.47	12V9	45°	125	10	2	25	20	D126	W	75	DRY5	0607803251618DR5.16

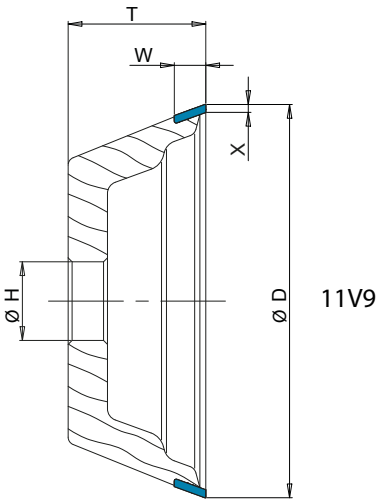
STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
D.45	12V9P	45°	100	8	2	20	20	D 126	WN	100	DRY5	0800501254S25DR5.16
D.48	12V9	45°	125	10	2	25	20	D126	WN	75	DRY5	0607803254S19DR5.16

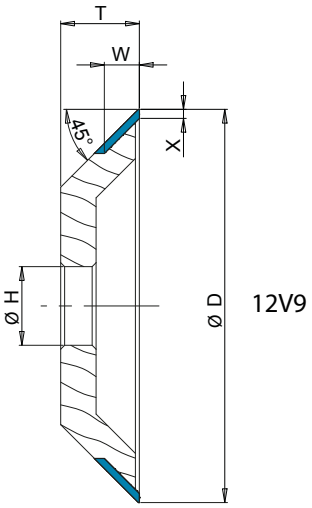
Cup wheels for wet and dry grinding on manual machines | Resin bond

PREMIUM QUALITY

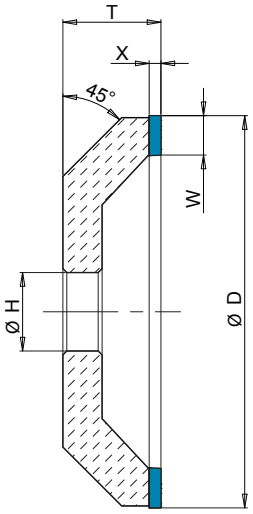
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
U.01	12A2/	45°	100	6	3	25	20	D 107	W	75	UNI3	0017140241618UN3.16
U.20	12A2/	45°	100	10	3	25	20	D 126	W	75	UNI3	0017160251618UN3.16



11V9



12V9



12A2 / 45°

CBN WHEELS FOR MANUAL MACHINES

CBN wheels for dry grinding of HSS steel (suggested speed : 6.000 rpm) | Resin bond

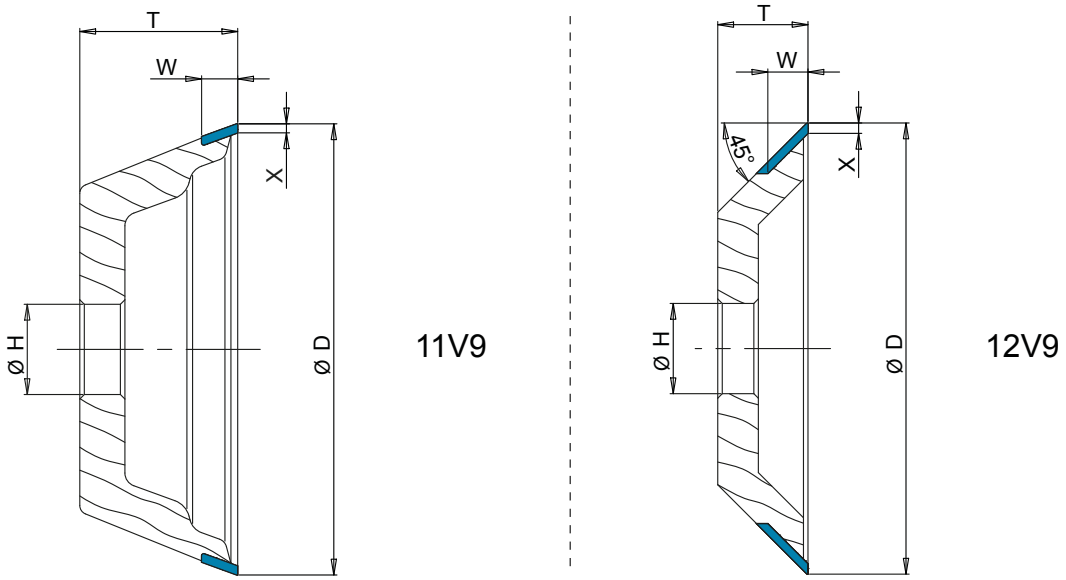
STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
D.23	11V9	70°	100	10	2	35	20	B 126	WD	75	KS7	017067025X621KS7.16
D.24	11V9	70°	100	10	2	35	20	B 181	WD	75	KS7	017067027X621KS7.16
D.46	11V9	70°	100	10	3	35	20	B 181	WD	75	KS7	017555027X621KS7.16
D.49	11V9	70°	100	10	2	35	20	B 151	WD	100	DRY6	017067026X625DR6.16
D.53	11V9	70°	125	10	3	35	20	B 126	WD	100	UNI4	031260825X625UN4.16
D.54	11V9	70°	100	10	3	35	20	B 181	WD	75	DR6	017555027X621DR6.16

CBN wheels for dry grinding of HSS steel (suggested speed : 6.000 rpm) | Resin bond

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
D.25	12V9P	45°	100	8	2	20	20	B 126	WD	100	DRY6	080050125X624DR6.16



CBN WHEELS TO GRIND HSS TOOLS ON CNC MACHINES

CBN cup wheels for CNC machines – rotating tools, clearance angles | Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
B.03	11V9G	70°	100	10	2	35	20	B 91	W	125	PRO8	0339807232228PR8.16
B.29	11V9G	70°	100	10	2	35	20	B 91	W	125	TOP8	0339807232228TP8.16
B.04	11V9G	70°	100	10	2	35	20	B 126	W	125	PRO8	0339807252228PR8.16
B.30	11V9G	70°	100	10	2	35	20	B 126	W	125	TOP8	0339807252228TP8.16
B.05	11V9G	70°	100	10	3	35	20	B 91	W	125	PRO8	0339811232228PR8.16
B.31	11V9G	70°	100	10	3	35	20	B 91	W	125	TOP8	0339811232228TP8.16
B.49	11V9G	70°	100	10	3	35	20	B126	W	125	TOP8	0339811252228TP8.16

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
B.48	11V9G	70°	75	10	2	35	20	B 91	WD	125	TOP8	084540323X629TP8.16
B.41	11V9G	70°	100	10	2	35	20	B 91	WD	125	TOP8	033980723X629TP8.16
B.42	11V9G	70°	100	10	2	35	20	B 126	WD	125	PRO8	033980725X629PR8.16
B.43	11V9G	70°	100	10	3	35	20	B 91	WD	125	TOP8	033981123X629TP8.16
B.44	11V9G	70°	100	10	3	35	20	B 126	WD	125	PRO8	033981125X629PR8.16

CBN cup wheels for CNC machines – rotating tools, gashing | Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
B.08	12V9P	45°	100	10	2	20	20	B 91	W	100	PRO8	0800503232224PR8.16
B.33	12V9P	45°	100	10	2	20	20	B 91	W	100	TOP8	0800503232224TP8.16
B.07	12V9P	45°	125	10	2	25	20	B 91	W	100	PRO8	0800603232224PR8.16
B.32	12V9P	45°	125	10	2	25	20	B 91	W	100	TOP8	0800603232224TP8.16

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
B.46	12V9P	45°	100	10	2	20	20	B 91	WD	125	TOP8	080050323X629TP8.16
B.45	12V9P	45°	125	10	2	25	20	B 91	WD	125	TOP8	080060323X629TP8.16

CBN inclined rim cup wheels for CNC machines – rotating tools, spherical clearance angles | Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
B.09	11V5/	20°	100	4	6	30	20	B 91	W	125	PRO8	E194700232228PR8.16
B.34	11V5/	20°	100	4	6	30	20	B 91	W	125	TOP8	E194700232228TP8.16

DIAMOND & CBN CUTOFF WHEELS

Cutoff discs for dry and wet grinding of carbide bars — Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
T.30	1A1R	-	75	1	5	0,8	10	D 151	W	100	RPN	E405900261624041.07
T.01	1A1R	-	100	1,0	5,0	0,8	20	D 151	W	100	DRY7	0407810261624DR7.16
T.02	1A1R	-	125	1,1	5,0	0,9	20	D 151	W	100	DRY7	0432900261624DR7.16
T.04	1A1R	-	200	1,2	7,0	1,0	20	D 126	W	100	DRY7	0147006251624DR7.16
T.05	1A1R	-	200	1,2	7,0	1,0	22	D 126	W	100	DRY7	0147006251624DR7.18
T.06	1A1R	-	200	1,2	7,0	1,0	32	D 126	W	100	DRY7	0147006251624DR7.25
* T.08	1A1R	-	200	1,2	7,0	1,0	30+3	D 126	W	100	DRY7	0968202251624DR7.55
T.24	1A1R	-	150	1,2	7,0	1,0	20	D 126	WH	100	CNC3	0622005251725CN3.16
T.25	1A1R	-	200	1,2	7,0	1,0	20	D 126	WH	100	CNC3	0147006251725CN3.16

*) 30+3; hole 30 + 3 guide holes

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
T.23	1A1R	-	150	1,2	5,0	1,0	20	D 151	WN	100	DRY7	0436520264S24DR7.16
T.21	1A1R	-	150	1,2	7,0	1,0	20	D 151	WN	100	DRY7	0622005264S24DR7.16
T.22	1A1R	-	150	1,2	7,0	1,0	20	D 151	WN	100	PRO5	0622005264S24PR5.16

Cutoff discs for dry and wet grinding of carbide bars — Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
T.10	1A1R	-	100	1,0	5,0	0,8	20	D 151	W	100	PRO5	0407810261624PR5.16
T.11	1A1R	-	125	1,1	5,0	0,9	20	D 151	W	100	PRO5	0432900261624PR5.16
T.13	1A1R	-	200	1,2	7,0	1,0	20	D 126	W	100	PRO5	0147006251624PR5.16
T.14	1A1R	-	200	1,2	7,0	1,0	22	D 126	W	100	PRO5	0147006251624PR5.18
T.15	1A1R	-	200	1,2	7,0	1,0	32	D 126	W	100	PRO5	0147006251624PR5.25

*) 30+3; hole 30 + 3 guide holes

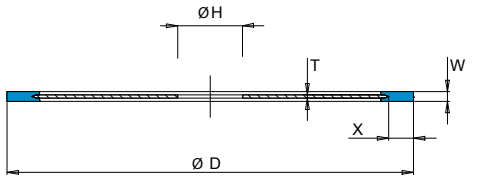
CBN cutoff discs for dry and wet grinding of HSS bars — Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
T.31	1A1R	-	75	1	5	0,8	10	B 126	W	75	CNC2	E405900252218CN2.07

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
T.17	1A1R	-	150	1,2	7,0	1,0	20	B 151	WD	100	CNC2	062200526X624CN2.16
T.18	1A1R	-	200	1,2	7,0	1,0	20	B 151	WD	100	CNC2	014700626X625CN2.16
T.19	1A1R	-	100	1,1	5,0	0,8	20	B 151	WD	100	CNC2	040780626X625CN2.16
T.20	1A1R	-	125	1,3	5,0	1,0	20	B 151	WD	100	CNC2	043291126X625CN2.16



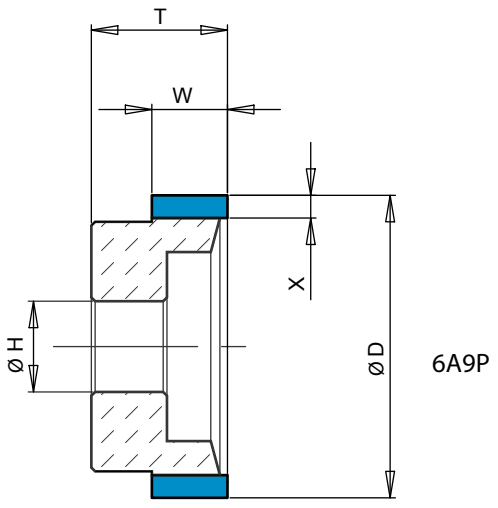
1A1R

DIAMOND & CBN WHEELS FOR INTERNAL GRINDING

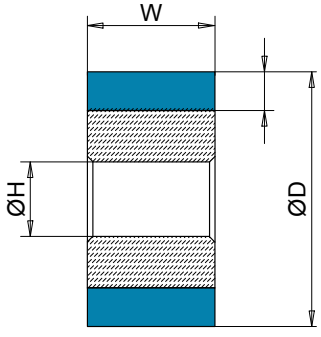
Diamond and CBN cylindrical wheels for internal grinding												Resin bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
I.05	1A1	-	50	10	4	10	20	B 151	W	100	UNI4	0175104262224UN4.16
I.A2	1A1	-	50	10	4	10	20	D 126	W	100	UNI3	0175104251624UN3.16

Diamond cylindrical wheels with side extension for internal grinding												Resin bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
I.A5	6A9P	-	20	10	2	16	8	D 126	W	100	UNI3	0484602251624UN3.06
I.A4	6A9P	-	25	10	2	20	8	D 126	W	100	UNI3	0778700251624UN3.06
I.06	6A9P	-	30	10	3	20	8	D 126	W	100	UNI3	0589602251624UN3.06
I.07	6A9P	-	35	10	3	18	8	D 126	W	100	UNI3	E749000251624UN3.06
I.A3	6A9P	-	40	10	3	30	10	D 126	W	100	UNI3	E854300251624UN3.07

CBN cylindrical wheels with side extension for internal grinding												Resin bond
STANDARD QUALITY												
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
I.A1	6A9P	-	20	10	2	16	8	B 126	W	100	UNI4	0484602252224UN4.06
I.01	6A9P	-	25	10	2	20	8	B 151	W	100	UNI4	0778700262224UN4.06
I.02	6A9P	-	30	10	3	20	8	B 151	W	100	UNI4	0589602262224UN4.06
I.03	6A9P	-	35	10	3	18	8	B 151	W	100	UNI4	E749000262224UN4.06
I.04	6A9P	-	40	10	3	30	10	B 151	W	100	UNI4	E854300262224UN4.07
I.A6	6A9P	-	40	15	3	30	10	B 151	W	100	UNI4	E249100262224UN4.07



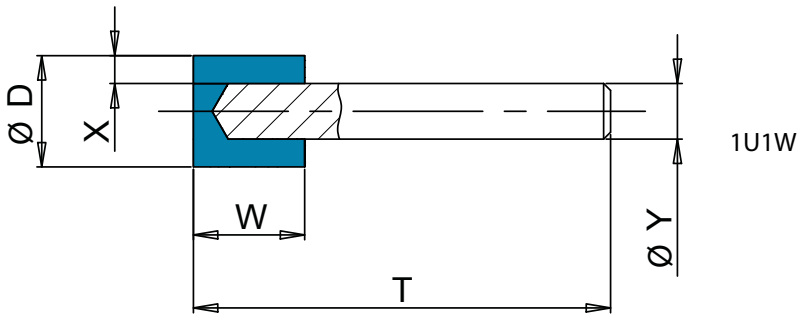
6A9P



1A1

Diamond cylindrical mounted points for internal and jig grinding														Resin bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H		Grit	Qual	Conc.	Bond		Code
I.08	1U1W	-	3	5	0,90	65	3	shank	D 15	S	100	RL2	*	0246600116024001.G3
I.10	1U1W	-	3	5	0,90	65	3	shank	D 126	W	100	RXR	**	0246600251624331.G3
I.13	1U1W	-	4	6	0,75	66	3	shank	D 15	S	100	RL2	*	0293600116024001.G3
I.14	1U1W	-	4	6	0,75	66	3	shank	D 126	W	100	RFK	***	0293600251624253.G3
I.15	1U1W	-	4	6	0,75	66	3	shank	D 126	W	100	RXR	**	0293600251624331.G3
I.18	1U1W	-	5	6	1,50	66	3	shank	D 15	S	100	RL2	*	0246700116024001.G3
I.19	1U1W	-	5	6	1,50	66	3	shank	D 126	W	100	RFK	***	0246700251624253.G3
I.20	1U1W	-	5	6	1,50	66	3	shank	D 126	W	100	RXR	**	0246700251624331.G3
I.24	1U1W	-	6	8	1,50	68	6	shank	D 15	S	100	RL2	*	0246800116024001.G6
I.25	1U1W	-	6	8	1,50	68	6	shank	D 126	W	100	RFK	***	0246800251624253.G6
I.26	1U1W	-	6	8	1,50	68	6	shank	D 126	W	100	RXR	**	0246800251624331.G6
I.23	1U1W	-	6	3,5	1,20	45	6	shank	D 76	W	125	RFK	***	0892700221628253.G6
I.29	1U1W	-	6,5	3,5	1,45	45	6	shank	D 76	W	125	RFK	***	0892701221628253.G6
I.30	1U1W	-	7	3,5	1,70	45	6	shank	D 76	W	125	RFK	***	0892702221628253.G6
I.31	1U1W	-	7	8	1,50	68	6	shank	D 15	S	100	RL2	*	0275500116024001.G6
I.32	1U1W	-	7	8	1,50	68	6	shank	D 126	W	100	RFK	***	0275500251624253.G6
I.33	1U1W	-	7	8	1,50	68	6	shank	D 126	W	100	RXR	**	0275500251624331.G6
I.36	1U1W	-	8	10	2,00	70	6	shank	D 15	S	100	RL2	*	0246900116024001.G6
I.37	1U1W	-	8	10	2,00	70	6	shank	D 126	W	100	RFK	***	0246900251624253.G6
I.38	1U1W	-	8	10	2,00	70	6	shank	D 126	W	100	RXR	**	0246900251624331.G6
I.42	1U1W	-	9	10	2,00	70	6	shank	D 126	W	100	RFK	***	0294100251624253.G6
I.46	1U1W	-	10	11	2,00	71	6	shank	D 15	S	100	RL2	*	0247000116024001.G6
I.48	1U1W	-	10	11	2,00	71	6	shank	D 151	W	100	RFK	***	0247000261624253.G6
I.49	1U1W	-	10	11	2,00	71	6	shank	D 151	W	100	RXR	**	0247000261624331.G6
I.52	1U1W	-	12	11	3,00	71	6	shank	D 15	S	100	RL2	*	0247100116024001.G6
I.53	1U1W	-	12	11	3,00	71	6	shank	D 151	W	100	RFK	***	0247100261624253.G6
I.54	1U1W	-	12	11	3,00	71	6	shank	D 151	W	100	RXR	**	0247100261624331.G6

*) soft bond for superfinishing, **) medium bond, ***) hard bond

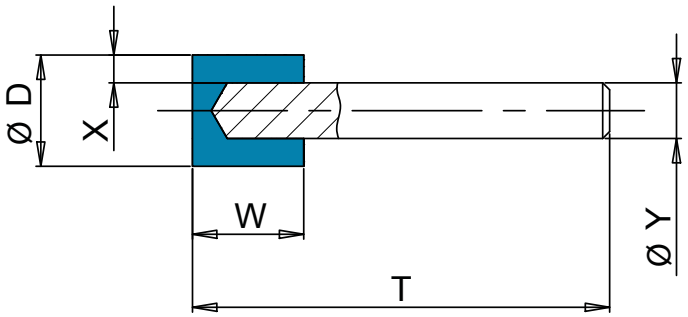


CBN cylindrical mounted points for internal and jig grinding

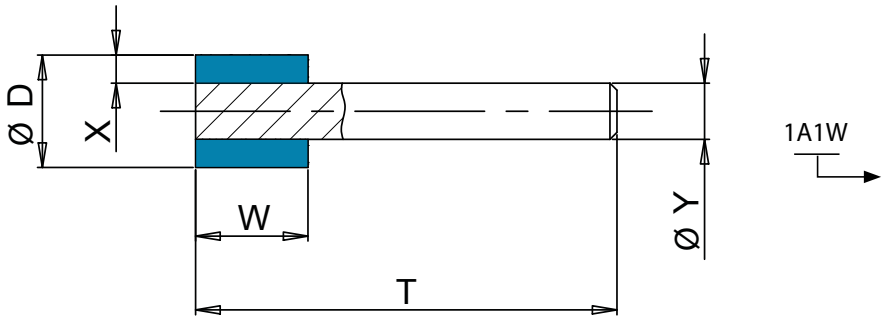
Resin bond

StCode	Shape	Angle	Ø D	W	X	T	Ø H		Grit	Qual.	Conc.	Bond		Code
I.11	1U1W	-	3	5	0,90	65	3	shank	B 126	W	100	RCR	**	0246600252224151.G3
I.16	1U1W	-	4	6	0,75	66	3	shank	B 126	W	100	RCR	**	0293600252224151.G3
I.17	1U1W	-	4	6	0,75	66	3	shank	B 126	W	100	RFK	***	0293600252224253.G3
I.21	1U1W	-	5	6	1,50	66	3	shank	B 126	W	100	RCR	**	0246700252224151.G3
I.22	1U1W	-	5	6	1,50	66	3	shank	B 126	W	100	RFK	***	0246700252224253.G3
I.28	1U1W	-	6	8	1,50	68	6	shank	B 126	W	100	RFK	***	0246800252224253.G6
I.34	1U1W	-	7	8	1,50	68	6	shank	B 126	W	100	RCR	**	0275500252224151.G6
I.39	1U1W	-	8	10	2,00	70	6	shank	B 126	W	100	RCR	**	0246900252224151.G6
I.40	1U1W	-	8	10	2,00	70	6	shank	B 126	W	100	RFK	***	0246900252224253.G6
I.44	1U1W	-	9	10	2,00	70	6	shank	B 126	W	100	RCR	**	0294100252224151.G6
I.47	1U1W	-	10	11	2,00	71	6	shank	B 126	W	100	RCR	**	0247000252224151.G6
I.50	1U1W	-	10	11	2,00	71	6	shank	B 151	W	100	RCR	**	0247000262224151.G6
I.51	1U1W	-	10	11	2,00	71	6	shank	B 151	W	100	RFK	***	0247000262224253.G6
I.55	1U1W	-	12	11	3,00	71	6	shank	B 151	W	100	RCR	**	0247100262224151.G6
I.56	1U1W	-	12	11	3,00	71	6	shank	B 151	W	100	RFK	***	0247100262224253.G6

*) soft bond for superfinishing, **) medium bond, ***) hard bond



1U1W



1A1W

Diamond cylindrical mounted points for internal and jig grinding

Electroplated bond

StCode	Shape	Angle	Ø D	W	X	T	Ø H		Grit	Qual.	Conc.	Bond	Code
I.58	1U1W	-	1,5	5	0,2	55	3	shank	D 76	S	200	GAL	8000501222634014.GD
I.59	1U1W	-	1,5	5	0,2	55	3	shank	D 107	S	200	GAL	8000501242634014.GD
I.61	1U1W	-	2,0	5	0,2	55	3	shank	D 76	S	200	GAL	8000502222634014.GD
I.62	1U1W	-	2,0	5	0,2	55	3	shank	D 107	S	200	GAL	8000502242634014.GD
I.64	1U1W	-	2,5	5	0,2	55	3	shank	D 76	S	200	GAL	8000503222634014.GD
I.65	1U1W	-	2,5	5	0,2	55	3	shank	D 107	S	200	GAL	8000503242634014.GD
I.67	1U1W	-	3,0	5	0,2	60	3	shank	D 76	S	200	GAL	8000504222634014.GD
I.68	1U1W	-	3,0	5	0,2	60	3	shank	D 107	S	200	GAL	8000504242634014.GD
I.70	1U1W	-	3,5	5	0,2	60	3	shank	D 107	S	200	GAL	8000400242634014.GD
I.72	1U1W	-	4,0	5	0,2	60	3	shank	D 107	S	200	GAL	8000401242634014.GD
I.74	1U1W	-	4,5	6	0,2	60	3	shank	D 107	S	200	GAL	8000402242634014.GD
I.76	1U1W	-	5,0	6	0,2	60	3	shank	D 107	S	200	GAL	8000403242634014.GD
I.78	1U1W	-	6,0	8	0,2	80	6	shank	D 151	S	200	GAL	8000505262634014.GD
I.80	1U1W	-	5,0	8	0,2	80	6	shank	D 151	S	200	GAL	8000506262634014.GD
I.82	1U1W	-	7,0	10	0,2	80	6	shank	D 151	S	200	GAL	8000404262634014.GD
I.84	1U1W	-	8,0	10	0,2	80	6	shank	D 151	S	200	GAL	8000405262634014.GD
I.86	1U1W	-	9,0	10	0,2	80	6	shank	D 151	S	200	GAL	8000406262634014.GD
I.96	1A1W	-	10,0	10	0,2	70	8	shank	D 151	S	200	GAL	8003700262634014.GD
I.88	1U1W	-	10,0	10	0,2	80	6	shank	D 151	S	200	GAL	8000407262634014.GD
I.97	1A1W	-	12,0	10	0,2	70	8	shank	D 151	S	200	GAL	8003701262634014.GD
I.90	1U1W	-	12,0	10	0,2	90	6	shank	D 151	S	200	GAL	8000408262634014.GD
I.92	1U1W	-	14,0	10	0,2	90	6	shank	D 151	S	200	GAL	8000409262634014.GD
I.94	1U1W	-	15,0	10	0,2	90	6	shank	D 151	S	200	GAL	8000410262634014.GD
I.99	1A1W	-	18,0	10	0,2	100	8	shank	D 151	S	200	GAL	8003704262634014.GD
I.A0	1A1W	-	20,0	10	0,2	100	8	shank	D 151	S	200	GAL	8003705262634014.GD

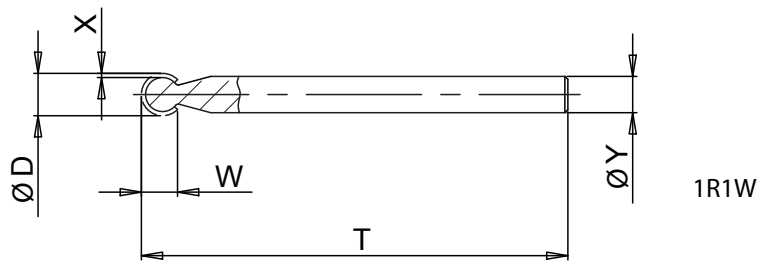
CBN cylindrical mounted points for internal and jig grinding

Electroplated bond

StCode	Shape	Angle	Ø D	W	X	T	Ø H		Grit	Qual.	Conc.	Bond	Code
I.60	1U1W	-	1,5	5	0,2	55	3	shank	B 107	S	200	GAL	8000501242934014.GD
I.63	1U1W	-	2,0	5	0,2	55	3	shank	B 107	S	200	GAL	8000502242934014.GD
I.66	1U1W	-	2,5	5	0,2	55	3	shank	B 107	S	200	GAL	8000503242934014.GD
I.69	1U1W	-	3,0	5	0,2	60	3	shank	B 107	S	200	GAL	8000504242934014.GD
I.71	1U1W	-	3,5	5	0,2	60	3	shank	B 107	S	200	GAL	8000400242934014.GD
I.73	1U1W	-	4,0	5	0,2	60	3	shank	B 107	S	200	GAL	8000401242934014.GD
I.77	1U1W	-	5,0	6	0,2	60	3	shank	B 107	S	200	GAL	8000403242934014.GD
I.79	1U1W	-	6,0	8	0,2	80	6	shank	B 181	S	200	GAL	8000505272934014.GD
I.81	1U1W	-	5,0	8	0,2	80	6	shank	B 181	S	200	GAL	8000506272934014.GD
I.83	1U1W	-	7,0	10	0,2	80	6	shank	B 181	S	200	GAL	8000404272934014.GD
I.85	1A1W	-	8,0	10	0,2	80	6	shank	B 181	S	200	GAL	8000405272934014.GD
I.87	1A1W	-	9,0	10	0,2	80	6	shank	B 181	S	200	GAL	8000406272934014.GD
I.89	1U1W	-	10,0	10	0,2	80	6	shank	B 181	S	200	GAL	8000407272934014.GD
I.91	1U1W	-	12,0	10	0,2	90	6	shank	B 181	S	200	GAL	8000408272934014.GD
I.93	1A1W	-	14,0	10	0,2	90	6	shank	B 181	S	200	GAL	8000409272934014.GD
I.95	1A1W	-	15,0	10	0,2	90	6	shank	B 181	S	200	GAL	8000410272934014.GD

Diamond ball head mounted points													Electroplated bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H		Grit	Qual.	Conc.	Bond	Code
I.R3	1R1W	R1,5	3,0	3,0	0,19	50	3	shank	D 151	S	200	GAL	8002203262634014.GD
I.R5	1R1W	R1,75	3,5	3,5	0,19	50	3	shank	D 151	S	200	GAL	8002200262634014.GD
I.R6	1R1W	R2	4,0	4,0	0,19	50	3	shank	D 151	S	200	GAL	8002204262634014.GD
I.2R	1R1W	R3	6,0	6,0	0,19	70	6	shank	D 151	S	200	GAL	8002206262634014.GD
I.6R	1R1W	R4	8,0	8,0	0,19	70	6	shank	D 151	S	200	GAL	8002208262634014.GD
I.AR	1R1W	R5	10,0	10,0	0,19	70	6	shank	D 151	S	200	GAL	8002210262634014.GD

CBN ball head mounted points													Electroplated bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H		Grit	Qual.	Conc.	Bond	Code
I.R0	1R1W	R1	2,0	2,0	0,19	50	3	shank	B 107	SB	200	GAL	8002202242934014.GD
I.R2	1R1W	R1,5	3,0	3,0	0,19	50	3	shank	B 107	SB	200	GAL	8002203242934014.GD
I.R4	1R1W	R1,75	3,5	3,5	0,19	50	3	shank	B 107	SB	200	GAL	8002200242934014.GD
I.5R	1R1W	R3,5	7,0	7,0	0,19	70	6	shank	B 181	SB	200	GAL	8002207272934014.GD
I.BR	1R1W	R5	10,0	10,0	0,19	70	6	shank	B 181	SB	200	GAL	8002210272934014.GD



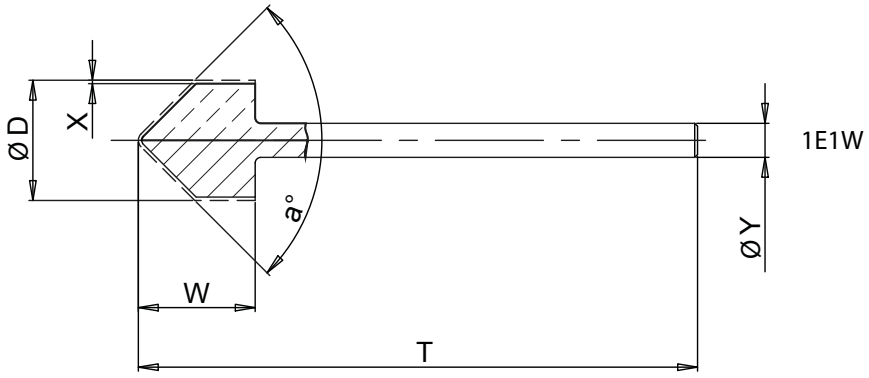
1R1W

Diamond conical head mounted points — Electroplated bond

StCode	Shape	Angle	Ø D	W	X	T	Ø H		Grit	Qual.	Conc.	Bond	Code
I.V0	1E1W/	60°	8,0	10,0	0,20	80	6	shank	D 151	S	200	GAL	8004600262634014.GD
I.V2	1E1W/	60°	10,0	10,0	0,20	80	6	shank	D 151	S	200	GAL	8004601262634014.GD
I.V4	1E1W/	60°	12,0	10,0	0,20	80	6	shank	D 151	S	200	GAL	8004602262634014.GD
I.V6	1E1W/	90°	8,0	10,0	0,20	80	6	shank	D 151	S	200	GAL	8004603262634014.GD
I.V8	1E1W/	90°	10,0	10,0	0,20	80	6	shank	D 151	S	200	GAL	8004604262634014.GD
I.1V	1E1W/	90°	12,0	10,0	0,20	80	6	shank	D 151	S	200	GAL	8004605262634014.GD

CBN conical head mounted points — Electroplated bond

StCode	Shape	Angle	Ø D	W	X	T	Ø H		Grit	Qual.	Conc.	Bond	Code
I.V5	1E1W/	60°	12,0	10,0	0,20	80	6	shank	B 181	S	200	GAL	800460227A334014.GD
I.V9	1E1W/	90°	10,0	10,0	0,20	80	6	shank	B 181	S	200	GAL	800460427A334014.GD
I.2V	1E1W/	90°	12,0	10,0	0,20	80	6	shank	B 181	S	200	GAL	800460527A334014.GD

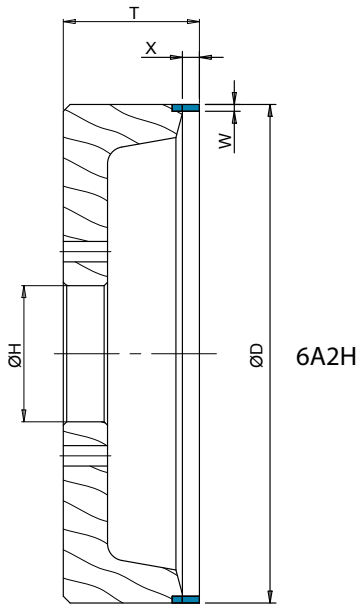


DIAMOND WHEELS FOR POLYCRYSTALLINE

Cylindrical cup wheels for PCD – PCBN tools sharpening on EWAG RS15 or Coborn machines	Vitrified bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
P.C4	6A2H	-	148	3	4	40	40+2	D 20	SP	125	V6DM	V030400G41UMF6DM.FD
P.C3	6A2H	-	150	6	6	40	40+2	D 20	SP	125	V6DM	V009100G41UMF6DM.FD
P.C2	6A2H	-	150	10	8	40	40+2	D 20	SP	125	V6DM	V002202G41UMF6DM.FD
P.C6	6A2H	-	149	14	8	40	40+2	D 20	SP	125	V6DM	V028402G41UMF6DM.FD
P.C1	6A2H	-	150	20	9	40	40+2	D 20	SP	125	V6DM	V018703G41UMF6DM.FD



DIAMOND FILES

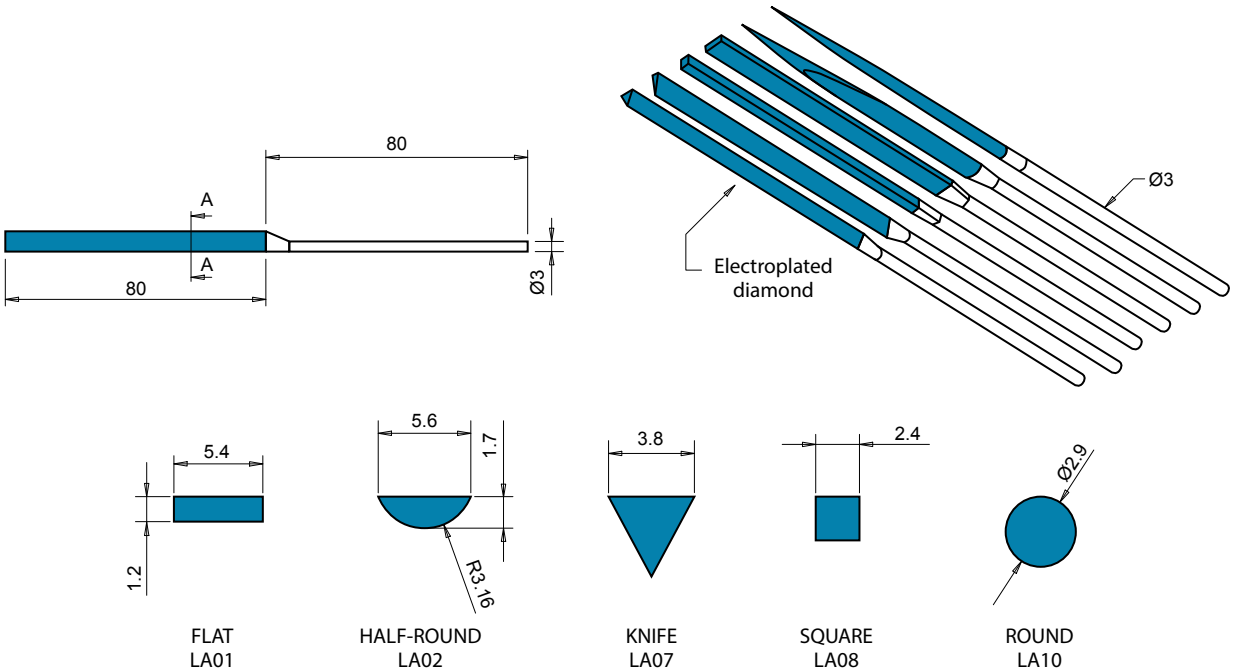
Hand files for universal use – manual reprofiling of RES bonded wheels											Metal bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
Z.06	FILE	-	50	20	4	180	-	D 252	S	75	M1	E77640030U818012

Manual tool for radius wheels reprofiling											Electroplated bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
Z.15	QUICK RADIUS	-	34	20	0,5	150	-	D 427	S	200	GAL	8020300016334018

Hand files for universal use – coarse grit size											Electroplated bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
Z.G1	FILE	LA01	6	80	1,5	160	-	D 151	S	200	GAL	8001501262634014
Z.G2	FILE	LA02	6	80	2	160	-	D 151	S	200	GAL	8001502262634014
Z.G7	FILE	LA07	4	80	4	160	-	D 151	S	200	GAL	8001507262634014
Z.G8	FILE	LA08	4	80	4	160	-	D 151	S	200	GAL	8001508262634014
Z.G0	FILE	LA10	3,5	80	3,5	160	-	D 151	S	200	GAL	8001510262634014

Hand files for universal use - fine grit size											Electroplated bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
Z.F1	FILE	LA01	6	80	1,5	160	-	D 46	S	200	GAL	8001501192634014
Z.F2	FILE	LA02	6	80	2	160	-	D 46	S	200	GAL	8001502192634014
Z.F7	FILE	LA07	4	80	4	160	-	D 46	S	200	GAL	8001507192634014
Z.F0	FILE	LA10	3,5	80	3,5	160	-	D 46	S	200	GAL	8001510192634014

Hand files for carbide cutting edge rounding											Electroplated bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
Z.03	FILE	-	35	10	3	130	-	D 76	S	75	RPR	0030400224118031
Z.04	FILE	-	35	10	3	130	-	D 54	S	75	RPR	0030400204118031

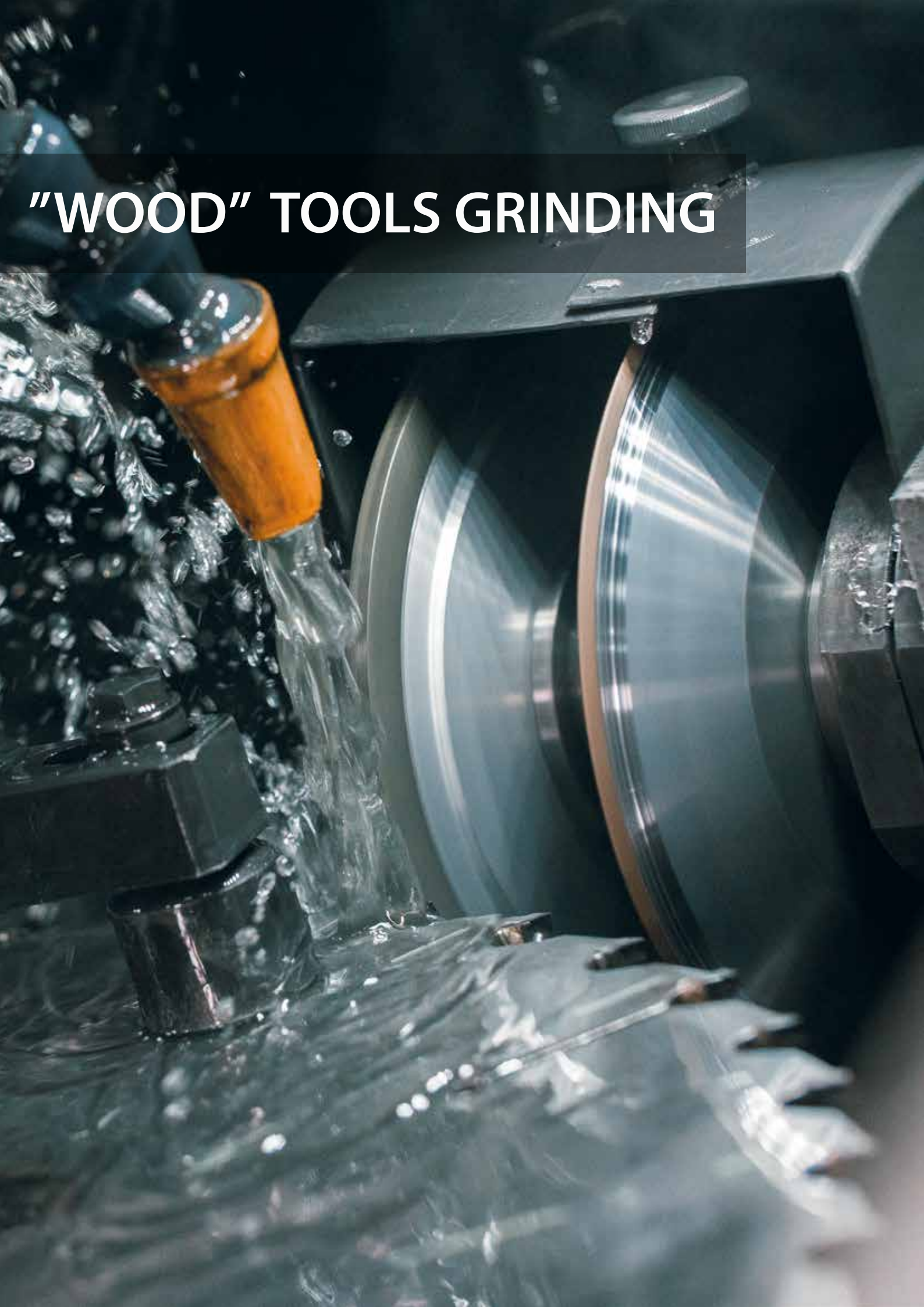


DIAMOND PELLETS

Pellets for spherical grinding bells – carbide coated ball valves | Resin bond

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
Z.11	PELLET	-	8	8	6	10	32	D 252	T	100	DRY3	0898601301524DR3
Z.12	PELLET	-	12	12	9	15	32	D 252	T	100	DRY3	E014200301524DR3
Z.13	PELLET	-	18	18	9	15	32	D 252	T	100	RRG	E013900301524706



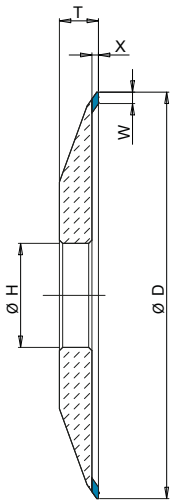
”WOOD” TOOLS GRINDING

DIAMOND WHEELS FOR CARBIDE SAWS

Dish wheels for face grinding – carbide tipped circular saws – fitted to Vollmer CHP-CX-CHC											Resin bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
V.24	4V2	35°	125	3,5	2	12	32	D 64	WN	100	CNC3	0532000214S25CN3.25

Dish wheels for face grinding – carbide tipped circular saws – fitted to Woodtronic or Akemat B											Resin bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
V.25	4V2	35°	160	3,5	2	12	32	D 64	WN	125	CNC3	0920400214S27CN3.25

Dish wheels for face grinding – carbide tipped circular saws – fitted to Vollmer CH or Woodtronic NC5											Resin bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
V.35	4V2	-	100	3,5	2	10	25+CH	D 64	W	100	RTR	04199002116241 91.22
V.44	4V2	35°	125	3,5	2	12	25+CH	D 91	W	100	RTR	04211002316241 91.22
V.36	4V2	-	125	3,5	2	12	32	D 64	W	100	RTR	0532000211624191.25
V.26	4V2	35°	200	3,5	2	12	32	D 54	WN	125	CNC3	0822000204S27CN3.25



4V2

Dish wheels for face grinding – narrow teeth circular saws – fitted to Vollmer CHP-CX-CHC

Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
V.22	SHARK5	25°	125	17	1,3	13	32	D 64	W	125	PRO5	E734700211628PR5.25

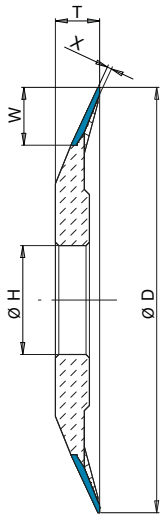
STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
V.27	SHARK5	25°	125	17	1,3	13	32	D 64	WN	125	PRO5	E734700214S28PR5.25
V.28	SHARK4	20°	125	17	1,5	12	32	D 64	WN	125	PRO5	E734400214S28PR5.25

Dish wheels for face grinding – narrow teeth circular saws – fitted to Vollmer CHD or Woodtronic NC5

Resin bond

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
V.29	SHARK4	20°	200	17	1,5	12	32	D 64	WN	125	CNC7	E736600214S27CN7.25
V.34	SHARK4	20°	200	17	1,5	12	32	D 46	WN	100	CNC5	E736600194S25CN5.25



SHARK

Disc wheels for side grinding – carbide tipped circular saws – fitted to Vollmer Duo CHF

Resin bond

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
V.32	3A1	-	100	4	6	10	32	D 76	WN	100	UNI3	0426100224S25UN3.25

Double rim cup wheels for back grinding – carbide tipped circular saws

Resin bond

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
V.37	11VV9	-	100	5	6	20	25+CH	D46/126	W	90/110	R59/R59	0432500561660998.22
V.30	11VV9	-	125	5	6	20	32	D46/126	WN/WN	100/125	CNC3/CN3	E219800564S62588.25

Double rim cup wheels for circular saw back grinding – fitted to Vollmer CHD or ABN CNC 600

Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
V.18	11AA2/AS	-	125	5	8	20	32	D46/126	W/W	100/125	DRY7/DRY7	E474100561662586.25
V.19	11AA2/AS	-	125	5	8	20	32	D46/126	KR/KR	100/125	CNC3/UNI3	E47410056Z462565.25

Double rim cup wheels for circular saw back grinding – fitted to Vollmer CX

Resin bond

PREMIUM QUALITY

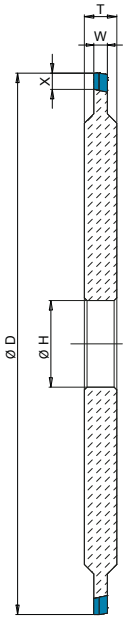
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
V.20	11AA2/AS	-	125	5	6	18	32	D46/126	W/W	100/125	DRY7/DRY7	E274401561662586.25
V.21	11AA2/AS	-	125	5	6	18	32	D46/126	KR/KR	100/125	CNC3/UNI3	E27440156Z462565.25

Double rim disc wheels for circular saw back grinding – fitted to Woodtronic NC5

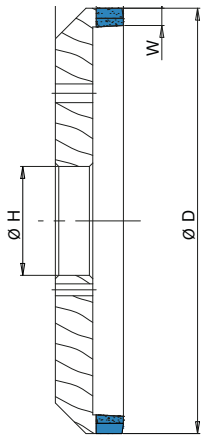
Resin bond

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
V.31	14AA1	-	200	5	6	12	32	D46/126	WN/WN	75/125	CNC3/CNC3	0386801564S48588.25



14AA1



11AA2/AS

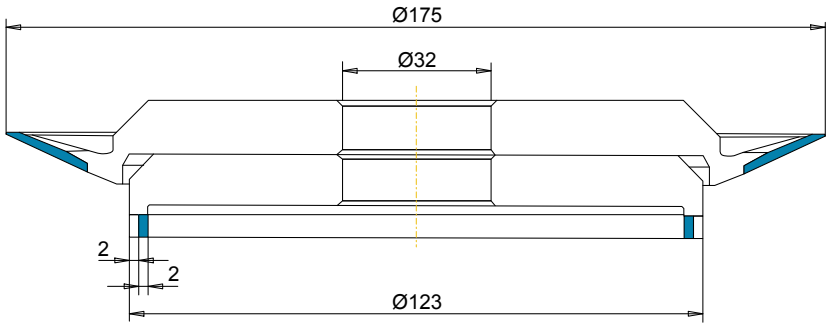
Diamond wheels for carbide saws – for Vollmer CHX 840

Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
V.40	12V9I	25°	175	17	1,3	17,8	32	D54	W	100	CNC5	F085500201625CN5.25
V.41	11A2	-	125	3	5	18	32	D64	W	100	DRY9	F085501211625DR9.25
V.42	12AA2	-	123	4	6	18	32	D46/126	W	100/125	DRY7/DRY7	F085502561662586.25

12V9I



12AA2

DIAMOND & CBN WHEELS FOR LINEAR KNIVES

Cylindrical cup wheels for dry & wet sharpening on manual machines											Resin bond
StCode	Shape	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
U.12	6A2	150	10	4	27	20	D 46	W	68	UNI3	0014360191616UN3.16

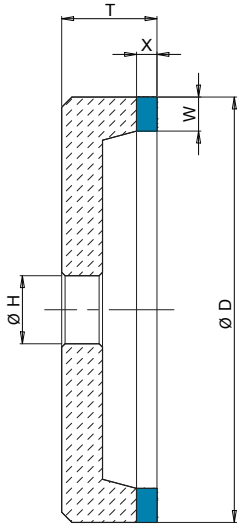
Cylindrical cup wheels for linear blades sharpening – fitted to Göckel machines											Resin bond
StCode	Shape	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
U.23	6A2H	200	6	6	42	50	D 151	WN	100	DRY7	E321001264S25DR7.31

CBN cylindrical cup wheels for linear blades sharpening – fitted to Göckel machines											Resin bond
StCode	Shape	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
U.16	6A2H	200	6	6	42	50	B 151	WD	100	CNC4	E32100126X625CN4.51
U.34	6A2H	200	6	6	42	50+3	B 181	WD	75	RCS	E32100127X619311.51

Cylindrical cup wheels for linear blades sharpening – fitted to MVM machines											Resin bond
StCode	Shape	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
U.11	6A2	150	6	3	50	20	D 107	W	75	UNI3	0087502241618UN3.16
U.33	6A2	175	6	6	25	20	B 151	WD	75	TOP8	092050026X619TP8.16
U.17	6A2	175	6	2	45	78	B 181	W	75	RCR	0783112272218151.39

CBN cylindrical cup wheels for linear blades sharpening – fitted to MVM machines											Resin bond
StCode	Shape	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
U.02	6A2	125	5	3	45	20	B 151	W	75	UNI6	0235912262218UN6.16
U.06	6A2S	150	5	4	50	20	B 151	W	75	RCS	07067002622183 11.16
U.18	6A2	150	5	4	50	20	B 151	W	75	RCS	0087505262218311.16

CBN cylindrical cup wheels for linear blades sharpening – fitted to MVM K250 machines											Resin bond
StCode	Shape	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
U.19	6A2H	250	6	6	34	127	B 151	W	75	R058	0130901262218058.42
U.35	6A2H	250	6	6	34	127+6	B 181	WD	75	RCS	013090127X619311.43



6A2

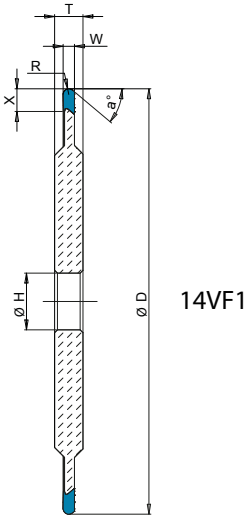
CBN WHEELS FOR CIRCULAR AND BAND SAWS

Radius wheels for teeth profiling – HSS circular saws – fitted to Businaro											Resin bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
L.37	14FF1/	R0,8	150	1,6	5	8	32	B 107	WD	125	TOP6	E97300424X628TP6.25
L.38	14FF1/	R1,0	150	2	5	8	32	B 107	WD	125	TOP6	E97300124X628TP6.25
L.39	14FF1/	R1,25	150	2,5	5	8	32	B 107	WD	125	TOP6	E97300224X628TP6.25
L.40	14FF1/	R1,5	150	3	5	8	32	B 107	WD	125	TOP6	E97300024X628TP6.25

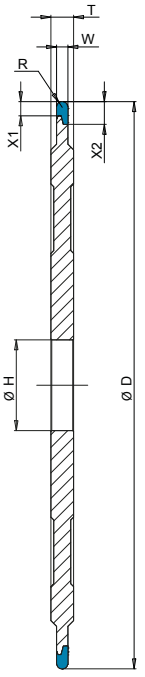
Radius wheels for teeth profiling – HSS circular saws – fitted to Loroch											Resin bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
L.42	14FF1/	R0,65	200	1,3	8	8	32	B 107	WD	125	TOP6	023690324X628TP6.25
* L.24	14FF1/	R1	200	2	5 / 8	8	32	B 107	WD	125	CNC6	E44920424X628CN6.25
* L.34	14FF1/	R2	200	4	5 / 8	8	32	B 107	WD	125	TOP6	E44920524X628TP6.25
* L.35	14FF1/	R1,5	200	3	5 / 8	8	32	B 107	WD	125	TOP6	E44920224X628TP6.25
* L.36	14FF1/	R1	200	2	5 / 8	8	32	B 107	WD	125	TOP8	E44920424X628TP8.25

*) E.g. '5 / 8 (X1 = 5 / X2 = 8)

Profiled disc wheels for teeth profiling – HSS band saws – fitted on MVM - PG											Resin bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
L.25	14VF1/	40°	150	4	8	10	32	B 181	WD	125	TOP6	E83500127X629TP6.25
L.26	14VF1/	40°	150	4	8	10	32	B 180	WD	125	CNC8	E8350012VX629CN8.25
L.33	14VF1/	R1,5	150	4	8	10	32	B 181	WD	125	TOP6	E83500427X629TP6.25



14VF1



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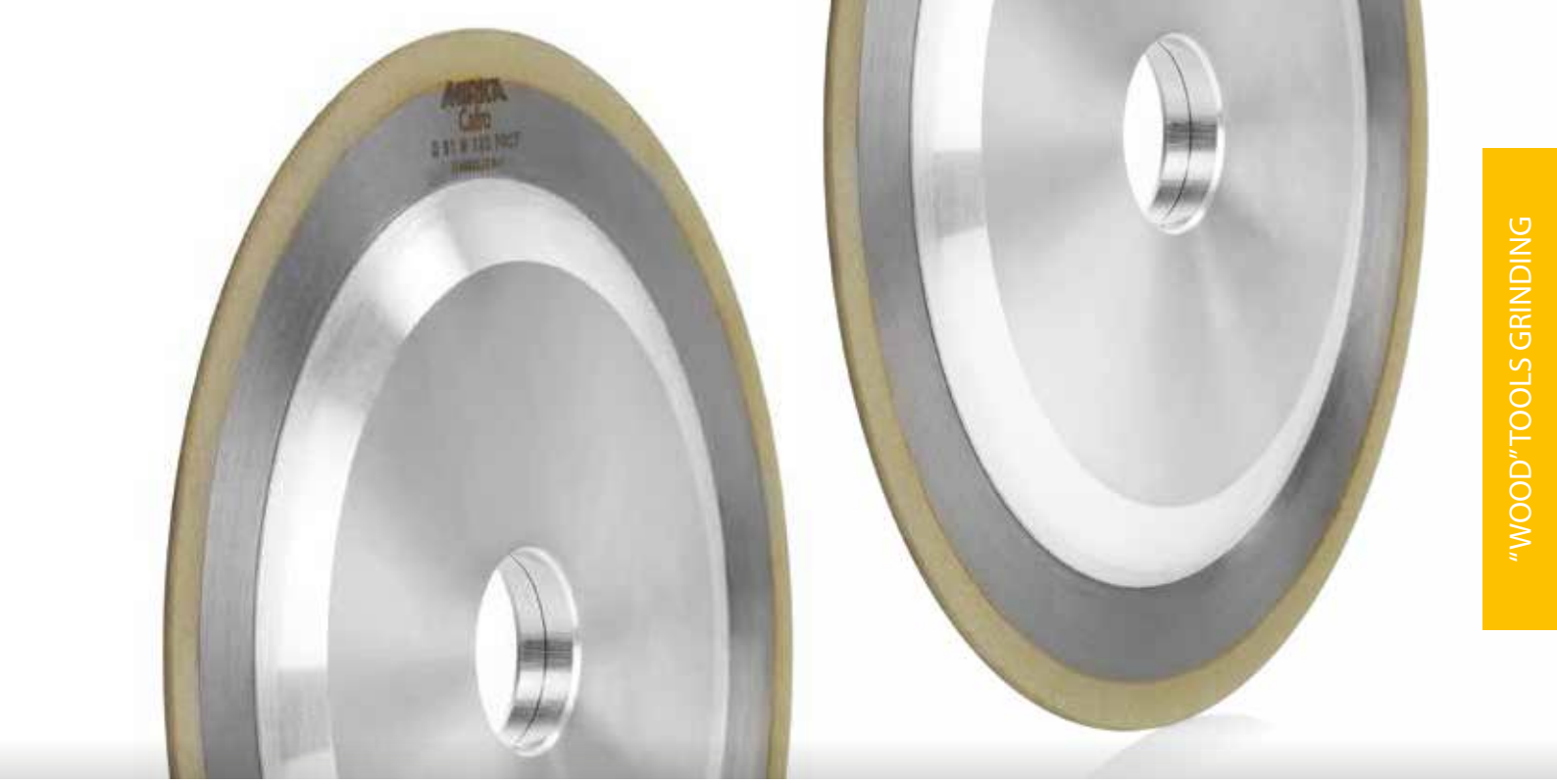
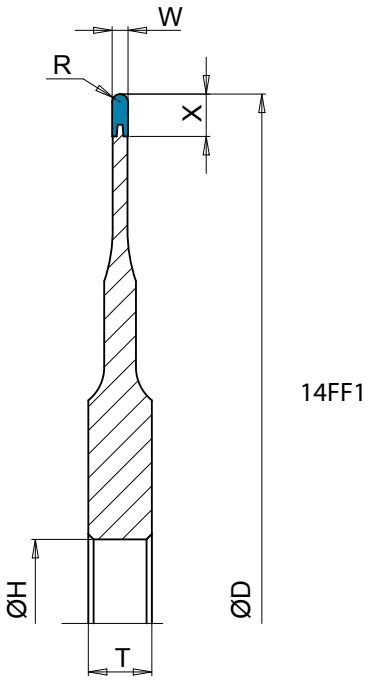


DIAMOND WHEELS FOR HM PROFILING

Roughing and finishing wheels for CNC machines												Resin bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
L.50	14FF1	R1,0 - c.hss	200	2	7	12	20	D76	WN	125	RPK	E931300224S29291.16
L.51	14FF1	R1,5 - c.hss	200	3	7	12	20	D151	WN	125	CNC7	E748900264S29CN7.16

Roughing and finishing wheels for manual machines												Resin bond
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
L.52	14F1Q	R1,0	200	2	7	12	32	D91	W	125	PRO7	0087103231629PR7.25
L.53	14FF1	R1,5	200	3	7	12	32	D181	WN	125	RPKg	E281100274S29705.25



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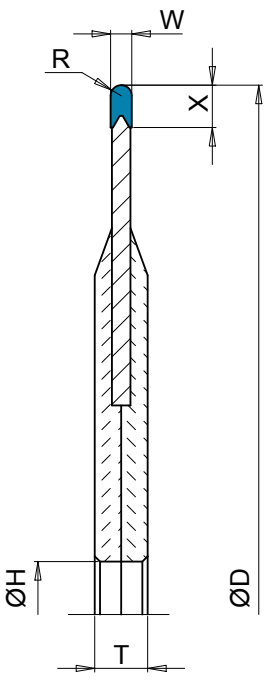


14FQ1

DIAMOND & CBN CUP WHEELS FOR MANUAL GRINDING

Dish wheels for dry & wet sharpening on manual machines — Resin bond

PREMIUM QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
U.10	13A2	20°	150	6	4	21	20	D 91	W	75	UNI3	0022640231620UN3.16
U.39	13A2	20°	150	6	4	21	20	D 76	W	75	R57	0022640221620857.16

STANDARD QUALITY

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
U.25	13A2	20°	150	5	2	19	20	D 91	WN	75	UNI3	0022230234S19UN3.16
U.28	13A2	20°	150	6	4	21	20	D 54	WN	75	UNI3	0022640204S19UN3.16
U.32	13A2	20°	150	5	4	21	20	D91	WN	75	DRY5	0022630234S19DR5.16
U.29	13A2	20°	150	6	4	21	20	D 91	WN	75	UNI3	0022640234S20UN3.16
U.27	13A2	20°	150	6	4	21	20	D 151	WN	75	UNI3	0022640264S19UN3.16

CBN dish wheels for dry & wet sharpening on manual machines — Resin bond

PREMIUM QUALITY

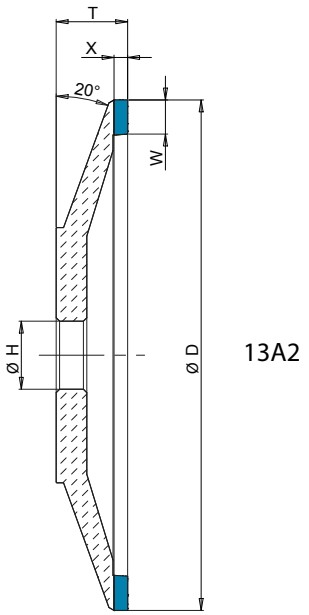
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
U.03	13A2	20°	150	4	3	20	20	B 151	W	75	UNI6	0022420262218UN6.16

STANDARD QUALITY

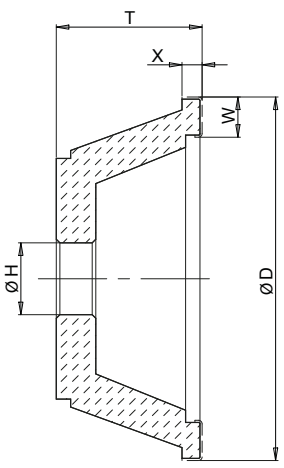
StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
U.15	13A2	20°	150	4	3	20	20	B 151	WD	75	UNI6	002242026X618UN6.16
U.31	13A2	20°	150	4	3	20	20	B151	WD	75	DRY6	002242026X619DR6.16
U.36	13A2	20°	150	5	4	21	20	B151	WD	75	UNI6	002263026X619UN6.16
U.37	13A2	20°	150	5	4	21	20	B181	WD	75	DRY6	002263027X619DR6.16

Cup wheels for pantograph chisel sharpening — Electroplated bond

StCode	Shape	Angle	Ø D	W	X	T	Ø H	Grit	Qual.	Conc.	Bond	Code
U.30	11C2	-	100	10	5	40	20	D 151	S	200	GAL	8990016262634014.FD



13A2



11C2

COMPLEMENTARY PRODUCTS FOR DIA & CBN WHEELS
(not included in the Stocklist)

For trueing and dressing DIA & CBN wheels in resin bond on the operating machine

StCode		Ø D		Code
Z.17	UNIDRESS	100	Pneumatic motor dressing unit	4050000260

For minimal lubrication of the compressed air - in conjunction with the UNIDRESS device

StCode				Code
Z.18	LUBRO-UNID	LUB-200 1/4"	Minimal lubrication device	4050000350

For dry cooling through a frozen air blast

StCode				Code
Z.16	FREEZE BLAST	COD. 2BP 3208	Chilled air nozzle with Venturi pipe	4050000119

DRESSING STICKS: different grits available, for wheel dressing

HONING STICKS: different grits available, for grinding

DIAMOND COMPOUNDS: 5 and 20g syringes with monocrystalline diamond, from grade 1/10 to 90

Do not hesitate to be in contact with your local Mirka Sales Representative for further details.

Mirka® UrmaRolls

Mirka® UrmaRolls: diamond dressing rolls and CBN wheels for high precision grinding

In 2021 Mirka Ltd. acquired Urma Rolls, a storied Italian company specialised in the production of diamond dressing rolls and electroplated CBN grinding wheels. Over its 40-year history, Urma Rolls has developed exclusive production processes capable of extremely high precision, serving global component manufacturers and major grinding machine manufacturers. Mirka UrmaRolls dressing rolls and grinding wheels are widely used in the aeronautic, automotive, energy and marine sectors for the production of components requiring extreme precision, instead of: valves, bearings, injectors, couplings, gears, turbines, vanes and many others.

Quality, technology and tailored solutions to achieve extreme tolerances

The experience and knowledge built over 40 years of operations are the major strength that the Mirka® UrmaRolls technical department provides to customers, working together to identify the best performing solutions.

By analyzing the application in question, Mirka UrmaRolls technicians develop the most suitable solution for the customer, focusing on optimizing the productivity per cycle and lowering the cost per part.

Each Mirka UrmaRolls product undergoes a stringent inspection process, either via optical or contact measuring instruments, measuring against a master that faithfully reproduces the profile of the customer's component.

The quality of the design and the proven knowledge of precison manufacturing techniques make Mirka UrmaRolls the right choice for all applications that demand extreme tolerances.

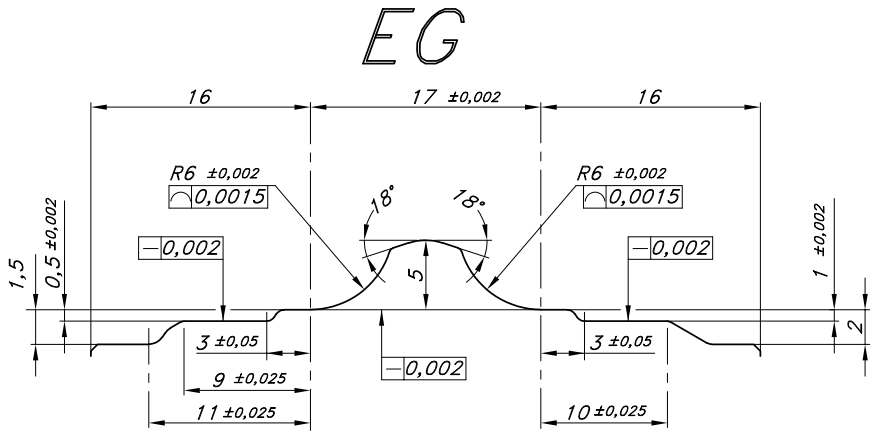
Mirka® UrmaRolls range

DIAMOND ROLLS - EG execution

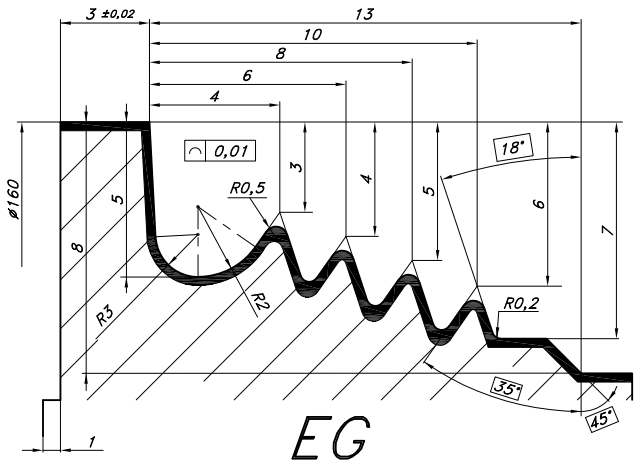
Diamonds are statistically distributed on a negative matrix and then fixed through an electoplating process. Typical applications: grinding precise, complex profiles in the production of bearings, ball screws, and other automotive, aerospace, marine and energy components that demand extreme dimensional and surface finish tolerances.

Examples:

Examples:



MAX DIFFERENZA DIAMETRI FONDO GOLA : 0,003 mm
Ra DA OTTENERE SUL PEZZO: 0,30µ



ELECTROPLATED CBN WHEELS - EB AND EBK EXECUTION

Cubic Boron Nitride (CBN) grains on a steel body produced to tight tolerances. Profiled for either the grinding of parts for aerospace and other high precision industries or for the production of gears (straight and helical, both internal and external).

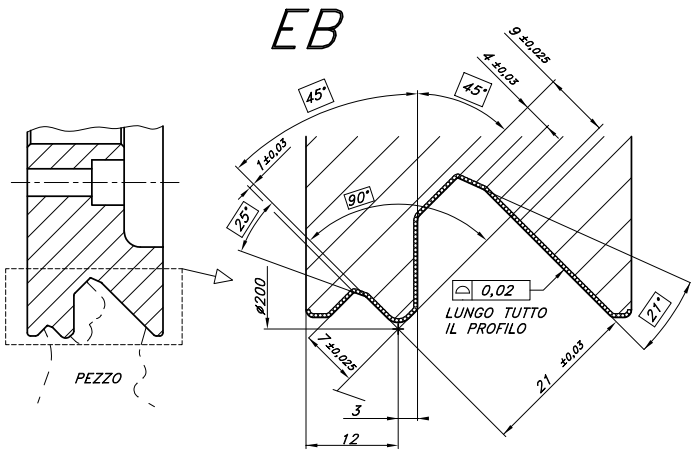
EB execution, typical applications: direct profiling of components, such as those in the aerospace and automotive industries. Maximum performance when used at high speeds with high-pressure coolant.

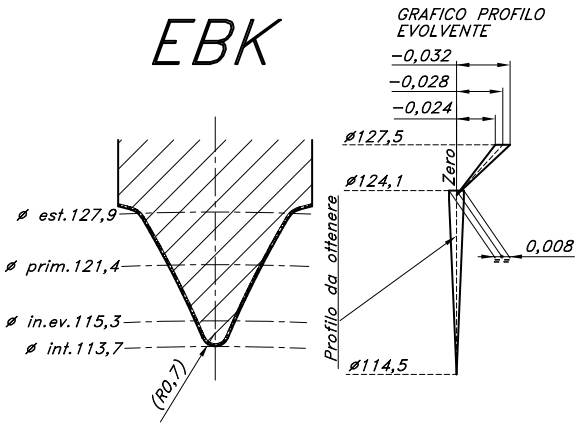
EBK execution, typical applications: direct profiling of components, used in the production of high precision gears for the aerospace and automotive industries. Maximum performance when used at high speeds with high-pressure coolant on high-rigidity grinding machines.

EB EBK

Examples:

Examples:





DIAMOND DRESSING ROLLS - FOR THE PROFILING OF ABRASIVE WHEELS

SN - SN CVD execution: diamonds are manually positioned on a negative matrix and then fixed using sintered metal powder.

Typical applications: (SN) profiling abrasive wheels used for the plunge grinding of automotive components (such as engine valves) or (SN CVD) profiling abrasive wheels on CNC grinding machines to customer specifications.

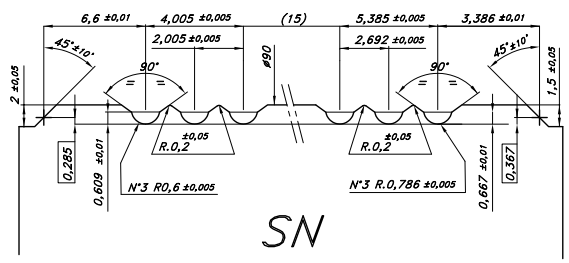
DS execution: statistical disposition of diamonds fixed using sintered metal powder. Typical applications: profiling abrasive grinding wheels for the production of high-precision gears and other components in the aviation and automotive industries.

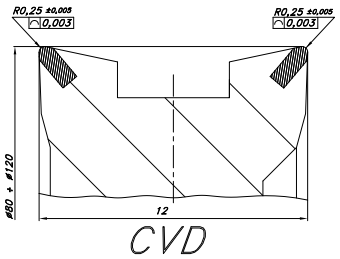
EL execution: diamond grains fixed to a steel body through electoplating. Typical applications: cylindrical profiling of vitrified CBN grinding wheels needed to achieve Ra 0.15-0.20 µm finishes on high precision components such as crankshafts and camshafts.

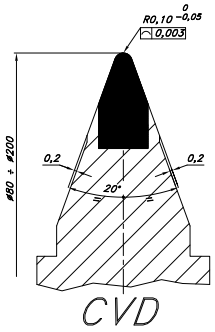
SN SN CVD DS EL

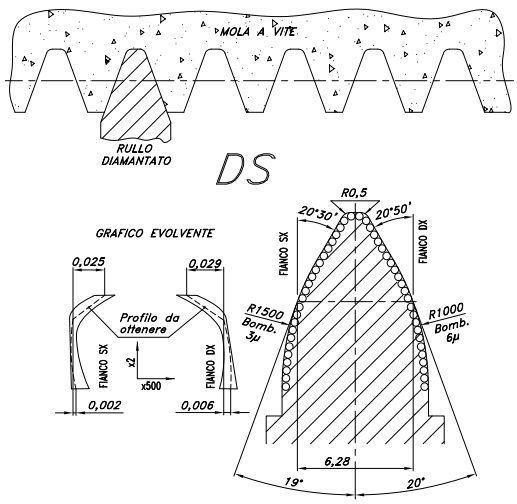
Examples:

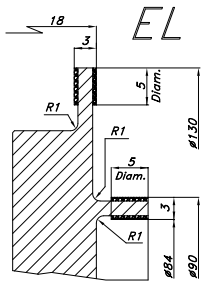
Examples:







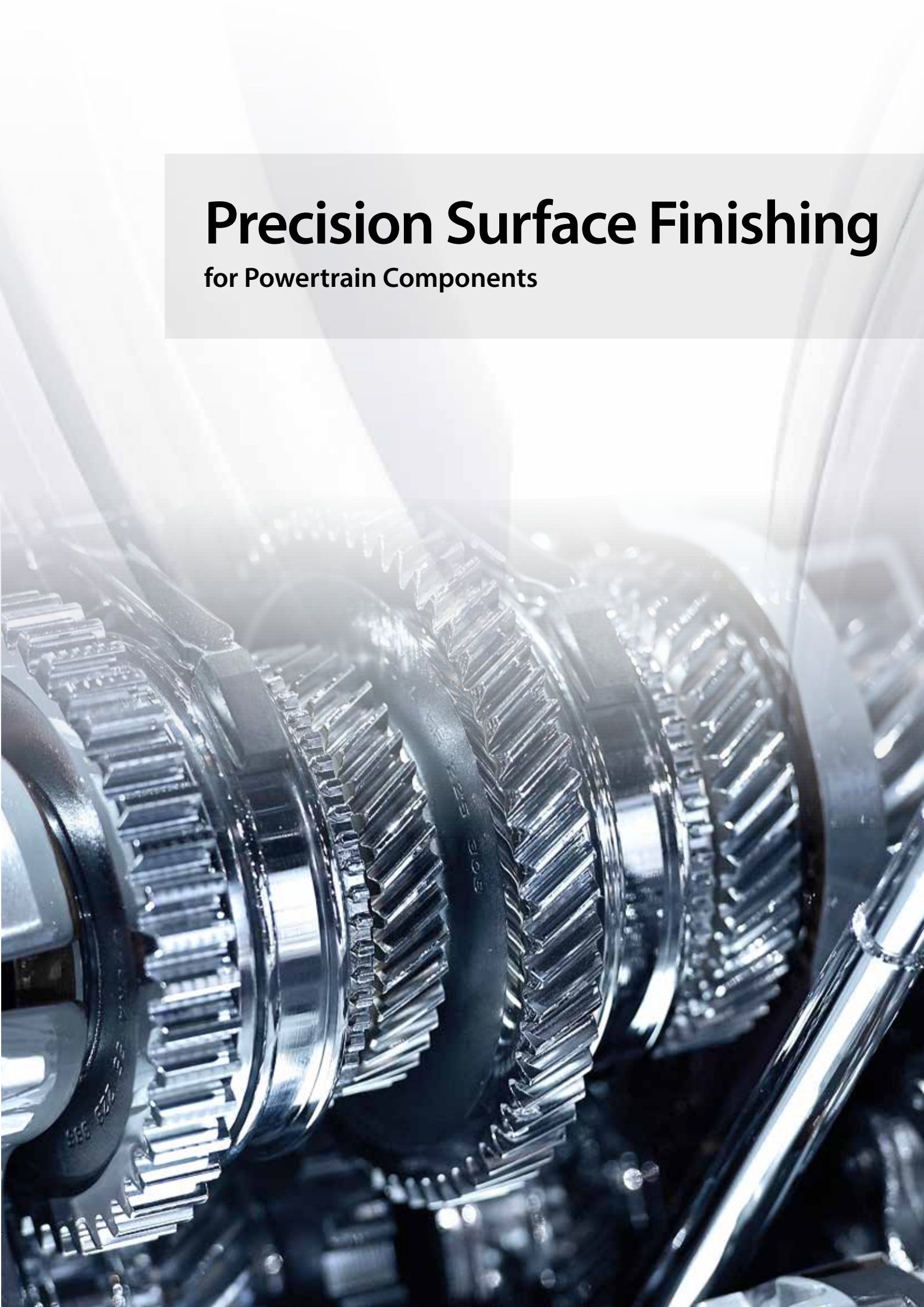




RUGOSITA' SUL PEZZO Ra 0,15µ

Precision Surface Finishing

for Powertrain Components



Mirka, your global partner for optimizing production processes

If you need consistency, productivity, and sustainability, our powertrain portfolio is up to the task; whether through our standard range or custom products for special applications. Through our technical expertise and global logistic network, we can help you cut production and maintenance costs, reduce waste, and improve your product quality. All as a complete turn-key package sure to deliver the peace of mind and total cost reduction you expect from a world-class solutions provider.

» **MORE ON**
PRECISION GRINDING

Why Mirka?

- Flexibility via product customization
- Reliability
- Efficient global supply chain
- Innovative, effective solutions
- Repeatable, consistent manufacturing
- Consistent surface values
- Total cost saving
- Improved component performance
- Environmental sustainability

PRECISION GRINDING
WITH VITRIFIED CBN WHEELS

Vitrified CBN wheels for the high-efficiency precision grinding of ferrous powertrain components.

Vitrified superabrasive wheels are an important bond family, with developments in machine technology enabling increased speeds and more precise grinding. Grinding speeds can approach 140 m/s, with both high material removal and profile stability. Mirka Cafro's vitrified superabrasive wheels can be dressed in the operating machine, just as with conventional abrasive wheels. Our broad product range includes continuous rim diameters from 10 mm to 605 mm, and segmented rims over 750 mm in diameter.

These vitrified wheels are often customised products, produced to the customer's specific requirements. Standard sizes are available with an expedited delivery time. The CBN superabrasive used in these wheels is the abrasive of choice for manufacturing ferrous automotive powertrain components, such as camshafts and crankshafts. Replating services are offered for the replacement or renewal of superabrasive rims on valuable steel bodies.

Single rim vitrified CBN wheels up to a diameter 605 mm, allowing:

- Perfect homogeneity of CBN rim around the entire diameter
- Improved surface finishes with larger CBN grit size
- Improved removal rates
- Fewer grinding steps, shorter cycle time
- Customisable specifications, flexible production
- Global network of technical specialists
- Tolerances down to 0.01-0.02 mm

1 **TOP** PERFORMANCE

Consistent OD results with short grinding times.

- Improved thermal control
- Grinding time reduction
- Single-rim quality

2 **END** RESULTS

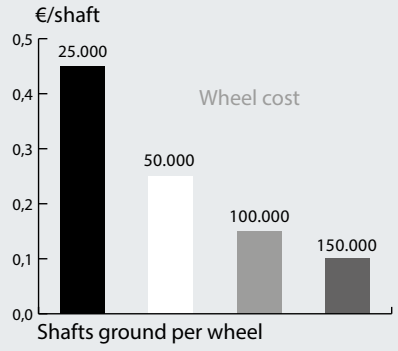
- Optimised wheel dressing time
- Longer time between dressing intervals
- Improved surface value characteristics
- No scatter marks and no burning

3 **LONG-TERM** ADVANTAGE

By the time you reach the final polishing process, you will have a better surface to begin with, including less waving on journal profiles.

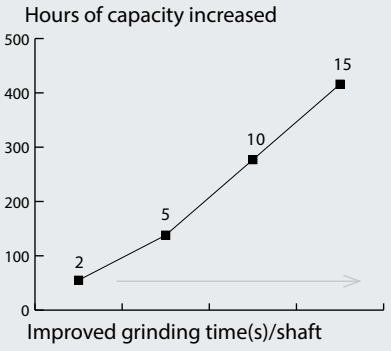
- Superior supply chain – fast and reliable delivery times
- Flexibility and customisation of the products and services
- A total offering with lower TCO, from tools to wheels to tapes
- Peace of mind through supply chain security

COST PER SHAFT



DRESSING INTERVALS VS. LOST DAYS

GRINDING TIME BENEFITS



Mirka abrasive films for polishing

MI231C - Film for coarse and fine polishing

Grain	Aluminium oxide with ceramic coating
Bonding	Low VOC resin system
Backing	5 MIL polyester film, DOT anti-slip treatment
Coating	Semi-open
Colour	Red
Grit range	15 µ (P1200), 20 µ (P800), 30 µ (P500), 40 µ (P360), 50 µ (P280), 60 µ (P220), 80 µ (P180)

COST SAVING WITH GREATER STOCK REMOVAL USING MI231C

Abrasive film product designed for the coarse and fine polishing of powertrain components. The product is more aggressive than standard aluminium oxide films, but produces a fine surface scratch pattern. Fast cutting and resistant to surface loading, MI231C is sure to shorten cycle times.

MI231A - Film for fine polishing

Grain	Aluminium oxide
Bonding	Low VOC resin system
Backing	5 MIL polyester film, DOT anti-slip treatment
Coating	Semi-open
Colour	White
Grit range	9 µ (P2500), 15 µ (P1200), 20 µ (P800), 30 µ (P500), 40 µ (P360)

CONSISTENT QUALITY THROUGH CONSISTENT POLISHING WITH MI231A

Abrasive film product designed for the fine polishing of powertrain components.
Fine cutting and resistant to surface loading, MI231A produces a consistently extra-fine surface scratch pattern.

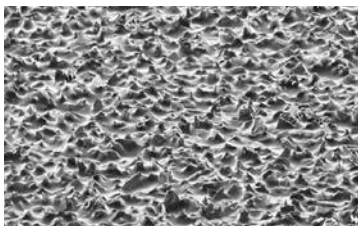
State-of-the-art anti-slip backing

Our unique DOT technology guarantees continuous and trouble free production.

- Excellent friction in wet conditions against all shoe coatings (e.g. steel, diamond, PU)
- Fewer machine stops / roll changes
- Optimised thickness
- Less stocked material needed

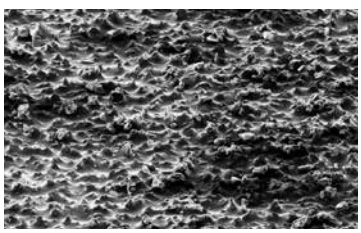
Mirka MI231A 5 MIL 30 µ

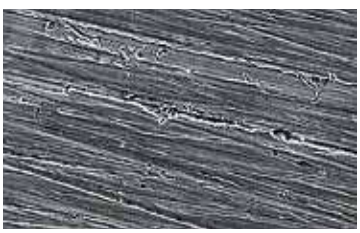
- More exact grain distribution
- Less grains used (optimised)
- Leaves a smoother surface
- Lower and constant R-values
- Reprducible surface



Competitor abrasive 30 µ

- More sand used
- Grain build-up is more expected
- Leaves deeper scratches
- More steps / time needed
- Inconstant surface





Tailored surface texturing with optimal functional values and tribological features

Mirka researchers are carefully analysing and following the market trends and needs in automobile and engine industry. Tolerances in engine manufacturing are extremely tight, and crankshafts and camshaft surface properties are no exceptions. Today's customer expectations require engines to create less noise, vibration and friction, and should be long-lasting and maintenancefree. Governmental and regulatory agencies require engines to use less fuel and oil, and produce lower emissions. This in turn places higher demands on surface finish. Mirka's unique production technology allows our customers to create all manner of surface texturing to improve oil lubrication and friction properties. Optimisation needs in powertrain components:

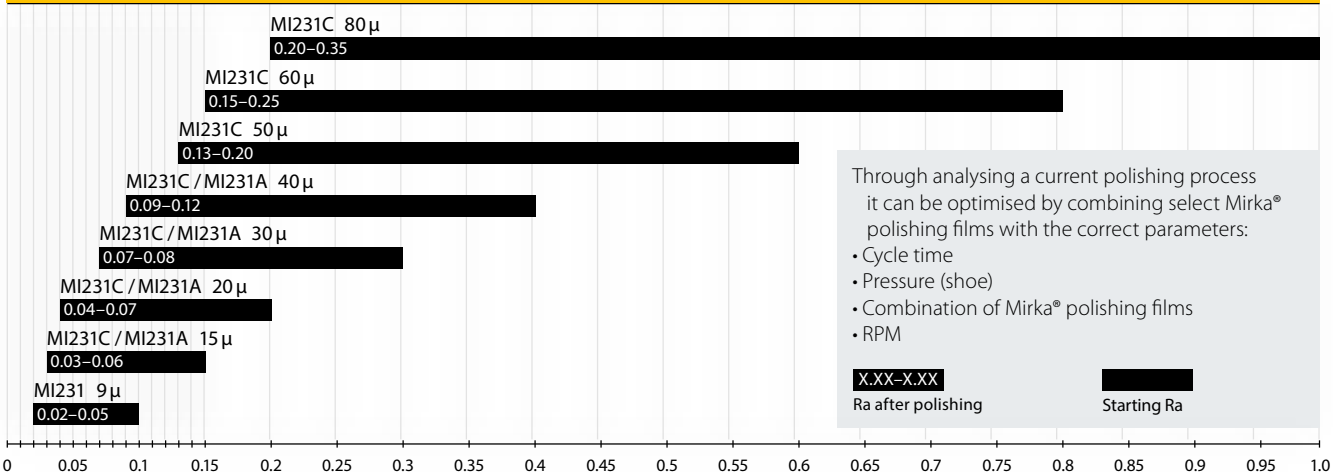
- **Downsizing of engine components**
- **Use of high-performance materials**
- **Weight reductions**
- **Higher speed and cylinder pressures**

All these put even more requirements on polishing process.

Decrease total costs with Mirka® polishing films

FEATURE	ADVANTAGES	END RESULTS	LONG-TERM RESULTS
DOT Anti-Slip	Optimal Thickness Optimal friction	Trouble-free production More material per roll Fewer roll changes Fewer machine stops	20 % thinner material 33 % better than competing products (4 kg force vs. slipping)
Mirka Technology	No grain build-up Anti-loading Improved stock removal Scalloped edges possible	Reproducible, guaranteed values Faster production Less indexing Fewer customer complaints	Less loading Optimised abrasive usage Improved surface values
Technical Know-How	Optimal machine parameters Technical support and assistance Co-development with major machine manufacturers	Faster process Shorter cycle times More capacity Surface texturing possibilities	Same functional values with 50 % shorter cycle time All major machine manufacturers have approved Mirka® material

OPTIMISE THE PROCESS WITH MIRKA® ABRASIVES



Continuous improvement towards sustainability

Changing conditions inspire us to improve and grow our business. We see that our customers are as interested in sustainability as we are. This is why our product development is focused on innovating the best sustainable products and systems, while continually improving our own environmental performance.

Our business is focused on providing the best surface finishing preparation tools and systems to customers. We also offer abrasives and solutions for challenging conditions within the precision industry. To be the most sustainable finishing systems provider, we are digging deep down to the core of our company to figure out what it really means to be sustainable. We have accomplished a great deal already and have many more initiatives we will take on in the future. For people working at Mirka, it has always been clear to not waste financial or material resources – of our own or those of our customers. We find it is equally clear to preserve the planet's resources. Sustainability is a natural extension of this approach. It means taking the economy, the earth, and people into consideration when we make business decisions – now and for future generations. We are continuously looking for opportunities to reduce our environmental footprint – this aligns with our company values and also cuts costs. We have worked hard to conserve energy and raw materials, reduce waste, increase recycling, and decrease the use of persistent chemicals. We are developing healthier, safer, and more efficient products and processes so that our customers and employees will benefit. For example, our dust-free sanding systems help protect the lungs of workers while giving a cleaner and better surface finish..

Notes

Superabrasive wheels for precision grinding.

Behind a Mirka® Cafro wheel is knowledge gained over 50 years of history. There is the experience received while working alongside customers and machine manufacturers. There is the technology and the constant drive for quality, to make diamond and CBN grinding wheels capable of overcoming the toughest challenges. And, above all, there are the Mirka® Cafro Specialists and their expertise, always standing ready to help our Customers find the optimal solution

www.mirka.com/tool-manufacturing

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China Mirka Trading Shanghai Co., Ltd
Finland & Baltics Mirka Ltd
France Mirka France Sarl
Germany Mirka GmbH
India Mirka India Pvt Ltd
Italy Mirka Italia s.r.l., Mirka Superabrasives S.p.A
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