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DIAMANTMETALL®

INDIVIDUAL
PREMIUM

GENERAL CATALOGUE
DIAMOND AND CBN TOOLS

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DR. MÜLLER
DIAMANTMETALL®

INDIVIDUAL
PREMIUM

For **MAXIMUM EFFICIENCY**
in the grinding process

INDIVIDUAL
PREMIUM

Tell us what grinding operation you are currently planning. We will advise you personally and develop the grinding wheel that meets your individual needs exactly. For the highest quality or reliable reproducibility. For productive processes, extended life and calculable investment security. For fascinating grinding performance and continuous optimisation – your requirements are our challenges.

Bild: Martin Unteregger

THE COMPANY
MANUFACTURING

Dr. Müller Diamantmetall AG is located just a stone's throw from Starnberger See. It is a manufacturer like those in the Swiss watch making industry – precision in all respects.

THE COMPANY

Dr. Müller Diamantmetall AG is a company with a remarkable tradition. Its founder, Dr. Wilhelm Müller, invented the metal-bonded diamond grinding wheel in 1935, laying the foundation stone for the company, and to the present day Dr. Müller Diamantmetall AG remains an owner-operated enterprise, with the third generation of the family in charge of its operations.

KNOW-HOW

Thanks to the use of cutting-edge database technology, we are now able to draw on expert knowledge acquired over more than 80 years of diamond tool production. Our own R&D department develops innovative solutions to meet the most complex requirements, while countless innovations and patents highlight our creativity when it comes to developing ingenious technical solutions. This extensive competence in the development of solutions for all application areas guarantees added value from close cooperation with the customer – ensuring the added value that leads to outstanding customer products.

QUALITY

We guarantee ultimate quality and precision for our customers. This professionalism is backed by a database-driven process error management system and DIN ISO 9001:2008 certification since the year 2000.
Thus, you are assured of end-to-end quality control, reproducible product quality and maximum efficiency in your grinding process.

COMPANY HISTORY

INNOVATION FOR MORE THAN 80 YEARS

As an experienced solution partner, Dr. Müller Diamantmetall AG with its Individual Premium brand Dr. Müller Diamantmetall has been there for over 5,000 customers worldwide since more than 80 years.

2017

Ferox – the multi-talent for circumference and face machining.

2014

Progress in occupational safety. Drastic reduction of permanent grinding noise in peel grinding with the SilencePro product innovation.

2011

Extension of digital production control and expansion of company management.

2008

Relocation of production and administration to the new facilities of the third plant in Weilheim, Upper Bavaria.

2008

The XT690 bonding concept makes the grinding process even more efficient and expands the portfolio with a new high-performance bond.

2006

Acquisition and continuation of the company in the third generation by Michael Schulze, grandson of the company's founder.

2004

Beginning of a new technical era through the development of the novel high-performance bonding concept PowerOne.

2002

Expansion of production space with the construction of a second plant in Weilheim, Upper Bavaria.

1989

Start of production of ceramic-bonded diamond and CBN grinding wheels.

1970

Start of production and sales of diamond dressing rolls.

1969

Start of production of resin- and metal bonded CBN grinding wheels.

1965

Start of production of resin-bonded diamond grinding wheels.

1963

Start of production of diamond dressing tools.

1962

Continuation of the company by the second generation after the death of its founder.

1955

Relocation to our own production facilities in Feldafing on the Starnberger See.

1947

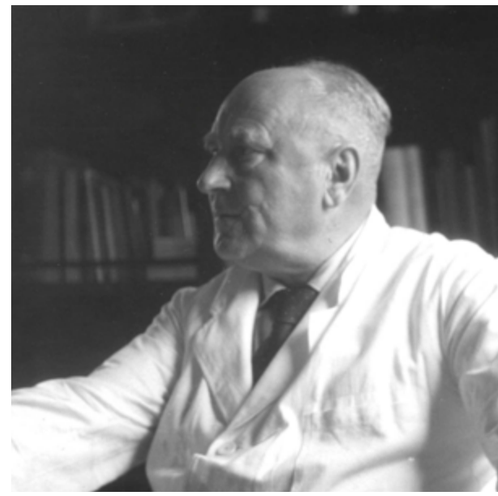
Resumption of production in the greater Munich area.

1944

Destruction of the company in the war.

1935

Founding of the company by Dr. Wilhelm Müller in Berlin. Patent registration and production of metal-bonded diamond grinding wheels.



MAXIMUM
EFFICIENCY

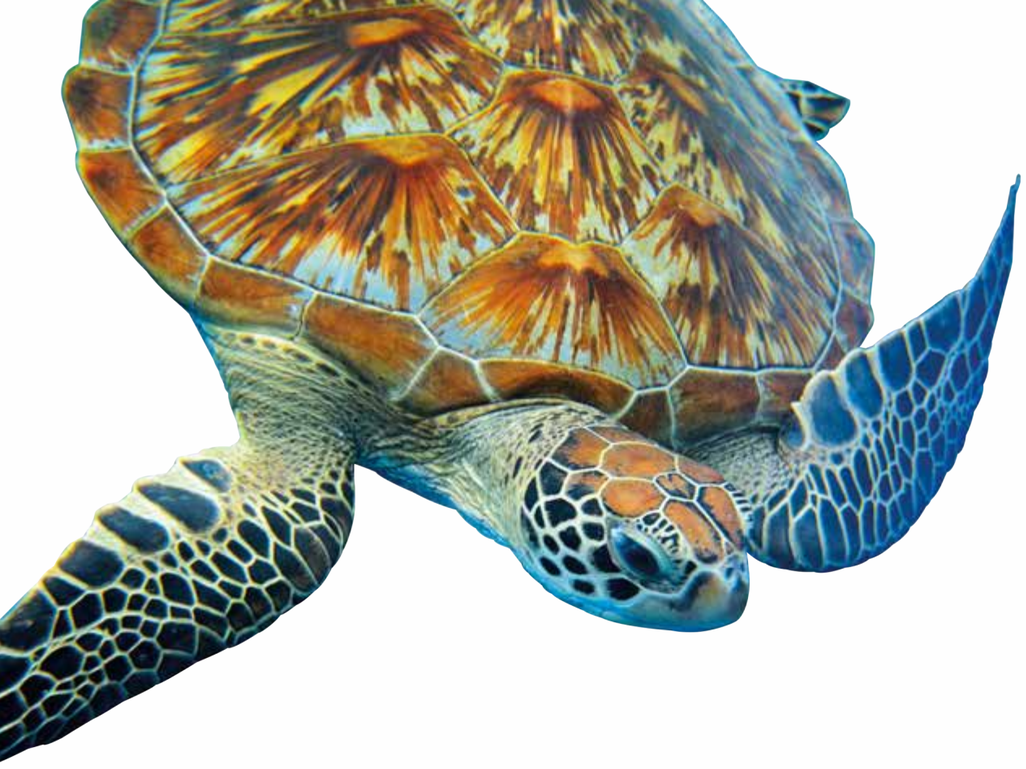
Tell us what technical project you are currently planning. We provide you with personal, competent advice. We develop the best solution for your grinding application – as individual as you wish. That guarantees maximum efficiency in your grinding process.

INCREDIBLE DIVERSITY

More than 155,000 grinding wheel versions in the precision abrasives segment await you in our product portfolio. Our R&D department develops innovative solutions to meet the most complex requirements. We are your partner for completely new development with outstanding vertical integration, based on our knowledge of an incredible diversity of existing solutions.

EXTREMELY LONG
LIFE

Our company is your partner for high-quality products with more than 80 years of experience in the production of CBN and diamond tools.



REASSURING **CONSISTENCY**

As the inventor of the metal-bonded diamond grinding wheel, we have stood by the side of more than 5,000 customers worldwide since 1935. Reap the benefits of our technical solution creativity and our reliable, reproducible product quality for better performance and enhanced safety in your processes.

PERSONAL CONSULTING

INDIVIDUAL SERVICE

We are committed to facing the challenges of the future in close collaboration and at eye level with our customers.

Perhaps you would like to exchange ideas, technician to technician, leading up to new technical challenges. Maybe you want to pursue the continuous improvement of your grinding methods in operational practice as part of dedicated after-sales support, or you need to re-profile and re-sharpen your Dr. Müller Diamantmetall grinding tools. We are available directly on site when needed, getting you ahead with supplementary services.

IMPLEMENTATION AND START-UP PHASE

In order to put your new grinding wheel from Dr. Müller Diamantmetall to use as quickly and easily as possible, one of our experienced application engineers will be happy to assist you in the implementation and start-up phase by request.

AFTER-SALES SUPPORT

New processes require ongoing review. We consider after-sales support an important part of our work in order to guarantee the ongoing improvement of your processes.

REPAIR MANAGEMENT

Trouble-free production without unoccupied time is the main goal of any production manager. We are happy to help you reach this goal with our competent repair service.

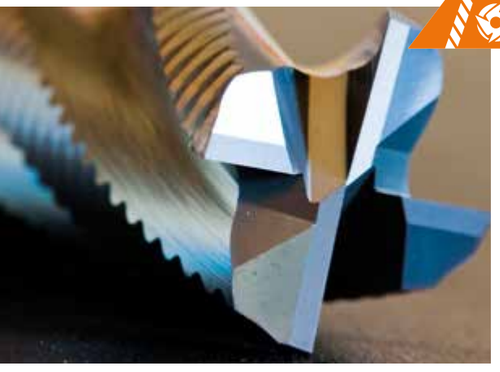
EDUCATION AND USER TRAINING

Your employees have extensive knowledge of your existing processes. We design user education and training by customer request for specific, defined technical topics. The objective is to teach your employees about grinding-related topics and therefore enhance their knowledge.

NEW REQUIREMENTS DAILY

FOCUS INDUSTRIES

The continuous success of a technical solution provider at our level depends on the ability to consider the specific requirements of our customers in their various industries. We have always risen to this special challenge.



TOOL INDUSTRY

- A grinding wheel optimised to meet your requirements guarantees process stability and high removal rates, even in particularly rough production environments.
- Outstanding results in terms of the material removal rate, ease of cutting and edge stability for all drilling, milling, turning and grinding needs.

MECHANICAL ENGINEERING

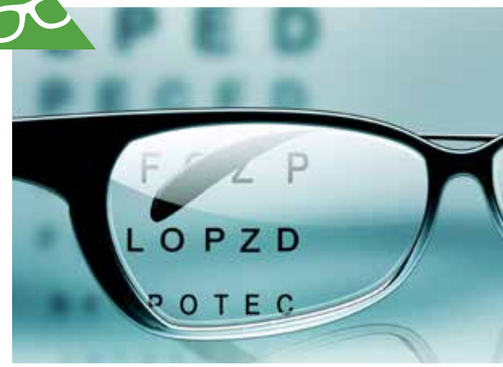
- Your number one choice for special tools and standard products with the highest machining performance, dimensional accuracy, edge stability and profile accuracy.
- Comprehensive consulting for the design of individual CBN and diamond tools for process security in outer circular grinding, flat/slideway and ball bearing spindle grinding.

AVIATION AND AEROSPACE

- Our custom-made solutions ensure you consistently get the optimum precision tool: even for materials with very high machining demands, such as Titanium, Hastelloy and Astelloy.
- New development of customer-specific products with a clear focus on maximum edge stability, reproducible quality, ease of cutting and machining accuracy.

OPTICAL INDUSTRY

- Precision from A to Z ensures flawless surface finishes as well as reliability and reproducibility for all cutting, drilling and fine grinding applications.
- Industry-optimised solutions: scooping, complex combination and micro-tools, aspheric fine grinding and sapphire and quartz processing.



AUTOMOTIVE

- Our flexible production, warehousing and shipping system ensures the fast and reliable delivery of your individual abrasives.
- Efficient precision tools with an extended life and long dressing intervals for grinding valves, camshafts and gear shafts, among other applications.

GENERAL APPLICATIONS

- 155,000 grinding wheel versions: including the ideal solution for your increasingly complex grinding operations.
- More than 80 years of proven competency in developing solutions for all fields of application: added value through partnership and cooperation, added value through your outstanding end product.

AT HOME IN BAVARIA AND ACTIVE AROUND THE WORLD

MADE IN GERMANY

We are active in the following countries:

- Central, Northern, Eastern, Southern and Western Europe
- Turkey
- Israel
- Russian Federation
- India
- Sri Lanka
- Thailand
- Singapore
- Malaysia
- Hong Kong
- China
- Japan
- South Korea
- Canada
- USA
- Chile
- Mexico
- Brazil
- South Africa

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Aspheric machining	KW [70], 1L1 [42], 4A9 [54], 1F1W [64]
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Applications	Type of tool with [page number]
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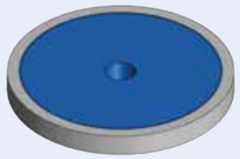
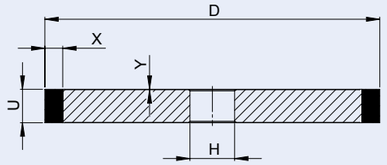
TABLE OF WHEEL SHAPES

DIAMOND AND CBN TOOLS

Diamond and CBN tools for the tool industry, mechanical engineering, general applications, automotive, aviation & aerospace

1A1



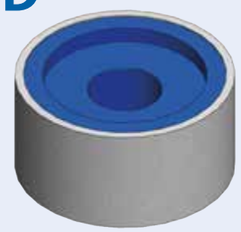


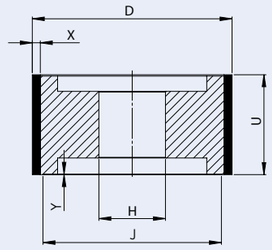
SPECIFICATIONS	
DIMENSIONS:	D 10-600mm (MDX / MDX*e* up to max. D 400mm); U 4-100mm; X 2-30mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
APPLICATIONS:	external/internal non-circular grinding, peel grinding, surface grinding, groove cutting, back off grinding

SAMPLE ORDER	SHAPE	D	U	X	H	Y	BOND	GRIT	CONCENTRATION
	1A1	300	20	3	127	0,2	MDT	D126	C75

Individual tool configuration on request

1A1-CL-D



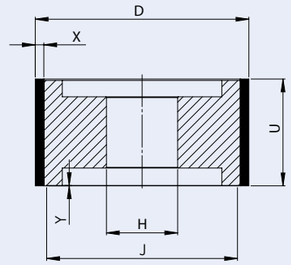


SPECIFICATIONS	
DIMENSIONS:	D 100 - 600mm; X 6-25mm
BONDS:	MDT (resin)
APPLICATIONS:	centreless through-feed grinding

SAMPLE ORDER	SHAPE	D	U	X	H	J	Y	BOND	GRIT	CONCENTRATION
	1A1-CL-D	450	305	25	228,6	0	0,2	MDT	D91	C75

Individual tool configuration on request

1A1-CL-E

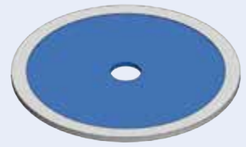


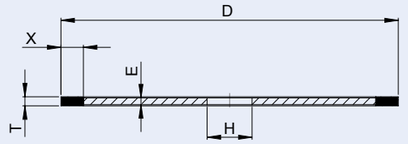
SPECIFICATIONS	
DIMENSIONS:	D 150-450mm; X 5-12mm
BONDS:	MDT (resin)
APPLICATIONS:	plunge-cut grinding

SAMPLE ORDER	SHAPE	D	U	X	H	J	Y	BOND	GRIT	CONCENTRATION
	1A1-CL-E	400	100	6	304,8	0	0,2	MDT	D15	C50

Individual tool configuration on request

1A1R



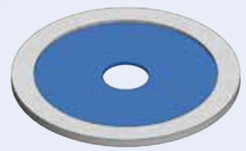


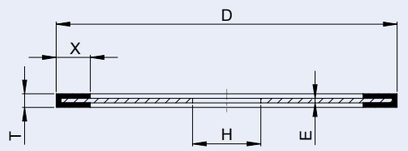
SPECIFICATIONS	
DIMENSIONS:	D 50-350mm; X 5-10mm; T 0,8-2,5mm
BONDS:	MDT (resin), MDX / MDX*e* (metal)
APPLICATIONS:	cutting

SAMPLE ORDER	SHAPE	D	X	T	H	E	BOND	GRIT	CONCENTRATION
	1A1R	150	7	1	20	0,8	MDT	D126	C100

Individual tool configuration on request

1A1R(S)



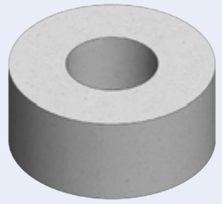


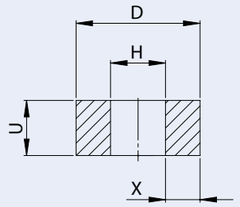
SPECIFICATIONS	
DIMENSIONS:	D 125-400mm; X 5-10mm
BONDS:	MDS (electroplated bond)
APPLICATIONS:	cutting, slotting

SAMPLE ORDER	SHAPE	D	X	T	H	E	BOND	GRIT
	1A1R(S)	150	2	0,8	20	0,7	MDS	D126

Individual tool configuration on request

1A8



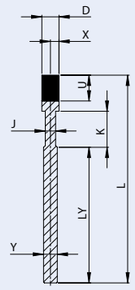


SPECIFICATIONS	
DIMENSIONS:	D 10-80mm; U 3-90mm; X 1-35mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
APPLICATIONS:	groove cutting, internal cylindrical grinding

SAMPLE ORDER	SHAPE	D	U	X	H	BOND	GRIT	CONCENTRATION
	1A8	40	20	10	20	MDT	D46	C100

Individual tool configuration on request

1A8W-1

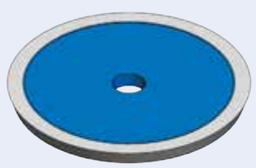


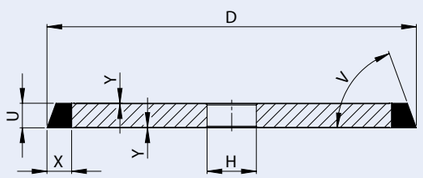
SPECIFICATIONS	
DIMENSIONS:	D 2-55mm; X 0,25-13mm; T 2-15mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
APPLICATIONS:	profile grinding, internal cylindrical grinding

SAMPLE ORDER	SHAPE	U	Y	L	LY	J	K	D	X	BOND	GRIT	CONCENTRATION
	1A8W-1	6	6	60	40	5	10	50	5	MDT	D151	C75

Individual tool configuration on request

1B1



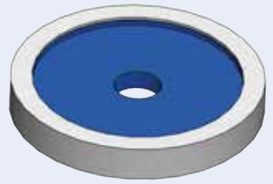


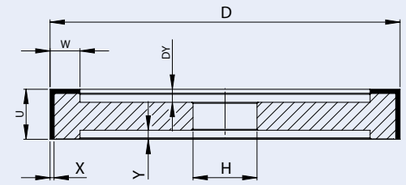
SPECIFICATIONS	
DIMENSIONS:	D 40-500mm (MDX / MDX*e* up to max. D 400mm); U 4-100mm; X 2-30mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
APPLICATIONS:	external and internal non-circular grinding, groove cutting, back off grinding, point thinning, radial corner bevel, profile grinding

SAMPLE ORDER	SHAPE	D	U	X	V	H	Y	BOND	GRIT	CONCENTRATION
	1B1	150	12	10	80	20	0,2	MDX	D54	C35

Individual tool configuration on request

1C1



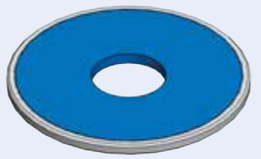


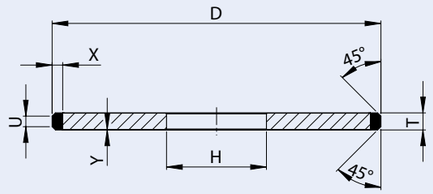
SPECIFICATIONS	
DIMENSIONS:	D 75-300mm; W 10-20mm; U 10-25mm; X 2-10mm
BONDS:	MDT (resin)
APPLICATIONS:	external cylindrical grinding, groove cutting

SAMPLE ORDER	SHAPE	D	U	W	X	H	Y	DY	BOND	GRIT	CONCENTRATION
	1C1	175	25	15	2	32	4,5	6,5	MDT	D181	C75

Individual tool configuration on request

1DD1



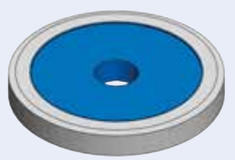


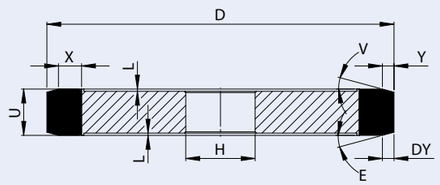
SPECIFICATIONS	
DIMENSIONS:	D 100-250mm; U 4-25mm; X 2-20mm; T 6-25mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDS (electroplated bond)
APPLICATIONS:	lateral clamping surface (Weldon, Whistle Notch), groove cutting

SAMPLE ORDER	SHAPE	D	U	X	T	H	Y	BOND	GRIT	CONCENTRATION
	1DD1	250	8	5	13	76	0	MDT	D126	C100

Individual tool configuration on request

1DU1



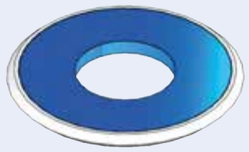


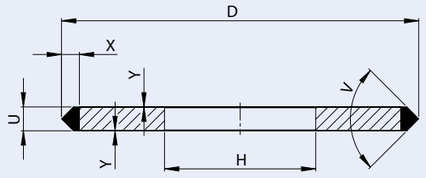
SPECIFICATIONS	
DIMENSIONS:	D 100-300mm; U 8-45mm; X 5-20mm
BONDS:	MDT (resin), MDX / MDX*e* (metal)
APPLICATIONS:	groove cutting, lateral clamping flat (Weldon, Whistle Notch)

SAMPLE ORDER	SHAPE	D	U	X	V	E	Y	DY	L	H	BOND	GRIT	CONCENTRATION
	1DU1	100	20	2	45	45	0,5	0,5	0,2	30	MDT	D54	C100

Individual tool configuration on request

1E1



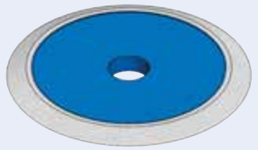


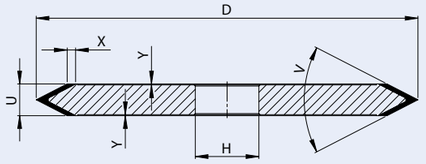
SPECIFICATIONS	
DIMENSIONS:	D 50-300mm; U 5-30mm; X 4-20mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic), MDS (electroplated bond)
APPLICATIONS:	profile grinding

SAMPLE ORDER	SHAPE	D	U	X	V	H	Y	BOND	GRIT	CONCENTRATION
	1E1	300	20	15	90	127	0,2	MDT	D126	C85

Individual tool configuration on request

1EE1



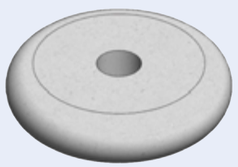


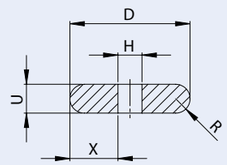
SPECIFICATIONS	
DIMENSIONS:	D 25-450mm; U 2-40mm; X 1-15mm
BONDS:	MTD (resin), MDX / MDX*e* (metal)
APPLICATIONS:	profile grinding

SAMPLE ORDER	SHAPE	D	U	X	V	Y	H	BOND	GRIT	CONCENTRATION
	1EE1	75	6	4	90	0,2	20	MDT	B76	C100

Individual tool configuration on request

1F8



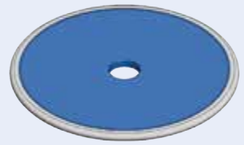


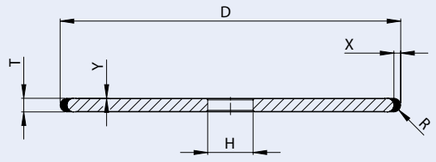
SPECIFICATIONS	
DIMENSIONS:	D 25-60mm; U 2-10mm; X 10-20mm
BONDS:	MDT (resin), MDX / MDX*e* (metal)
APPLICATIONS:	groove cutting, internal cylindrical grinding, profile grinding

SAMPLE ORDER	SHAPE	D	U	R	X	H	BOND	GRIT	CONCENTRATION
	1F8	40	3,2	1,6	17	6	MDT	B126	C100

Individual tool configuration on request

1FF1



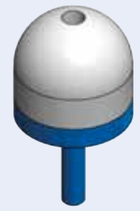


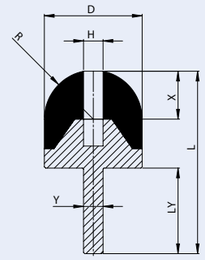
SPECIFICATIONS	
DIMENSIONS:	D 25-300mm; X 2-10mm; T 6-35mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
APPLICATIONS:	groove cutting, external and internal cylindrical grinding, profile grinding

SAMPLE ORDER	SHAPE	D	X	R	T	H	Y	BOND	GRIT	CONCENTRATION
	1FF1	125	4	R4	8	20	0,2	MDT	D126	C75

Individual tool configuration on request

1FF1W



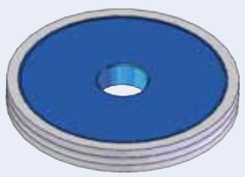


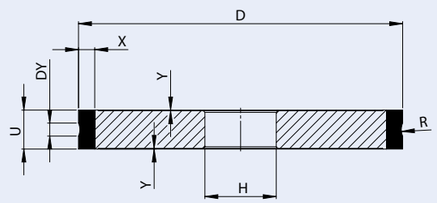
SPECIFICATIONS	
DIMENSIONS:	D 5-40; X 5-35; R 5-20
BONDS:	MDX / MDX*e* (metal)
APPLICATIONS:	deburring of springs, radius grooves

SAMPLE ORDER	SHAPE	D	X	H	Y	L	LY	R	BOND	GRIT	CONCENTRATION
	1FF1W	40	20	8	8	75	35	20	MDX	B427	C50

Individual tool configuration on request

1FF6Y



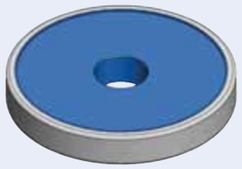


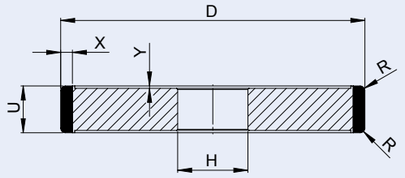
SPECIFICATIONS	
DIMENSIONS:	D 50-200mm; U 5-20mm; X 5-10mm; R 2,5-14mm
BONDS:	MDS (electroplated bond), MDT (resin), MDX / MDX*e* (metal)
APPLICATIONS:	C-edge processing

SAMPLE ORDER	SHAPE	D	U	X	H	Y	R	DY	BOND	GRIT	CONCENTRATION
	1FF6Y	100	12	5	22	0,2	5	4	MDX	D91	C50

Individual tool configuration on request

1L1



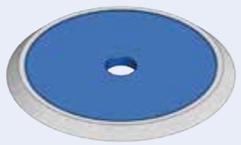


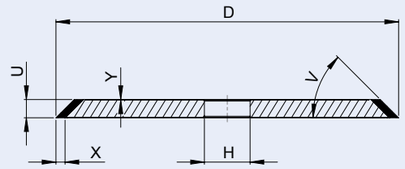
SPECIFICATIONS	
DIMENSIONS:	D 50-400mm; U 5-40mm; X 3-6mm
BONDS:	MDT (resin), MDX / MDX*e* (metal)
APPLICATIONS:	surface grinding, groove cutting, aspheric machining, external cylindrical grinding

SAMPLE ORDER	SHAPE	D	U	X	R	H	Y	BOND	GRIT	CONCENTRATION
	1L1	100	8	5	2	20	0,2	MDT	D64	C100

Individual tool configuration on request

1V1



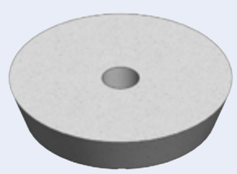


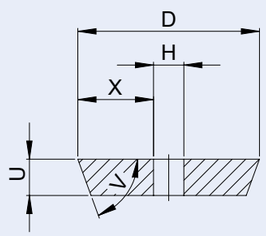
SPECIFICATIONS	
DIMENSIONS:	D 40-500mm (MDX / MDX*e* up to max. D 400mm); U 4-35mm; X 2-20mm
BONDS:	MDT (resin), MDX / MDX*e* (metal)
APPLICATIONS:	external and internal non-circular grinding, groove cutting, back off grinding, point thinning, radial corner bevel, profile grinding

SAMPLE ORDER	SHAPE	D	U	X	V	H	Y	BOND	GRIT	CONCENTRATION
	1V1	125	6	4	70°	20	0,2	MDT	D126	C75

Individual tool configuration on request

1V8



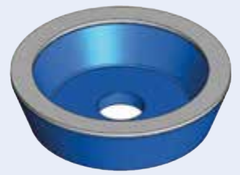


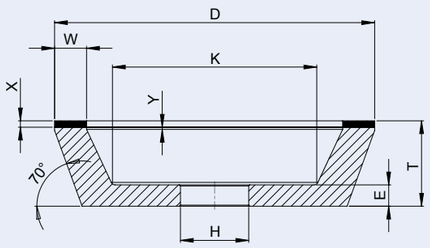
SPECIFICATIONS	
DIMENSIONS:	D 30-75mm; U 3-10mm; X 5-15mm
BONDS:	MDT (resin), MDX / MDX*e* (metal)
APPLICATIONS:	external and internal non-circular grinding, groove cutting, back off grinding

SAMPLE ORDER	SHAPE	D	U	X	V	H	BOND	GRIT	CONCENTRATION
	1V8	50	6	15	85	20	MDT	B126	C100

Individual tool configuration on request

11A2



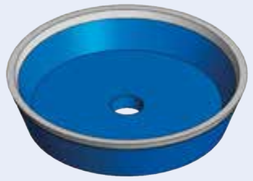


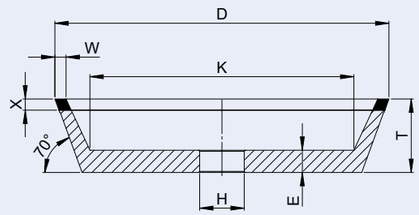
SPECIFICATIONS	
DIMENSIONS:	D 30-400mm; W 5-30mm; X 2-15mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
APPLICATIONS:	lateral/end face grinding, corner bevel grinding, face grinding, wedge angle grinding, peripheral grinding

SAMPLE ORDER	SHAPE	D	W	X	T	H	E	K	Y	BOND	GRIT	CONCENTRATION
	11A2	125	12,5	4	27	20	10	89	1	MDT	D64	C50

Individual tool configuration on request

11V2



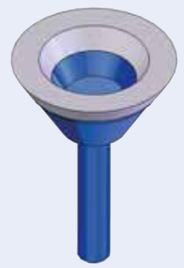


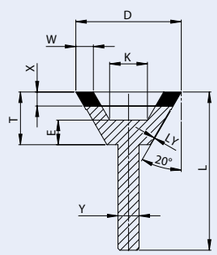
SPECIFICATIONS	
DIMENSIONS:	D 15-250mm; W 1,5-18mm; X 2-10mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
APPLICATIONS:	lateral/end face grinding, corner bevel grinding, chip surface grinding

SAMPLE ORDER	SHAPE	D	W	X	T	K	H	E	BOND	GRIT	CONCENTRATION
	11V2	75	4	3	33	44,62	20	10	MDT	D126	C75

Individual tool configuration on request

11V2W



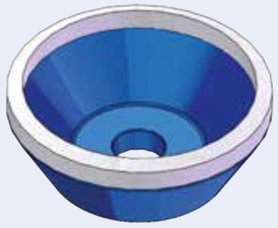


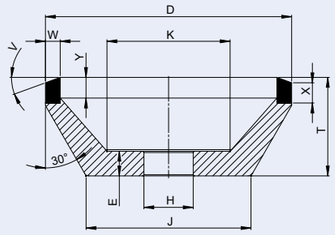
SPECIFICATIONS	
DIMENSIONS:	D 20-40mm ; W 2-5mm ; X 3-6 mm
BONDS:	MDT (resin), MDX / MDX*e* (metal)
APPLICATIONS:	chip surface grinding

SAMPLE ORDER	SHAPE	D	W	X	T	E	K	Y	L	LY	BOND	GRIT	CONCENTRATION
	11V2W	30	5	4	15	7	10,76	6	45	0,2	MDT	D91	C75

Individual tool configuration on request

11V5



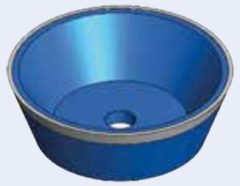


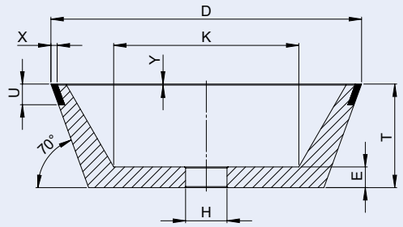
SPECIFICATIONS	
DIMENSIONS:	D 50-300mm; W 3-12 mm; X 3-8
BONDS:	MDT (resin)
APPLICATIONS:	clearance angle, lateral and radial grinding

SAMPLE ORDER	SHAPE	D	W	X	V	T	H	E	K	J	Y	BOND	GRIT	CONCENTRATION
	11V5	100	6	8	20	40	20	10	50	66,98	8,4	MDT	D46	C100

Individual tool configuration on request

11V9



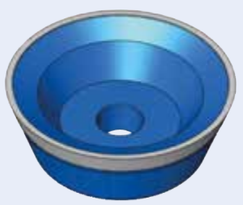


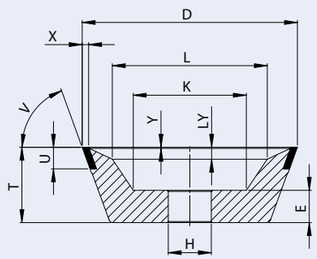
SPECIFICATIONS	
DIMENSIONS:	D 20-200mm; U 6-20mm; X 1,5-10mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
APPLICATIONS:	lateral/end face grinding, corner bevel grinding, face grinding, wedge angle grinding

SAMPLE ORDER	SHAPE	D	U	X	T	H	E	K	Y	BOND	GRIT	CONCENTRATION
	11V9	125	10	3	40	20	10	76	1	MDT	D64	C75

Individual tool configuration on request

11V9C



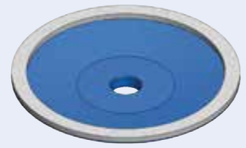


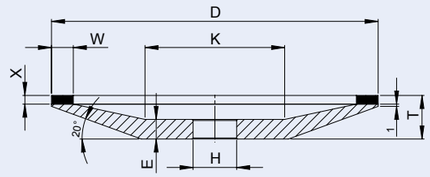
SPECIFICATIONS	
DIMENSIONS:	D 50-150mm; U 10mm; X 2-5mm
BONDS:	MDT (resin), MDX / MDX*e* (metal)
APPLICATIONS:	lateral/end face grinding, corner bevel grinding, face grinding, wedge angle grinding

SAMPLE ORDER	SHAPE	D	U	X	H	T	E	K	V	BOND	GRIT	CONCENTRATION
	11V9C	100	10	3	20	35	15	52	75°	MDT	D46	C100

Individual tool configuration on request

12A2/20°



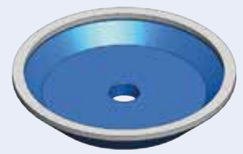


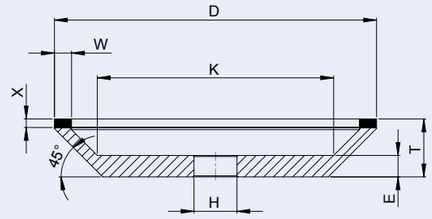
SPECIFICATIONS	
DIMENSIONS:	D 50-300mm; W 2-20mm; X 2-10mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
APPLICATIONS:	clearance angle grinding, cylindrical grinding, face grinding

SAMPLE ORDER	SHAPE	D	W	X	T	H	E	K	BOND	GRIT	CONCENTRATION
	12A2/20°	200	6	2	22	32	11	99	MDT	D64	C75

Individual tool configuration on request

12A2/45°



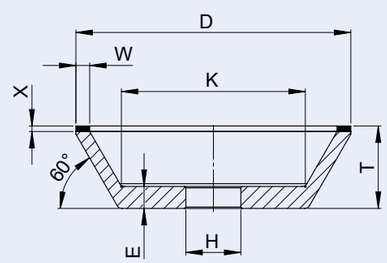


SPECIFICATIONS	
DIMENSIONS:	D 50-400mm; W 5-30mm; X 2-15mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
APPLICATIONS:	clearance angle grinding, cylindrical grinding, face grinding

SAMPLE ORDER	SHAPE	D	W	X	T	H	E	K	BOND	GRIT	CONCENTRATION
	12A2/45°	125	10	2	25	20	10	79	MDT	D126	C75

Individual tool configuration on request

12A2/60°

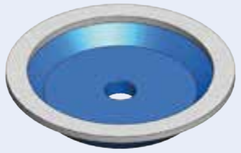


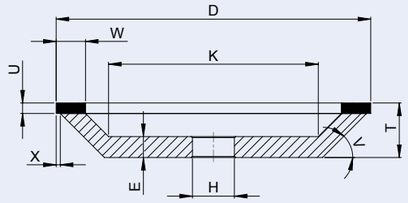
SPECIFICATIONS	
DIMENSIONS:	D 50-300mm; W 5-20mm; X 2-15mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
APPLICATIONS:	clearance angle grinding, cylindrical grinding, face grinding

SAMPLE ORDER	SHAPE	D	W	X	T	H	E	K	BOND	GRIT	CONCENTRATION
	12A2/60°	100	5	2	30	20	8	66,91	MDT	D20	C50

Individual tool configuration on request

12C9



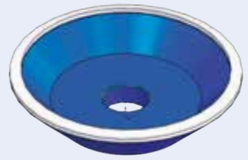


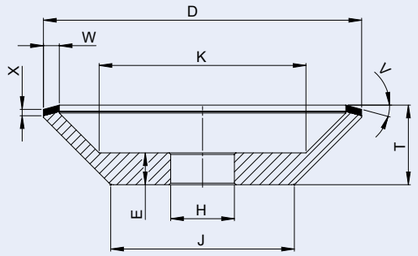
SPECIFICATIONS	DIMENSIONS: D 40-250mm; W 4-20mm; U 3-22mm; X 2-5mm BONDS: MDT (resin), MDX / MDX*e* (metal), MDR (ceramic) APPLICATIONS: aspheric and free-form machining, clearance angle grinding, radial grinding

SAMPLE ORDER	SHAPE	D	W	U	X	V	H	K	T	E	BOND	GRIT	CONCENTRATION
	12C9	125	10	4	2	45°	20	81	26	10	MDT	D91	C75

Individual tool configuration on request

12V5



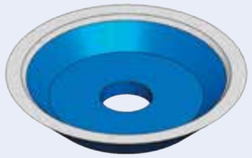


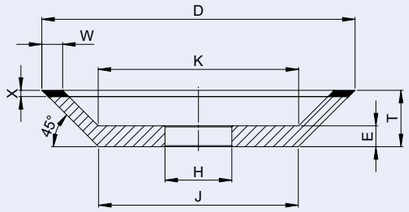
SPECIFICATIONS	DIMENSIONS: D 100-300mm; W 5-20mm; X 3-10mm BONDS: MDT (resin), MDX / MDX*e* (metal), MDR (ceramic) APPLICATIONS: chip surface grinding, relief angle grinding, radial grinding

SAMPLE ORDER	SHAPE	D	W	X	V	T	H	E	K	J	BOND	GRIT	CONCENTRATION
	12V5	100	5	2	15	25	20	10	65	57,68	MDT	D91	C100

Individual tool configuration on request

12V2



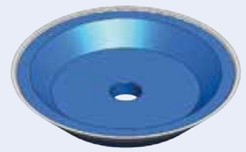


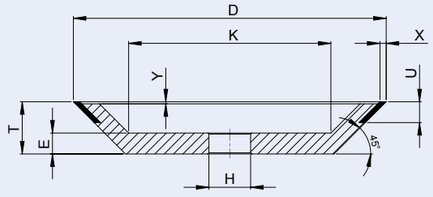
SPECIFICATIONS	DIMENSIONS: D 30-250mm; W 3-25mm; X 2-10mm BONDS: MDT (resin), MDX / MDX*e* (metal), MDR (ceramic) APPLICATIONS: chip surface grinding, relief angle grinding

SAMPLE ORDER	SHAPE	D	W	X	T	H	K	E	BOND	GRIT	CONCENTRATION
	12V2	100	7	2	26	20	52	10	MDT	D46	C75

Individual tool configuration on request

12V9



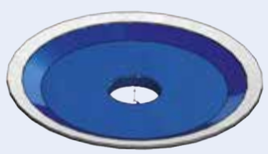


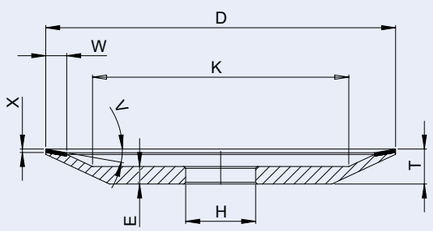
SPECIFICATIONS	DIMENSIONS: D 25-400mm; U 6-15mm; X 2-10mm BONDS: MDT (resin), MDX / MDX*e* (metal), APPLICATIONS: point thinning, lateral/end face relief angle grinding, groove cutting, radial corner bevel, profile grinding

SAMPLE ORDER	SHAPE	D	U	X	T	H	E	K	Y	BOND	GRIT	CONCENTRATION
	12V9	100	10	2	20	20	10	62	1	MDT	D64	C75

Individual tool configuration on request

12V4



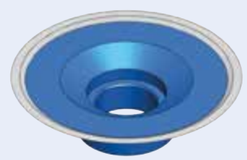


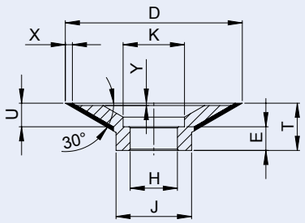
SPECIFICATIONS	DIMENSIONS: D 75-350mm; W 5-10mm; X 1-3mm BONDS: MDT (resin) APPLICATIONS: chip surface grinding

SAMPLE ORDER	SHAPE	D	W	X	V	T	H	E	K	BOND	GRIT	CONCENTRATION
	12V4	100	6	1	10	10	20	5	73,24	MDT	D54	C75

Individual tool configuration on request

12V9/30°



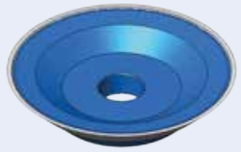


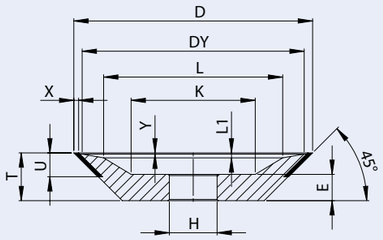
SPECIFICATIONS	DIMENSIONS: D 75-250mm; U 6-10mm; X 2-3mm BONDS: MDT (resin), MDX / MDX*e* (metal) APPLICATIONS: point thinning, lateral/end face relief angle grinding, groove cutting, radial corner bevel, profile grinding

SAMPLE ORDER	SHAPE	D	U	X	E	K	Y	T	H	J	BOND	GRIT	CONCENTRATION
	12V9/30°	100	10	3	10	44	1	20	20	40	MDT	D107	C75

Individual tool configuration on request

12V9C



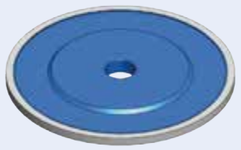


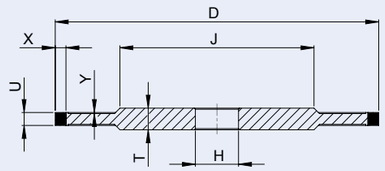
SPECIFICATIONS	DIMENSIONS:	D 75-150mm; U 10-15mm; X 2-3mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal),
	APPLICATIONS:	point thinning, lateral/end face relief angle grinding, groove cutting, radial corner bevel, profile grinding

SAMPLE ORDER	SHAPE	D	U	X	H	Y	DY	T	E	K	L	LY	BOND	GRIT	CONCENTRATION
	12V9C	100	10	3	20	0,5	93	20	11	48	71	2	MDT	D46	C100

Individual tool configuration on request

14A1



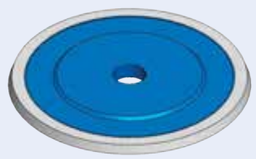


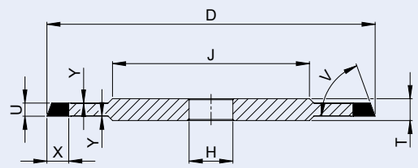
SPECIFICATIONS	DIMENSIONS:	D 30-600mm (MDX / MDX*e* up to max. D 400mm); U 1-35mm; X 2-20mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
	APPLICATIONS:	external and internal non-circular grinding, peel grinding, surface grinding, groove cutting, back off grinding

SAMPLE ORDER	SHAPE	D	U	X	T	H	J	Y	BOND	GRIT	CONCENTRATION
	14A1	300	10	4	15	127	250	0,2	MDT	D126	C75

Individual tool configuration on request

14B1



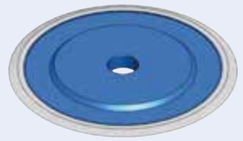


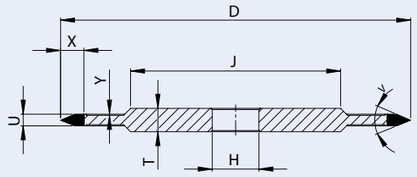
SPECIFICATIONS	DIMENSIONS:	D 40-500mm (MDX up to max. D400mm); U2-20mm; X 5-15 mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal)
	APPLICATIONS:	external and internal non-circular grinding, groove cutting, back off grinding, point thinning, radial corner bevel, profile grinding

SAMPLE ORDER	SHAPE	D	U	X	V	T	H	J	Y	BOND	GRIT	CONCENTRATION
	14B1	400	8	12	60	25	203	340	0,2	MDT	D54	C75

Individual tool configuration on request

14E1



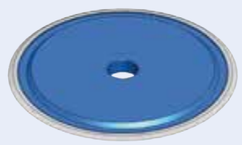


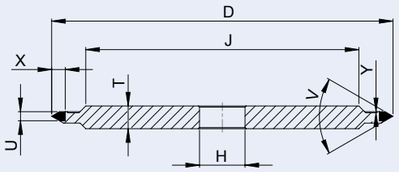
SPECIFICATIONS	DIMENSIONS:	D 75-400mm; U 3-26mm; X 3-20mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
	APPLICATIONS:	profile grinding

SAMPLE ORDER	SHAPE	D	U	X	V	T	H	J	Y	BOND	GRIT	CONCENTRATION
	14E1	100	5	5	80	8	20	58	0,2	MDT	D54	C150

Individual tool configuration on request

14E9



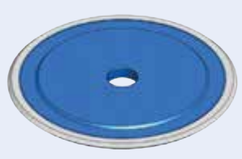


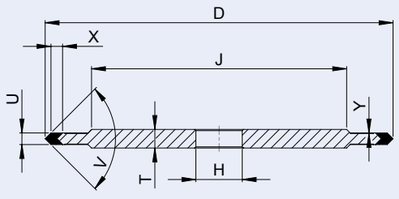
SPECIFICATIONS	DIMENSIONS:	D 35-350mm; U 0,8-5mm; X 5-10mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal)
	APPLICATIONS:	profile grinding

SAMPLE ORDER	SHAPE	D	U	X	V	T	H	J	Y	BOND	GRIT	CONCENTRATION
	14E9	75	3	6	60°	7	20	45	0,2	MDX	D91	C125

Individual tool configuration on request

14EE1



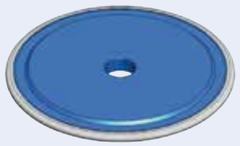


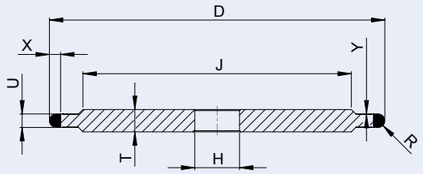
SPECIFICATIONS	DIMENSIONS:	D 75-350mm (MDX / MDX*e* up to max. D 400mm); U 2-40mm; X 1-15mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal)
	APPLICATIONS:	profile grinding

SAMPLE ORDER	SHAPE	D	U	X	V	T	H	J	Y	BOND	GRIT	CONCENTRATION
	14EE1	150	3	2	60°	6	30	120	0,2	MDX	D126	C150

Individual tool configuration on request

14F1



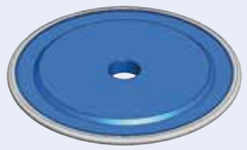


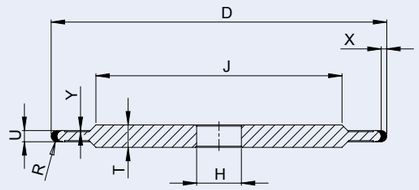
SPECIFICATIONS	DIMENSIONS:	D 20-500mm (MDX / MDX*e* up to max. D 400mm); U 1-30mm; X 2-20mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
	APPLICATIONS:	groove cutting, profile grinding, chip surface grinding

SAMPLE ORDER	SHAPE	D	U	X	R	T	H	J	Y	BOND	GRIT	CONCENTRATION
	14F1	100	2	3	R1	6	20	70	0,2	MDT	D91	C100

Individual tool configuration on request

14FF1



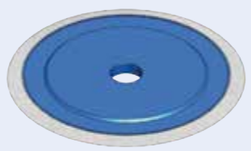


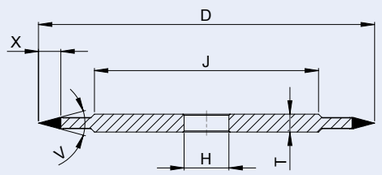
SPECIFICATIONS	DIMENSIONS:	D 25-300mm; U 2-15mm; T 6-35mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
	APPLICATIONS:	groove cutting, profile grinding

SAMPLE ORDER	SHAPE	D	U	X	R	T	H	J	Y	BOND	GRIT	CONCENTRATION
	14FF1	200	12,2	5	6,1	16	127	145	0,2	MDX	D126	C125

Individual tool configuration on request

14K1



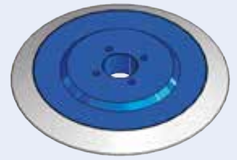


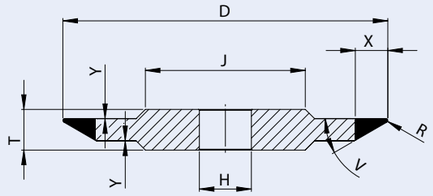
SPECIFICATIONS	DIMENSIONS:	D 35-300mm; X 3-10mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal)
	APPLICATIONS:	profile grinding, relief angle grinding

SAMPLE ORDER	SHAPE	D	X	V	T	H	J	BOND	GRIT	CONCENTRATION
	14K1	150	4	30°	8	22	120	MDT	D64	C100

Individual tool configuration on request

14K9



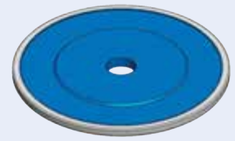


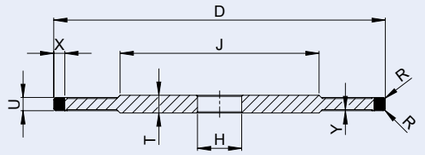
SPECIFICATIONS	DIMENSIONS:	D 100-300mm; X 10-20mm
	BONDS:	MDT (resin), MDR (ceramic)
	APPLICATIONS:	profile grinding, relief angle grinding, chip surface grinding

SAMPLE ORDER	SHAPE	D	X	V	T	H	J	Y	R	BOND	GRIT	CONCENTRATION
	14K9	200	20	30	25	32	98,04	0,2	1,2	MDR	D181	C150

Individual tool configuration on request

14L1



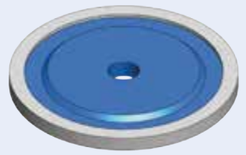


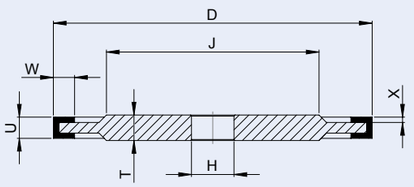
SPECIFICATIONS	DIMENSIONS:	D 30-600mm (MDX / MDX*e* up to max. D 400mm); U 2-25mm; X 3-10mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
	APPLICATIONS:	groove cutting, edging, centring

SAMPLE ORDER	SHAPE	D	U	X	R	T	H	J	Y	BOND	GRIT	CONCENTRATION
	14L1	125	5	2	0,5	8	20	100	0,2	MDT	D64	C100

Individual tool configuration on request

14U1



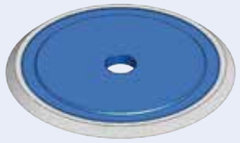


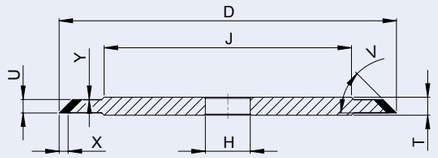
SPECIFICATIONS	DIMENSIONS:	D 75-500mm (MDX / MDX*e* up to max. D 400mm); W 2-10mm; U 4-20mm; X 1-6mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
	APPLICATIONS:	external and internal cylindrical grinding

SAMPLE ORDER	SHAPE	D	W	U	X	T	H	J	BOND	GRIT	CONCENTRATION
	14U1	125	6	8	2	10	20	80	MDT	D91	C75

Individual tool configuration on request

14V1



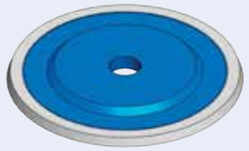


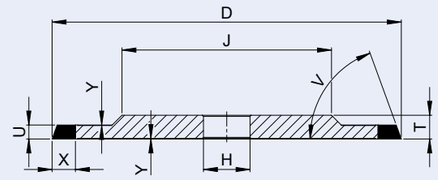
SPECIFICATIONS	DIMENSIONS:	D 40-500mm (MDX / MDX*e* up to max. D 400mm); U 2-20mm; X 2-15mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal)
	APPLICATIONS:	groove cutting, back off- and profile grinding,external/inernal non-circular grinding, point thinning, radial corner bevel

SAMPLE ORDER	SHAPE	D	U	X	V	T	H	J	Y	BOND	GRIT	CONCENTRATION
	14V1	175	6	3	60°	10	32	140	0,2	MDT	B126	C100

Individual tool configuration on request

3B1



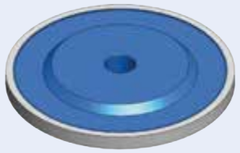


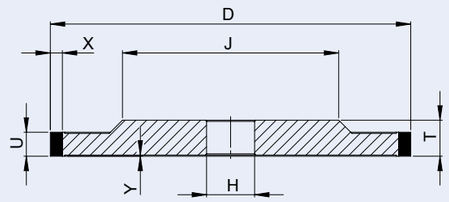
SPECIFICATIONS	DIMENSIONS:	D 40-500mm(MDX / MDX*e* up to max. D 400mm); U 4-100mm; X 2-30mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal)
	APPLICATIONS:	external and internal non-circular grinding, groove cutting, back off grinding, point thinning, radial corner bevel, profile grinding

SAMPLE ORDER	SHAPE	D	U	X	V	T	H	J	Y	BOND	GRIT	CONCENTRATION
	3B1	100	4	12,5	72	7	32	60	0,1	MDX	D54	C100

Individual tool configuration on request

3A1



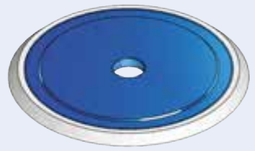


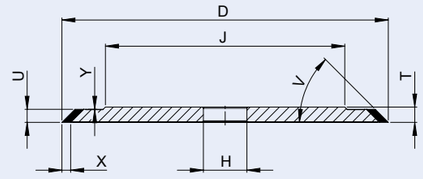
SPECIFICATIONS	DIMENSIONS:	D 30-600mm (MDX / MDX*e* up to max. D 400mm); U 1-35mm; X 2-20mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
	APPLICATIONS:	external and internal non-circular grinding, peel grinding, surface grinding, groove cutting, back off grinding

SAMPLE ORDER	SHAPE	D	U	X	T	H	J	Y	BOND	GRIT	CONCENTRATION
	3A1	300	10	3	15	127	250	0,2	MDT	D126	C75

Individual tool configuration on request

3V1



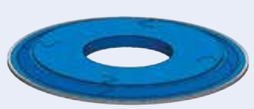


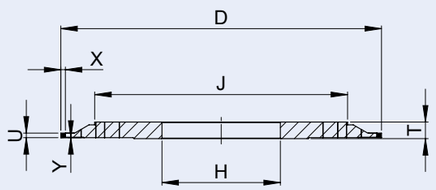
SPECIFICATIONS	DIMENSIONS:	D 40-500mm (MDX up to max. D400mm); U 4-35mm; X 2-20mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal)
	APPLICATIONS:	external and internal non-circular grinding, groove cutting, back off grinding, point thinning, radial corner bevel, profile grinding

SAMPLE ORDER	SHAPE	D	U	X	V	T	H	J	Y	BOND	GRIT	CONCENTRATION
	3V1	125	6	9	45	8	31,75	70,6	0,2	MDX	D64	C125

Individual tool configuration on request

3A1-SP



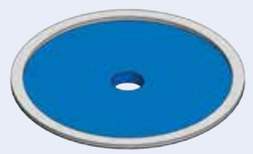


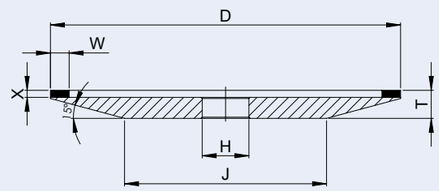
SPECIFICATIONS	DIMENSIONS:	D 200-400mm; U 4-5mm; X 5-6mm
	BONDS:	MDX / MDX*e* (metal)
	APPLICATIONS:	peel grinding

SAMPLE ORDER	SHAPE	D	U	X	T	H	J	Y	BOND	GRIT	CONCENTRATION
	3A1-SP	350	5	5	18	127	276	0,4	MDX	D91	C150

Individual tool configuration on request

4A2



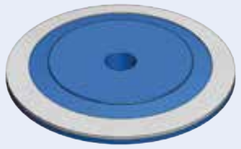


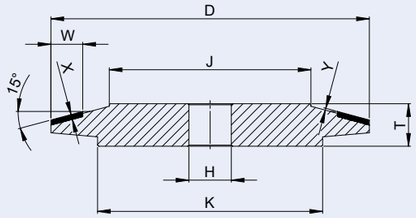
SPECIFICATIONS	DIMENSIONS:	D 40-400mm; W 2-90mm; X 2-10mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
	APPLICATIONS:	cylindrical grinding, face grinding, chip surface, clearance surface

SAMPLE ORDER	SHAPE	D	W	X	T	J	H	BOND	GRIT	CONCENTRATION
	4A2	125	5	2	9	76,48	20	MDT	D64	C75

Individual tool configuration on request

4A5



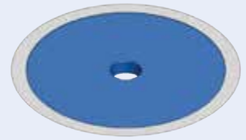


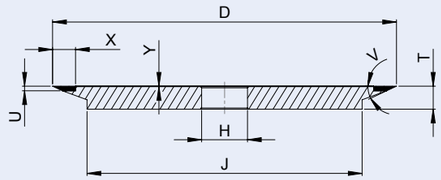
SPECIFICATIONS	DIMENSIONS: D 75-250mm; W 4-35mm; X 1-6mm BONDS: MDT (resin), MDX / MDX*e* (metal), MDR (ceramic) APPLICATIONS: hob, chip surface grinding

SAMPLE ORDER	SHAPE	D	W	X	T	H	K	J	Y	BOND	GRIT	CONCENTRATION
	4A5	200	15	1	27	50,8	160	100	0,5	MDT	B151	C100

Individual tool configuration on request

4B9



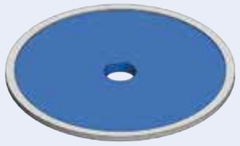


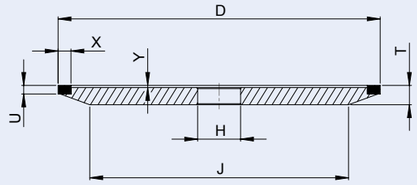
SPECIFICATIONS	DIMENSIONS: D 75-200mm; U 1,5-5mm; X 3-15mm BONDS: MDT (resin), MDX / MDX*e* (metal) APPLICATIONS: profile grinding

SAMPLE ORDER	SHAPE	D	U	X	V	T	H	J	Y	BOND	GRIT	CONCENTRATION
	4B9	150	1	6	20°	8	32	130	0,2	MDT	D64	C100

Individual tool configuration on request

4A9



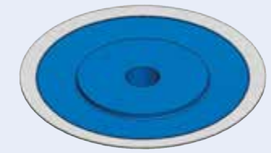


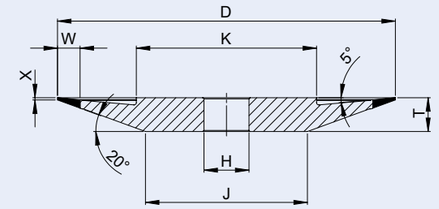
SPECIFICATIONS	DIMENSIONS: D 50-500mm (MDX / MDX*e* up to max. D 400mm); U 1-16mm; X 2-16mm BONDS: MDT (resin), MDX / MDX*e* (metal), MDR (ceramic) APPLICATIONS: groove cutting, point thinning, relief angle grinding

SAMPLE ORDER	SHAPE	D	U	X	T	H	J	Y	BOND	GRIT	CONCENTRATION
	4A9	125	2	6	8	20	88	0,2	MDT	D126	C100

Individual tool configuration on request

4BT9



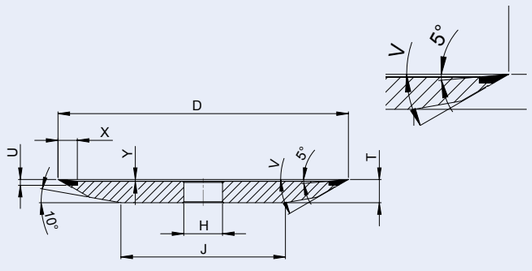


SPECIFICATIONS	DIMENSIONS: D 30-250mm; W 4-15mm; X 1-10mm BONDS: MDT (resin), MDX / MDX*e* (metal) APPLICATIONS: chip surface grinding

SAMPLE ORDER	SHAPE	D	W	X	T	H	K	J	BOND	GRIT	CONCENTRATION
	4BT9	100	10	1	10	32	49,2	50	MDT	B151	C100

Individual tool configuration on request

4B4

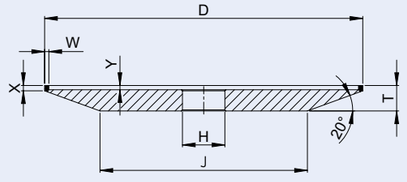


SPECIFICATIONS	DIMENSIONS: D 30-200mm; U 1,5-4mm; X 3-10mm BONDS: MDT (resin), MDX / MDX*e* (metal) APPLICATIONS: profile grinding

SAMPLE ORDER	SHAPE	D	U	X	V	T	H	J	Y	BOND	GRIT	CONCENTRATION
	4B4	150	2	6	30°	10	22	85	0,7	MDT	D64	C100

Individual tool configuration on request

4E9P

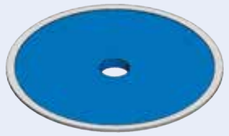


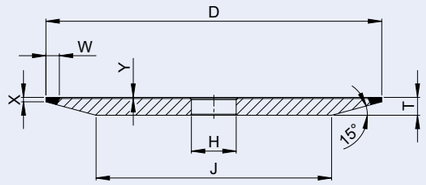
SPECIFICATIONS	DIMENSIONS: D 50-350mm; W 2-5mm; X 2-5mm BONDS: MDT (resin), MDX / MDX*e* (metal) APPLICATIONS: chip surface grinding

SAMPLE ORDER	SHAPE	D	W	X	T	H	J	Y	BOND	GRIT	CONCENTRATION
	4E9P	200	2	2,5	22	50,8	92	2	MDT	B151	C125

Individual tool configuration on request

4ET9



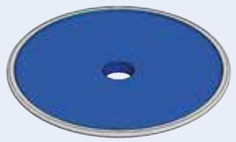


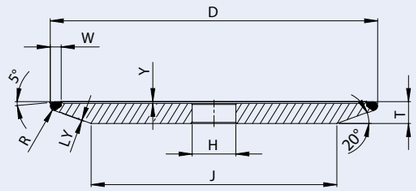
SPECIFICATIONS	DIMENSIONS: D 50-200mm; W 2-10mm; X 1-5mm BONDS: MDT (resin), MDX / MDX*e* (metal) APPLICATIONS: chip surface grinding

SAMPLE ORDER	SHAPE	D	W	X	H	T	J	Y	BOND	GRIT	CONCENTRATION
	4ET9	125	5	2	20	8	79,6	1	MDT	D64	C75

Individual tool configuration on request

4F5



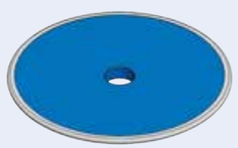


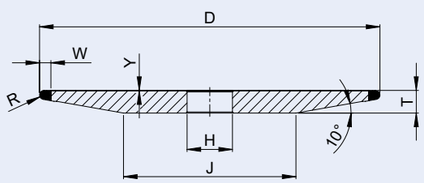
SPECIFICATIONS	DIMENSIONS: D 50-150mm; W 3-6mm BONDS: MDT (resin), MDX / MDX*e* (metal), MDR (ceramic) APPLICATIONS: profile grinding, aspheric machining

SAMPLE ORDER	SHAPE	D	W	R	T	H	J	Y	LY	BOND	GRIT	CONCENTRATION
	4F5	150	5	2	10	20	110	0,8	0,8	MDT	D126	C75

Individual tool configuration on request

4F9



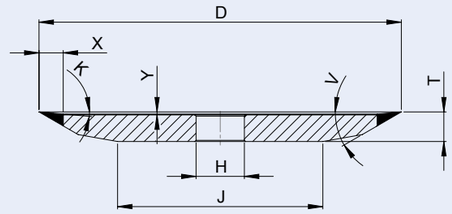


SPECIFICATIONS	DIMENSIONS: D 35-400mm; W 2-15mm BONDS: MDT (resin), MDX / MDX*e* (metal), MDR (ceramic) APPLICATIONS: profile grinding

SAMPLE ORDER	SHAPE	D	W	R	T	H	J	Y	BOND	GRIT	CONCENTRATION
	4F9	100	6	R1	8	20	40	0,2	MDT	B151	C75

Individual tool configuration on request

4K9

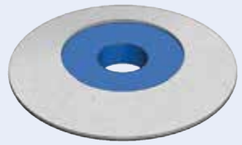


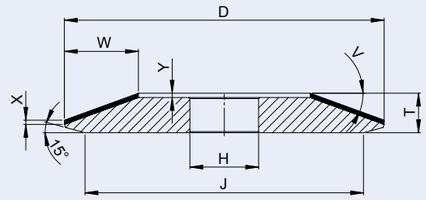
SPECIFICATIONS	DIMENSIONS: D 30-350mm; X 2-20mm BONDS: MDT (resin), MDX / MDX*e* (metal) APPLICATIONS: profile grinding

SAMPLE ORDER	SHAPE	D	X	V	H	K	J	Y	T	BOND	GRIT	CONCENTRATION
	4K9	150	7	20°	22	0,5°	105	0,2	7	MDT	D64	C125

Individual tool configuration on request

4V5



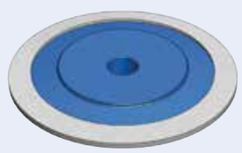


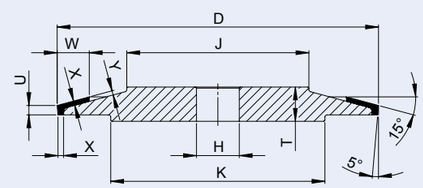
SPECIFICATIONS	DIMENSIONS: D 60-350mm; W 8-60mm; X 1,5-5mm BONDS: MDT (resin), MDX / MDX*e* (metal), MDR (ceramic) APPLICATIONS: chip surface grinding

SAMPLE ORDER	SHAPE	D	W	X	V	T	H	J	Y	BOND	GRIT	CONCENTRATION
	4V5	150	30	1,5	20	18	20	130	0,5	MDT	D64	C100

Individual tool configuration on request

4Y9



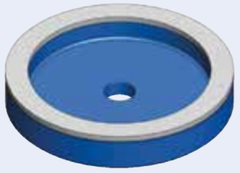


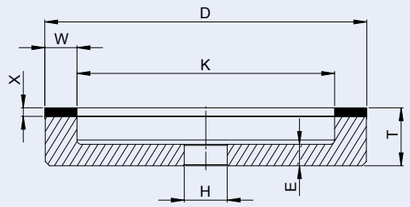
SPECIFICATIONS	DIMENSIONS: D 50-350mm; W 10-80mm; X 2-15mm BONDS: MDT (resin), MDX / MDX*e* (metal), MDR (ceramic) APPLICATIONS: chip surface grinding

SAMPLE ORDER	SHAPE	D	W	U	X	T	H	K	J	Y	BOND	GRIT	CONCENTRATION
	4Y9	250	15	2,8	1	27	50,8	214	180	0,5	MDT	B151	C100

Individual tool configuration on request

6A2



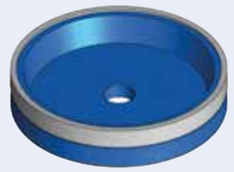


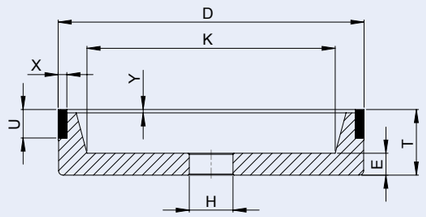
SPECIFICATIONS		
	DIMENSIONS:	D 12-500mm (MDX / MDX*e* up to max. D 400mm); W 5-100mm; X 2-20mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
	APPLICATIONS:	lateral/end face relief angle grinding, corner bevel grinding, face grinding, wedge angle grinding

SAMPLE ORDER	SHAPE	D	W	X	T	H	E	K	BOND	GRIT	CONCENTRATION
	6A2	150	6	2	25	20	10	138	MDT	D126	C75

Individual tool configuration on request

6A9



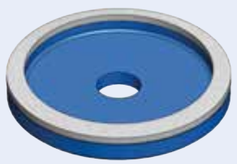


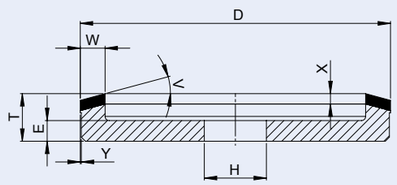
SPECIFICATIONS		
	DIMENSIONS:	D 15-600mm (MDX / MDX*e* up to max. D 400mm); U 6-25mm; X 2-10mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
	APPLICATIONS:	lateral/end face relief angle grinding, corner bevel grinding, face grinding, wedge angle grinding, peripheral grinding WP

SAMPLE ORDER	SHAPE	D	U	X	T	H	E	K	Y	BOND	GRIT	CONCENTRATION
	6A9	125	10	2	30	20	10	101	1,5	MDT	D126	C100

Individual tool configuration on request

6V5



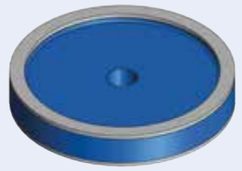


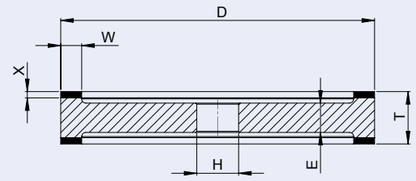
SPECIFICATIONS		
	DIMENSIONS:	D 50-300mm; W 3-50mm; X 2-10mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal)
	APPLICATIONS:	clearance angle grinding, radial grinding

SAMPLE ORDER	SHAPE	D	W	X	V	H	T	E	Y	BOND	GRIT	CONCENTRATION
	6V5	75	5	5	30	20	30	10	0,2	MDT	B126	C100

Individual tool configuration on request

9A3



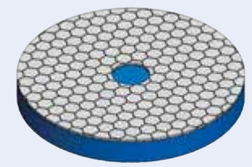


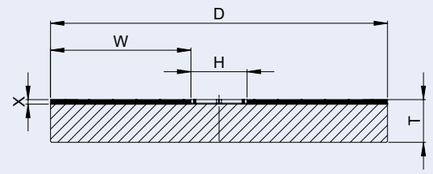
SPECIFICATIONS		
	DIMENSIONS:	D 50-600mm (MDX / MDX*e* up to max. D 400mm); W 2-15mm; X 2-8mm
	BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
	APPLICATIONS:	clearance angle grinding, face grinding

SAMPLE ORDER	SHAPE	D	W	X	T	H	E	BOND	GRIT	CONCENTRATION
	9A3	175	6	3	35	20	14	MDT	D64	C75

Individual tool configuration on request

CPP



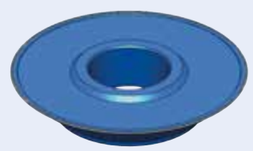


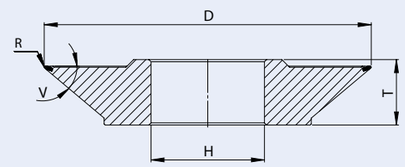
SPECIFICATIONS		
	DIMENSIONS:	D 150-600mm; W 6-250mm; X 3-7mm
	BONDS:	MDT (resin)
	APPLICATIONS:	face machining

SAMPLE ORDER	SHAPE	D	W	X	T	H	BOND	GRIT	CONCENTRATION
	CPP	300	150	3	38	0	MDT	D126	C50

Individual tool configuration on request

Dressing roll



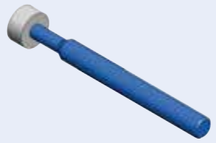


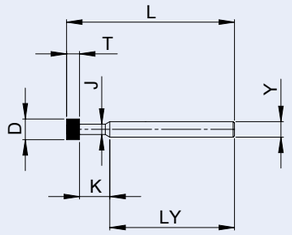
SPECIFICATIONS		
	DIMENSIONS:	D 30-400mm
	BONDS:	MDX / MDX*e* (metal)
	APPLICATIONS:	profile dressing

SAMPLE ORDER	SHAPE	D	V	R	T	H	BOND
	FORO	150	40	0,25	30	52	MDX

Individual tool configuration on request

1A1W-1



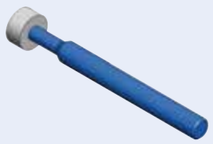


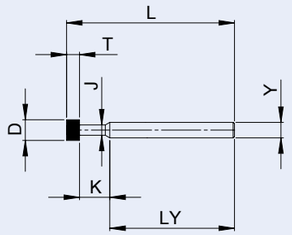
SPECIFICATIONS	
	DIMENSIONS: D 3-55mm; T 2-25mm
	BONDS: MDT (resin), MDX / MDXe (metal), MDR (ceramic)
	APPLICATIONS: internal cylindrical grinding
	MINIMUM ORDER QUANTITY: 5 pieces

SAMPLE ORDER	SHAPE	D	T	K	J	L	Y	LY	BOND	GRIT	CONCENTRATION
	1A1W-1	8	5	10	4	45	6	30	MDT	D76	C125

Individual tool configuration on request

1A1W-1(S)



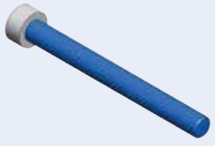


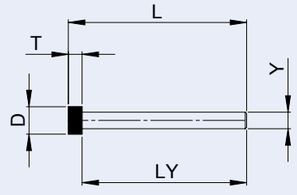
SPECIFICATIONS	
	DIMENSIONS: D 0,5-6mm; T 2-25mm
	BONDS: MDS (electroplated bond)
	APPLICATIONS: internal cylindrical grinding
	MINIMUM ORDER QUANTITY: 5 pieces

SAMPLE ORDER	SHAPE	D	T	K	J	L	Y	LY	BOND	GRIT
	1A1W-1(S)	8	5	10	4	45	6	30	MDS	D76

Individual tool configuration on request

1A1W-2



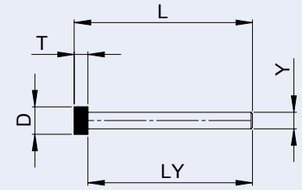


SPECIFICATIONS	
	DIMENSIONS: D 3-55mm; U 1-10mm; T 2-25mm
	BONDS: MDT (resin), MDX / MDXe (metal), MDR (ceramic)
	APPLICATIONS: internal cylindrical grinding
	MINIMUM ORDER QUANTITY: 5 pieces

SAMPLE ORDER	SHAPE	D	T	L	Y	LY	BOND	GRIT	CONCENTRATION
	1A1W-2	8	10	70	6	60	MDT	D76	C125

Individual tool configuration on request

1A1W-2(S)

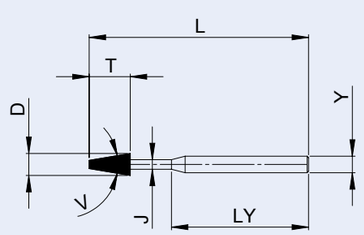


SPECIFICATIONS	
	DIMENSIONS: D 3,5-60mm; T 5-55mm
	BONDS: MDS (electroplated bond)
	APPLICATIONS: internal cylindrical grinding
	MINIMUM ORDER QUANTITY: 5 pieces

SAMPLE ORDER	SHAPE	D	T	L	Y	LY	BOND	GRIT
	1A1W-2(S)	8	10	70	6	60	MDS	D76

Individual tool configuration on request

1A1W-PS(S)

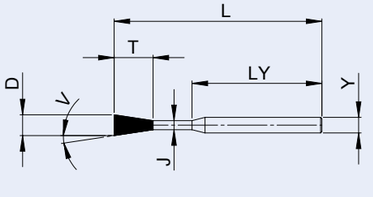


SPECIFICATIONS	
	DIMENSIONS: D 2,8-38mm; T 3-16mm
	BONDS: MDS (electroplated bond)
	APPLICATIONS: internal cylindrical grinding, profile grinding, deburring
	MINIMUM ORDER QUANTITY: 5 pieces

SAMPLE ORDER	SHAPE	D	V	T	J	L	Y	LY	BOND	GRIT
	1A1W-PS(S)	8	50°	10	2,5	30	3	20	MDS	D126

Individual tool configuration on request

1A1W-PSU(S)

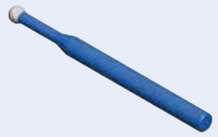


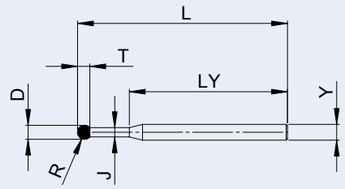
SPECIFICATIONS	
	DIMENSIONS: D 4-50mm; T 6-20mm
	BONDS: MDS (electroplated bond)
	APPLICATIONS: internal cylindrical grinding, profile grinding, deburring
	MINIMUM ORDER QUANTITY: 5 pieces

SAMPLE ORDER	SHAPE	D	V	T	J	L	Y	LY	BOND	GRIT
	1A1W-PSU(S)	4	8°	4	3	45	3	40	MDS	D126

Individual tool configuration on request

1A1W-R(S)



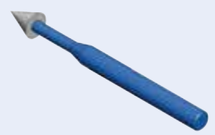


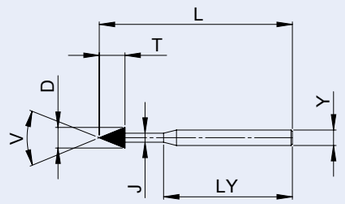
SPECIFICATIONS	
	DIMENSIONS: D 1-25,3mm; T 6-80mm
	BONDS: MDS (electroplated bond)
	APPLICATIONS: internal cylindrical grinding, profile grinding, deburring
	MINIMUM ORDER QUANTITY: 5 pieces

SAMPLE ORDER	SHAPE	D	R	T	J	L	Y	LY	BOND	GRIT
	1A1W-R(S)	4	2	2,5	3	50	3	30	MDS	D126

Individual tool configuration on request

1A1W-S(S)



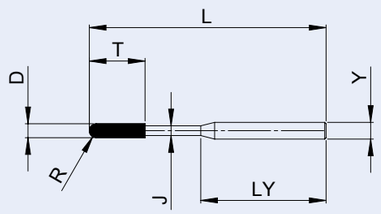


SPECIFICATIONS	
	DIMENSIONS: D 3-20mm; T 2-25mm
	BONDS: MDS (electroplated bond)
	APPLICATIONS: internal cylindrical grinding, profile grinding, deburring
	MINIMUM ORDER QUANTITY: 5 pieces

SAMPLE ORDER	SHAPE	D	V	T	J	L	Y	LY	BOND	GRIT
	1A1W-S(S)	4	90°	3	2,5	50	3	30	MDS	D126

Individual tool configuration on request

1A1W-ZR(S)



SPECIFICATIONS	
	DIMENSIONS: D 0,5-6mm; T 2-29mm
	BONDS: MDS (electroplated bond)
	APPLICATIONS: internal cylindrical grinding, profile grinding, deburring
	MINIMUM ORDER QUANTITY: 5 pieces

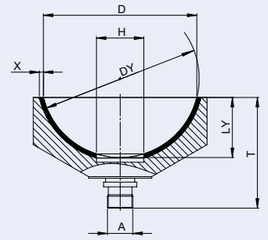
SAMPLE ORDER	SHAPE	D	R	T	J	L	Y	LY	BOND	GRIT
	1A1W-ZR(S)	4	2	20	3,5	60	6	30	MDS	D126

Individual tool configuration on request

DIAMOND TOOLS

for the optical industry

A

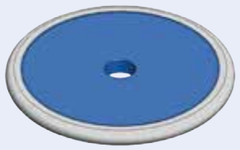


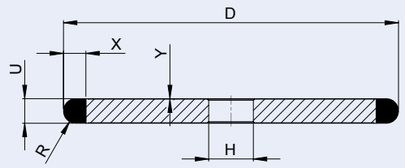
SPECIFICATIONS	
DIMENSIONS:	D 3,6-235mm; X 1-15mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDS (electroplated bond)
APPLICATIONS:	lens bevelling
DIN:	58723
ATTENTION:	LY = DY x 0,35mm

SAMPLE ORDER	SHAPE	D	X	T	H	LY	DY	A	BOND	GRIT	CONCENTRATION
	A	83	1	70	20	30,5	87	-	MDX	D25	C50

Individual tool configuration on request

1F1



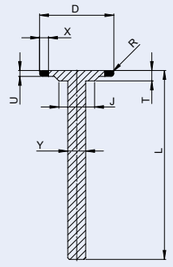


SPECIFICATIONS	
DIMENSIONS:	D 25-200mm; U 6-12mm; X 4-6mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDS (electroplated bond)
APPLICATIONS:	groove cutting, profile grinding

SAMPLE ORDER	SHAPE	D	U	X	R	H	Y	BOND	GRIT	CONCENTRATION
	1F1	100	6	6	3	20	0,2	MDT	D91	C100

Individual tool configuration on request

1F1W

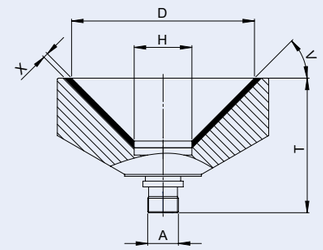


SPECIFICATIONS	
DIMENSIONS:	D 8-50; U 2-10; X 2-10
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDR (ceramic)
APPLICATIONS:	aspheric and free-form machining

SAMPLE ORDER	SHAPE	D	U	X	T	J	Y	L	R	BOND	GRIT	CONCENTRATION
	1F1W	25	2	3	3,5	12	6	60	1	MDT	B151	C100

Individual tool configuration on request

B

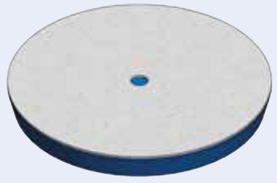


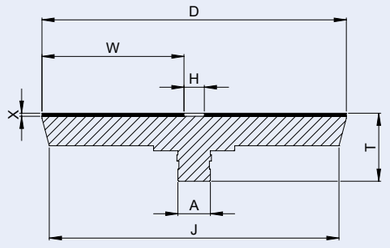
SPECIFICATIONS	
DIMENSIONS:	D 10-200mm; X 1-3mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDS (electroplated bond)
APPLICATIONS:	lens bevelling
DIN:	58723

SAMPLE ORDER	SHAPE	D	X	V	T	H	A	BOND	GRIT	CONCENTRATION
	B	12,5	1	45°	40	2	-	MDX	D15	C50

Individual tool configuration on request

C



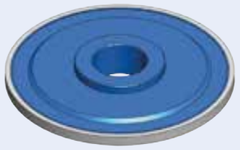


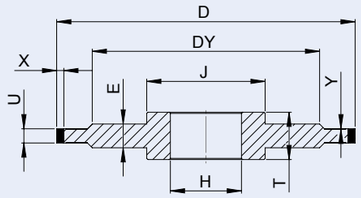
SPECIFICATIONS	
DIMENSIONS:	D 35-300mm; W 28-185mm; X 2-5mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDS (electroplated bond)
APPLICATIONS:	face machining
DIN:	58723

SAMPLE ORDER	SHAPE	D	W	X	T	H	J	A	BOND	GRIT	CONCENTRATION
	C	200	55	3	32	90	193,84	-	MDX	D15	C50

Individual tool configuration on request

D



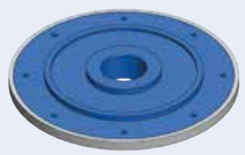


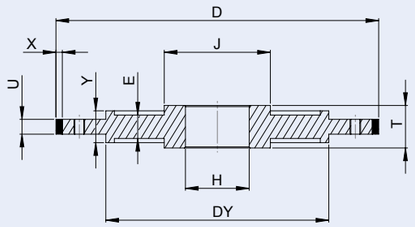
SPECIFICATIONS	
DIMENSIONS:	D 50-250mm; U 2-50mm; X 2-15mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDS (electroplated bond)
APPLICATIONS:	centring
DIN:	58742

SAMPLE ORDER	SHAPE	D	U	X	T	H	E	J	Y	DY	BOND	GRIT	CONCENTRATION
	D	160	8	2	20	30	7,6	50	0,2	130	MDX	D64	C90

Individual tool configuration on request

E



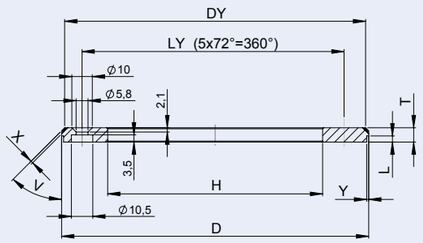


SPECIFICATIONS	
DIMENSIONS:	D 60-210mm; U 4-60mm; X 2-4mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDS (electroplated bond)
APPLICATIONS:	centring
DIN:	58742

SAMPLE ORDER	SHAPE	D	U	X	T	H	E	J	Y	DY	BOND	GRIT	CONCENTRATION
	E	100	8	2	20	20	6	35	15	65	MDX	D64	C90

Individual tool configuration on request

F

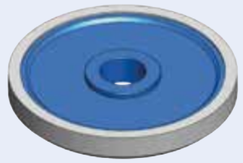


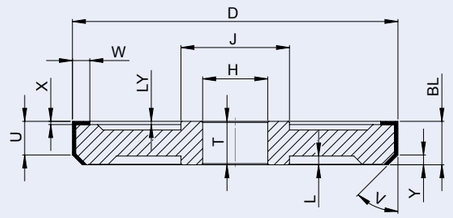
SPECIFICATIONS	
DIMENSIONS:	D 90-220mm; X 2-4mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDS (electroplated bond)
APPLICATIONS:	centring
DIN:	58742

SAMPLE ORDER	SHAPE	D	X	V	T	H	L	Y	LY	DY	BOND	GRIT	CONCENTRATION
	F	101	1	45°	6	65	2	0,5	80	100	MDX	D64	C90

Individual tool configuration on request

EZ3



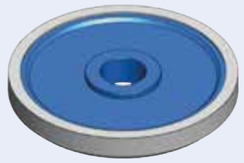


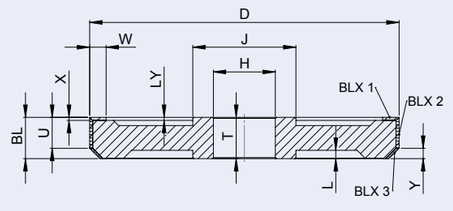
SPECIFICATIONS	
DIMENSIONS:	D 48-200mm; W 1,5-22mm; U 3,5-45mm; X 1-6mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDS (electroplated bond)
APPLICATIONS:	centring

SAMPLE ORDER	SHAPE	D	W	U	X	V	T	H	J	L	Y	LY	BL	BOND	GRIT	CONCENTRATION
	EZ3	100	5	15	1	45°	20	20	40	2	5	1	20	MDX	D46	C125

Individual tool configuration on request

EZ3/A



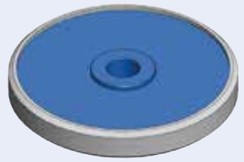


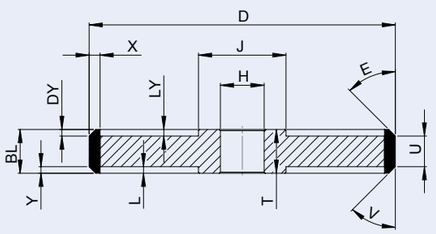
SPECIFICATIONS	
DIMENSIONS:	D 48-200mm; W 1,5-22mm; U 3,5-45mm; X 1-6mm
BONDS:	MDT (resin), MDX / MDX*e* (metal)
APPLICATIONS:	centring

SAMPLE ORDER	SHAPE	D	W	U	X	T	H	J	L	Y	LY	BL	BOND	GRIT		CONCENTRATION		
														FACING				
	EZ3/A	100	5	15	1	20	20	40	2	5	1	20	MDX	BLX1	BLX2	BLX3	BLX1	BLX2	BLX3
														D25	D46	D35	C125	C90	C125

Individual tool configuration on request

EZ4



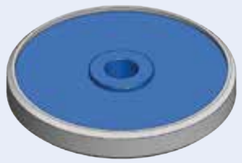


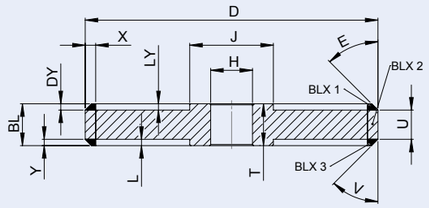
SPECIFICATIONS	
DIMENSIONS:	D 48-200mm; U 3,5-45mm; X 2-6mm
BONDS:	MDT (resin), MDX / MDX*e* (metal)
APPLICATIONS:	centring

SAMPLE ORDER	SHAPE	D	U	X	V	E	T	H	J	L	Y	DY	LY	BL	BOND	GRIT	CONCENTRATION
	EZ4	100	6	2,5	45°	30°	20	20	40	2	2	2	2	10	MDX	D46	C125

Individual tool configuration on request

EZ4/A



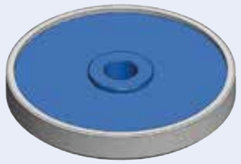


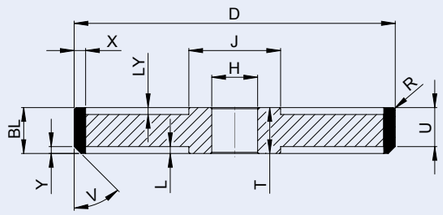
SPECIFICATIONS	
DIMENSIONS:	D 48-200mm; U 3,5-45mm; X 2-6mm
BONDS:	MDT (resin), MDX / MDX*e* (metal)
APPLICATIONS:	centring

SAMPLE ORDER	SHAPE	D	U	X	V	E	T	H	J	L	Y	LY	BL	DY	BOND	GRIT			CONCENTRATION		
																FACING					
																BLX1	BLX2	BLX3	BLX1	BLX2	BLX3
	EZ4/A	100	6	2,5	45°	30°	20	20	40	2	2	2	10	2	MDX	D25	D46	D35	C125	C90	C125

Individual tool configuration on request

EZ5



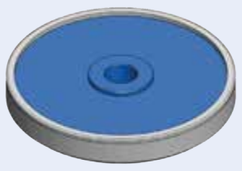


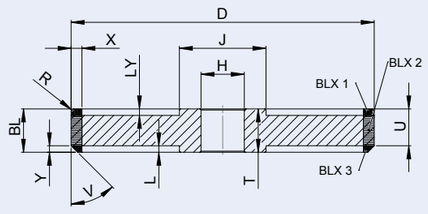
SPECIFICATIONS	
DIMENSIONS:	D 48-200mm; U 3,5-45mm; X 2-6mm
BONDS:	MDT (resin), MDX / MDX*e* (metal)
APPLICATIONS:	centring

SAMPLE ORDER	SHAPE	D	U	X	V	R	T	H	J	L	Y	LY	BL	BOND	GRIT	CONCENTRATION
	EZ5	100	6	2,5	45°	0,5	20	20	40	0,5	1,5	0,5	7,5	MDX	D46	C125

Individual tool configuration on request

EZ5/A



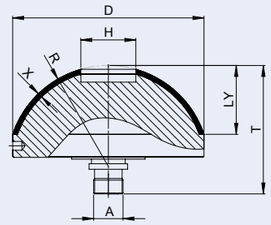


SPECIFICATIONS	
DIMENSIONS:	D 48-200mm; U 3,5-45mm; X 2-6mm
BONDS:	MDT (resin), MDX / MDX*e* (metal)
APPLICATIONS:	centring

SAMPLE ORDER	SHAPE	D	U	X	V	R	T	H	J	L	Y	LY	BL	BOND	GRIT			CONCENTRATION		
															FACING					
															BLX1	BLX2	BLX3	BLX1	BLX2	BLX3
	EZ5/A	100	6	2,5	45°	0,5	20	20	40	0,5	1,5	0,5	7,5	MDX	D25	D46	D35	C125	C90	C125

Individual tool configuration on request

FK

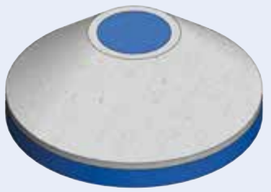


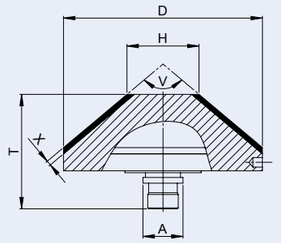
SPECIFICATIONS	
DIMENSIONS:	D 5,2-200mm; X 1-15mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDS (electroplated bond)
APPLICATIONS:	lens bevelling
DIN:	58723
ATTENTION:	LY = DY x 0,35mm

SAMPLE ORDER	SHAPE	D	X	R	T	H	LY	A	BOND	GRIT	CONCENTRATION
	FK	50	1	30	39	10	13	-	MDX	D25	C50

Individual tool configuration on request

FKE



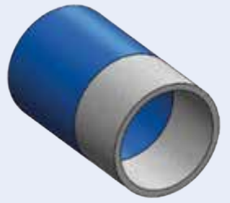


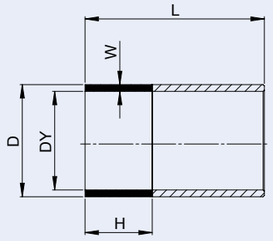
SPECIFICATIONS	
DIMENSIONS:	D 3-200mm; X 1-6mm
BONDS:	MDT (resin), MDX / MDX*e* (metal), MDS (electroplated bond)
APPLICATIONS:	lens bevelling
DIN:	58723

SAMPLE ORDER	SHAPE	D	X	V	T	H	A	BOND	GRIT	CONCENTRATION
	FKE	70	1	90°	90	40	-	MDX	D15	C50

Individual tool configuration on request

HB1



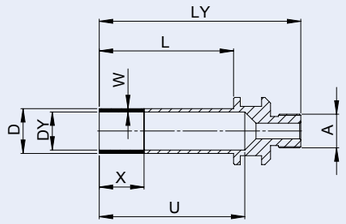


SPECIFICATIONS	
DIMENSIONS:	D 2,5-100mm; W 1-2mm; X 5-10mm
BONDS:	MDX / MDX*e* (metal), MDS (electroplated bond)
APPLICATIONS:	glass drilling

SAMPLE ORDER	SHAPE	D	W	H	L	DY	BOND	GRIT	CONCENTRATION
	HB1	5	1	10	50	3	MDX	D126	C50

Individual tool configuration on request

HB2

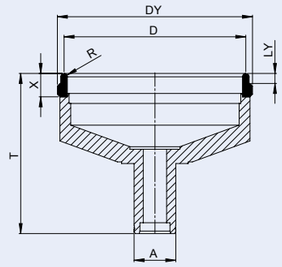


SPECIFICATIONS	DIMENSIONS: D 2,5-100mm; W 1-2mm; X 5-10mm BONDS: MDX / MDX*e* (metal), MDS (electroplated bond) APPLICATIONS: glass drilling

SAMPLE ORDER	SHAPE	D	W	U	X	L	LY	DY	A	BOND	GRIT	CONCENTRATION
	HB2	6,2	1	45	10	40	75	4,2	G1/2	MDX	D126	C50

Individual tool configuration on request

KW

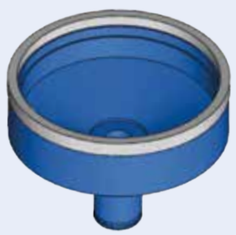


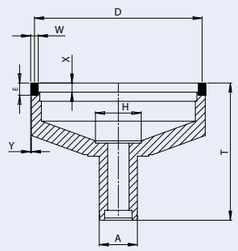
SPECIFICATIONS	DIMENSIONS: D 6,3-240mm; X 2-25mm BONDS: MDT (resin), MDX / MDX*e* (metal) APPLICATIONS: aspheric machining, edging, complete machining of faces, facets and edges

SAMPLE ORDER	SHAPE	D	X	T	R	LY	DY	A	BOND	GRIT	CONCENTRATION
	KW	20	12	88	1,25	5	22,5	25	MDX	D46	C90

Individual tool configuration on request

PF



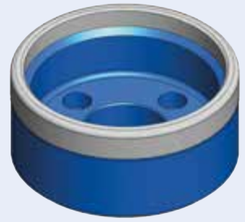


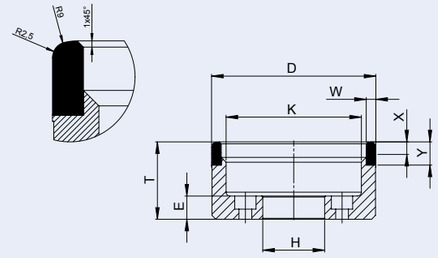
SPECIFICATIONS	DIMENSIONS: D 3-450mm (MDX / MDX*e* up to max. D 400mm); W 1-30mm; X 4-25mm BONDS: MDT (resin), MDX / MDX*e* (metal) APPLICATIONS: radius grinding DIN: 58741

SAMPLE ORDER	SHAPE	D	W	X	T	H	E	Y	A	BOND	GRIT	CONCENTRATION
	PF	75	3	6	105	30	5	0,5	Z25	MDX	D76	C75

Individual tool configuration on request

PF/R



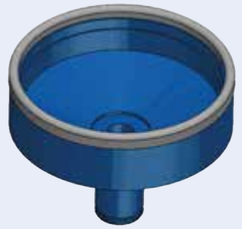


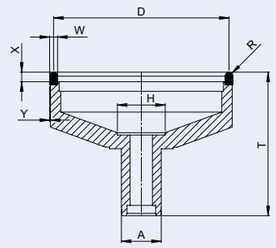
SPECIFICATIONS	DIMENSIONS: D 30-350mm; W 1-15mm; X 4-10mm BONDS: MDT (resin), MDX / MDX*e* (metal) APPLICATIONS: prismatic machining

SAMPLE ORDER	SHAPE	D	W	X	T	H	E	K	Y	BOND	GRIT	CONCENTRATION
	PF/R	100	5	6	25	35	12	76	6	MDX	D76	C75

Individual tool configuration on request

RF



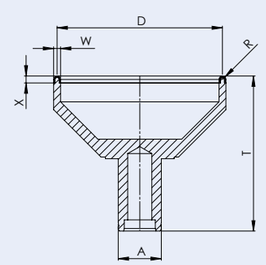


SPECIFICATIONS	DIMENSIONS: D 3-350mm; W 1-10mm; X 4-10mm BONDS: MDT (resin), MDX / MDX*e* (metal) APPLICATIONS: radius grinding DIN: 58741

SAMPLE ORDER	SHAPE	D	W	X	R	T	H	Y	A	BOND	GRIT	CONCENTRATION
	RF	100	5	6	2,5	90	30	0,5	HD-25SR	MDX	D64	C50

Individual tool configuration on request

RF(S)

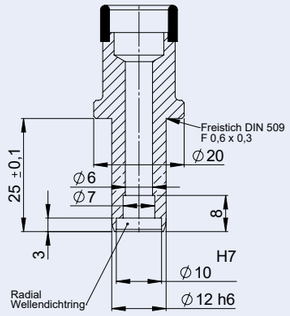


SPECIFICATIONS	DIMENSIONS: D 3-300mm; W 1-10mm; X 2-4mm BONDS: MDS (electroplated bond) APPLICATIONS: dressing of polishing tools

SAMPLE ORDER	SHAPE	D	W	X	R	T	A	BOND	GRIT
	RF(S)	20	3	4	1,5	40	HD-25SR	MDS	D64

Individual tool configuration on request

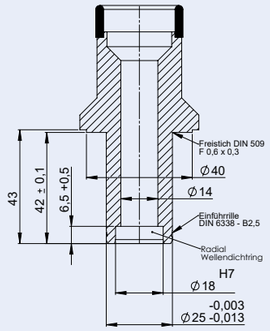
Mounting
for HD-12 SR



SPECIFICATIONS **MACHINE TYPE:** Satisloh, OptoTech, Schneider

Individual tool configuration on request

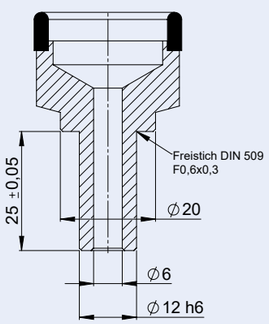
Mounting
for HD-25 SR



SPECIFICATIONS **MACHINE TYPE:** Satisloh, OptoTech, Schneider

Individual tool configuration on request

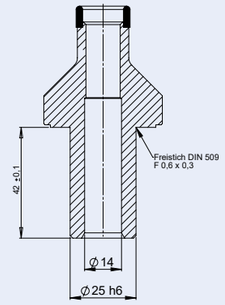
Mounting
for Z12 according to DIN



SPECIFICATIONS **MACHINE TYPE:** Satisloh, OptoTech, Schneider
DIN: 58741

Individual tool configuration on request

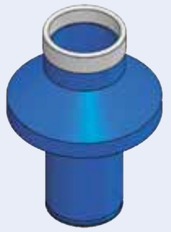
Mounting
for Z25 according to DIN

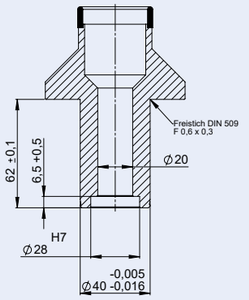


SPECIFICATIONS **MACHINE TYPE:** Satisloh, OptoTech, Schneider
DIN: 58741

Individual tool configuration on request

Mounting
for Z40 according to DIN

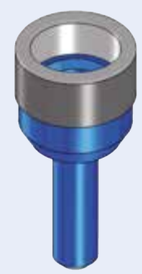


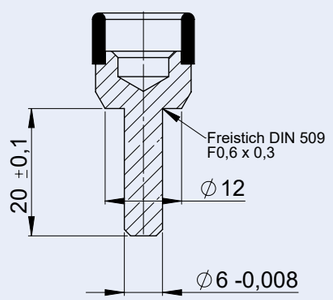


SPECIFICATIONS **MACHINE TYPE:** Satisloh, OptoTech, Schneider
DIN: 58741

Individual tool configuration on request

Mounting
for Z6

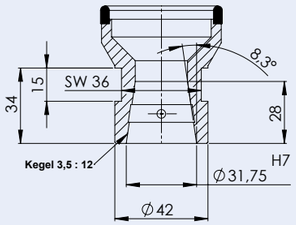




SPECIFICATIONS **MACHINE TYPE:** Satisloh, OptoTech, Schneider
SHAFT STANDARD LENGTH: 20mm according to DIN

Individual tool configuration on request

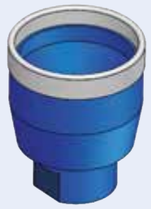
Mounting
for SPM100

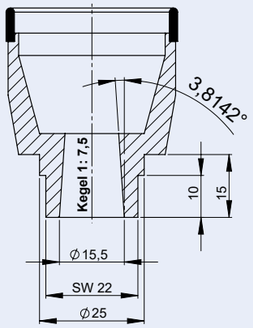


SPECIFICATIONS **MACHINE TYPE:** Satisloh RF 3A (bayonet), Satisloh RXT, Satisloh SPM100

Individual tool configuration on request

Mounting
for RF1-B

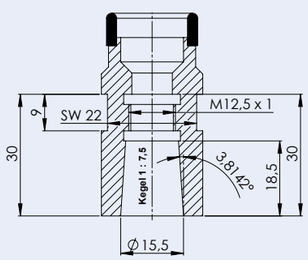




SPECIFICATIONS **MACHINE TYPE:** Satisloh RF1 <= diameter 60, Shape B

Individual tool configuration on request

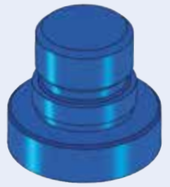
Mounting
for RF1-C

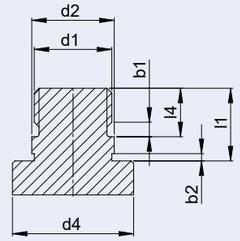


SPECIFICATIONS **MACHINE TYPE:** Satisloh RF1 <= diameter 25, Shape C

Individual tool configuration on request

Mounting
for AM+PZ

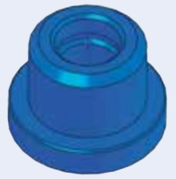


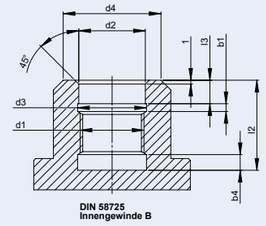


SPECIFICATIONS **MACHINE TYPE:** diverse

Individual tool configuration on request

Mounting
for BM+PZ



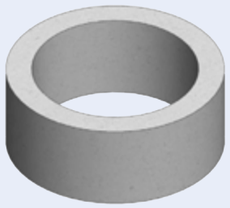


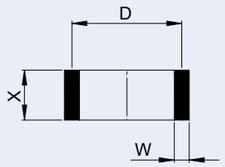
SPECIFICATIONS **MACHINE TYPE:** diverse

Individual tool configuration on request

d_1	d_2 G7/h6	d_3	d_4	b_1 [a]	b_2 [b]	b_4 (2_p)	l_1	l_2	l_3	l_4	p
M5	5,6	—	9	1,6	1	1,6	7	8, 6	3	4	0,8
M10	11	11,6	16	2c		3	10,5	13,5	5	7,5	1,5
M12	13	13,6	19	3,5	1,5	3,5	13	16,5	4	9	1,75
M16	17	17,6	25	2c		4	15	19	6	10	2
M20	21	22	32	5	2,5	5	18	23	5, 5	12,5	2,5
			40								
			70								
M27	28	29	45	4		21	21	27	6	15	3
M39	40	41	63	8		29	29	37	9	20	4
M60	62	63	90	12		12	40	51	12,5	27,5	6

SP



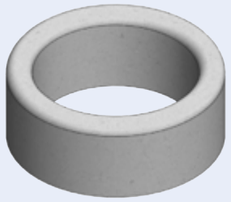


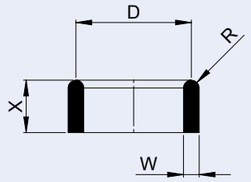
SPECIFICATIONS	
	DIMENSIONS: D 3-200mm; W 1-20mm; X 6-15mm
	BONDS: MDT (resin), MDX / MDX*e* (metal)
	APPLICATIONS: radius grinding
	D ACCORDING TO DIN: 58741

SAMPLE ORDER	SHAPE	D	W	X	BOND	GRIT	CONCENTRATION
	SP	50	3	6	MDX	D46	C75

Individual tool configuration on request

SR



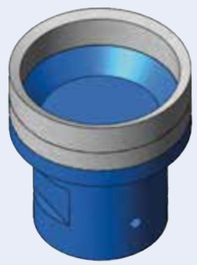


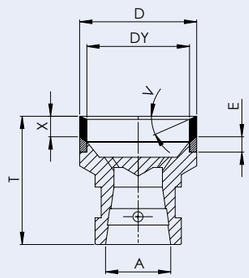
SPECIFICATIONS	
	DIMENSIONS: D 3-200mm; W 1-20mm; X 6-15mm
	BONDS: MDT (resin), MDX / MDX*e* (metal)
	APPLICATIONS: radius grinding
	D ACCORDING TO DIN: 58741

SAMPLE ORDER	SHAPE	D	W	X	R	BOND	GRIT	CONCENTRATION
	SR	10	2	6	1	MDX	D46	C75

Individual tool configuration on request

TF



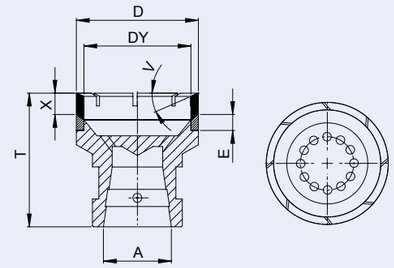


SPECIFICATIONS	
	DIMENSIONS: D 60-112mm; X 8-10mm
	BONDS: MDT (resin), MDX / MDX*e* (metal), MDS (electroplated bond)
	APPLICATIONS: prismatic machining

SAMPLE ORDER	SHAPE	D	X	V	T	E	DY	A	BOND	GRIT	CONCENTRATION
	TF	90	8	15°	78	11	77	—	MDX	D181	C35

Individual tool configuration on request

TF/S



SPECIFICATIONS	
	DIMENSIONS: D 60-112mm; X 8-10mm
	BONDS: MDT (resin), MDX / MDX*e* (metal), MDS (electroplated bond)
	APPLICATIONS: prismatic machining

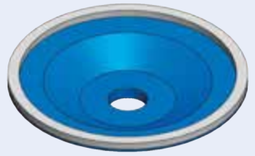
SAMPLE ORDER	SHAPE	D	X	V	T	E	DY	A	BOND	GRIT	CONCENTRATION
	TF/S	90	8	15°	78	7	77	—	MDX	D181	C35

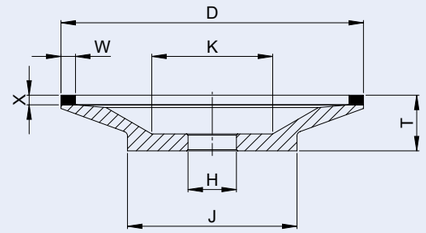
Individual tool configuration on request

DIAMOND AND CBN TOOLS

for the woodworking and plastics industry

F105SG



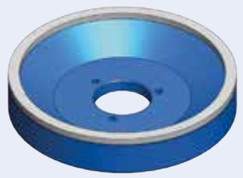


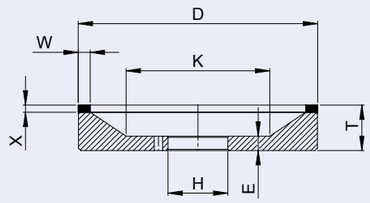
SPECIFICATIONS	
	DIMENSIONS: D 75-200mm; W 3-7mm; X 1,5-5mm
	BONDS: MDT (resin)
	APPLICATIONS: chip surface (tooth-face grinding)
	MACHINE TYPE RECOMMENDATION: Vollmer-Dornhan, Universal tool grinding machine

SAMPLE ORDER	SHAPE	D	W	X	T	K	J	H	BOND	GRIT	CONCENTRATION
	F105SG	125	5	4	23	87,4	70	20	MDT	D64	C75

Individual tool configuration on request

6A2G



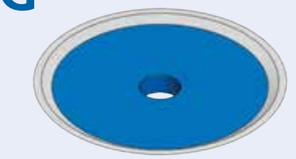


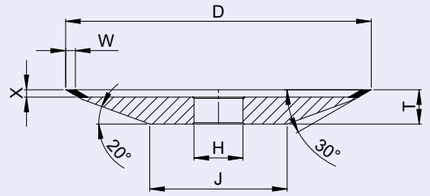
SPECIFICATIONS	
	DIMENSIONS: D 150-250mm; W 4-10mm; X 2-10mm
	BONDS: MDT (resin), MDX / MDXe (metal)
	APPLICATIONS: lateral/end face relief angle grinding, corner bevel grinding, face grinding, wedge angle grinding
	MACHINE TYPE RECOMMENDATION: Göckel

SAMPLE ORDER	SHAPE	D	W	X	T	H	E	K	BOND	GRIT	CONCENTRATION
	6A2G	200	6	2	30	50	13	120	MDT	D91	C75

Individual tool configuration on request

F145SG



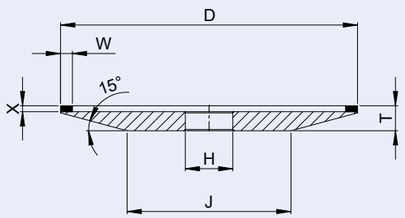


SPECIFICATIONS	
	DIMENSIONS: D 75-200mm; W 2-8mm; X 2-4mm
	BONDS: MDT (resin)
	APPLICATIONS: chip surface (tooth-face grinding)
	MACHINE TYPE RECOMMENDATION: WIDMA, Akemat, Vollmer-Biberach, Vollmer-Dornhan

SAMPLE ORDER	SHAPE	D	W	X	T	J	H	BOND	GRIT	CONCENTRATION
	F145SG	125	8	4	12	59,7	25	MDT	D64	C75

Individual tool configuration on request

F100SG

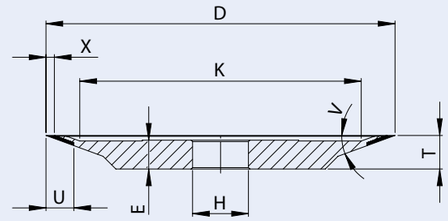


SPECIFICATIONS	
	DIMENSIONS: D 50-200mm; W 2-10mm; X 1-5mm
	BONDS: MDT (resin)
	APPLICATIONS: chip surface (tooth-face grinding)
	MACHINE TYPE RECOMMENDATION: Walter AG, Akemat, Vollmer-Biberach, Vollmer-Dornhan, WIDMA

SAMPLE ORDER	SHAPE	D	W	X	T	J	H	BOND	GRIT	CONCENTRATION
	F100SG	100	5	2	10	58,95	20	MDT	D46	C50

Individual tool configuration on request

F160SG

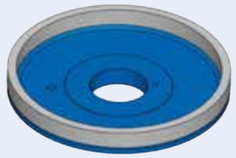


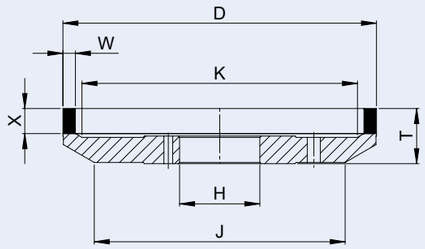
SPECIFICATIONS	
	DIMENSIONS: D 75-200mm; U 4-16mm; X 2-10mm
	BONDS: MDT (resin)
	APPLICATIONS: chip surface (tooth-face grinding)
	MACHINE TYPE RECOMMENDATION: Walter AG, Akemat, Vollmer-Biberach, Vollmer-Dornhan, Universal tool grinding machine

SAMPLE ORDER	SHAPE	D	U	X	V	T	K	J	H	BOND	GRIT	CONCENTRATION
	F160SG	75	7,1	2,3	45°	26	65	50	20	MDT	D64	C75

Individual tool configuration on request

F190SG



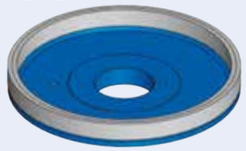


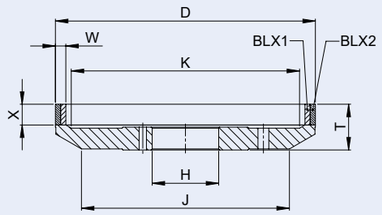
SPECIFICATIONS	
	DIMENSIONS: D 75-125mm; W 2-6mm; X 3-10mm
	BONDS: MDT (resin)
	APPLICATIONS: top grinding
	MACHINE TYPE RECOMMENDATION: Vollmer-Biberach, Vollmer-Dornhan, WIDMA

SAMPLE ORDER	SHAPE	D	W	X	T	K	J	H	BOND	GRIT		CONCENTRATION	
										FACING			
										BLX1	BLX2	BLX1	BLX2
	F190SG	125	5	10	22	111,8	100	32	MDT	D46	D126	C75	C100

Individual tool configuration on request

F190SG/A



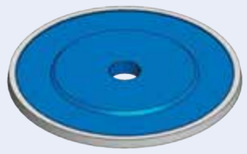


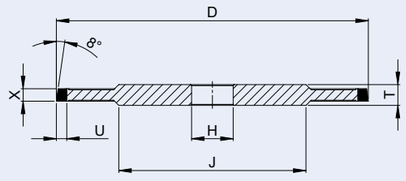
SPECIFICATIONS	
	DIMENSIONS: D 75-125mm; W 2-6mm; X 3-10mm
	BONDS: MDT (resin)
	APPLICATIONS: top grinding
	MACHINE TYPE RECOMMENDATION: Vollmer-Biberach, Vollmer-Dornhan, WIDMA

SAMPLE ORDER	SHAPE	D	W	X	T	K	J	H	BOND	GRIT		CONCENTRATION	
										FACING			
										BLX1	BLX2	BLX1	BLX2
	F190SG/A	125	5	10	22	111,8	100	32	MDT	D46	D126	C75	C100

Individual tool configuration on request

F240SG



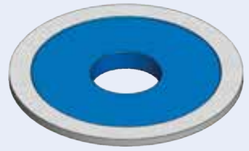


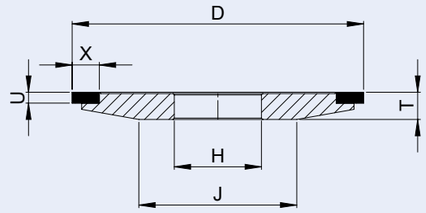
SPECIFICATIONS	
	DIMENSIONS: D 50-200mm; U 2-6,5mm; X 4-8mm
	BONDS: MDT (resin)
	APPLICATIONS: flank grinding
	MACHINE TYPE RECOMMENDATION: WEINIG RONDAMAT, Walter AG, Akemat, Vollmer-Biberach, Vollmer-Dornhan, WIDMA

SAMPLE ORDER	SHAPE	D	U	X	T	J	H	BOND	GRIT	CONCENTRATION
	F240SG	127	5	7	8	92	32	MDT	D126	C100

Individual tool configuration on request

F240SG(1)



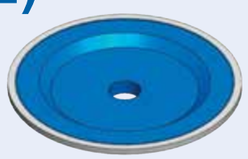


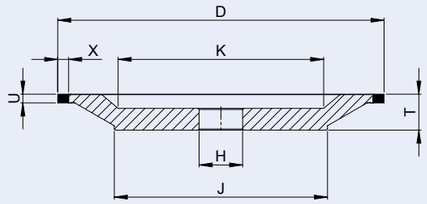
SPECIFICATIONS	
	DIMENSIONS: D 50-200mm; U 2-6,5mm; X 4-8mm
	BONDS: MDT (resin)
	APPLICATIONS: flank grinding
	MACHINE TYPE RECOMMENDATION: WEINIG RONDAMAT, Walter AG, Akemat, Vollmer-Biberach, Vollmer-Dornhan, WIDMA

SAMPLE ORDER	SHAPE	D	U	X	T	J	H	BOND	GRIT	CONCENTRATION
	F240SG(1)	100	6,5	4	14	69	20	MDT	D91	C50

Individual tool configuration on request

F240SG(2)



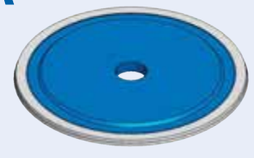


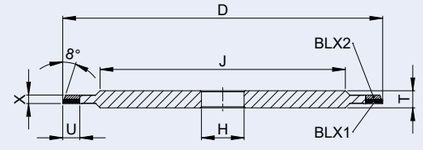
SPECIFICATIONS	
	DIMENSIONS: D 50-200mm; U 2-6,5mm; X 4-8mm
	BONDS: MDT (resin)
	APPLICATIONS: flank grinding
	MACHINE TYPE RECOMMENDATION: WEINIG RONDAMAT, Walter AG, Akemat, Vollmer-Biberach, Vollmer-Dornhan, WIDMA

SAMPLE ORDER	SHAPE	D	U	X	T	K	J	H	BOND	GRIT	CONCENTRATION
	F240SG(2)	100	4	4	16,5	65	69	20	MDT	D126	C85

Individual tool configuration on request

F240SG/A





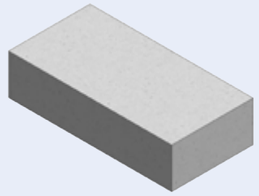
SPECIFICATIONS	
	DIMENSIONS: D 50-200mm; U 2-6,5mm; X 4-8mm
	BONDS: MDT (resin)
	APPLICATIONS: flank grinding
	MACHINE TYPE RECOMMENDATION: WEINIG RONDAMAT, Walter AG, Akemat, Vollmer-Biberach, Vollmer-Dornhan, WIDMA

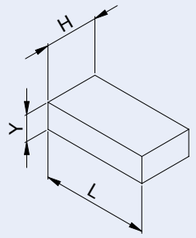
SAMPLE ORDER	SHAPE	D	U	X	T	J	H	BOND	GRIT		CONCENTRATION	
									FACING			
									BLX1	BLX2	BLX1	BLX2
	F240SG/A	127	5	7	8	92	32	MDT	D46	D107	C75	C100

Individual tool configuration on request

ACCESSORIES

Whetstones



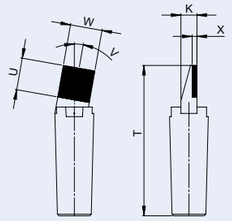


SPECIFICATIONS	**DIMENSIONS:**	H 13-50mm; L 100-200mm; Y 13-160mm			
	BONDS:	-			
	APPLICATIONS:	sharpening			
SAMPLE ORDER	**SHAPE**	**H**	**L**	**Y**	**GRIT**
	SST	50	100	25	180

Individual tool configuration on request

X-NO.	Colour	Material	Bond	Dimensions	Application	
					grit	DMD bond
12883	brown	silicon carbide	180	100x13x25	D30 - D91	MDX(*e*)-665 / MDX(*e*)-587
12369	brown	silicon carbide	180	200x50x25	D30 - D91	MDX(*e*)-665 / MDX(*e*)-587
11911	white	refined corundum	180	100x24x14	D/B54 up to D/B251	MDT, MDX(*e*)
12252	white	refined corundum	180	100x50x25	D/B54 up to D/B251	MDT, MDX(*e*)
12885	green/grey	silicon carbide	400	100x24x14	PKD Scheiben	MDR
12669	white	refined corundum	500	100x24x14	D10 - D30	PI
12886	orange	refined corundum	150	100x50x25	D/B54 up to D/B251	MDT, MDX(*e*)
13169	purple/mud	silicon carbide	500	200x25x20	D30 - D91	MDX(*e*)-665 / MDX(*e*)-587
13936	blue	refined corundum	151	100x25x13	D30 - D91	MDX(*e*)-665 / MDX(*e*)-587

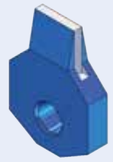
Dresser APMK-SX

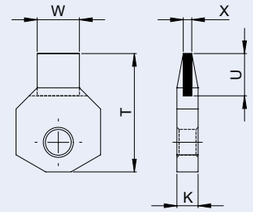


X-NO.	W	U	X	V	T	K
24031	10	10	1,5	10	47	5

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
MK1 - 30 mm	SW11 x 3 mm, 10° tilted left	80 – 120	up to Ø 300 mm, width up to 30 mm	fused corundum

Dresser APMK-SX

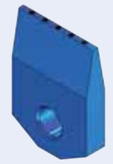


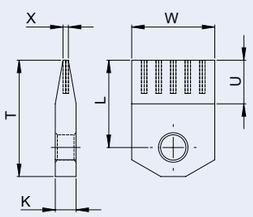


X-NO.	W	U	X	T	K
49237	10	10	2	28	5

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
base body 20 mm x 20 mm	—	80 – 120	up to Ø 300 mm, width up to 80 mm	fused corundum

Dresser APMK-SX

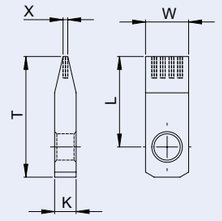




X-NO.	W	U	X	T	K	L
43445	20	10	1,3	28	5	21

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
—	—	46 – 80	Ø > 600 mm, width up to 220 mm	fused corundum

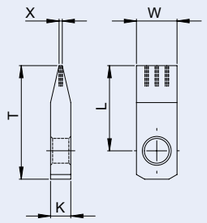
Dresser APMK-SX



X-NO.	W	X	T	K	L
11402	10	1,1	28	5	21

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
—	—	80 – 120	Ø 300 mm, width up to 120 mm	fused corundum

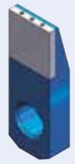
Dresser APMK-SX

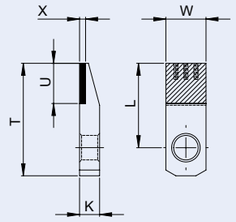


X-NO.	W	X	T	K	L
11458	10	0,8	28	5	21

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
—	—	80 – 120	Ø 300 mm, width up to 80 mm	fused corundum

Dresser APMK-SX

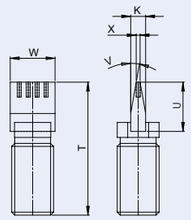




X-NO.	W	U	X	T	K	L
43522	10	10	1,5	28	5	21

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
—	—	120 and finer	up to Ø 300, width up to 80 mm	fused corundum

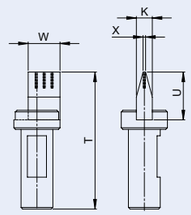
Dresser APMK-SX



X-NO.	W	U	X	V	T	K
36439	15	15	1,3	10	43	5

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
outside thread M14 x 1	SW14 x 5 mm	46 – 80	Ø von 300 mm – 600 mm, width up to 150 mm	fused corundum

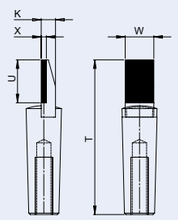
Dresser APMK-SX



X-NO.	W	U	X	T	K
30672	10	15	0,8	43	5

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
shaft dimension 10 mm x 25 mm	SW9 x 13 mm	80 – 120	up to Ø 300, width up to 80 mm	fused corundum

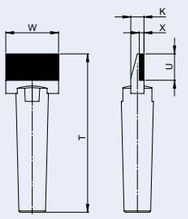
Dresser APN



X-NO.	W	U	X	T	K
22537	10	15	1,8	54	5

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
MK1 - 31 mm	—	46 – 80	Ø 150 mm – 500 mm, width 100m – 200 mm	silicon carbide

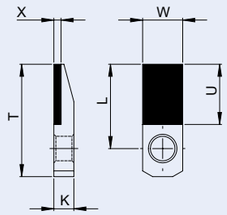
Dresser APN



X-NO.	W	U	X	T	K
15210	20	10	1,8	60	5

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
MK1 - 40 mm	SW11 x 6 mm	46 – 80	Ø ≥ 500 mm, width 200 mm – 350 mm	silicon carbide

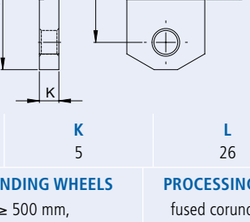
Dresser APN-SX



X-NO.	W	U	X	T	K	L
19807	10	15	1,8	28	5	21

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
—	—	46 – 80	Ø 150 mm – 500 mm, width 100 mm – 200 mm	silicon carbide

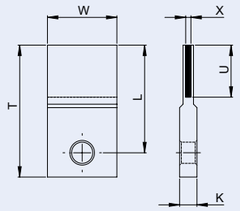
Dresser APN-SX



X-NO.	W	U	X	T	K
11070	10	10	1,8	28	5

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
—	slotted hole, 3 mm offset	46 – 80	Ø 150 mm – 500 mm, width 100 mm – 200 mm	silicon carbide

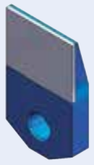
Dresser APN/Z

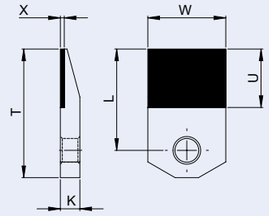


X-NO.	W	U	X	T	K	L
11452	20	15	1,5	38	5	31

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
—	—	46 – 80	Ø ≥ 500 mm, width 200 mm – 350 mm	fused corundum

Dresser APS

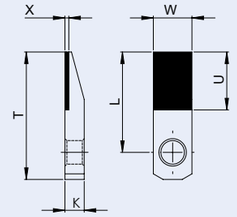




X-NO.	W	U	X	T	K	L
11617	20	15	1	33	5	26

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
—	—	80 and finer	Ø ≥ 500 mm, width 200 mm – 350 mm	fused corundum

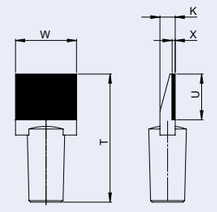
Dresser APS



X-NO.	W	U	X	T	K	L
11893	10	15	1	33	5	26

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
—	—	80 and finer	Ø 150 mm – 500 mm, width 100 mm – 200 mm	fused corundum

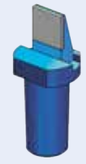
Dresser APS

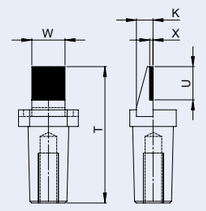


X-NO.	W	U	X	T	K
12022	20	15	1	42	5

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
MK1 - 19 mm	—	80 and finer	Ø ≥ 500 mm, width 200 mm – 350 mm	fused corundum

Dresser APS-SX

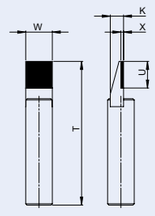




X-NO.	W	U	X	T	K
15044	10	10	1	41	5

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
MK1 - 19 mm	SW14 x 5 mm	80 and finer	Ø 150 mm – 500 mm, width 100 mm – 200 mm	fused corundum

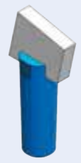
Dresser APS-SX

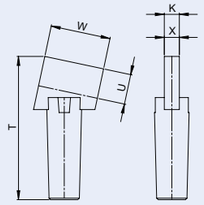


X-NO.	W	U	X	T	K
65965	10	10	1	54	5

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
shaft dimension 10 mm x 40 mm	—	80 and finer	Ø 150 mm – 500 mm, width 100 mm – 200 mm	fused corundum

Dresser APS/Z

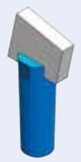


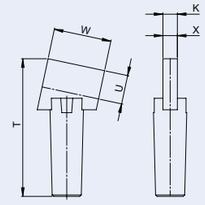


X-NO.	W	U	X	T	K	K
35417	20	10	5	45,6	5	—

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
MK1 - 28 mm - 12°	SW11 x 5 mm	80 – 120	Ø ≥ 500 mm, width 200 mm – 350 mm	fused corundum

Dresser APS/Z

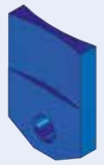


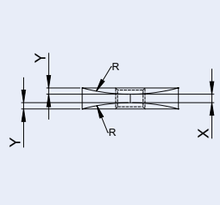


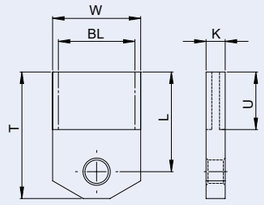
X-NO.	W	U	X	T	K
11446	20	10	5	46	5

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
MK1 - 28 mm	SW11 x 5 mm, 12° tilted	36 – 60	Ø ≥ 500 mm, width 200 mm – 350 mm	fused corundum

Dresser APS/Z



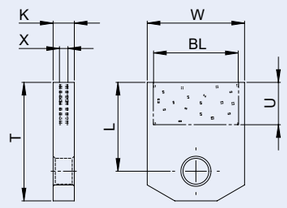




X-NO.	W	U	X	R	T	K	L	Y	BL
14296	23	15	1	45	33	5	26	1,49	20

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
—	—	80 and finer	Ø ≥ 500 mm, width 200 mm – 350 mm	silicon carbide

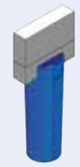
Dresser APS/Z-SX

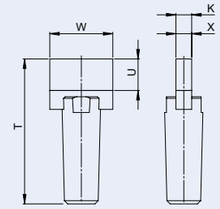


X-NO.	W	U	X	T	K	L	BL
15488	23	10	2	28	5	21	20

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
—	—	80 and finer	Ø ≥ 500 mm, width 200 mm – 350 mm	fused corundum

Dresser APS/Z-SX

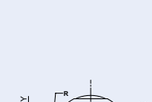


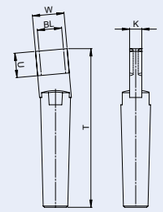


X-NO.	W	U	X	T	K
15170	20	10	5	46	5

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
MK1 - 28 mm	SW11 x 5 mm	36 – 60	Ø ≥ 500 mm, width 200 mm – 350 mm	fused corundum

Dresser APS/Z-SX

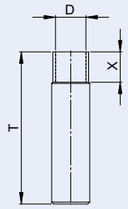




X-NO.	W	U	X	R	T	K	Y
14069	13	10	1	15	65	5	1,48

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
MK1 - 40 mm	SW11 x 6 mm, 5° tilted	80 and finer	Ø 150 mm – 500 mm, width 100 mm – 200 mm	silicon carbide

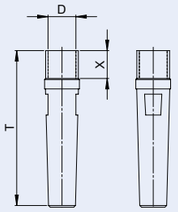
Dresser TK



X-NO.	D	X	T
12021	8	8	40

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
shaft dimension 10 mm x 32 mm	—	60 – 80	Ø ≥ 400, width up to 40 mm	fused corundum

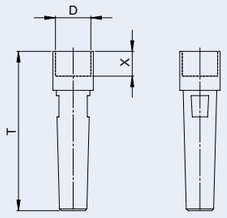
Dresser TK-SX



X-NO.	D	X	T
16899	8	8	45

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
MK0 - 25,5 mm	SW8 x 6 mm	60 – 80	Ø ≥ 400, width up to 40 mm	silicon carbide

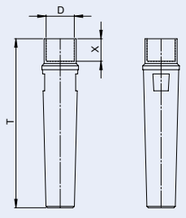
Dresser VS-SX



X-NO.	D	X	T
12529	10	7	45

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
MK0 - 25,5 mm	SW8 x 6 mm	36 – 46	up to Ø 400 mm, width up to 250 mm	silicon carbide

Dresser VS-SX



X-NO.	D	X	T
17011	10	7	60

MOUNTING	ADDITIONAL INFORMATION	FOR GRINDING WHEEL GRIT	FOR GRINDING WHEELS	PROCESSING OF
MK1 - 40 mm	SW11 x 6 mm	36 – 46	up to Ø 400 mm, width up to 250 mm	silicon carbide

GENERAL INFORMATION

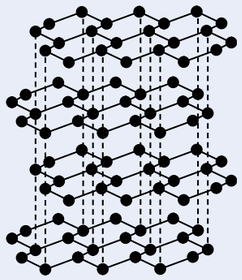
Diamond

Due to its hardness, diamond is an ideal abrasive for very hard materials. Almost 90 % of the diamonds nowadays used in grinding tools are manufactured synthetically. The basic material is graphite which is transformed into the crystal lattice of the diamond with the aid of pressure and temperature in the presence of catalysts. On account of the controlled synthesis, it is possible to produce diamonds with specific grinding properties for the most diverse bonding systems and grinding operations.

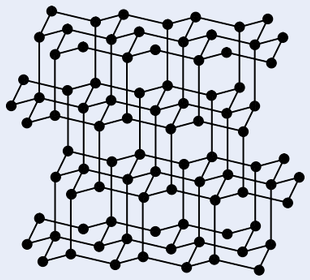
While the diamonds in metal bonds are typically used without a coating, diamonds coated in nickel and copper are used for resin bonds in the majority of cases. It is primarily the uneven surface of these coats which reinforces the fixation of the diamonds in the bonds and accelerates heat dissipation

Synthetic diamonds are produced in diverse qualities and grit sizes.

CRYSTAL LATTICE OF GRAPHITE



CRYSTAL LATTICE OF DIAMOND



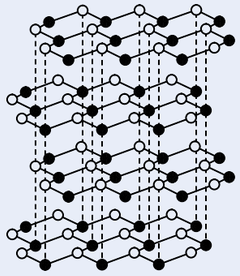
● = Carbon atoms

CBN

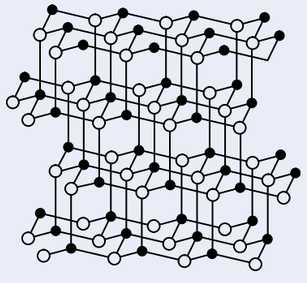
Cubic crystalline boron nitride presently is the second hardest material after diamonds. It is synthesised from hexagonal boron nitride (a nitrogen boron compound) under pressure and temperature in the presence of catalysts, in a manner similar to the synthesis of diamonds.

Cubic crystalline boron nitride is also available in diverse qualities and grit sizes and with a nickel coating. The preferred application of CBN is the grinding of HSS grades and hardened steels.

CRYSTAL LATTICE OF HEXAGONAL BORON NITRIDE



CRYSTAL LATTICE OF CUBIC BORON NITRIDE



● = Boron atoms ○ = Nitrogen atoms

Application range

for diamond and CBN wheels

DIAMOND WHEELS ARE USED FOR THE GRINDING OF:

- Carbide
- Cermet
- Carbide/steel combinations
- Glass
- Sapphire
- Quartz
- Ceramic materials of all kinds
- Ferrotitanite
- Carbide-based powder coatings
- Graphite
- Polycrystalline diamond and CBN blanks
- Ceramic magnetic materials
- Glass-fibre and carbon-fibre reinforced synthetic materials
- Tungsten carbide

CBN WHEELS ARE USED FOR THE GRINDING OF:

- Hardened high-speed steels (HSS)
- High-alloyed tool steels with at least 55 HRC
- Case-hardened steels
- Iron-based powder coatings
- Chilled casting
- Soft steels in certain applications
- Stellite
- Surgical steel
- PM steels

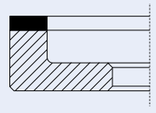
Selection criteria

for diamond and CBN wheels

Below, we have compiled the most important selection criteria for diamond and CBN wheels.

1. SHAPE

The shape of the various diamond/CBN wheels is expressed by a combination of figures and letters. (e.g. 6 A 2)



The basis for this designation system is the FEPA standard (Fédération Européenne des Fabricants de Produits Abrasifs / cf. also DIN standard 69800 and following). First, choose the wheel shape suited for your grinding job. The standard shapes are compiled in the table of wheel shapes on pages 26 – 35. If you require different shapes, this can be done any time. In that event, please let us have your sketch or drawing.

As a rule, the shape is determined by the workpiece, the machine and the grinding method. We recommend using a wheel shape which is as stable as possible to avoid oscillations during grinding. The carriers for the grinding wheels are made of different materials, depending on the bonds.

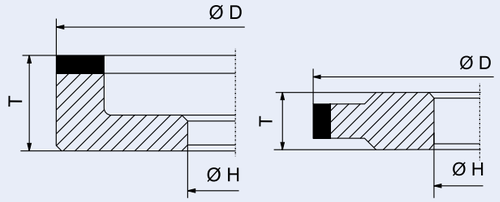
BOND	BODY MATERIAL
Resin bond (MDT)	Aluminium
	Aluminium synthetic resin
	Graphite synthetic resin
Metal bond (MDX / MDXe)	Steel
	Bronze
Vitrified bond (MDR)	Aluminium
	Steel
Electroplated bond (MDS)	Aluminium
	Steel

We select the suitable wheel carrier, corresponding to the wheel shape as well as the thermal stress and mechanical load.

2. DIMENSIONS

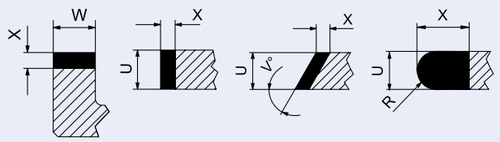
THE MOST IMPORTANT DIMENSIONS FOR A DIAMOND/CBN WHEEL ARE:

- the diameter **D**
- the total height **T**
- the hole **H**



AND THE DIMENSIONS OF THE DIAMOND/CBN LAYER:

- the width of the layer **W** or **U**
- the layer depth **X**
- the profile angle **V°**
- the radius **R**



2A. DIAMETER D

Determine the diameter in accordance with the grinding operation you have to perform, your machine and our cutting speed recommendations on page 98. The larger the wheel diameter, the more economically you will grind, thanks to the then more favourable thermal and kinematic conditions. You will find the possible dimensions among the individual shapes.

2B. TOTAL HEIGHT T

This dimension, in general, is determined depending on the diameter and layer dimensions. Deviations are possible, however, for cases of limited space in the machine or on the workpiece. When placing your order, please point this out by providing exact space requirements.

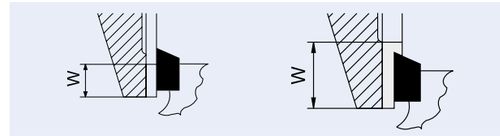
2C. BORE H

We manufacture the bores of our diamond and CBN wheels conforming to quality H6. For an extra charge, we are also prepared to deliver our wheels with individual bore dimensions.

2D. LAYER WIDTH W AND U

The layer widths W for front end layers and U for peripheral layers depend on the grinding operation to be performed. On principle, when grinding with diamond or CBN wheels, the contact surfaces should be as small as possible. Small layers allow faster and cooler grinding with cup wheels and plate-shaped wheels. The chip flow is better, and the wheel gives a feeling of improved performance. A broader layer is preferable in free-hand grinding, since better guidance is provided.

The layer width should always be smaller than the workpiece to be ground.



If the layer width is larger than the workpiece to be ground, a shoulder is formed in the layer, which damages the cutting edges.

2E. LAYER DEPTH X

Always choose a large X-dimension. The manufacturing costs are almost the same – whether the wheel has a layer depth of, e.g. X = 2 or 4 or 6 mm. The price difference then results solely from the different diamond or CBN content. Bigger layer depths are thus considerably more economical.

2F. PROFILE ANGLE V°

Please note the angle position with wheel type 1V1/14V1. The angle indication always relates to the angle formed – see drawing on page 42 and 51.

2G. RADIUS R

For the wheel shapes 1FF1 and 14F1 (page 40 and 49), we have restricted ourselves to the most common radii. However, particularly with type 14F1, almost all wheel diameters and intermediate radius sizes can be manufactured.

3. DIAMOND AND CBN GRIT SIZES

In order to meet the various grinding requirements, a great number of sizes are available. These sizes have been compiled in a standard by the FEPA (Fédération Européenne des Fabricants de Produits Abrasives). The same grit sizes apply for diamond and CBN. Diamond grit is identified by a preceding D (e.g. D 126), CBN by a B (e.g. B 126).

The sizes shown in Table 1 are mesh sizes. For comparison, we have also included the American standard ASTM E11.

Below the mesh grit sizes D46/B46, the series is continued by the fine grits. Grading is essentially done by charging with water.

The grit size determines both the removal rate of diamond and CBN wheels and the surface quality that can be achieved on the workpiece. A higher removal rate is generally obtained with coarser grit sizes. With finer grit sizes, the grinding quality is improved but the removal rate is reduced.

MESH GRIT SIZES*)

FEPA / DIN STANDARD						U.S. STANDARD ASTM E11 (MESH)	
DIAMOND		CBN		NOMINAL MESH WIDTH IN µm ISO R565 - 1990		DIAMOND AND CBN	
NARROW	WIDE	NARROW	WIDE	NARROW	WIDE	NARROW	WIDE
D1181	D1182			1180/1000	1180/850	16/18	16/20
D1101				1000/850		18/20	
D851	D852			850/710	850/600	20/25	20/30
D711	D711			710/600		25/30	
D601	D602			600/500	600/425	30/35	30/40
D501	500/425	35/40					
D426	D427	B426	B427	425/355	425/300	40/45	40/50
D356		B356		355/300		45/50	
D301		B301		300/250		50/60	
D251	D252	B251	B252	250/212	250/180	60/70	60/80
D213		B213		212/180		70/80	
D181		B181		180/150		80/100	
D151		B151		150/125		100/120	
D126		B126		125/106		120/140	
D107		B107		106/90		140/170	
D91		B91		90/75		170/200	
D76		B76		75/63		200/230	
D64		B64		63/53		230/270	
D54		B54		53/45		270/325	
D46		B46		45/38		325/400	

FINE GRIT SIZES*)

DIAMOND		CBN	
DR. MÜLLER DESIGNATION	AVERAGE GRIT SIZE RANGE IN µm	DR. MÜLLER DESIGNATION	AVERAGE GRIT SIZE RANGE IN µm
D35	30 – 40		
D30	25 – 35	B30	25 – 35
D20	15 – 25		
D15	10 – 20	B15	10 – 20
D9	6 – 12	B9	6 – 12
D6	4 – 8		
D5	4 – 6		
D3	2 – 4		

*) Sometimes there is a deviation between the grit size ordered by you and the grit size confirmed by us due to our computer-generated average values. This is caused by our IT system, which automatically calculates the grit size for the technical definition of the tool. Since the fine grit sizes consist of different grit size classes, our IT system calculates and confirms the average value of the corresponding grit size class. As a result, our confirmed grit sizes will sometimes deviate from those in your order. However, we assure you with 100 % certainty that we will produce and supply your product with the grit sizes you have requested. Please consider the fact that not every grit size is available. Also, not all grit grades are suitable for all bonds.

4. BONDS

The grinding behaviour of diamond and CBN wheels essentially depends on the bond. It is the bond's job to optimally hold the grinding grit at the grinding temperatures and forces that occur, whilst simultaneously providing enough space for the chips so as to permit an easy discharge of the abraded material. A large range of bonds is required in view of the great number of grinding problems that occur: resin bonds, metal bonds, electroplated bonds, ceramic bonds.

4A. RESIN BONDS (MDT)

More than 50 % of all grinding operations can be carried out by means of resin bonds, since they support many bonding variants and high removal rates on the workpiece.

4B. METAL BONDS (MDX, MDX*e*)

Metal bonds distinguish themselves with very high grit holding forces. High infeed forces are required for the continuous self-sharpening of blunted diamond tips, resulting in increased heat amount. Therefore, metal bonds always have to be used in wet grinding. Dry grinding is possible only for small contact areas and light cuts (profile grinding on PETEWE, Hommel and Loewe). The added small "e" to our tool labelling ensures, that you can erode the abrasive layer of your tool.

4C. CERAMIC BONDS (MDR)

These bonds are distinguished by porosity and profiling capability. At present, we are manufacturing only a selection of the shapes and dimensions contained in this catalogue, and therefore request your inquiry in case of need.

4D. ELECTROPLATED BONDS (MDS)

In the nickel bond deposited by electro-plating usually only one grit layer of diamond or CBN is held firm (2 or 3 layers are contingently possible). The electroplated S-bond with diamond as abradant is particularly suited for machining less hard materials which are subject to wear, however, such as graphite, mineral or glass-fibre reinforced synthetic materials, and the like. A special field of application of the S-bond with CBN as abrasive is the grinding of profiles in the construction of turbines.

5. CONCENTRATION

By international agreement, the basis for indicating concentration is the value C100, corresponding to 25 % by volume of pure diamond or CBN within the abrasive layer.

Thus the following formula applies for diamond and CBN:
C100 = 25 %vol = 4.4 carats/cm³ of grinding wheel layer; 1 ct = 0.2 g

We manufacture diamond and CBN wheels in the following common concentrations:

CONCENTRATION	PROCESSED CARAT WEIGHT / cm³ OF GRINDING WHEEL LAYER	VOLUME %
C200	8,8 ct	50
C175	7,7 ct	43,75
C165	7,3 ct	41,25
C150	6,6 ct	37,5
C135	5,9 ct	33,75
C125	5,5 ct	31,75
C115	5,1 ct	28,75
C100	4,4 ct	25,0
C90	4,0 ct	22,5
C85	3,7 ct	21,25
C80	3,5 ct	20,0
C75	3,3 ct	18,75
C68	3,0 ct	17,0
C65	2,8 ct	16,25
C60	2,6 ct	15,0
C55	2,4 ct	13,75
C50	2,2 ct	12,5
C45	2,0 ct	11,25
C38	1,7 ct	9,5
C35	1,5 ct	8,75
C25	1,1 ct	6,25
C20	0,9 ct	5,0
C15	0,7 ct	3,75
C10	0,4 ct	2,5

CBN wheels with the following concentrations are also available on request:

CONCENTRATION	PROCESSED CARAT WEIGHT / cm³ OF GRINDING WHEEL LAYER	VOLUME %
V360	6,26 ct	35,6
V300	5,22 ct	29,7
V240	4,17 ct	23,7
V210	3,65 ct	20,8
V180	3,13 ct	18,0
V150	2,61 ct	14,8
V120	2,09 ct	11,9
V90	1,75 ct	8,9

The concentration on the one hand largely determines the price, but on the other hand also the overall grinding behaviour of the wheel. An optimal relationship between wheel dimension, grit size, bond and concentration is crucial. Higher concentrations (C100-C125-C150/V240-V360) are appropriate when high profile stability is required, for narrow layer widths, for high bonding hardness and in deep cutting. Average concentrations (C50-C75/V120-V180) are recommended with cup wheels and peripheral wheels having larger layer widths and finer grit sizes.
Lower concentrations (C38-C50/V120) are primarily used with very fine grit sizes.

6. ORDER INFORMATION

OUR LABEL FOR YOUR TOOL:

Since the introduction of our slogan "We personalise your tools!", our focus has been on achieving improved reliability, greater transparency and easier communication between you and Dr. Müller DIAMANTMETALL®. All of our tools now feature a new and unique label. This guarantees the highest quality.

OUR LABEL HAS THE FOLLOWING BENEFITS FOR YOU:

- FULL TRANSPARENCY of the grinding wheel configuration
- CLEAR TRACEABILITY of technical improvements
- HIGH RELIABILITY for ordering items
- EASY COMMUNICATION due to clear identification

1. The letters "MD" stand for a genuine Dr. Müller DIAMANTMETALL® tool
2. The combination of numbers and letters stands for the type of bond and the mixture of grit grade and grit quality
3. The combination of numbers and letters defines the size of the CBN or diamond grit*)
4. The combination of numbers and letters defines the concentration of the CBN or diamond grit*)

The "Dr. Müller DIAMANTMETALL® CARD" provides you with an overview of the new label's structure. In this handy format, you always have the new label design close at hand!

PLEASE FEEL FREE TO ORDER THIS CARD FROM US!

Telephone: +49 (0) 881 / 90 11 550
Fax: +49 (0) 881 / 90 11 55100
vertrieb@muedia.de

LETTER COMBINATIONS FOR GRIT GOODNESS AND GRIT QUALITY		
GRIT GOODNESS	GRIT QUALITY	COMBINATIONS
G(enius)	S(tandard) or P(rofessional)	GS or GP
C(uda)	S(tandard) or P(rofessional)	CS or CP
A(tlantis)	S(tandard) or P(rofessional)	AS or AP
T(esla)	S(tandard) or P(rofessional)	TS or TP
R(azor)	S(tandard) or P(rofessional)	RS or RP
E(dison)	S(tandard) or P(rofessional)	ES or EP

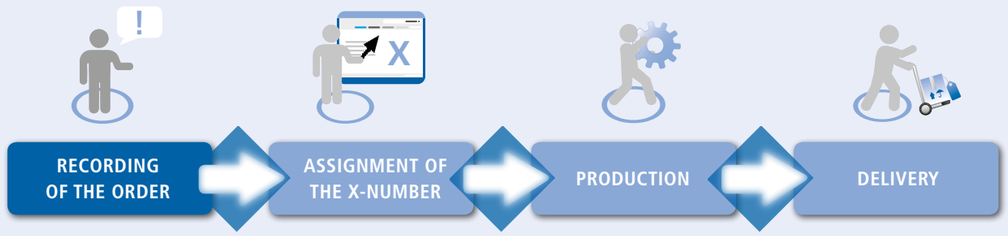
*) Our label, which is automatically and electronically generated, contains the factors "grain grade" and "grain quality". These two factors can individually affect the specified grain size and concentration. This may result in a differing technical description of our tool, as compared to your order or request. We ensure you with 100 % certainty, however, that we always manufacture and deliver your product with your desired configuration.

THE BIOMETRY OF YOUR ORDER IS YOUR X-NUMBER.

The nice thing about an X-number order is that it saves you time!
We would like to briefly explain how.

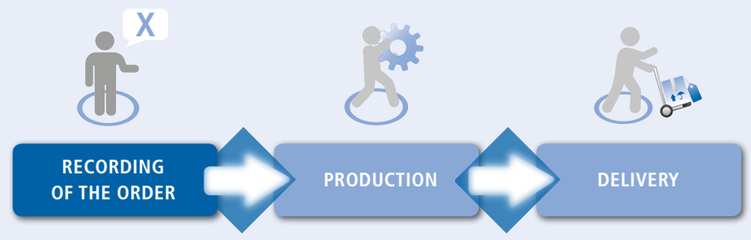
YOUR FIRST ORDER

We engrave your unique x-number in addition to our tool label on every one of your tools. All of the technical details and the manufacturing process which our technician worked out for you with your first order of this tool are stored behind this x-number.



YOUR SECOND ORDER WITH YOUR X-NUMBER

Enter your X-number to order the same tool again today. This tool is then sent directly to the production department without any detours. The time-intensive processing by our technical department and a calculation by our sales department are not required in this case. This saves you time!



INFORMATION FOR ENGRAVING YOUR TOOL

1. Technically defined tool labeling
2. Serial number
3. Your X-number / article number
4. Customer material number (at customer request)
5. Technical safety requirements
6. Brand name of a Dr. Müller DIAMANTMETALL® HighTec bond

7. GUIDELINES FOR THE USE OF DIAMOND AND CBN WHEELS

7A. MACHINE

All of the grinding machines for diamond and CBN wheels should be of a highly sturdy design, be equipped with properly running grinding spindles and wheel mounts, and be set up for vibration-free operation. Diamond and CBN wheels operated without proper peripheral and transversal concentricity achieve only low abrading performance and a poor surface finish since only a portion of the diamond or CBN layer makes contact, and this portion is then quickly overloaded. The motor output must be adjusted in such a way that higher cutting speeds can also be used and that no substantial loss of speed occurs, even when infeed is high. All of the machine guides must operate without backlash. During deep grinding, i.e. at low feed speed but high surface pressure, the bench must operate without jolting. Coolant pumps, the inlet nozzle and the volume must be configured to ensure a strong coolant flow, especially for deep grinding.

7B. MOUNTING OF DIAMOND AND CBN WHEELS

Diamond and CBN wheels should have proper concentricity and axial run-out to ensure superior abrading performance and a high quality surface finish. The wheels that are ground to a concentricity and axial run-out of 0.01 – 0.02 mm are supplied in balanced form, and they should be attached to the wheel mount as follows:

- Check wheel mount on the spindle with a dial gauge for true running in the peripheral and transversal directions. Correct any errors.
- Slide the diamond or CBN wheel onto the mount. Tighten the mount slightly and check wheel running with a dial gauge.
- Eliminate any radial runout due to bore clearance by lightly tapping on a piece of wood placed on the mount. Tighten the mount firmly and check it again with the dial gauge.

In case of large diamond and CBN wheels, and especially profile wheels, we recommend that you send us the mount and the matching grinding or balancing mandrel so that we can grind the wheels directly on the mount, keeping true running deviations within the tightest limits. All diamond and CBN wheels should remain on their mounts until they completely wear out to avoid concentricity deviations due to the change of mounts.

7C. COOLING

Wet grinding:

Wet grinding is preferable for almost all grinding tasks with diamond and CBN wheels. A sufficient quantity of the coolant under pressure should be supplied directly to the grinding position. This dissipates the machining heat generated during the grinding process, washes away the machined material and increases the life of the grinding wheel.

Emulsions with a mixing ratio of 1:50 to 1:100 result in the best removal rate and longest life for diamond grinding wheels. For mechanical engineering reasons, oil is also generally used as a coolant in addition to emulsions on CNC machines. However, the cooling effect is considerably reduced with oil.

CBN grinding wheels are used both with oil and emulsion, and low-viscosity oils (viscosity ~4) produce the best grinding results. It is often necessary to use both diamond and CBN wheels for wet grinding on a single machine. Using a low-viscosity grinding oil as the cooling medium is recommended here. However, somewhat slower infeed rates and a reduced life of the diamond grinding wheels must be expected in this case.

Special attention should be paid to optimal filtering of the cooling medium, since this has a considerable influence on the life of the grinding wheel and the surface quality of the workpiece. With grinding oils in particular, the temperature needs to be monitored as well. Additional cooling may need to be implemented, since the oil is intended not only as a lubricant but also as a coolant.

Paying adequate attention to the choice of coolant is recommended, since grinding wheel costs can be considerably reduced by using a good cooling medium. Diamond and CBN wheels with a bond designed for wet grinding should only be used for dry grinding in exceptional cases, and then only with a reduced rotational speed and infeed.

Dry grinding:

Due to their characteristics, grit quality and bond composition, diamond and CBN wheels engage well and keep their soft grinding capacity even in dry grinding. The applied contact pressures and infeeds, however, should be lower than those used for wet grinding. Those diamond and CBN wheels with bonds designed for dry grinding may also be used for wet grinding.

7D. DRESSING AND SHARPENING DIAMOND AND CBN WHEELS

Dressing means restoring the running accuracy of a diamond or CBN wheel.

THE FOLLOWING OPTIONS ARE AVAILABLE:

Dressing of cup wheels

Pulverized silicon carbide of 80 – 120 mesh is strewn onto a steel plate, and the diamond or CBN wheel is moved over it under slight pressure, thereby partially removing the bond and exposing the grinding grit.

Dressing of peripheral wheels

There are several methods for achieving this:

- Dressing by centrifugal force braking device
- Dressing with ST37 workpieces
- Dressing with galvanic diamond stripping tools

Following application of the dressing methods described above, it is imperative that the diamond or CBN wheel still be sharpened, i.e. that the bond be retracted so as to expose the grinding grit.

The best way to do this:

- In case of resin-bonded wheels: using our whetstone No. 2 or No. 5
- In case of metal-bonded wheels: using our whetstone No. 6
- Stone no. 8 is recommended for fine grit sizes.

The wheels have reached an optimal degree of sharpness if your fingernail catches on the grinding grit ("fingernail test").

7E. CUTTING SPEEDS FOR DIAMOND AND CBN WHEELS

The cutting speeds indicated in the table below are values from practical experience which should be observed as far as possible. With special materials or grinding methods, different cutting speeds may give optimal results. Thus variable speed adjustment is advantageous for obtaining a high grinding performance and superior grinding quality.

7F. MATERIAL REMOVAL RATE

The material removal rate is the material volume removed in a unit of time, expressed in (mm^3/s). The specific material removal rate Q'w is calculated on 1 mm of contact width [$mm^3/(s \bullet mm)$].

CUTTING SPEEDS

REVOLUTIONS PER MINUTE AT A CUTTING SPEED OF									
Ø MM	10 M/SEC.	15 M/SEC.	20 M/SEC.	25 M/SEC.	30 M/SEC.	35 M/SEC.	40 M/SEC.	45 M/SEC.	50 M/SEC.
20	9550	14725	19100	23875	28650	33440	38215	42990	47770
25	7640	11460	15280	19100	22920	26750	30570	34390	38215
30	6365	9550	12730	15915	19100	22290	25475	28660	31845
50	3820	5730	7640	9550	11460	13375	15285	17195	19105
70	2545	3820	5095	6370	7640	8915	10190	11465	12735
100	1910	2865	3820	4775	5730	6685	7640	8600	9550
125	1530	2290	3055	3820	4580	5350	6115	6880	7640
150	1275	1910	2545	3180	3820	4460	5095	5730	6370
175	1090	1640	2185	2730	3280	3820	4367	4910	5460
200	955	1435	1910	2390	2865	3340	3820	4300	4780
250	765	1146	1530	1910	2290	2675	3055	3440	3820
300	635	905	1275	1590	1910	2230	2545	2865	3185
350	545	820	1090	1365	1640	1910	2180	2455	2730
400	480	715	955	1194	1435	1670	1910	2150	2390
450	425	635	850	1060	1275	1485	1700	1910	2120
450	382	573	764	955	1146	1337	1528	1719	1918
550	347	521	694	868	1042	1215	1389	1563	1737
600	318	477	636	796	955	1114	1273	1433	1592

NOTES

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