DIAMOND
DRESSING TOOLS

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We thank Mr Ezio Ferrari
for his collaboration

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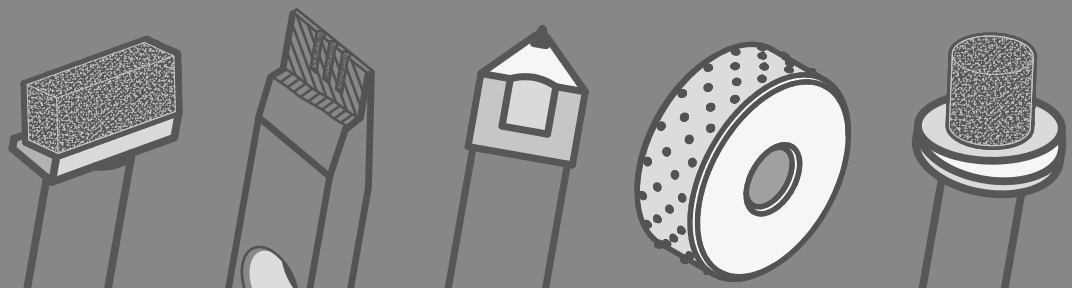


DRESSING ABRASIVE GRINDING WHEELS

In all grinding operations correct dressing is important in order to obtain best grinding wheel performance and optimal processing parameters on the workpiece.

DRESSING CONVENTIONAL GRINDING WHEELS

The dressing process of conventional abrasive and special microcrystalline Aluminium Oxide wheels is carried out with:

- natural and polycrystalline single-point diamond dressers
- blade-type hand set multi-point natural diamond dressers
- blade-type polycrystalline diamond dressers
- multi-point and polycrystalline rotary diamond dressers
- diamond roller dressers for grinding wheels with special profiles

DRESSING VITRIFIED SUPERABRASIVE GRINDING WHEELS

To dress vitrified CBN and diamond superabrasive grinding wheels the following dressing tools are used:

- rotary diamond wheels
- diamond roller dressers

GENERAL RECOMMENDATIONS FOR USE OF DIAMOND DRESSERS

Choose type, shape and size of the tool based on size and specification of the grinding wheel and application.

Diamond carat weight must never be less than the recommended value.

Diamond must always be sharp.

Single point diamond dressers have a more aggressive action on the grain and are mostly recommended for profile wheels and for rough grinding wheels.

Multi-point diamond tools are preferred to single-point ones for dressing linear shape wheels, having less risk of breakage and are more economical at the same carat weight.

Dressing operations must always be performed in presence of generous coolant supply when possible.

To avoid thermal shock on diamond tools always direct coolant flow onto the dressing area before starting the operation.

Tool holder must be free from vibration.

Overhang of dresser from holder to be as short as possible and never exceed twice the shank diameter.

Always respect the positioning and angles recommended by us for the different types of tools.

DIAMOND TOOL DRESSING PARAMETERS

DRESSING DEPTH, VALUE aed

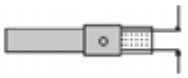
This value identifies the depth of penetration (in mm) of the dressing tool into the grinding wheel for each pass.
The value should be kept within the limits of 0.005 to 0.03 mm based on the type of grinding (rough, standard or finish grinding).
In the catalogue you can find the parameters recommended by us for each type of dressing tool.

ACTIVE THICKNESS OF THE TOOL, VALUE bd

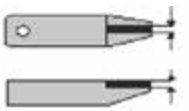
This value identifies the active thickness of the dressing tool (see Fig. 1).

Single-point diamond
Thickness from 0.1 to 1 mm

Multi-point blade-type diamond
Thickness from 0.8 to 0.9 mm



PBP impregnated multi-point diamond
For thickness and diameter exceeding 3 mm
consider 1/3 of the actual measured value



CVD + MD polycrystalline multi-point diamond
Thickness from 0.4 to 1.3 mm

CONTACT RATIO BETWEEN DIAMOND TOOL AND ABRASIVE WHEEL / VALUE ud

This value indicates how many times a point of the wheel has come into contact with the active thickness of the tool **bd**.

Figure 2 corresponds to a value of 4.
To calculate the contact ratio value **ud**, use the following calculation:

$$ud = \frac{bd}{fad}$$

Recommended values for the ratio ud:

- rough: 2 - 4
- standard grinding: 4 - 6
- finish: 8 - 12

For single-point diamond dressers, the active thickness **bd** varies based on the wear. Therefore the contact ratio, **ud**, must be recalculated as a function of the actual active thickness of the tool after use.

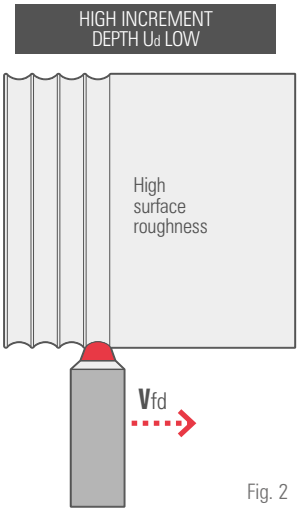
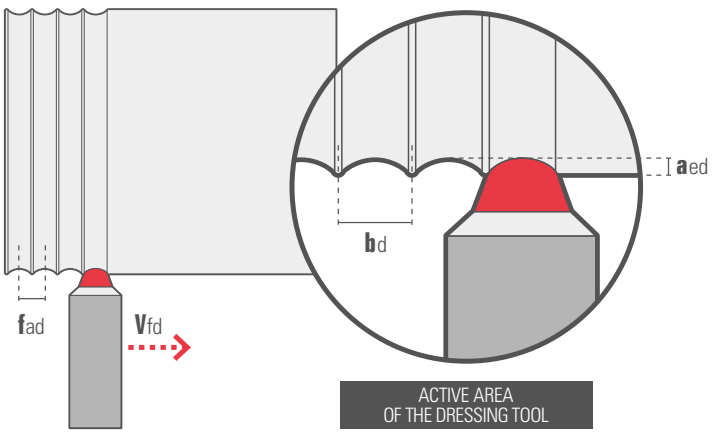


Fig. 2

Fig. 1



TOOL TRAVERSE SPEED, VALUE Vfd

This value indicates the traverse speed in mm/minute of the dressing tool on the grinding wheel. To calculate, use the formula below:

$$Vfd = \frac{NS \times bd}{ud}$$

Recommended traverse speed values, Vfd:

The values vary based on the type of tool and are illustrated in the pages that follow.

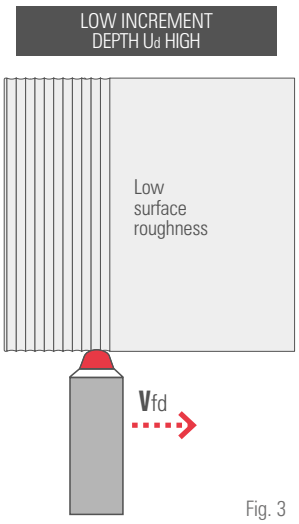


Fig. 3

Only ever change one parameter at a time.

GENERAL RULES FOR DRESSING GRINDING WHEELS

To modify the roughness of the grinding wheel, it is always preferable to adjust the tool/wheel ratio, **Ud**, and consequently the tool traverse speed, **Vfd**.

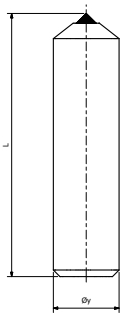
To increase the roughness of the grinding wheel, thereby improving its stock removal rate and cutting performance, it is preferable to increase the traverse speed of the tool, **Vfd**, rather than the dressing depth **aed**.

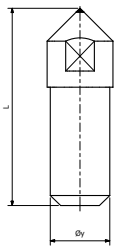
To reduce the roughness of the grinding wheel, thereby improving the degree of finish on the workpiece, it is preferable to reduce the traverse speed of the tool, **Vfd**, rather than the dressing depth **aed**.

KEY

Ud tool/grinding wheel contact ratio
bd active tool thickness in mm
fad tool feed in mm per grinding wheel revolution
Vfd dressing tool traverse speed mm/min
NS grinding wheel speed in rpm (revolutions/minute)
aed dressing depth per pass

Single-point diamond dressing tools





SINGLE POINT NATURAL DIAMOND DRESSING TOOLS - CYLINDRICAL SHANK

SHAPE	SIZE		DIAMOND CARAT WEIGHT	DIAMOND TYPE			MAIN APPLICATIONS
	Y	L		S standard	N premium	B extra	
S	10	40	0.25	U1SST025G10	U1SQN025G10	Upon request	Dressing of small to medium thickness grinding wheels General use
S	10	40	0,50	U1SST050G10	U1SQN050G10	Upon request	
S	10	40	1,00	U1SST100G10	U1SQN100G10	Upon request	
S	10	40	1,50	U1SST150G10	U1SQN150G10	Upon request	
S	10	40	2,00	U1SST200G10	U1SQN200G10	Upon request	
S	10	40	2,50	U1SST250G10	U1SQN250G10	Upon request	
S	10	40	3,00	U1SST300G10	U1SQN300G10	Upon request	

SINGLE POINT NATURAL DIAMOND DRESSING TOOLS - SQUARE HEAD SHANK

S	10	40	1,00	Upon request	Upon request	Upon request	Dressing of small to medium thickness grinding wheels General use
S	10	40	1,50	Upon request	Upon request	Upon request	
S	10	40	2,00	Upon request	Upon request	Upon request	

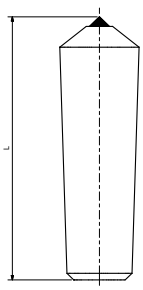
Special shanks available upon request

Types of natural diamond

S
Standard quality
for simple dressing

N
High quality resettable
diamond

B
Extra high quality octahedron
resettable diamond



SINGLE POINT NATURAL DIAMOND DRESSERS - TAPER SHANK

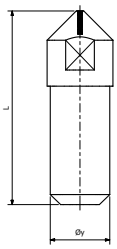
SHAPE	SIZE		DIAMOND CARAT WEIGHT	DIAMOND TYPE			MAIN APPLICATIONS
	Y	L		S standard	N premium	B extra	
S	CM1	40	0.25	U1SST025CM1	U1SQN025CM1	Upon request	Dressing of small to medium thickness grinding wheels General use
S	CM1	40	0,50	U1SST050CM1	U1SQN050CM1	Upon request	
S	CM1	40	1,00	U1SST100CM1	U1SQN100CM1	Upon request	
S	CM1	40	1,50	U1SST150CM1	U1SQN150CM1	Upon request	
S	CM1	40	2,00	U1SST200CM1	U1SQN200CM1	Upon request	
S	CM1	40	2,50	U1SST250CM1	U1SQN250CM1	Upon request	
S	CM1	40	3,00	U1SST300CM1	U1SQN300CM1	Upon request	

Special shanks available upon request

Types of polycrystalline synthetic diamonds

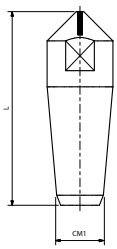
CVD
High-performance polycrystalline diamond in bars

MD
Extra high performance monocrystalline diamond in bars



POLYCRYSTALLINE DIAMOND DRESSING TOOLS IN SINGLE BARS - CYLINDRICAL SHANK

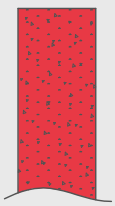
SHAPE	SIZE		BAR SIZE in mm cross-section x length	DIAMOND TYPE		MAIN APPLICATIONS
	Y	L		CVD	MD	
S	10	40	0,5 x 0,5 x 5	U1STCVD05G10	U1STMD05G10	Dressing of small to medium thickness and diameter grinding wheels - General use
S	10	40	0,6 x 0,6 x 5	U1STCVD06G10	U1STMD06G10	
S	10	40	0,8 x 0,8 x 5	U1STCVD08G10	U1STMD08G10	Dressing of medium to large thickness and diameter grinding wheels - General use



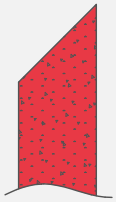
MONOCRYSTALLINE DIAMOND DRESSING TOOLS IN SINGLE BARS - TAPER SHANK

SHAPE	SIZE		BAR SIZE in mm cross-section x length	DIAMOND TYPE		MAIN APPLICATIONS
	Y	L		CVD	MD	
S	CM1	40	0,5 x 0,5 x 5	U1STCVD05CM1	U1STMD05CM1	Linear dressing of grinding wheels of small-to-medium diameters and thicknesses for general use
S	CM1	40	0,6 x 0,6 x 5	U1STCVD06CM1	U1STMD06CM1	
S	CM1	40	0,8 x 0,8 x 5	U1STCVD08CM1	U1STMD08CM1	Linear dressing of grinding wheels of medium-to-high diameters and thicknesses for general use

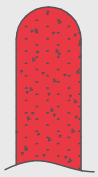
SHAPES OF ABRASIVE GRINDING WHEELS TO BE DRESSED WITH SINGLE-POINT DIAMONDS



Straight

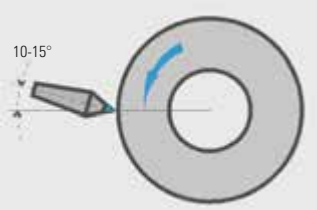


Tapered

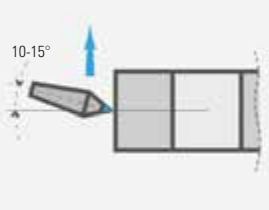


Convex

POSITIONING OF THE DRESSING TOOL



Radial positioning



Axial positioning

IMPORTANT

Overhanging of dresser from holder to be short, never exceed twice the shank diameter

HOW TO CHOOSE THE CARAT WEIGHT OF NATURAL SINGLE-POINT DIAMONDS

The carat weight of single-point diamonds is chosen based on a factor obtained by multiplying the diameter, **D**, by the thickness, **T**, of the grinding wheel.

DIAMOND CT	FACTOR D x T	EXAMPLES OF GRINDING WHEEL SIZES D diameter x T thickness
0,25	≤ 2000	100 x 20 or 150x13
0,50	7000	200 x 32 or 300x20
1,00	20000	350 x 50 or 500x40
1,50	40000	400 x 100 or 800x50
2,00	70000	508 x 140 or 915x75
2,50	100000	508 x 200 or 915x102
3,00	125000	610 x 200 or 915x125

CT
Carat weight

D
Grinding wheel diameter in mm

T
Grinding wheel thickness in mm

HOW TO CHOOSE THE SIZE OF THE CVD POLYCRYSTALLINE SINGLE-POINT DIAMOND BAR

The choice should be made based on the external diameter of the grinding wheel.

BAR SIZE mm	GRINDING WHEEL DIAMETER mm
0,6 x 0,6 x 4	up to 300 mm
0,8 x 0,8 x 4	up to 508 mm
1,1 x 1,1 x 4	up to 710 mm

Indicative values

RECOMMENDED DRESSING PARAMETERS FOR SINGLE-POINT NATURAL DIAMOND TOOLS

FOR EXPLANATIONS AND CALCULATIONS OF VALUES, SEE PAGE 3

Dressing depth / Value aed

Grinding wheels ≤ than 120 grit / 0.01 to 0.03 mm per pass
Grinding wheels > than 120 grit / 0.005 to 0.01 mm per pass

Diamond tool / abrasive wheel contact ratio / Value Ud

roughing: 2 - 4 / standard grinding: 4 - 6 / finishing: 8 - 12

Traverse speed, Vfd, in mm/minute

For single-point diamond dressing tools, use the following calculation for the value **Vfd**:

Vfd = from ½ to 1 grinding wheel grain size Dg in mm x Ns

Example:
Mesh 60 corresponds to 300 to 250 μ grit size (consider $\frac{250}{1000}$ equal to 0,250 mm)

Grinding wheel rpm speed: 1600 rpm

Vfd from: $\frac{1}{2}$ **x Dg x Ns =** $\frac{1}{2}$ **x 0,250 x 1600 = 200** mm/minute

to: **1 x Dg x Ns = 0,250 x 1600 = 400** mm/minute

TABLE OF AVERAGE GRIT SIZES IN μ

GRIT size	MEASUREMENT μ	GRIT size	MEASUREMENT μ
36	600 ~ 500	120	125 ~ 106
46	425 ~ 350	150	106 ~ 75
54	355 ~ 300	180	90 ~ 63
60	300 ~ 250	220	75 ~ 53
70	250 ~ 210	240	60 ~ 56
80	210 ~ 180	280	55 ~ 51
90	180 ~ 150	320	47 ~ 45
100	150 ~ 125		Sizes in μ indicated are average

OTHER RECOMMENDATIONS FOR USING SINGLE-POINT DIAMOND DRESSING TOOLS

- periodically turn the tool shank 90° for natural diamonds
- always measure the dressing depth on the same side
- dress the grinding wheel at a working speed of 20 ÷ 35 m/sec

RECOMMENDATIONS FOR USING CVD + MD POLYCRYSTALLINE SINGLE-POINT DIAMONDS

- dressing depth from 0.01 to 0.03 mm for grinding wheels up to 120 grit
- dressing depth from 0.005 to 0.01 mm for grinding wheels finer than 120 grit

Vfd
Dressing tool traverse speed, mm/minute

Ns
Grinding wheel speed in rpm (revolutions/minute)

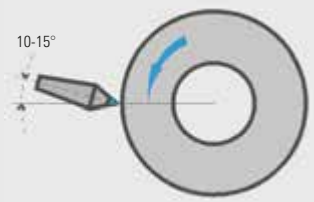
Dg
Grit size in mm $\frac{\mu}{1000}$

For more information, please contact our technical staff

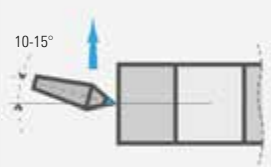
Single-point diamond chisel dressing tools for profile grinding

High precision radius and taper chisel diamond dressers for profiling conventional abrasive and microcrystalline aluminium oxide wheels

POSITIONING OF THE DRESSING TOOL



Radial positioning



Axial positioning

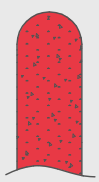
THREE TYPES OF DIAMOND

S premium
High-quality natural diamond for general use

N extra
Extra-quality natural diamond for high-precision use. The tool can be resharpened

CVD extra
Extra-quality polycrystalline diamond for high-precision use. The tool can be resharpened

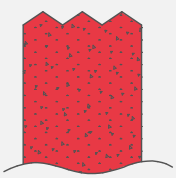
SHAPES OF ABRASIVE GRINDING WHEELS TO BE DRESSED WITH SINGLE-POINT DIAMOND PROFILING TOOLS



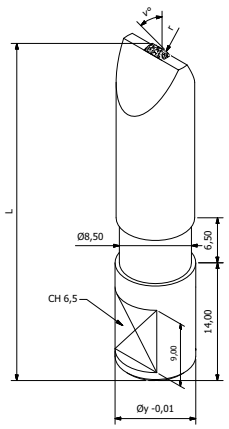
Convex

Concave

Double tapered

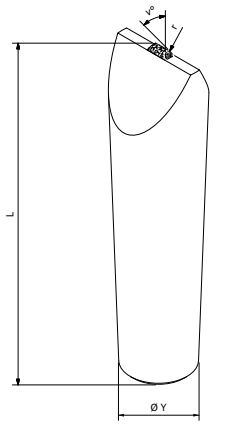


Multi-angled



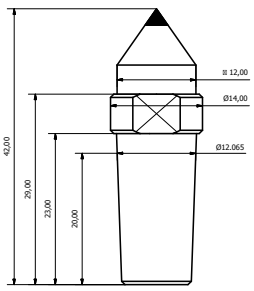
DIAFORM SINGLE-POINT DIAMOND TOOLS FOR PROFILE GRINDING - SPECIAL SHANK

SHAPE	SIZE				Shank type	DIAMOND TYPE			MAIN APPLICATIONS
	Y	L	V°	r		S premium natural	N extra natural	CVD extra polycrystalline	
P-DIAF	9.52	45	40°	0.125	Diaform	U1D40R125	Upon request	Upon request	Precisin profile grinding conventional grinding wheels
P-DIAF	9.52	45	40°	0,250	Diaform	U1D40R250	Upon request	Upon request	
P-DIAF	9.52	45	40°	0,500	Diaform	U1D40R500	Upon request	Upon request	
P-DIAF	9.52	45	60°	0.125	Diaform	U1D60R125	Upon request	Upon request	
P-DIAF	9.52	45	60°	0,250	Diaform	U1D60R250	Upon request	Upon request	
P-DIAF	9.52	45	60°	0,500	Diaform	U1D60R500	Upon request	Upon request	



SINGLE-POINT DIAMOND CHISEL TOOLS FOR PROFILE GRINDING - CYLINDRICAL SHANK

SHAPE	SIZE				Shank type	DIAMOND TYPE			MAIN APPLICATIONS
	Y	L	V°	r		S premium natural	N extra natural	CVD extra polycrystalline	
P-MORA	8	50	40°	0.125	cylindrical	U1D40R125G8	Upon request	Upon request	Precision profile grinding conventional grinding wheels
P-MORA	8	50	40°	0,250	cylindrical	U1D40R250G8	Upon request	Upon request	
P-MORA	8	50	40°	0,500	cylindrical	U1D40R500G8	Upon request	Upon request	
P-MORA	8	50	60°	0.125	cylindrical	U1D60R125G8	Upon request	Upon request	
P-MORA	8	50	60°	0,250	cylindrical	U1D60R250G8	Upon request	Upon request	
P-MORA	8	50	60°	0,500	cylindrical	U1D60R500G8	Upon request	Upon request	
P-TACC	10	50	40°	0.125	cylindrical	U1D40R125G10	Upon request	Upon request	
P-TACC	10	50	40°	0,250	cylindrical	U1D40R250G10	Upon request	Upon request	
P-TACC	10	50	40°	0,500	cylindrical	U1D40R500G10	Upon request	Upon request	
P-TACC	10	50	60°	0.125	cylindrical	U1D60R125G10	Upon request	Upon request	
P-TACC	10	50	60°	0,250	cylindrical	U1D60R250G10	Upon request	Upon request	
P-TACC	10	50	60°	0,500	cylindrical	U1D60R500G10	Upon request	Upon request	



SINGLE-POINT DIAMOND CHISEL TOOLS FOR PROFILE GRINDING - TAPER SHANK CM1

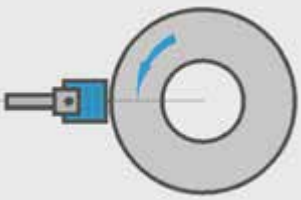
SHAPE	SIZE				Shank type	DIAMOND TYPE			MAIN APPLICATIONS
	Y	L	V°	r		S premium natural	N extra natural	CVD extra polycrystalline	
P-STUD	CM1	23	40°	0.125	tapered	U1D40R125CM1	Upon request	Upon request	Precision profile grinding conventional grinding wheels
P-STUD	CM1	23	40°	0,250	tapered	U1D40R250CM1	Upon request	Upon request	
P-STUD	CM1	23	40°	0,500	tapered	U1D40R500CM1	Upon request	Upon request	
P-STUD	CM1	23	60°	0.125	tapered	U1D60R125CM1	Upon request	Upon request	
P-STUD	CM1	23	60°	0,250	tapered	U1D60R250CM1	Upon request	Upon request	
P-STUD	CM1	23	60°	0,500	tapered	U1D60R500CM1	Upon request	Upon request	

P-MORA = Morara | P-TACC = Tacchella | P-STUD = Studer

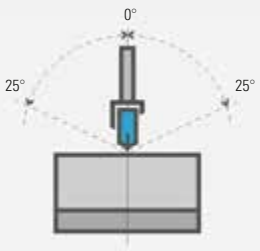
Blade-type multi-point and polycrystalline diamond dressers

Precision dressing tools for conventional abrasive and microcrystalline aluminium oxide wheels

POSITIONING OF THE DRESSING TOOL



Radial positioning



Tool in straight position for linear dressing

Tool in angled position for wheel profile grinding

THREE TYPES OF DIAMOND

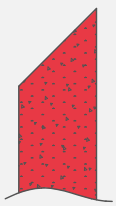
N premium
High-quality hand set needle-shaped natural diamond. General use - good performance

B extra
Extra-quality hand set needle-shaped natural diamond. Very high precision dressing - high performance

CVD
Extra-quality CVD Polycristalline diamond Very high precision dressing - high performance

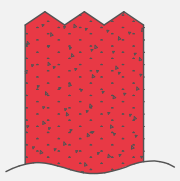
SHAPES OF ABRASIVE GRINDING WHEELS TO BE DRESSED WITH MSC BLADE-TYPE DIAMONDS

Straight

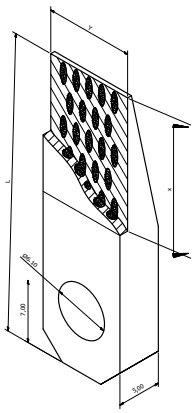


Tapered

Double tapered



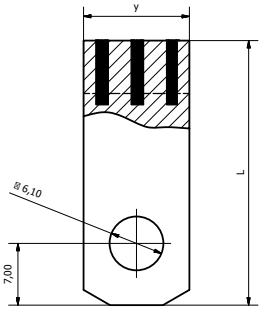
Multi-angled



BLADE TYPE HAND SET MULTI-POINT NATURAL DIAMOND DRESSERS

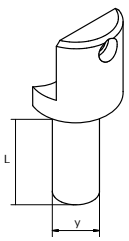
SHAPE	SIZE				DIAMOND CARAT WEIGHT	DIAMOND TYPE			MAIN APPLICATIONS
	Y	x	L	U		N premium	B extra		
MSC	10	15	33	5	1,50	U1MSC1015			Precision dressing of conventional grinding wheels for general use
MSC	10	15	33	5	2,00	U1MSC1020			
MSC	10	15	33	5	2,50	U1MSC1025			
MSC	10	15	33	5	3,00	U1MSC1030			
MSC	15	15	33	5	1,50	U1MSC1515			
MSC	15	15	33	5	2,00	U1MSC1520			
MSC	15	15	33	5	2,50	U1MSC1525			
MSC	15	15	33	5	3,00	U1MSC1530			
MSC	20	15	33	5	1,50	U1MSC2015			
MSC	20	15	33	5	2,00	U1MSC2020			
MSC	20	15	33	5	2,50	U1MSC2025			
MSC	20	15	33	5	3,00	U1MSC2030			
					DIAMOND* GRIT			GRINDIG WHEEL GRIT SIZE	
MSC	10	10	30	5	F	Upon request	Upon request	80 and finer	Precision dressing of conventional grinding wheels with very high performance
MSC	10	10	30	5	M	Upon request	Upon request	60 - 80	
MSC	10	10	30	5	G	Upon request	Upon request	54 and coarser	
MSC	15	15	30	5	F	Upon request	Upon request	80 and finer	
MSC	15	15	30	5	M	Upon request	Upon request	60 - 80	
MSC	15	15	30	5	G	Upon request	Upon request	54 and coarser	
MSC	20	15	30	5	F	Upon request	Upon request	80 and finer	
MSC	20	15	30	5	M	Upon request	Upon request	60 - 80	
MSC	20	15	30	5	G	Upon request	Upon request	54 and coarser	

* F = fine | M = medium | G = coarse



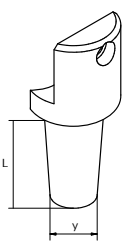
BLADE-TYPE CVD POLYCRYSTALLINE DIAMOND DRESSERS

SHAPE	SIZE				BAR CROSS-SECTION	NUMBER OF BARS	USE ON GRINDING WHEELS		MAIN APPLICATIONS
	Y	X	U	L			Diameter	Grit size	
MP	10	4	5	30	0,6 x 0,6	3	up to 500	100 and finer	High-precision dressing of conventional grinding wheels with ceramic microcrystalline abrasive
MP	15	4	5	30	0,6 x 0,6	4		80 and coarser	
MP	10	4	5	30	0,8 x 0,8	3	508 and larger	100 and finer	
MP	15	4	5	30	0,8 x 0,8	4		80 and coarser	



STANDARD HOLDERS FOR BLADE-TYPE TOOLS - CYLINDRICAL

SHAPE	SIZE	
	Y	L
CY 10	10	48



STANDARD HOLDERS FOR BLADE-TYPE TOOLS - TAPERED

SHAPE	SIZE	
	Y	L
CM1	12,065	48

RECOMMENDED DRESSING PARAMETERS FOR BLADE-TYPE HAND-SET MULTI-POINT NATURAL DIAMOND DRESSING TOOLS

Dressing depth / Value ɑed

Grinding wheels ≤ than 120 grit 0.015 to 0.03 mm per pass
Grinding wheels > than 120 grit 0.005 to 0.01 mm per pass

Diamond tool-abrasive wheel contact ratio / Value ud

Rough 2 - 4 / standard grinding 4 - 6 / finish 8 - 12

Traverse speed, Vfd, in mm/minute

To calculate the value **Vfd**:

$$Vfd = \frac{Bd \times Ns}{4}$$

Example:
Bd active tool thickness 0.8 mm
Ns grinding wheel speed rpm (revolutions per minute): 1600 rpm

$$Vfd = \frac{0{,}8 \times 1600}{4} = 320 \text{ mm/minute}$$

RECOMMENDED DRESSING PARAMETERS FOR BLADE-TYPE POLYCRYSTALLINE CVD DIAMOND DRESSING TOOLS

CHOICE OF POLYCRYSTALLINE BAR SIZE FOR BLADE-TYPE DRESSING TOOLS IN RELATION TO ABRASIVE WHEEL GRIT

Diamond crystal cross-section size mm		Grit size of grinding wheel
a	b	
0,4	0,4	150 and finer
0,6	0,6	90 to 120
0,8	0,8	54 to 180
1,1	1,1	46 and coarser

CHOICE OF NUMBER OF POLYCRYSTALLINE BARS FOR BLADE-TYPE DRESSING TOOLS

Grinding wheel diameter mm	Number of single crystals CVD
≤ 150	2
175 ÷ 508	3
> 508	4

Dressing depth / Value ɑed

Grinding wheel ≤ than 120 grit 0.01 to 0.02 mm per pass
Grinding wheels > than 120 grit 0.005 to 0.01 mm per pass

Diamond tool-abrasive wheel contact ratio / Value ud

Rough 2 - 4 / standard grinding 4 - 6 / finish 8 - 12

Traverse speed, Vfd, in mm/minute

To calculate the value **Vfd**:

$$Vfd = \frac{Bd \times Ns}{5}$$

Example:
Bd active tool thickness 0.6 mm (crystals, cross-section 0.6 x 0.6 mm)
Ns grinding wheel speed rpm (revolutions per minute): 1600 rpm
ud tool/grinding wheel contact ratio for standard grinding: 5

$$Vfd = \frac{0{,}6 \times 1600}{5} = 192 \text{ mm/minute}$$

Vfd
Dressing tool traverse speed, mm/minute

Ns
Grinding wheel speed in rpm (revolutions/minute)

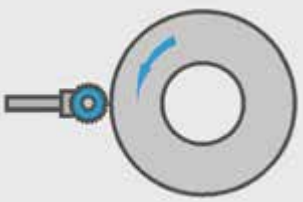
Bd
Active tool thickness in mm


molemab
M5C20
KR 2.00
molemab
M5C20
KR 2.00

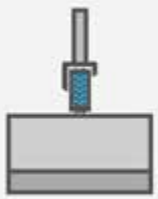
Multi-point and polycrystalline diamond rotary dressers

Precision dressing tools for conventional abrasive and microcrystalline aluminium oxide grinding wheels

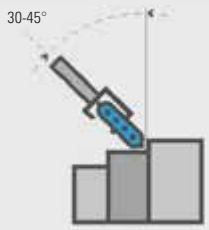
POSITIONING OF THE DRESSING TOOL



Radial positioning



Tool in straight position for linear dressing

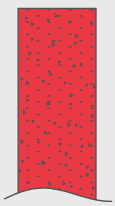


Tool in angled position for wheel profile dressing

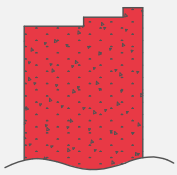
FOUR TYPES OF DIAMOND

S standard	N premium	CVD extra	I
High-quality hand set needle-shaped natural diamond. General use - good performance	Extra-quality hand set needle-shaped natural diamond. Very high precision dressing - high performance	Extra-quality CVD polycristalline diamond - Very high precision dressing - high performance	Impregnated diamond for general purpose

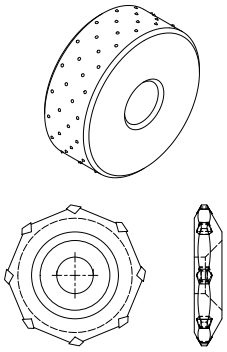
SHAPES OF ABRASIVE GRINDING WHEELS



Straight

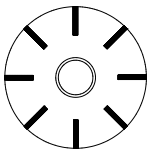


Multiple step



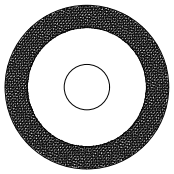
HAND SET MULTI-POINT NATURAL DIAMOND ROTARY DRESSERS

SHAPE	SIZE			DIAMOND CARAT WEIGHT	NUMBER OF DIAMOND ROWS OR POINTS	DIAMOND TYPE		MAIN APPLICATIONS
	D	U	H			S standard	N premium	
MR04F	20	9	6.1	2,00	4 rows	U1MR04F20	Upon request	General use on conventional grinding wheels for centerless grinding
MR04F	22	7	6.1	2,00	4 rows	Upon request	Upon request	
MR08P	21	5	6.1		1 row - 8 points	Upon request	Upon request	
MR08P	25	5	6.1		1 row - 8 points	U1MR08P20	Upon request	



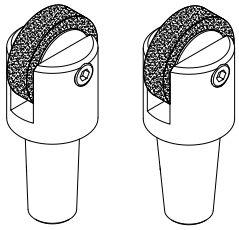
CVD POLYCRYSTALLINE DIAMOND ROTARY DRESSERS

SHAPE	SIZE			NUMBER OF DIAMOND ROWS OR POINTS	DIAMOND TYPE	MAIN APPLICATIONS
	D	U	H		CVD	
MR08P	25	6	6,1	8 bars	Upon request	General use



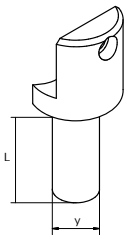
IMPREGNATED GRIT DIAMOND ROTARY DRESSERS

SHAPE	SIZE				DIAMOND GRIT	DIAMOND TYPE		MAIN APPLICATIONS
	D	U	H			S standard	N premium	
MR0	22	7	6.1		20/30	Upon request	Upon request	General use



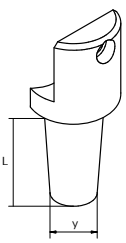
IMPREGNATED GRIT DIAMOND ROTARY DRESSERS - COMPLETE WITH HOLDER

SHAPE	SIZE				DIAMOND GRIT	DIAMOND TYPE		MAIN APPLICATIONS
	D	U	H			S standard	N premium	
MR0	22	7	10	48	20/30	Upon request	Upon request	General use on conventional grinding wheels for centerless grinding
	D	U	S	L				
MR0	22	7	CM1	48	20/30	Upon request	Upon request	



STANDARD HOLDERS FOR ROTARY TYPE TOOLS - CYLINDRICAL

SHAPE	SIZE	
	Y	L
CY 10	10	48



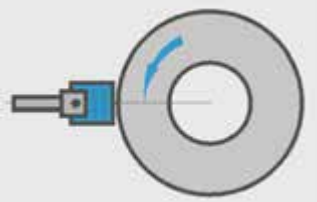
STANDARD HOLDERS FOR ROTARY TYPE TOOLS - TAPERED

SHAPE	SIZE	
	Y	L
CM1	12,065	48

Hand-set multi-point diamond dressing tools
MTT round head and MTQ square head

Dressing tools for conventional abrasive and microcrystalline aluminium oxide grinding wheels. Mainly used on large size coarse and medium grit grinding wheels

POSITIONING OF THE DRESSING TOOL

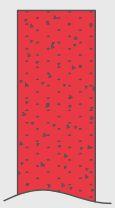


Radial positioning

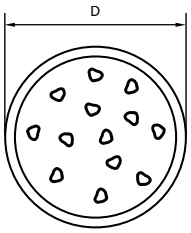
ONE TYPE OF DIAMOND

N premium
very high quality hand set needle-shaped natural diamond. High precision dressing - long life

SHAPES OF ABRASIVE GRINDING WHEELS TO BE DRESSED WITH MTT AND MTQ DIAMONDS

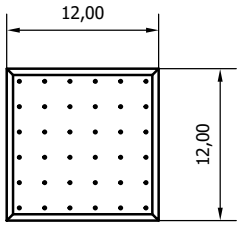


Straight



HAND SET MULTI-POINT DIAMOND DRESSERS - MTT ROUND HEAD

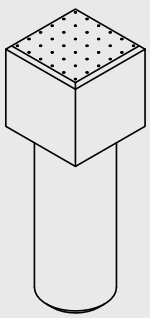
SHAPE	SIZE		SHANK			DIAMOND	CARAT WEIGHT	PART NUMBER	MAIN APPLICATIONS
	D	X	Y	L					
MTT-4S	10	7	12	50	CY cylindrical	N multilayer	2,00	U1MTT4S20G12	Linear dressing of grinding wheels, 24-36 grit
MTT-4S	10	10	12	50	CY cylindrical	N multilayer	3,00	U1MTT4S30G12	Linear dressing of grinding wheels, 46-60 grit
MTT-4S	10	7	12,065	50	CM1 tapered	N multilayer	2,00	U1MTT4S20CM1	Linear dressing of grinding wheels, 24-36 grit
MTT-4S	10	10	12,065	50	CM1 tapered	N multilayer	3,00	U1MTT4S30CM1	Linear dressing of grinding wheels, 46-60 grit
MTT-4S	10	7	9,045	28,5	CM0 tapered	N multilayer	2,00	U1MTT4S20CM0	Linear dressing of grinding wheels, 24-36 grit
MTT-4S	10	10	9,045	50	CM0 tapered	N multilayer	3,00	U1MTT4S30CM0	Linear dressing of grinding wheels, 46-60 grit



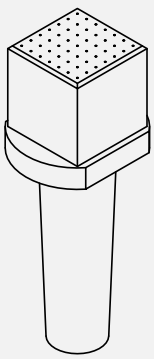
HAND SET MULTI-POINT DIAMOND DRESSERS - MTQ SQUARE HEAD

SHAPE	SIZE		SHANK			DIAMOND	CARAT WEIGHT	PART NUMBER	MAIN APPLICATIONS
	DxT	X	Y	L					
MTQ-4S	12x12	7	10	50	CY cylindrical	N multilayer	2,00	U1MTQ4S20G10	Linear dressing of grinding wheels, 24-36 grit
MTQ-4S	12x12	10	10	50	CY cylindrical	N multilayer	3,00	U1MTQ4S30G10	Linear dressing of grinding wheels, 46-60 grit
MTQ-4S	12x12	7	12,065	50	CM1 tapered	N multilayer	2,00	U1MTQ4S20CM1	Linear dressing of grinding wheels, 24-36 grit
MTQ-4S	12x12	10	12,065	50	CM1 tapered	N multilayer	3,00	U1MTQ4S30CM1	Linear dressing of grinding wheels, 46-60 grit
MTQ-4S	12x12	7	9,045	50	CM0 tapered	N multilayer	2,00	U1MTQ4S20CM0	Linear dressing of grinding wheels, 24-36 grit
MTQ-4S	12x12	10	9,045	50	CM0 tapered	N multilayer	3,00	U1MTQ4S30CM0	Linear dressing of grinding wheels, 46-60 grit

TYPES OF SHANKS FOR MTT AND MTQ DRESSING TOOLS



Cylindrical



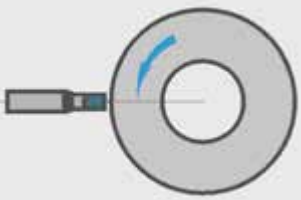
Tapered

CVD polycrystalline diamonds upon request

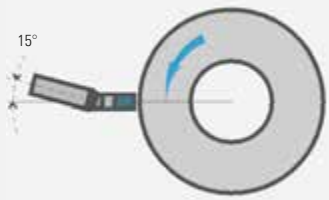
PBP multi-point grit impregnated diamond dressing tools

Tools recommended for dressing flat and profiled grinding wheels for cylindrical through feed and plunge grinding, surface grinding, centreless grinding and internal grinding

POSITIONING OF THE DRESSING TOOL

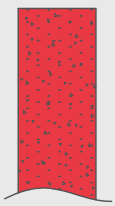


Radial positioning



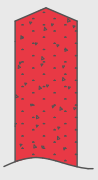
Dressing tool holder with a 15° angle

SHAPES OF ABRASIVE GRINDING WHEELS TO BE DRESSED WITH PBP IMPREGNATED DIAMONDS



Straight

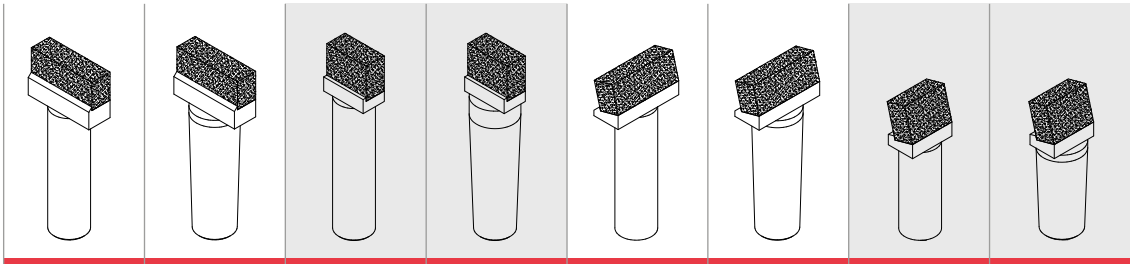
Tapered



Double tapered

PBP MULTI-POINT GRIT IMPREGNATED DIAMOND DRESSING TOOLS - RECTANGULAR HEAD

SHAPE	SIZE		SHANK			DIAMOND	PART NUMBER	MAIN APPLICATIONS
	DIAMOND CROSS SECTION	DEPTH	X	L				
PBP1	6x20	10	10	40	CY cylindrical	impregnated 20-30 mesh	U1120G10	Through feed and plunge centreless grinding
PBP1	6x20	10	12,065	40	CM1 tapered		U1120CM1	
PBP3	6x12	10	10	40	CY cylindrical		U1320G10	External cylindrical grinding
PBP3	6x12	10	12,065	40	CM1 tapered		U1320CM1	

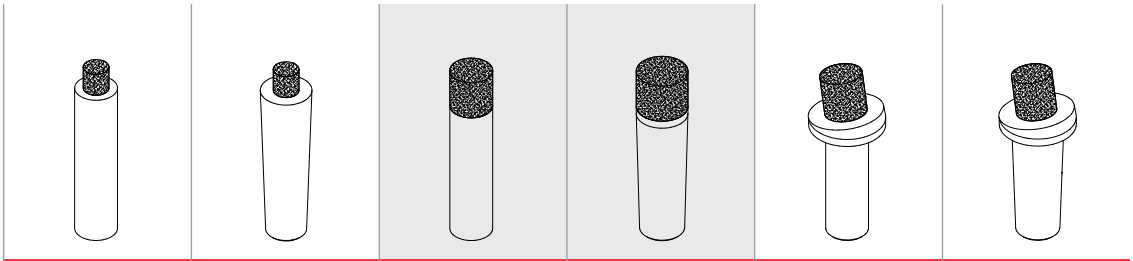


PBP1 CYLINDRICAL | PBP1 TAPERED | PBP3 CYLINDRICAL | PBP3 TAPERED | PBP1S CYLINDRICAL | PBP1S TAPERED | PBP3S CYLINDRICAL | PBP3S TAPERED

PBP1S	6x20	10	10	40	CY cylindrical	impregnated 20-30 mesh	U11S20G10	Through feed and plunge centreless grinding
PBP1S	6x20	10	12,065	40	CM1 tapered		U11S20CM1	
PBP3S	6x12	10	10	40	CY cylindrical		U13S20G10	External cylindrical grinding
PBP3S	6x12	10	12,065	40	CM1 tapered		U13S20CM1	

PBP MULTI-POINT GRIT IMPREGNATED DIAMOND DRESSING TOOLS - ROUND HEAD

SHAPE	SIZE		SHANK			DIAMOND	PART NUMBER	MAIN APPLICATIONS
	SIZE HEAD DIAMETER	DEPTH	X	L				
PBP7	6	6	10	45	CY cylindrical	impregnated 20-30 mesh	U1720G10	Surface grinding
PBP7	6	6	12,065	48	CM1 tapered		U1720CM1	
PBP8	10	10	10	40	CY cylindrical		U1820G10	
PBP8	10	10	12,065	48	CM1 tapered		U1820CM1	



PBP7 CYLINDRICAL | PBP7 TAPERED | PBP8 CYLINDRICAL | PBP8 TAPERED | PBP8S CYLINDRICAL | PBP8S TAPERED

PBP8S	10	10	10	48	CY cylindrical	impregnated 20-30 mesh	U18S20G10	Surface grinding
PBP8S	10	10	12,065	48	CM1 tapered		U18S20CM1	

RECOMMENDED DRESSING PARAMETERS FOR PBP IMPREGNATED MULTI-POINT DIAMOND DRESSING TOOLS

Dressing depth / Value ae

Grinding wheels ≤ than 120 grit 0.015 to 0.03 mm per pass
Grinding wheels > than 120 grit 0.005 to 0.01 mm per pass

Traverse speed, Vfd, in mm/minute

To calculate the value Vfd:

For tools with active thickness, **Bd**, up to 3 mm:

$$Vfd = \frac{Bd \times Ns}{ud}$$

For tools with active thickness, **Bd**, up to > 3 mm:

$$Vfd = \frac{1}{3} \times \frac{Bd \times Ns}{ud}$$

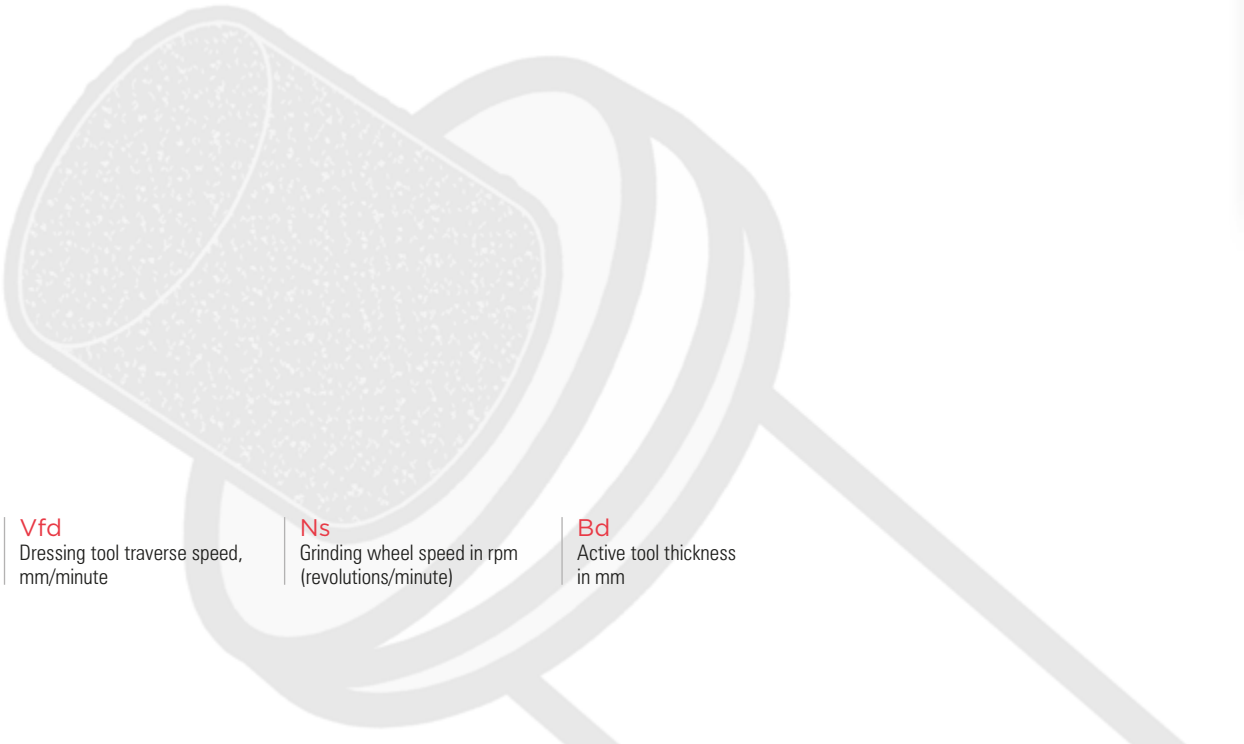
Example:
Ns grinding wheel speed (rpm): 1600 rpm
ud tool/grinding wheel contact ratio for standard grinding 5

$$Vfd = \frac{1}{3} \times \frac{8 \times 1600}{5} = 853 \text{ mm/minute}$$

The traverse speed for impregnated diamond tools should vary between 1000 mm/minute for roughing operations and 500 mm/minute for finishing operations

OTHER RECOMMENDATIONS FOR USING PBP IMPREGNATED MULTI-POINT DRESSING TOOLS

- dress the grinding wheel at a working speed of 20 to 35 m/sec



Vfd
Dressing tool traverse speed, mm/minute

Ns
Grinding wheel speed in rpm (revolutions/minute)

Bd
Active tool thickness in mm


MR04F KR 2.00
molermab

Diamond rolls for profiling and dressing abrasive grinding wheels

FOR PROFILING AND DRESSING CONVENTIONAL ABRASIVE GRINDING WHEELS AND VITRIFIED BONDED SUPERABRASIVE CBN AND DIAMOND GRINDING WHEELS

TYPE **SN**

Hand set diamonds followed by powder metal sintering

TYPE **DS**

Random distribution of diamonds in the highest concentration followed by powder metal sintering

TYPE **EG**

Electroplated diamonds on steel body

KS800

Dressing system

TYPE **CVD**

Polycrystalline diamond bars positioned on the external diameter of the body and then powder metal sintered

Main uses for SN - DS and EG rollers

- automotive industry: production of crankshafts and cams, gears, valves and bearings
- aerospace industry: production of NGVs and turbine blades

Main uses for CVD rollers

- tool industry: creep-feed grinding of drills, bits and milling cutters
- other applications: grinding pins and shafts, punches, screws and bolts

We manufacture rollers for specific needs upon request
Please contact our technical staff with your specific requirements

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www.molemab.com

PRODUCTION UNITS

molemab S.p.A.
headquarter
via Provinciale 10
25050 Ome (Brescia)
ITALY
tel +39 030 6859888
fax +39 030 652010
molemab@molemab.com

molemab Inotech
Schleifmittelindustrie GmbH
Hauptstrasse 17
9314 Launsdorf
AUSTRIA
tel +43 4213 4120
fax +43 4213 4120 – 20
office@molemab.at

molemab USA Corp.
150 Kendall Point Drive (suite G)
Oswego Illinois 60543
USA
tel +1 800 962 2226
sales@molemab.com

COMMERCIAL BRANCHES

molemab super-abrasifs France Sas
2, rue A. Fresnel (Parc d'activité Le Fresnel I)
69680 Chassieu
FRANCE
tel +33 (0)4 72 21 82 39
fax +33 (0)4 72 50 58 11
superabrasifs@molemab.com

molemab Iberica SLU
Poligono Industrial Sur (CC/Les Forques 13-15)
08754 El Papiol (Barcelona)
SPAIN
tel +34 93 67 30 562
fax +34 93 67 30 563
molemab@molemab.es

molemab GmbH
Am Turm 32
53721 Siegburg
GERMANY
tel +49 (0)2241 95780-0
molemabgermany@molemab.com

molemab Abrasives Ungheria kft
Váci Utca 81. IV.em.
1056 Budapest
HUNGARY
tel +36 70-524-23-14
molemabhungary@molemab.com

molemab Superabrasives s.r.o.
Belgicka 115/40, Vinohrady
120 00 Praha 2
CZECH REPUBLIC
tel +420 725 409 242
molemab.cr.sr@molemab.com

molemab Canada
2141 rue Nobel, Suite 104
J3E1Z9 Sainte-Julie - QC
CANADA
tel +1 450 338 4241
fax +1 450 338 4291
sales@molemab.com

molemab USA Corp.
91 Carey Road
12804 Queensbury - NY
USA
tel +1 800 962 2226
fax +1 888 203 3876
sales@molemab.com

molemab México SA de CV
Acceso B 102-A numero 202
Zona Industrial Jurica
76120 Queretaro
MEXICO
tel +52 442 199 0986
molemab@molemab.mx

molemab abrasives (Shanghai) co. ltd
Room 914, No. 1 building
Huicui business plaza, Huayuan road
Xiangcheng District
215131 Suzhou, Jiangsu province
CHINA
tel +86 135 848 456 22
molemab@molemabchina.cn

Office Poland
43-200 Pszczyna
ul. Piwowarska 1A/3
POLAND
tel +48 510 166 833
office.poland@molemab.com

Office India
Manglam City, Tower no-9
832109 Jamshedpur
INDIA
tel +91 990 531 3666
kumar.amit@molemab.com

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