

SWATY COMET



Industrial Grinding Tools

DIAMOND DRESSING TOOLS



SWATY COMET



Constant cooling of the diamond tip is necessary during surface dressing and profiling in order to prevent changes of the diamond's properties.

Once the sharp edges of the grinding wheel cutting surface are worn out (as indicated by an increase in the normal force F_n , and an inefficient and loud grinding wheel), they need to be restored, i.e. surface dressed. Various surface dressing tools are used for dressing of grinding wheels:

Manual surface dressing:

Depending on the required accuracy, surface dressing may be performed with:

- vitrified bonded dressing tools,
- little metal wheels,
- single grain diamond dressing tools,
- multigrain diamond dressing tools.



Machine surface dressing:

Single point dressing tools (with bases of different shapes),



Dressing plates (attached to holders of different shapes),



Multipoint dressing tools (with bases of different shapes),

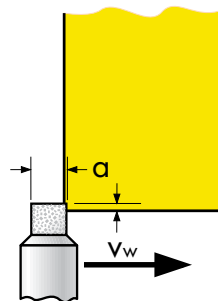


Diamond rolls (attached to holders of different shapes)



When a grinding wheel is mounted onto the machine spindle, it needs to be dressed for as long as it takes to level the entire grinding surface. If surface dressing is done during grinding, correct selection of the dressing parameters is important.

Dressing depth depends on the grain size in the grinding wheel, and is the same for all types of dressing tools.



Grit size according to FEPA	Dressing depth a (mm)
46	0.35
60	0.30
80	0.25
120	0.10
150	0.08
220	0.06
320	0.03
400	0.02

The other parameters are determined with respect to the dressing tool type.

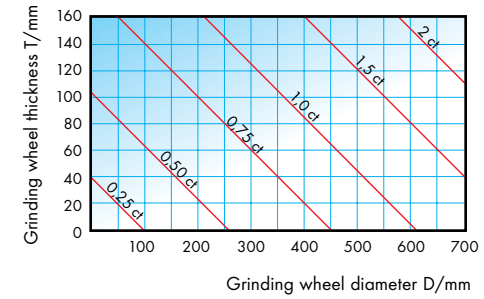
SURFACE DRESSING WITH SINGLE POINT DIAMOND DRESSING TOOLS

Selection of diamond grit size:

The grit size of a single grit surface dressing tool depends on the grinding wheel size, and is determined using an equation or a diagram.

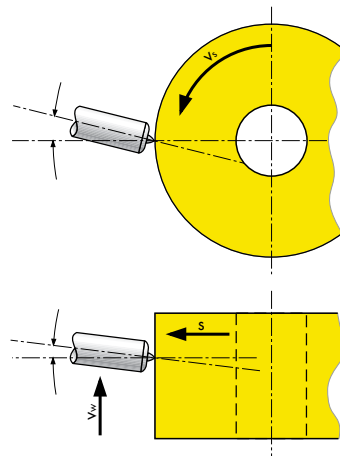
$$C_t = \frac{D + 2W}{400}$$

C_t - diamond grit size/karats
 D - grinding wheel diameter/mm
 W - grinding wheel width/mm
 400 - constant

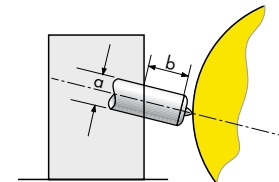


Depending on the shape, diamond grits for dressing tools are classified into four basic types.

No. of tips	Quality class
1 to 2	STANDARD
2 to 3	EXTRA



$$b = \max(2 \cdot a)$$



Dressing tool's transverse stroke:

Transverse stroke during dressing (mm/min) with single grit surface dressing tools depends on the type of grinding and the external grinding wheel diameter. The recommendations are as follows:

At operating speed of 35 m/s

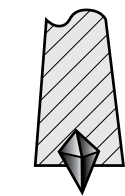
Type of grinding	Grinding wheel diameter (mm)				
	Ø200	Ø300	Ø400	Ø500	Ø600
Coarse grinding	780	520	400	300	260
Normal grinding	380	260	200	150	130
Fine grinding	280	150	120	100	80

At operating speed of 50 m/s

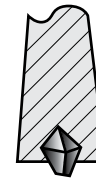
Type of grinding	Grinding wheel diameter (mm)				
	Ø200	Ø300	Ø400	Ø500	Ø600
Coarse grinding	1000	730	560	420	360
Normal grinding	530	360	280	210	180
Fine grinding	390	210	170	140	110

Restoration of single grit diamond dressing tools

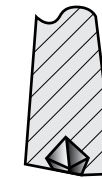
Once the surface dressing tip has become worn out (i.e. when the contact surface area exceeds 1 mm²), the dressing tool needs to be restored. Restoration turns the grain around or grinds it and turns it around.



New dressing tool

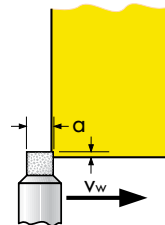


Worn out dressing tool

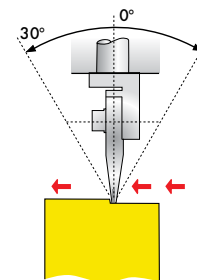


Useless dressing tool

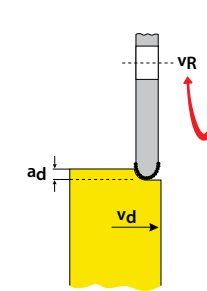
SURFACE DRESSING WITH MULTIPOINT DIAMOND DRESSING TOOLS



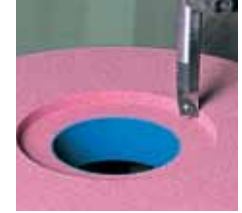
Multipoint dressing tools:



Dialettes:



Diamond rolls:

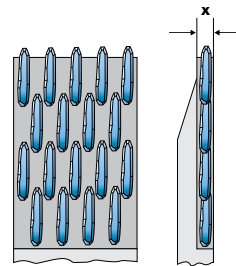


Single point diamond dressing (profiling) tools:

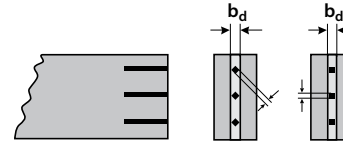
These are used for profiling vitrified bonded grinding wheels and are named according to the profiling device or machine.

Flat diamond dressing tools - Dialettes:

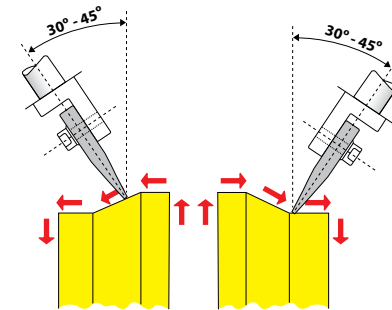
These are classified according to the shape and quality of the integrated diamond grain.



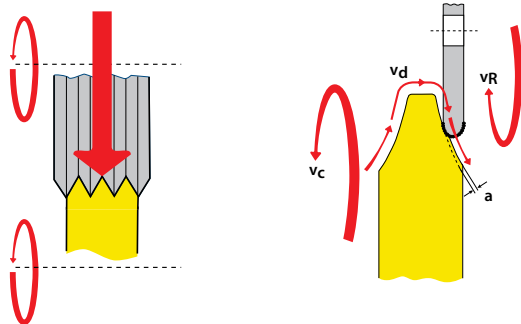
Dialette with pins



Dialette with MCD (monocrystalline diamond) pins:



Dialette position in relation to the grinding wheel during dressing.



Rotating diamond dressing tools:

Rotating diamond dressing tools:

Depending on the dressing method, rotating diamond dressing tools are produced:

- with the entire profile shape (without transverse motion):
- with the same profile as the model (with transverse motion):

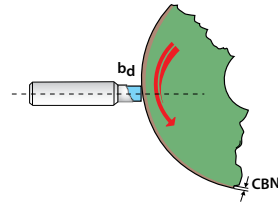
Depending on the bond type, rotating dressing tools may be produced with:

- galvanic bond,
- metal bond.

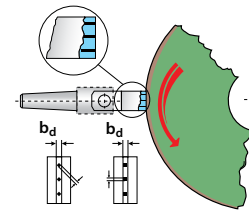
When profiling is done using a template (programme), the dressing wheel's profile must be the same as that of the model. The dressing tool moves along a template, creating the same profile along the grinding wheel circumference.



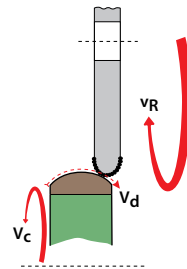
Superabrasives grinding wheels may be dressed with:



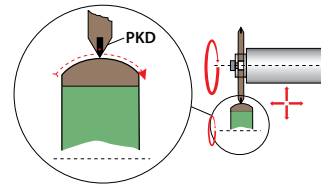
Multipoint sintered dressing tools



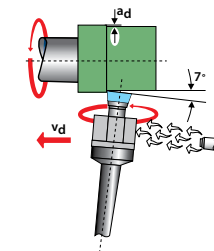
Dialettes with MC grit



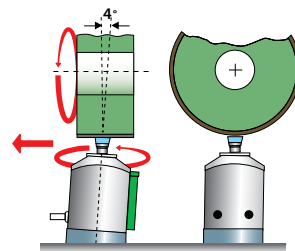
Diamond rolls



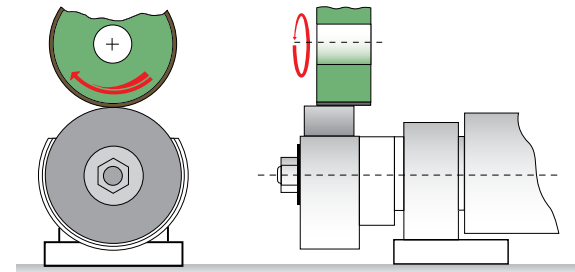
PCD profiling grinding wheels



Dressing tools with rotating wings

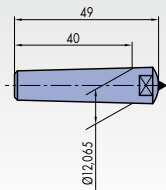


Universal WST diamond dressing tools

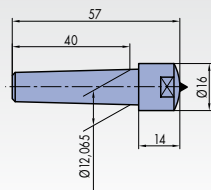


Dressing tools with centrifugal brake

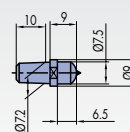
K101 MK1



K102 MK1 - G



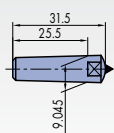
K111 YUNG



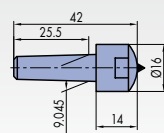
K115 NILES



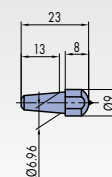
K103 MKO



K104 MKO - G



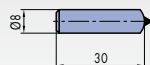
K113 KOLB



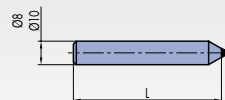
K117 DECKEL



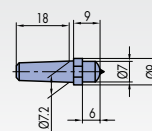
K105 DECKEL



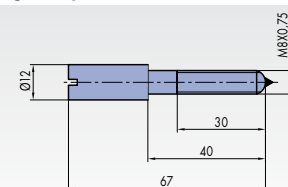
K106 ZYLINDER



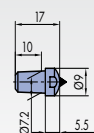
K112 YUNG



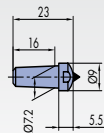
K116 NILES



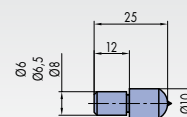
K107 YUNG



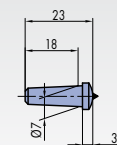
K108 YUNG



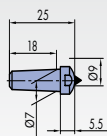
K114 LANDIS



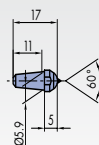
K119



K109 YUNG



K110 YUNG

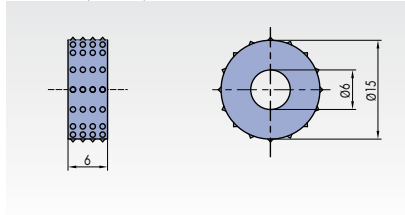


Order printout sample:
K101 MK1 - 2,5 kt - standard

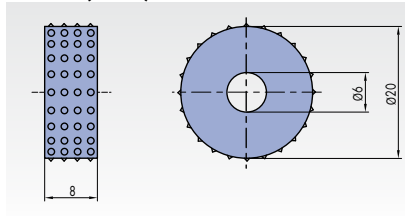


DIAMOND ROLLS

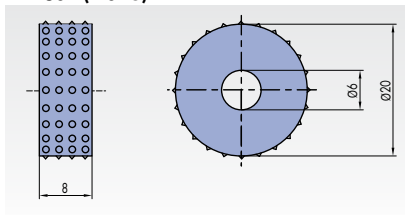
K301 (15x6)



K303 (20x8)

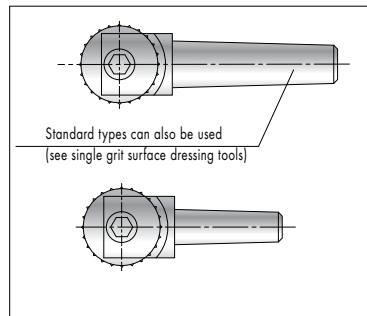


K302 (20x8)



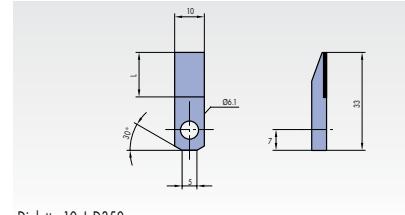
Diamond roll clamping

HOLDER MK1, MK0, ...



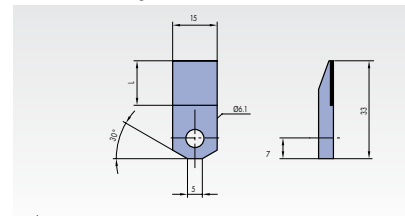
DIAMOND DIALETTES

DIALETTE 10xL



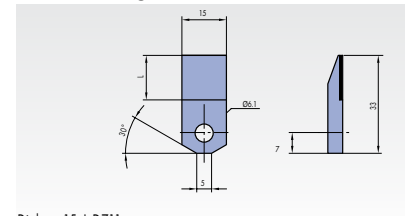
Dialette 10xL D350

DIALETTE 20xL



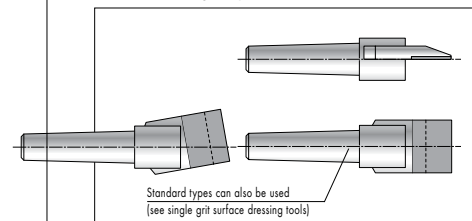
Dialette 20xL D711

DIALETTE 15xL

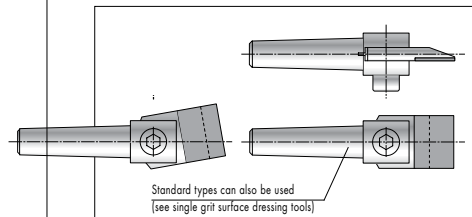


Dialette 15xL D711

Fixed clamping into a holder



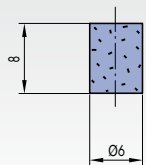
Clamping into screw holders



DIAMOND INSERTS FOR MULTIPOINT DRESSING TOOLS

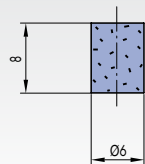
K401 6x8

(Diamond grit size D 711)



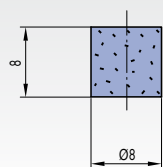
K402 6x8

(Diamond grit size D 350)



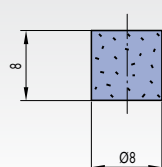
K403 8x8

(Diamond grit size D 711)



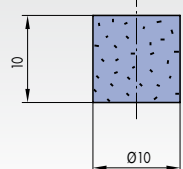
K404 8x8

(Diamond grit size D 350)



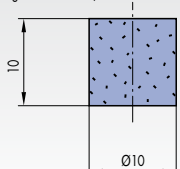
K405 10x10

(Diamond grit size D 711)



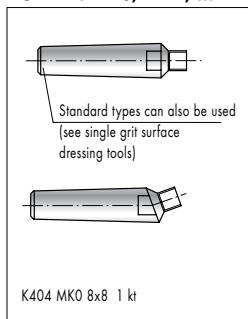
K406 10x10

(Diamond grit size D 350)

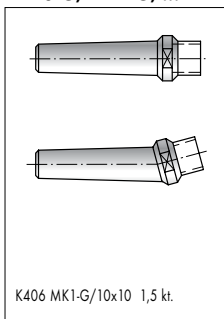


Types of multipoint dressing tools

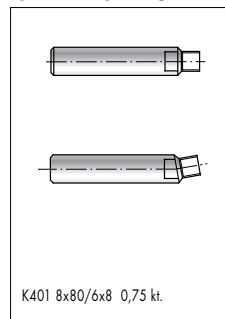
HOLDER: MK0, MK1, ...



MK0-G, MK1-G, ...

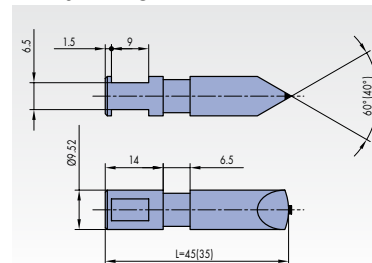


CYLINDRICAL HOLDER

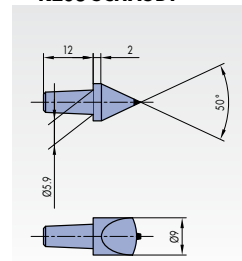


PROFILLED DIAMOND DRESSING TOOLS

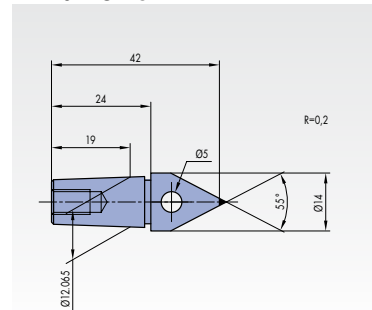
K201 DIAFORM



K203 SCHAUDT



K202 FORTUNA





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