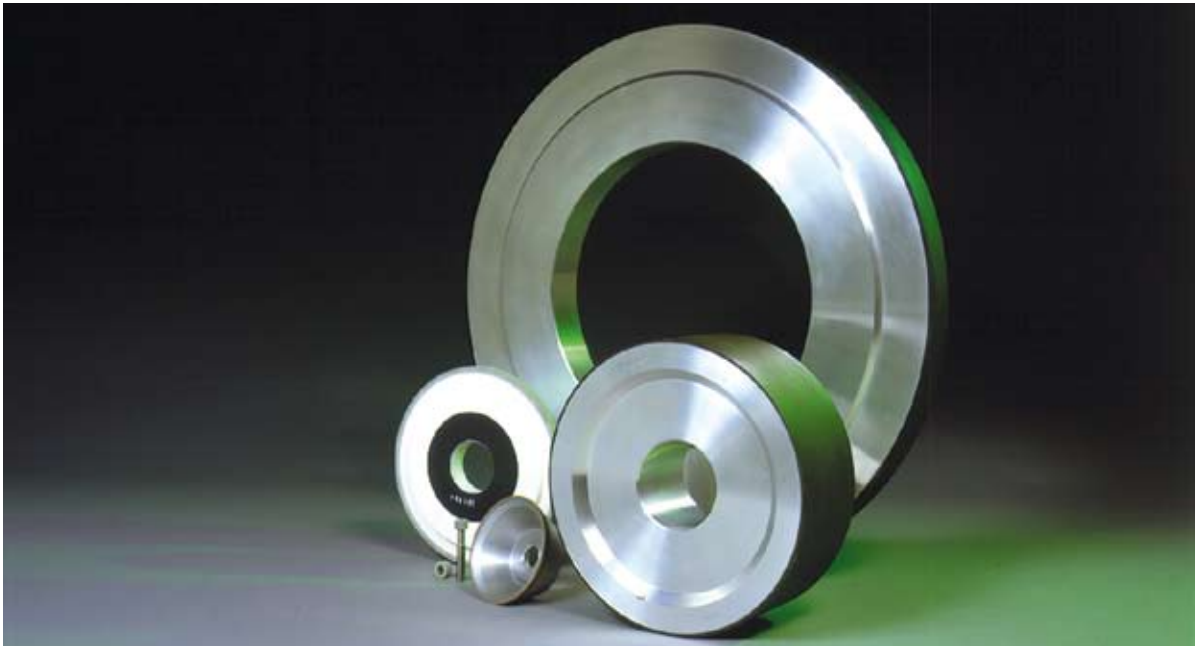


# TECHNODIAMANT

# Grinding wheels



## Diamond grinding wheels

with resin binder,  
metal binder,  
ceramic binder.

for grinding:

- tungsten carbides
- flame-sprayed wear resistant alloys
- tungsten carbide/steel combinations
- glass
- ferrites

## CBN grinding wheels

with resin binder,  
metal binder,  
ceramic binder.

for grinding:

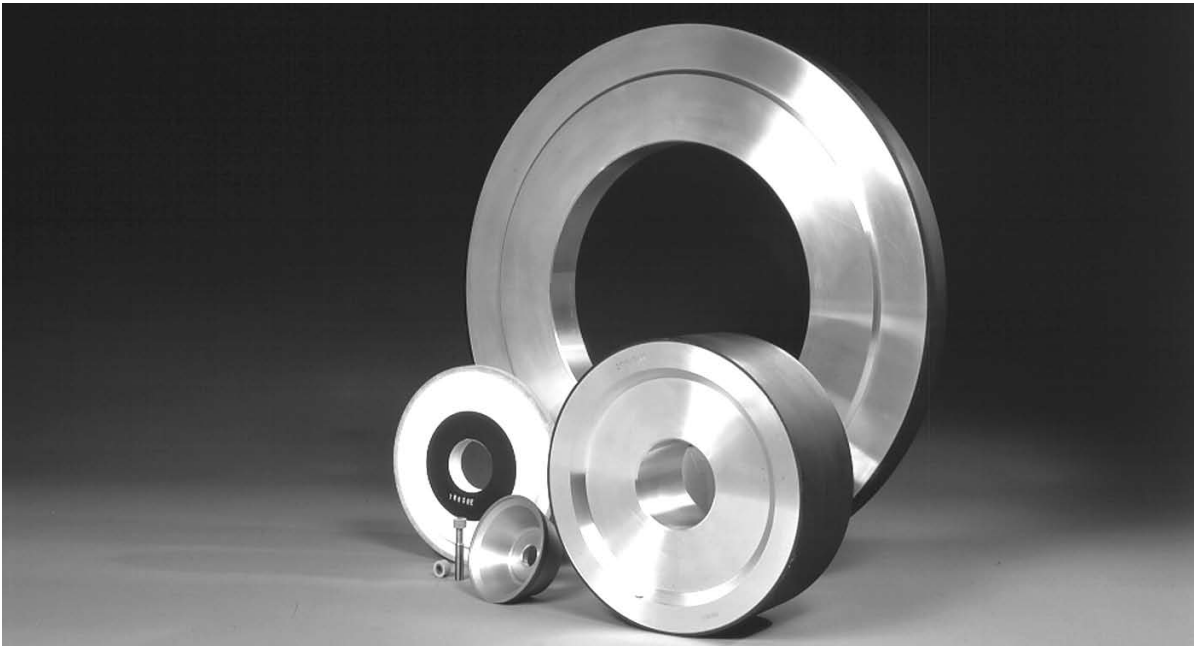
- high speed steels
- hardened high speed steels
- hardened 12% chromium steel
- flame-sprayed wear resistant alloys

Enclosed you will find a sheet for each type of wheel.  
The dimensions are not included in the tables because this catalogue offers you the facility of noting down the specifications of all the wheels you use.  
We hope that the catalogue will thus become a useful reference document, specific to your requirements.

# TECHNODIAMANT

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## Concentrations for diamond and CBN

Concentration	Percentage volume	Carats per cm <sup>3</sup>	CBN incl. 60 per cent by weight nickel coating
25	6.25	1.1	B - 62.5
40	10	1.76	B - 100
50	12.5	2.2	B - 125
75	18.75	3.3	B - 188
100	25	4.4	B - 250
150	37.5	6.6	B - 375
175	43.75	7.7	B - 420

We use the same indication of concentration for both diamond and CBN, which corresponds to the internationally accepted standard for:

$$\text{concentration 100} = 4.4 \text{ crt/cm}^3 \text{ (1 Carat} = 0.2 \text{ g)}$$

This is used to express the weight of DIAMOND or CBN per cm<sup>3</sup>. Because there are also indications of concentration used for resinbond CBN grinding wheels which are based on the gross weight of nickel coated CBN grains (60% of the gross grain weight consisting of nickel), the last column of the table above also shows these concentrations, preceded by the letter B.

## The effect of concentration

### **Concentrations:**

The content of diamond or CBN in the grinding rim is heavily dependent upon the application. Generally, where rapid stockremoval of tungsten carbide or hardened steel is intended, a concentration of 75 to 125 is selected. When a good surface finish is demanded, lower concentrations in combination with finer diamond or CBN powder are required.

Concentrations of up to 150 are used for profile grinding wheels and cylindrical wheels which have a small contact area.

Needless to say that Technodiamant guarantees the specified concentrations.

### **Grit size:**

Diamond and CBN grit are available in many sizes and types. The gritsize is dependent upon the desired surface finish. In addition, the gritsize also has an important effect on the grinding behaviour of the wheel.

As far as the gritsize is concerned, Technodiamant complies with the FEPA standard. You will find a comparison table for the various grit systems on page 6 in this catalogue.

### **Binders:**

Technodiamant has a large number of in house developed binders available. The type of binder is often selected in combination with the type of grit and concentration. Binders are divided into metal, resin and ceramic binders. Solid metal binders are often applied to grind glass and ceramics, whereas resin binders, porous metal binders and ceramic binders are usually used for grinding tungsten carbides and hardened steel.

The following more or less "universal" binder codes are often used by Technodiamant:

XX	Wet grinding of carbide
X2	Dry grinding of carbide
C2	Dry and wet grinding of carbide and hardened steel.
T2	Dry and wet grinding of hardened steel with cylindrical wheels.
T3	Dry and wet grinding of hardened steel with cup wheels.
GS30 (GR)	Wet grinding of flat glass.
S149	Wet grinding of optical glass.

### **Ceramic binder:**

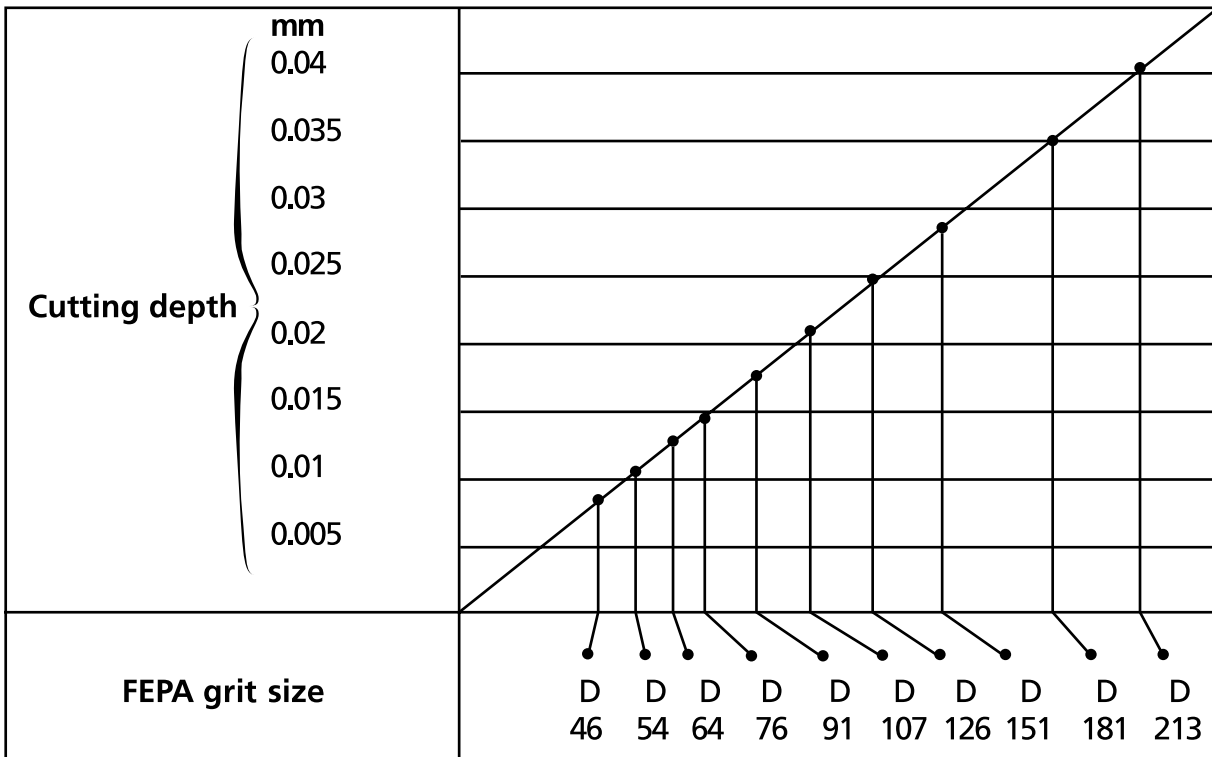
V-number Wet grinding of tungsten carbide, HSS, etc.

## Cutting depth for diamond and CBN grinding wheels

The depth of cutting for oscillating grinding with forced feeding is associated with the grit size of the wheel and the fineness required for the surface. The depth of cut must always be less than the protrusion of the grit from the binder. For a sharp grinding wheel the protrusion will be 1/4 to 1/5 of the grit size at the most. However, the generation of heat must be held within certain limits as well. When dry grinding with a large contact area between the wheel and the work piece, the depth of cut

must be much less than when grinding with a small contact area. For creep feed grinding the grinding depth setting is not the same as the depth of cut, since the latter is limited by the speed of the table. Special metal and resin wear resistant binders have been developed for creep feed grinding. Because the contact area between the wheel and the work piece is usually large for this grinding method, proper cooling is of extreme importance.

### Permissible cutting depth



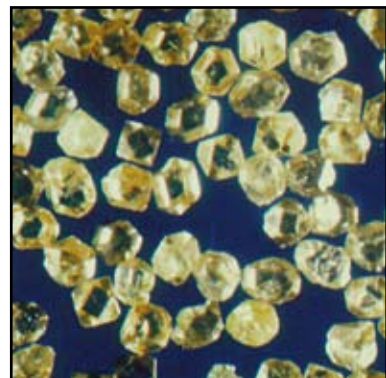
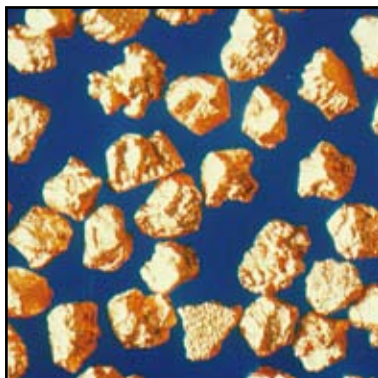
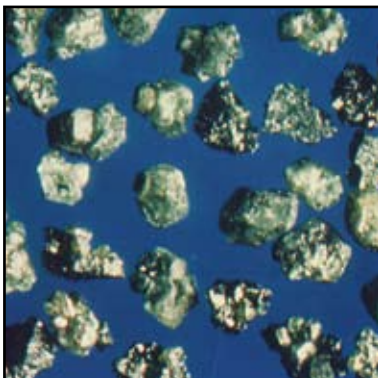
See comparison table for grit systems on page 6

# TECHNODIAMANT

# Grinding wheels

Comparison table for grit systems

µm	DIN 848	FEPA-STANDARD	US-MESH	µm
1250	D 1100			1190
1000	D 900	D 1182	D 1181	1000
800	D 700		D 1001	850
630	D 550	D 852	D 851	710
500	D 450	D 602	D 711	600
400	D 350	D 427	D 601	500
315	D 280		D 501	425
250	D 220	D 252	D 426	350
200	D 180		D 356	300
160	D 140		D 301	250
125	D 110		D 251	212
100	D 90		D 213	180
80	D 65		D 181	150
63	D 55		D 151	125
50	D 45		D 126	106
40	D 35		D 107	90
32	D 25		D 91	75
25			D 76	63
			D 64	53
			D 54	45
			D 46	38
			D 35	32
			D 30	25
			D 25	20
			D 15	10



\* Wheels can also be supplied in grit sizes: D3 - D5 - D7 - D10

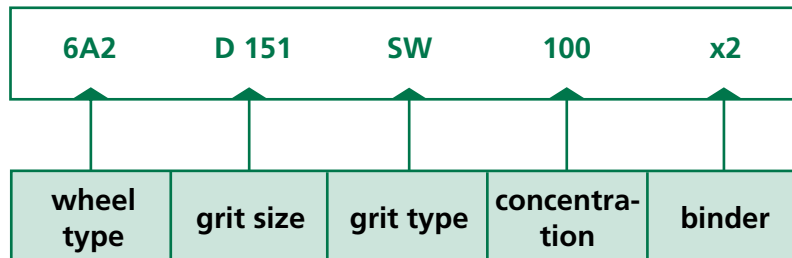
## Suggestions for the use of diamond wheels for grinding carbide

Type of machining	FEPA wheel	Pre-grinding			Fine grinding			Lapping		
			FEPA grit	concentration		FEPA grit	concentration		FEPA grit	concentration
hand grinding	6A2 11A2	M	D 151 D 181 D 213	100	M	D 76 D 91 D 107	50	M K	D 46 D 54 D 30	40
cutters, reamers, etc. on universal tooling grinding machines	11A2 12A2 11V9	M K	D 151 D 181 D 213 D 107 D 126	100	M K	D 76 D 91 D 46 D 54 D 64	75 75	K	D 30 D 46 D 54	40-50
grinding profiles on profile grinding machines	1EE1 1E1Q	M	D 107 D 126 D 151 D 181 D 213	100-125	K	D 46 D 54 D 64 D 76 D 91	75-100	K	D 30 D 46 D 54	75
cutters planers, saws for wood-working	4A2 6A2 11A2 11V9 12A2 15A2	K	D 107 D 126 D 151 D 181 D 213	100-125	K	D 46 D 54 D 64 D 76 D 91	75-100	K	D 10 D 15 D 30	50
flat grinding, cylindrical grinding	1A1 14A1	K	D 107 D 126 D 151 D 181 D 213	100	K	D 46 D 54 D 64 D 76 D 91	75	K	D 7 D 10 D 15 D 30	25-50
internal grinding	1A1 1A1W	M	D 151 D 181 D 213	150	M K	D 107 D 126	150 100	K	D 30 D 46 D 54 D 64	75-100

**M = metal binder**  
**K = resin binder**

*The table on page 6 shows a comparison of FEPA grits against US mesh and DIN 848.*

## Explanation of wheel symbols



The FEPA standard shapes for grinding wheels are shown on the following pages.

We are also able to supply shapes and sizes which differ from the FEPA standard.

## Explanation of letters in specifications

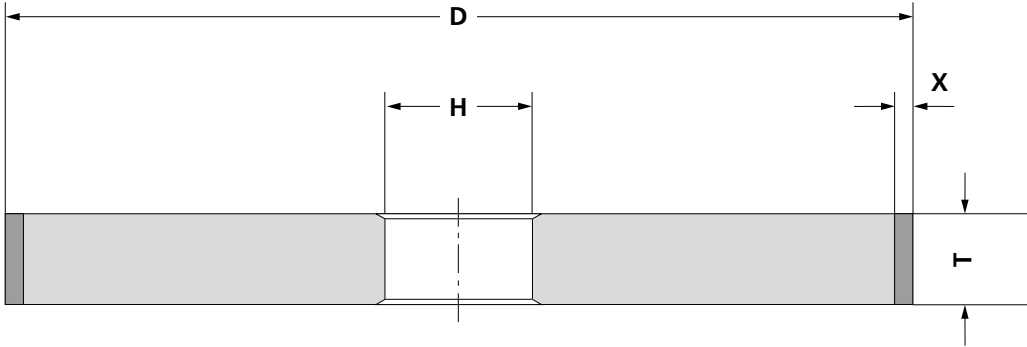
<b>D</b> = diameter	<b>S</b> = chamfer external angle
<b>E</b> = thickness at shaft hole	<b>T</b> = total thickness
<b>H</b> = shaft hole diameter	<b>T1</b> = reduced thickness
<b>J</b> = mounting surface diameter	<b>U</b> = diamond coating thickness (if less than T or T1)
<b>K</b> = clamping surface diameter	<b>V</b> = surface angle
<b>L</b> = total stick length	<b>W</b> = grinding rim width
<b>L1</b> = shank length	<b>X</b> = grinding rim thickness
<b>L2</b> = diamond coating length	<b>Y</b> = shank diameter
<b>R</b> = radius	



# TECHNODIAMANT

Type 1A1

SLIPPSCHIJVEN / GRINDING WHEELS / SCHLEIFSCHEIBEN / MEULES



Type 1A1

D	T	X	H	Korrel Grit Körnung Grain	Concentratie Concentration Konzentration Concentration	Binding Binder Bindemittel Liant	Artikelnummer Reference code Ident nummer Numéro de identité

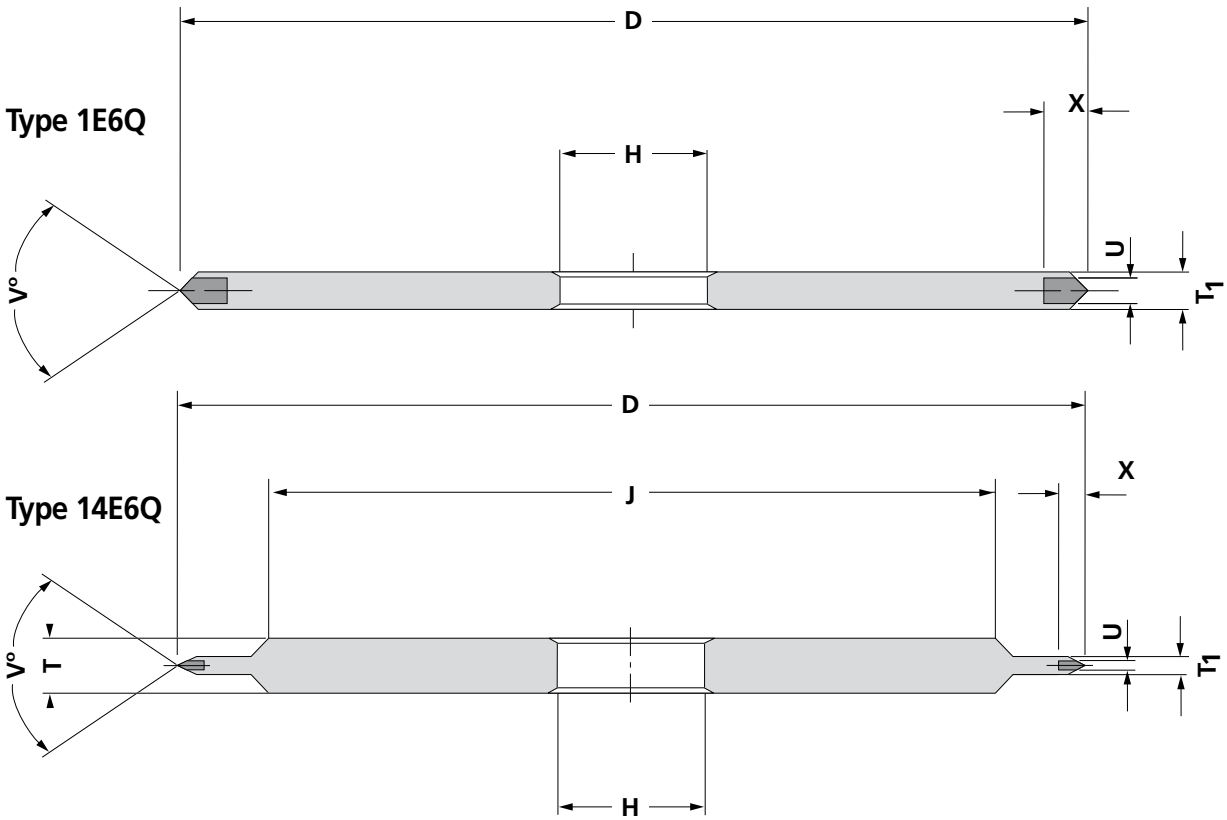




# TECHNODIAMANT

Type  
1E6Q/14E6Q

SLIPPSCHIJVEN / GRINDING WHEELS / SCHLEIFSCHEIBEN / MEULES

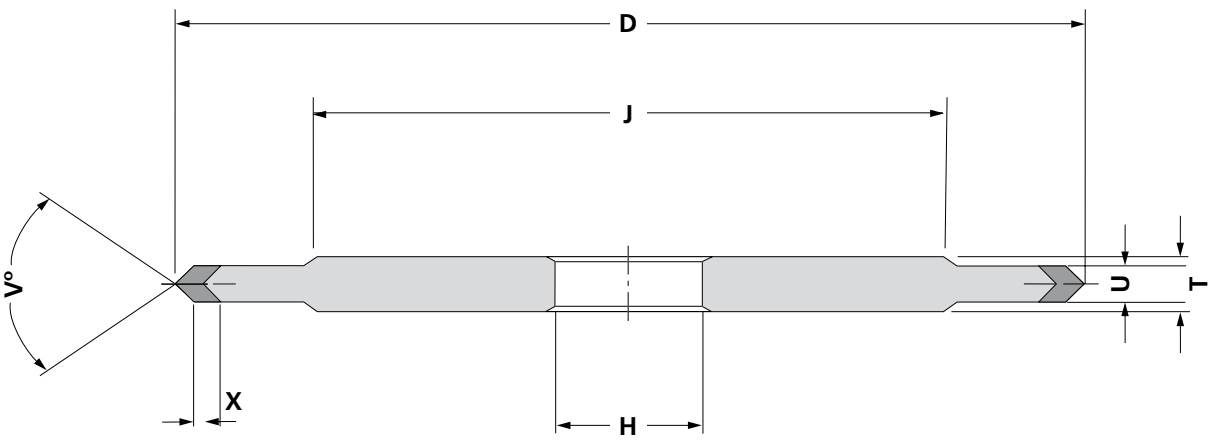


D	U	X	T1	14E6Q			V°	Korrel Grit Körnung Grain	Concentratie Concentration Konzentration Concentration	Binding Binder Bindemittel Liant	Artikelnummer Reference code Ident nummer Numéro de identité
				H	T	J					
							<div style="text-align: center;">20</div> <div style="text-align: center;">↓</div> <div style="text-align: center;">160</div>				

# TECHNODIAMANT

Type 14EE1

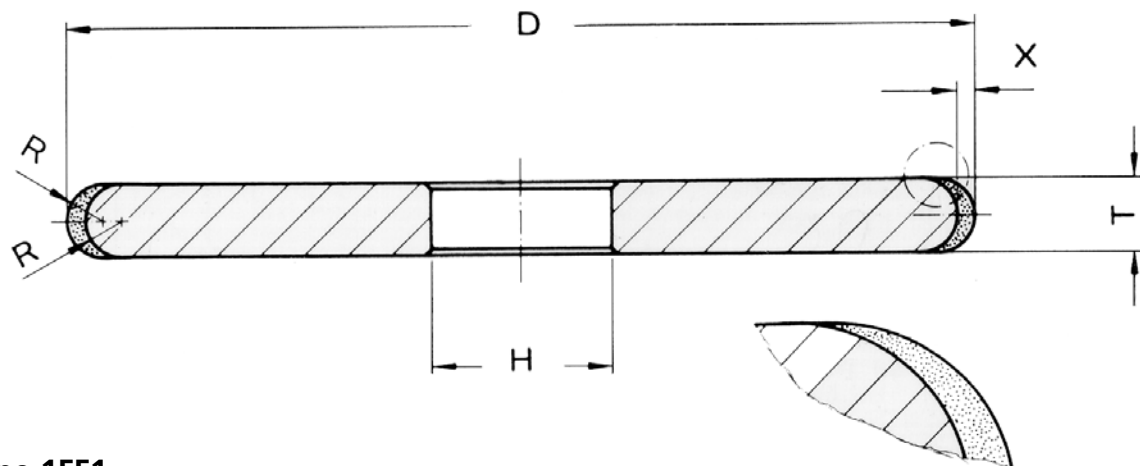
SLIPPSCHIJVEN / GRINDING WHEELS / SCHLEIFSCHEIBEN / MEULES



Type 14EE1

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# TECHNODIAMANT



Type 1FF1

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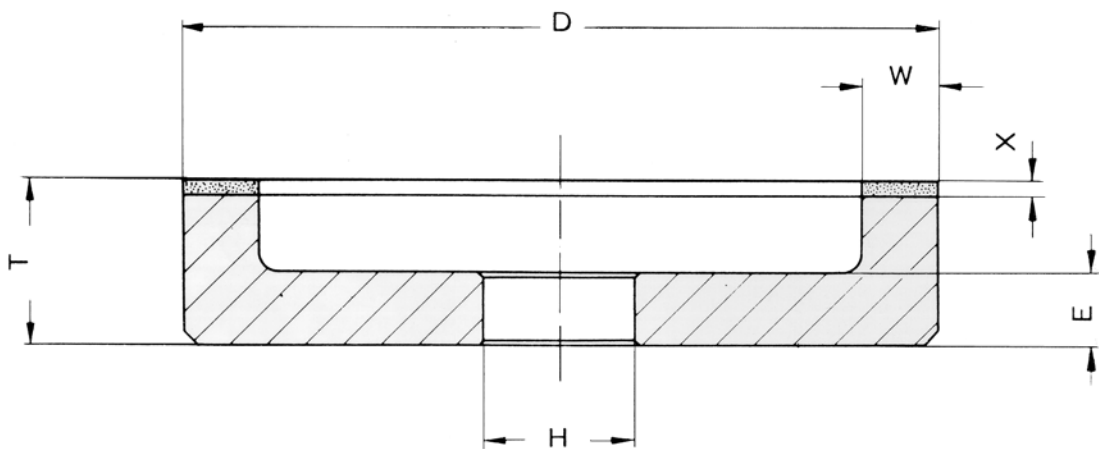
Type 1FF1

SLIPPSCHIJVEN / GRINDING WHEELS / SCHLEIFSCHEIBEN / MEULES

# TECHNODIAMANT

Type 6A2

SLIPPSCHIJVEN / GRINDING WHEELS / SCHLEIFSCHEIBEN / MEULES



Type 6A2

D	W	X	H	E	T	Korrel Grit Körnung Grain	Concentratie Concentration Konzentration Concentration	Binding Binder Bindemittel Liant	Artikelnummer Reference code Ident nummer Numéro de identité

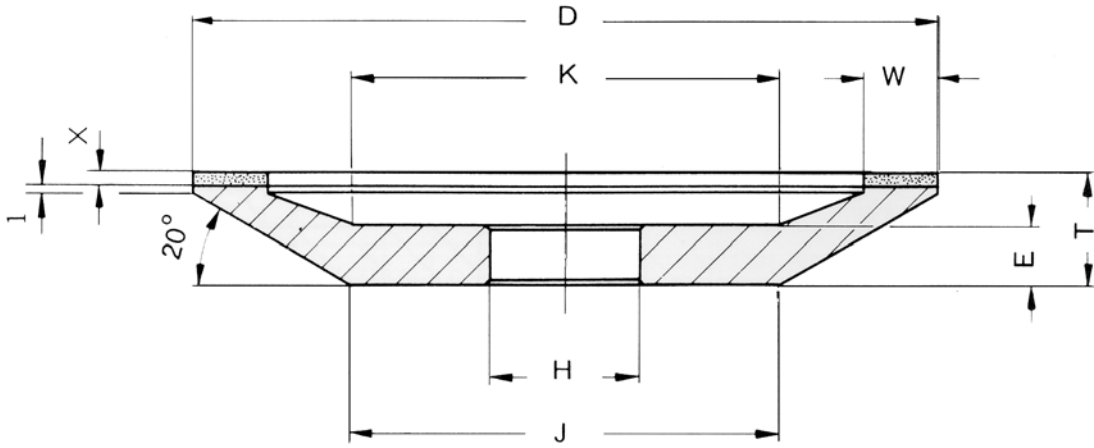




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Type 12A2/20°

SLIJPSCHIJVEN / GRINDING WHEELS / SCHLEIFSCHEIBEN / MEULES



Type 12A2 / S=20°

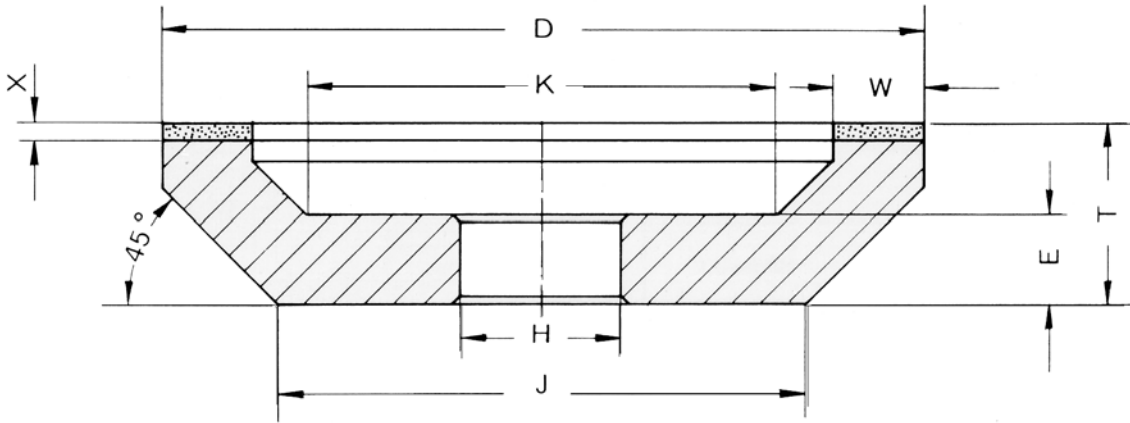
D	W	X	H	E	T	J	K	Korrel Grit Körnung Grain	Concentratie Concentration Konzentration Concentration	Binding Binder Bindemittel Liant	Artikelnummer Reference code Ident nummer Numéro de identité



# TECHNODIAMANT

Type 12A2/45°

SLIPPSCHIJVEN / GRINDING WHEELS / SCHLEIFSCHEIBEN / MEULES



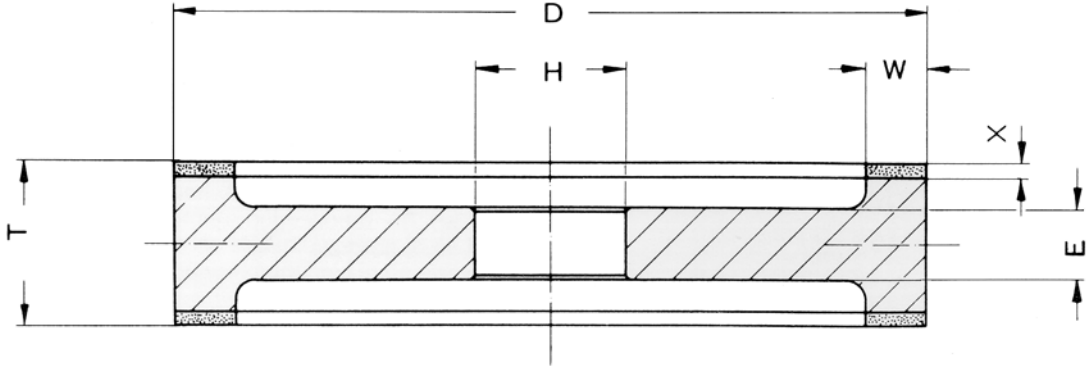
Type 12A2 / S=45°

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# TECHNODIAMANT

Type 9A3

SLIJPSCHIJVEN / GRINDING WHEELS / SCHLEIFSCHEIBEN / MEULES



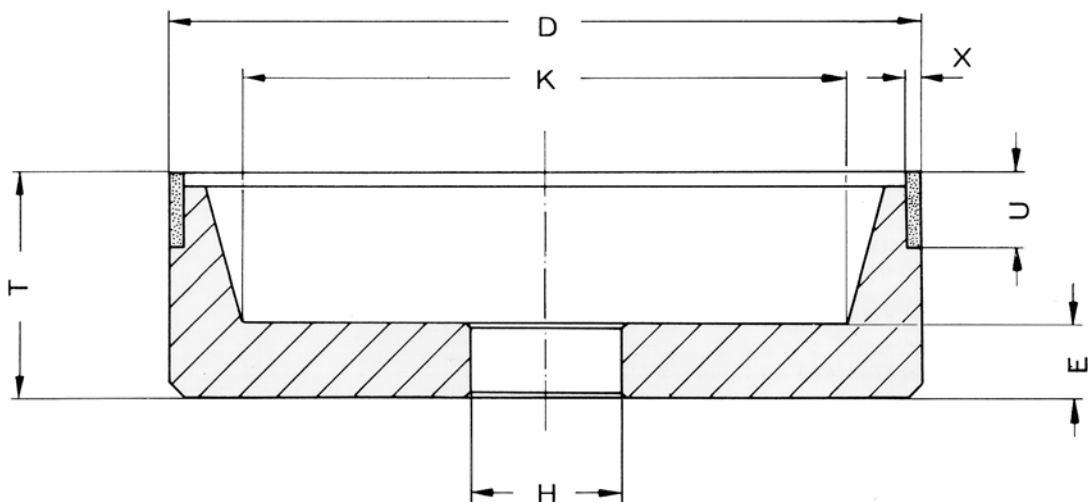
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# TECHNODIAMANT

Type 6A9

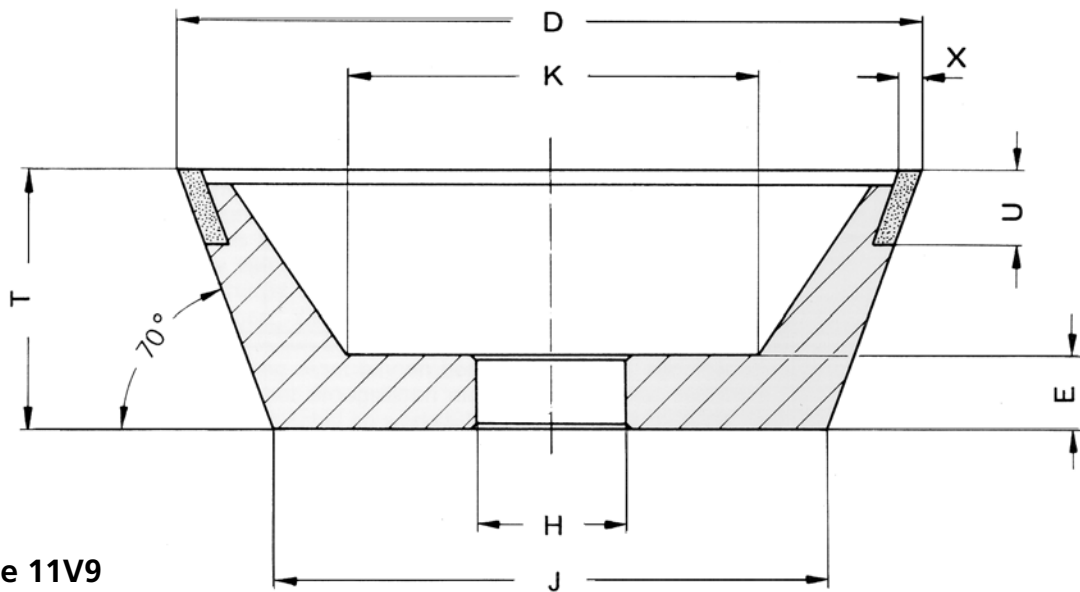
SLIPPSCHIJVEN / GRINDING WHEELS / SCHLEIFSCHEIBEN / MEULES



Type 6A9

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# TECHNODIAMANT



Type 11V9

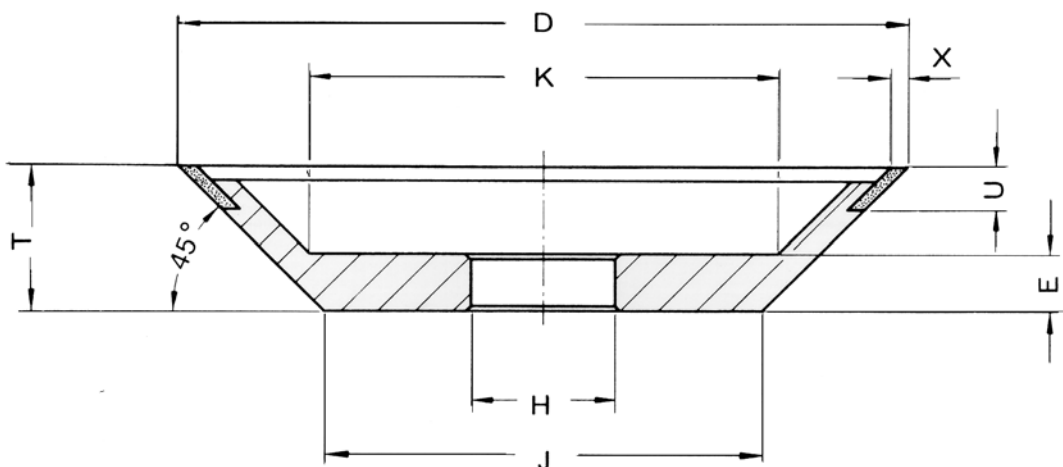
D	U	X	H	E	T	J	K	Korrel Grit Körnung Grain	Concentratie Concentration Konzentration Concentration	Binding Binder Bindemittel Liant	Artikelnummer Reference code Ident nummer Numéro de identité

Type 11V9

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# TECHNODIAMANT

Type 12V9

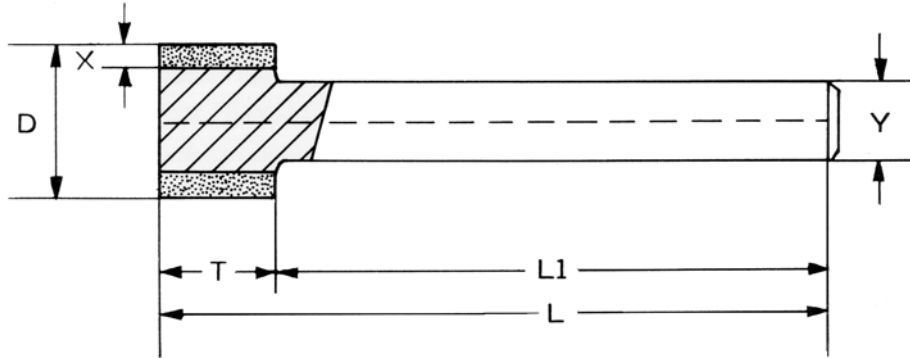


Type 12V9

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SLIJPSCHIJVEN / GRINDING WHEELS / SCHLEIFSCHEIBEN / MEULES

22



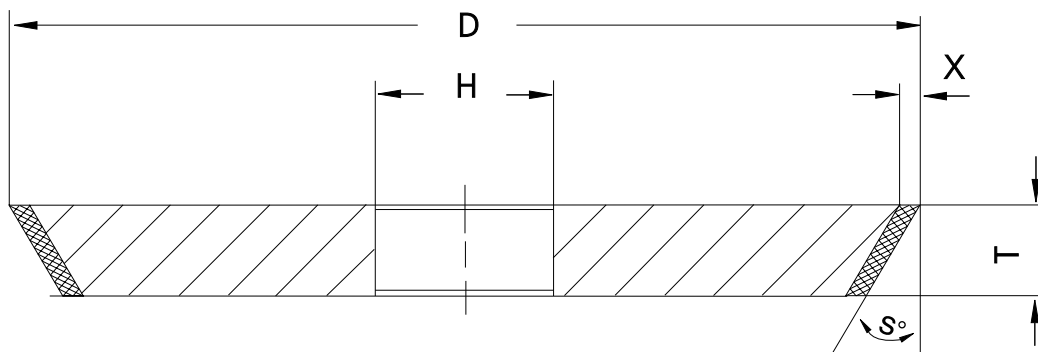
Type 1A1W

D	T	X	Y	L	L1	Korrel Grit Körnung Grain	Concentratie Concentration Konzentration Concentration	Binding Binder Bindemittel Liant	Artikelnummer Reference code Ident nummer Numéro de identité

# TECHNODIAMANT

Type 1V1

SLIPPSCHIJVEN / GRINDING WHEELS / SCHLEIFSCHEIBEN / MEULES



Type 1V1

D	T	X	H	S°	Korrel Grit Körnung Grain	Concentratie Concentration Konzentration Concentration	Binding Binder Bindemittel Liant	Artikelnummer Reference code Ident nummer Numéro de identité

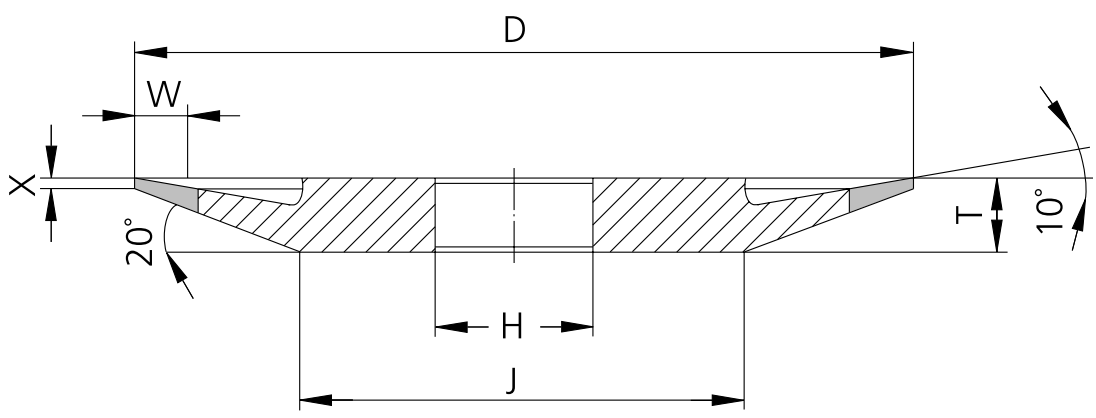




# TECHNODIAMANT

Type 4BT9/20°

SLIPPSCHIJVEN / GRINDING WHEELS / SCHLEIFSCHEIBEN / MEULES



Type 4BT9 / 20°

D	W	X	H	T	J	Korrel Grit Körnung Grain	Concentratie Concentration Konzentration Concentration	Binding Binder Bindemittel Liant	Artikelnummer Reference code Ident nummer Numéro de identité