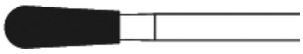
22



HOROTEC® END MILLS	**22 - 2**
HOROTEC® REAMERS	**22 - 7**
END MILLS	**22 - 9**
DIAMOND BURS	**22 - 19**
DRILLS	**22 - 35**

Hard metal end mills.

ASSORTMENT

MSA	Size	Kg
22.566	125 x 81 x 50 mm	0.260

Assortment of 12 hard metal end mills and 11 steel pivots. The pivots work as a guide in the hole and the end mills trim the desired part. The pivots are interchangeable with every end mill. It can be used by hand or on a press. *Delivered in a wooden box.*

** Items in the assortment MSA22.566*

Ø 2.35 mm

Spare end mills :

MSA	Item	Kg
22.566-F100	End mill, Ø 1.00 x L20 mm	0.001
22.566-F120 *	End mill, Ø 1.20 x L20 mm	0.001
22.566-F150 *	End mill, Ø 1.50 x L20 mm	0.001
22.566-F175 *	End mill, Ø 1.75 x L20 mm	0.001
22.566-F180	End mill, Ø 1.80 x L20 mm	0.001
22.566-F200 *	End mill, Ø 2.00 x L20 mm	0.001
22.566-F225 *	End mill, Ø 2.25 x L20 mm	0.001
22.566-F250 *	End mill, Ø 2.50 x L20 mm	0.001
22.566-F275 *	End mill, Ø 2.75 x L20 mm	0.001
22.566-F300 *	End mill, Ø 3.00 x L20 mm	0.001
22.566-F325 *	End mill, Ø 3.25 x L20 mm	0.002
22.566-F350 *	End mill, Ø 3.50 x L20 mm	0.002
22.566-F375 *	End mill, Ø 3.75 x L20 mm	0.002
22.566-F400 *	End mill, Ø 4.00 x L20 mm	0.002

Spare pivots :

Ø 0.60 mm *(a)*

MSA	Item	Kg
22.566-P040	Pivot, Ø 0.40 (a) x L24.50 mm	0.001
22.566-P050 *	Pivot, Ø 0.50 (a) x L24.50 mm	0.001
22.566-P060 *	Pivot, Ø 0.60 (a) x L24.50 mm	0.001
22.566-P070 *	Pivot, Ø 0.70 (a) x L24.50 mm	0.001
22.566-P080 *	Pivot, Ø 0.80 (a) x L24.50 mm	0.001
22.566-P090 *	Pivot, Ø 0.90 (a) x L24.50 mm	0.001
22.566-P100 *	Pivot, Ø 1.00 (a) x L24.50 mm	0.001
22.566-P110 *	Pivot, Ø 1.10 (a) x L24.50 mm	0.001
22.566-P120 *	Pivot, Ø 1.20 (a) x L24.50 mm	0.001
22.566-P130 *	Pivot, Ø 1.30 (a) x L24.50 mm	0.001
22.566-P140 *	Pivot, Ø 1.40 (a) x L24.50 mm	0.001
22.566-P150 *	Pivot, Ø 1.50 (a) x L24.50 mm	0.001

Spare tool holder :

MSA	Item	Kg
22.568 *	Pivot, Ø 4.70 x L90 mm	0.011

Hard metal screw shoulder end mills with 5 cutters.

ASSORTMENT

(1)

(2)

MSA	Size	Kg
22.590	80 x 35 x 10 mm	0.060

Assortment of 16 hard metal screw shoulder end mills with 5 cutters, allowing the adjustment of the shoulder height of chronographer screws. Each end mill is easily replaceable thanks to a side screw holding it.

** Items in the assortment MSA22.590*

Spare parts :

MSA	Item	Kg
22.590-030	*(1)* End mill Ø 0.30 mm	0.002
22.590-035	End mill Ø 0.35 mm	0.002
22.590-040	End mill Ø 0.40 mm	0.002
22.590-045	End mill Ø 0.45 mm	0.002
22.590-050 *	End mill Ø 0.50 mm	0.002
22.590-055 *	End mill Ø 0.55 mm	0.002
22.590-060 *	End mill Ø 0.60 mm	0.002
22.590-065 *	End mill Ø 0.65 mm	0.002
22.590-070 *	End mill Ø 0.70 mm	0.002
22.590-075 *	End mill Ø 0.75 mm	0.002
22.590-080 *	End mill Ø 0.80 mm	0.002
22.590-085 *	End mill Ø 0.85 mm	0.002
22.590-090 *	End mill Ø 0.90 mm	0.002
22.590-095 *	End mill Ø 0.95 mm	0.002
22.590-100 *	End mill Ø 1.00 mm	0.002
22.590-105	End mill Ø 1.05 mm	0.002
22.590-110 *	End mill Ø 1.10 mm	0.002
22.590-115	End mill Ø 1.15 mm	0.002
22.590-120 *	End mill Ø 1.20 mm	0.002
22.590-125	End mill Ø 1.25 mm	0.002
22.590-130 *	End mill Ø 1.30 mm	0.002
22.590-140 *	End mill Ø 1.40 mm	0.002
22.590-150 *	End mill Ø 1.50 mm	0.002
22.590-160	End mill Ø 1.60 mm	0.002
22.590-170	End mill Ø 1.70 mm	0.002
22.590-180	End mill Ø 1.80 mm	0.002
22.590-190	End mill Ø 1.90 mm	0.002
22.590-A	Plate	0.036
22.590-C	*(2)* Side screw	0.001

Double ended wheel countersinks.

ASSORTMENT

MSA	Kg
22.560	0.030

Assortment of 4 hardened steel double ended wheel countersinks.
Wheels diameter : 1.80-2.10 / 2.50-3.00 / 3.50-4.00 / 4.50-5.00 mm.
Delivered in a plastic pouch.

Spare parts :

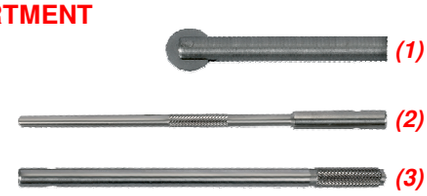
MSA	Item	Kg
22.560-01	Double ended wheel countersink, Ø 1.80-2.10 mm	0.005
22.560-02	Double ended wheel countersink, Ø 2.50-3.00 mm	0.005
22.560-03	Double ended wheel countersink, Ø 3.50-4.00 mm	0.005
22.560-04	Double ended wheel countersink, Ø 4.50-5.00 mm	0.005

Wheel countersinks.

MSA	Size	Kg
22.559	125 x 81 x 50 mm	0.265

Assortment of 14 wheel countersinks specially conceived to release the mouldings (collets, screw openings, etc.), mounted on a conical handle.
Delivered in a wooden box with :
- 2 tool holders MSA22.564-030 and MSA22.564-047 (for use by hand or on a press)
- 14 wheel countersinks (2 of each diameter)

ASSORTMENT



Spare parts :

MSA		Item	Kg
22.562-150	*(1)*	HM wheel countersinks Ø 1.50 mm, length 25 mm	0.001
22.562-200		HM wheel countersinks Ø 2.00 mm, length 25 mm	0.001
22.562-250		HM wheel countersinks Ø 2.50 mm, length 25 mm	0.001
22.562-300		HM wheel countersinks Ø 3.00 mm, length 25 mm	0.001
22.562-350		HM wheel countersinks Ø 3.50 mm, length 25 mm	0.001
22.562-400		HM wheel countersinks Ø 4.00 mm, length 25 mm	0.001
22.562-450		HM wheel countersinks Ø 4.50 mm, length 25 mm	0.001
22.564-030	*(2)*	Tools holder Ø 3.00 mm, length 100 mmm Manual use	0.008
22.564-047	*(3)*	Tools holder Ø 4.70 mm, length 90 mmm Use on a press	0.012

ASSORTMENT

(1)

(2)

(3)

(4)

MSA	Size	Kg
22.565	125 x 81 x 50 mm	0.290

Assortment of 14 wheel countersinks containing :
- 7 hard metal wheel countersinks, specially conceived to release the mouldings (collets, screw openings, etc.), mounted on a conical handle
- 7 ruby wheel countersinks for polishing mouldings, mounted on a conical handle. It can be used with or without lubricants. Using the ruby wheel countersinks guarantees a smothering surface than ever.

Both countersinks must be used successively (1st : tungsten carbide / 2nd : ruby) to obtain a perfect polish.

Delivered in a wooden box with 2 tool holders MSA22.564-030 and MSA22.564-047 (for use by hand or on a press).

Spare parts :

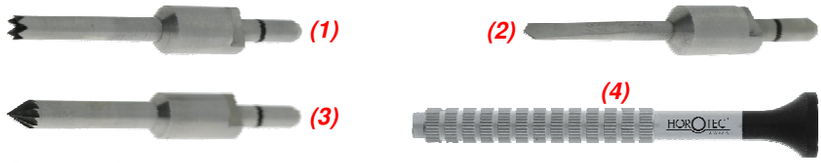
MSA		Item	Kg
22.562-150	*(1)*	HM wheel countersinks Ø 1.50 mm, length 25 mm	0.001
22.562-200		HM wheel countersinks Ø 2.00 mm, length 25 mm	0.001
22.562-250		HM wheel countersinks Ø 2.50 mm, length 25 mm	0.001
22.562-300		HM wheel countersinks Ø 3.00 mm, length 25 mm	0.001
22.562-350		HM wheel countersinks Ø 3.50 mm, length 25 mm	0.001
22.562-400		HM wheel countersinks Ø 4.00 mm, length 25 mm	0.001
22.562-450		HM wheel countersinks Ø 4.50 mm, length 25 mm	0.001
22.563-150	*(2)*	Ruby wheel countersinks Ø 1.50 mm, length 25 mm	0.001
22.563-200		Ruby wheel countersinks Ø 2.00 mm, length 25 mm	0.001
22.563-250		Ruby wheel countersinks Ø 2.50 mm, length 25 mm	0.001
22.563-300		Ruby wheel countersinks Ø 3.00 mm, length 25 mm	0.001
22.563-350		Ruby wheel countersinks Ø 3.50 mm, length 25 mm	0.001
22.563-400		Ruby wheel countersinks Ø 4.00 mm, length 25 mm	0.001
22.563-450		Ruby wheel countersinks Ø 4.50 mm, length 25 mm	0.001
22.564-030	*(3)*	Tools holder Ø 3.00 mm, length 100 mmm Manual use	0.008
22.564-047	*(4)*	Tools holder Ø 4.70 mm, length 90 mmm Use on a press	0.012

End mills for removing burrs and bevelling.

ASSORTMENT

MSA	Size	Kg
22.577	130 x 105 x 25 mm	0.123

Assortment of 12 hard metal end mills for removing burrs and bevelling.
Delivered with an aluminium handle in a plastic box.



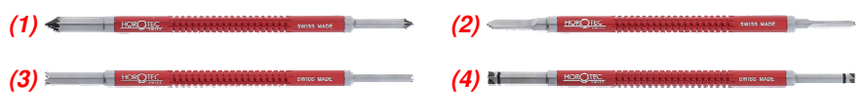
Spare parts :

MSA		Item	Kg
22.577-11		End mill for deburring screws ends, Ø 0.90 mm	0.002
22.577-12		End mill for deburring screws ends, Ø 1.30 mm	0.002
22.577-05	*(1)*	End mill for deburring screws ends, Ø 2.50 mm	0.002
22.577-07		End mill for deburring screws ends (4 teeth), Ø 3 mm	0.002
22.577-06		End mill for deburring screws ends, Ø 4 mm	0.003
22.577-08		End mill for deburring screws ends (4 teeth), Ø 4 mm	0.003
-		-	-
22.577-09		End mill for beveling, Ø 1.00 mm	0.001
22.577-10	*(2)*	End mill for beveling, Ø 2.00 mm	0.001
22.577-03		End mill for beveling, Ø 3.00 mm	0.002
22.577-04		End mill for beveling, Ø 4.00 mm	0.002
-		-	-
22.577-01	*(3)*	Conical end mill, Ø 3.00 mm	0.002
22.577-02		Conical end mill, Ø 4.50 mm	0.003
-		-	-
22.577-A	*(4)*	Handle	0.011

ASSORTMENT

MSA	Size	Kg
22.578	122 x 70 x 30 mm	0.126

Assortment of 6 hard metal double end mills for removing burrs and bevelling (Hardness Rochwell 62-64).
Delivered with an aluminium anodised red handle in a wooden box.



Spare parts :

MSA		Item	Kg
22.578-01	*(1)*	Conical double end mill, Ø 3.00-4.50 mm	0.007
22.578-02	*(2)*	Double end mill for bevelling, Ø 3.00-4.00 mm	0.006
22.578-05		Double end mill for bevelling, Ø 1.00-2.00 mm	0.002
22.578-03	*(3)*	Double end mill for deburring screws ends, Ø 2.50-4.00 mm	0.006
22.578-06		Double end mill for deburring screws ends, Ø 0.90-1.30 mm	0.002
22.578-04	*(4)*	End mill for deburring with 4 teeth, Ø 3.00-4.00 mm	0.007

Cone shape hard metal reamers.

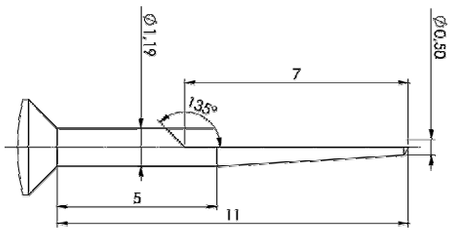
ASSORTMENT

MSA	Size	Kg
22.567	125 x 81 x 50 mm	0.250

Assortment of 12 cone shaped hard metal reamers for the drilling finishing (example : hand hole).
Suggested use with a press.
Delivered in a wooden box.

** Items in the assortment MSA22.567*

Ø 2.35 mm



(MSA22.567-119)

Spare reamers :

MSA	Item	Kg
22.567-053	Reamer no. 53, Ø 0.53 x L 25 mm	0.001
22.567-054	Reamer no. 54, Ø 0.54 x L 25 mm	0.001
22.567-055	Reamer no. 55, Ø 0.55 x L 25 mm	0.001
22.567-069 *	Reamer no. 69, Ø 0.69 x L 25 mm	0.001
22.567-079 *	Reamer no. 79, Ø 0.79 x L 25 mm	0.001
22.567-089 *	Reamer no. 89, Ø 0.89 x L 25 mm	0.001
22.567-099 *	Reamer no. 99, Ø 0.99 x L 25 mm	0.001
22.567-109 *	Reamer no. 109, Ø 1.09 x L 25 mm	0.001
22.567-119 *	Reamer no. 119, Ø 1.19 x L 25 mm	0.001
22.567-129 *	Reamer no. 129, Ø 1.29 x L 25 mm	0.001
22.567-139 *	Reamer no. 139, Ø 1.39 x L 25 mm	0.001
22.567-149 *	Reamer no. 149, Ø 1.49 x L 25 mm	0.001
22.567-159 *	Reamer no. 159, Ø 1.59 x L 25 mm	0.001
22.567-169 *	Reamer no. 169, Ø 1.69 x L 25 mm	0.001
22.567-179 *	Reamer no. 179, Ø 1.79 x L 25 mm	0.001

Spare tool holder :

MSA	Item	Kg
22.568 *	Pivot, Ø 4.70 x L90 mm	0.011

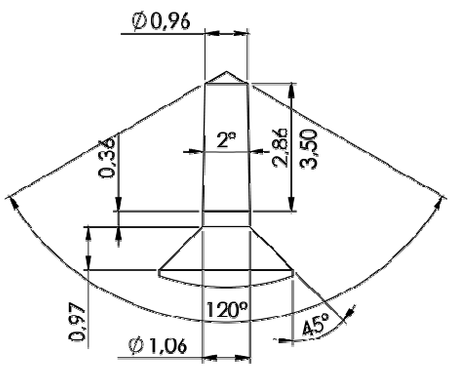
MSA	Size	Kg
22.571	145 x 75 x 40 mm	0.250

Assortment of 12 cone shaped hard metal reamers for the drilling finishing (example : hand hole).
Suggested use with a press.
Delivered in a wooden box.

** Items in the assortment MSA22.571*

ASSORTMENT

Ø 2.35 mm



(MSA22.571-096/106)

Spare reamers :

MSA	Item	Kg
22.571-032/042	Reamer Ø 0.32...0.42 x L19.50 mm	0.001
22.571-040/050	Reamer Ø 0.40...0.50 x L19.50 mm	0.001
22.571-048/058	Reamer Ø 0.48...0.58 x L19.50 mm	0.001
22.571-056/066	Reamer Ø 0.56...0.66 x L19.50 mm	0.001
22.571-064/074	Reamer Ø 0.64...0.74 x L19.50 mm	0.001
22.571-072/082	Reamer Ø 0.72...0.82 x L19.50 mm	0.001
22.571-080/090	Reamer Ø 0.80...0.90 x L19.50 mm	0.001
22.571-088/098	Reamer Ø 0.88...0.98 x L19.50 mm	0.001
22.571-096/106	Reamer Ø 0.96...1.06 x L19.50 mm	0.001
22.571-104/114	Reamer Ø 1.04...1.14 x L19.50 mm	0.001
22.571-112/122	Reamer Ø 1.12...1.22 x L19.50 mm	0.001
22.571-120/130	Reamer Ø 1.20...1.30 x L19.50 mm	0.001

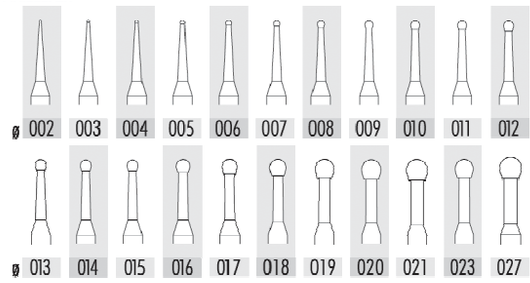
Spare tool holder :

MSA	Item	Kg
22.568	Pivot, Ø 4.70 x L90 mm	0.011

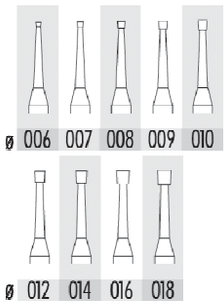
Tungsten carbide burs, shank Ø 2.35 mm.

Order example : MSA22.400-xxxx
(Extensions 3 digits = Ø head mm

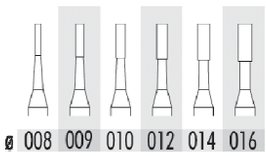
MSA22.400-008 = Ø head 0.80 mm
MSA22.400-027 = Ø head 2.70 mm



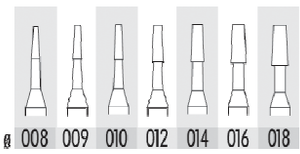
MSA	Type	Shape	Ø head	Kg
22.400-002	123	Round	0.20 mm	0.001
...	...		...	...
22.400-027	123	Round	2.70 mm	0.001



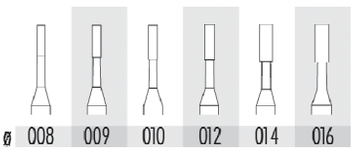
MSA	Type	Shape	Ø head	Kg
22.401-006	124	Inverted cone	0.60 mm	0.001
...	...		...	...
22.401-018	124	Inverted cone	1.80 mm	0.001



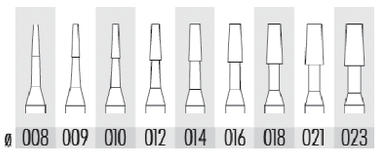
MSA	Type	Shape	Ø head	Kg
22.404-008	129	Cylindrical	0.80 mm	0.001
...	...		...	...
22.404-016	129	Cylindrical	1.60 mm	0.001



MSA	Type	Shape	Ø head	Kg
22.405-008	130	Cone	0.80 mm	0.001
...	...		...	...
22.405-018	130	Cone	1.80 mm	0.001



MSA	Type	Shape	Ø head	Kg
22.407-008	137	Cylindrical	0.80 mm	0.001
...	...		...	...
22.407-016	137	Cylindrical	1.60 mm	0.001



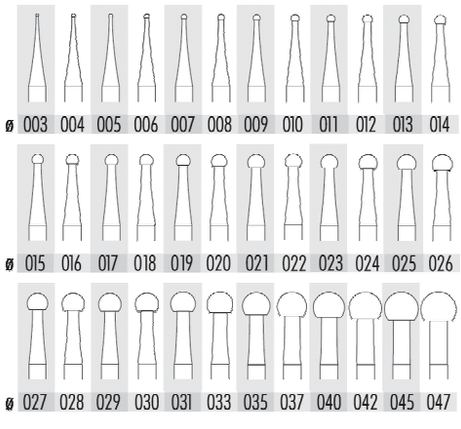
MSA	Type	Shape	Ø head	Kg
22.408-008	138	Cone	0.80 mm	0.001
...	...		...	...
22.408-023	138	Cone	2.30 mm	0.001

MSA	Type	Length	Ø head	Kg
22.450	Standard	12.20 mm	6 mm	0.002
22.450-F	Fine	12.20 mm	6 mm	0.002

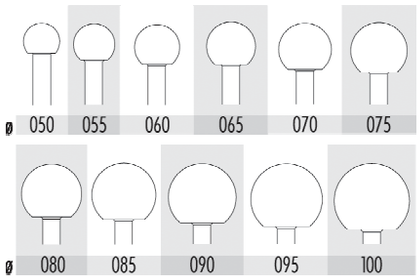
Tool steel burs, shank Ø 2.35 mm.

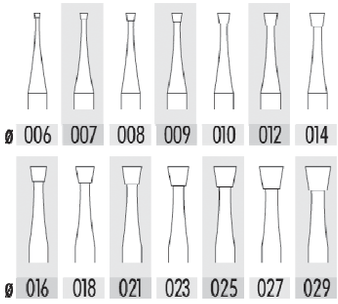
Order example : MSA22.300-xxxx
(Extensions 3 digits = Ø head mm)

MSA22.300-003 = Ø head 0.30 mm
MSA22.400-047 = Ø head 4.70 mm

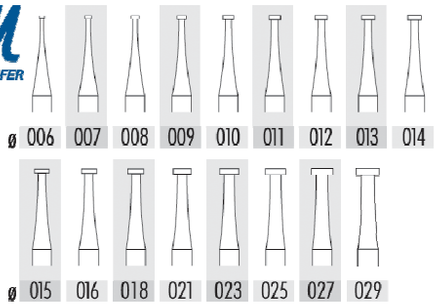


MSA	Type	Shape	Ø head	Kg
22.300-003	23	Round	0.30 mm	0.001
...	...		...	...
22.300-100	23	Round	10.00 mm	0.001

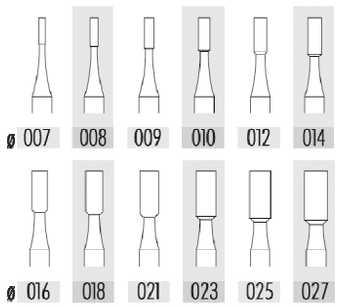




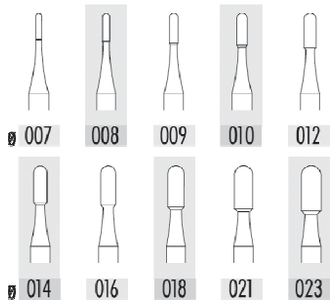
MSA	Type	Shape	Ø head	Kg
22.301-006	24	Inverted cone	0.60 mm	0.001
...	...		...	...
22.301-029	24	Inverted cone	2.90 mm	0.001



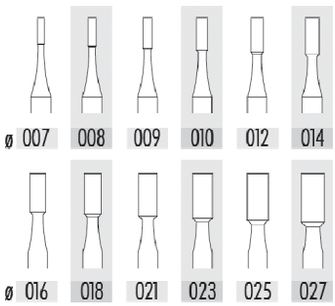
MSA	Type	Shape	Ø head	Kg
22.302-006	25	Wheel	0.60 mm	0.001
...	...		...	...
22.302-029	25	Wheel	2.90 mm	0.001



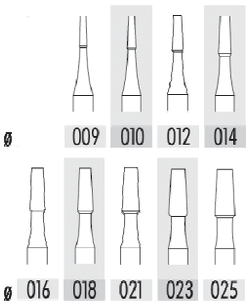
MSA	Type	Shape	Ø head	Kg
22.303-007	26	Cylindrical	0.70 mm	0.001
...	...		...	...
22.303-027	26	Cylindrical	2.70 mm	0.001



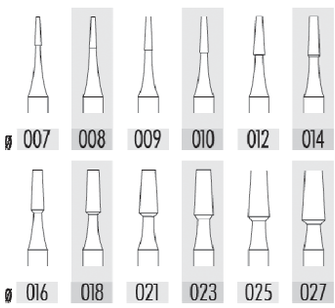
MSA	Type	Shape	Ø head	Kg
22.304-007	28	Cylindrical	0.70 mm	0.001
...	...		...	...
22.304-023	28	Cylindrical	2.30 mm	0.001



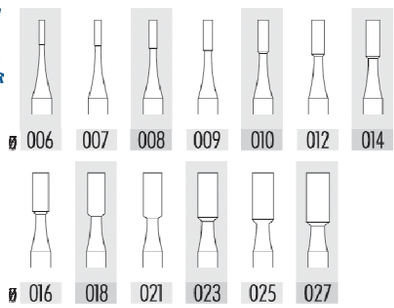
MSA	Type	Shape	Ø head	Kg
22.312-007	29	Cylindrical	0.70 mm	0.001
...	...		...	...
22.312-027	29	Cylindrical	2.70 mm	0.001



MSA	Type	Shape	Ø head	Kg
22.305-009	30	Cone	0.90 mm	0.001
...	...		...	...
22.305-025	30	Cone	2.50 mm	0.001



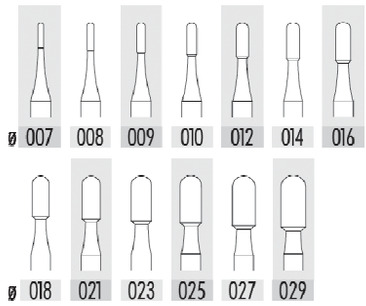
MSA	Type	Shape	Ø head	Kg
22.313-007	31	Cone	0.70 mm	0.001
...	...		...	...
22.313-027	31	Cone	2.70 mm	0.001



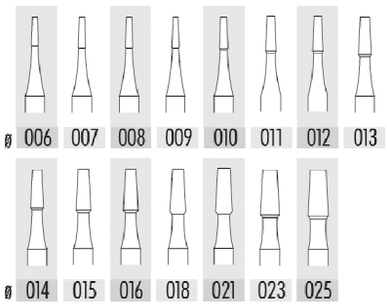
MSA	Type	Shape	Ø head	Kg
22.306-006	34	Cylindrical	0.60 mm	0.001
...	...		...	...
22.306-027	34	Cylindrical	2.70 mm	0.001

Order example : MSA22.308-xxxx
(Extensions 3 digits = Ø head mm)

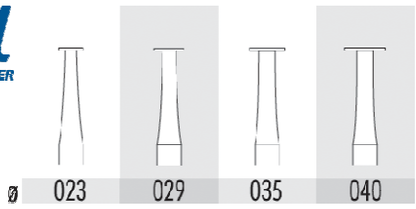
MSA22.308-007 = Ø head 0.70 mm
MSA22.308-029 = Ø head 2.90 mm



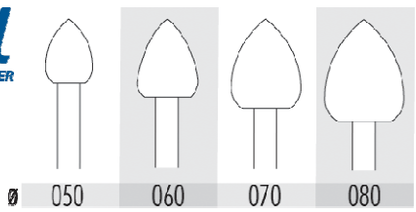
MSA	Type	Shape	Ø head	Kg
22.308-007	36	Cylindrical	0.70 mm	0.001
...	...		...	...
22.308-029	36	Cylindrical	2.90 mm	0.001



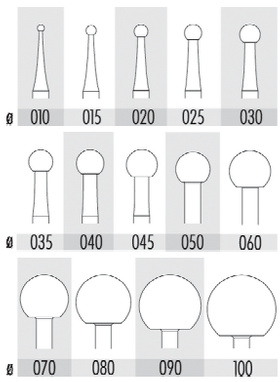
MSA	Type	Shape	Ø head	Kg
22.309-006	38	Cone	0.60 mm	0.001
...	...		...	...
22.309-025	38	Cone	2.50 mm	0.001



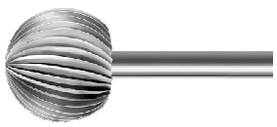
MSA	Type	Shape	Ø head	Kg
22.311-023	45	Wheel	2.30 mm	0.001
...	...		...	...
22.311-040	45	Wheel	4.00 mm	0.001

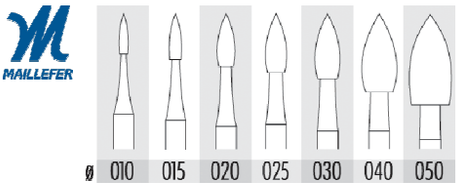


MSA	Type	Shape	Ø head	Kg
22.211-050	83	Bud	5.00 mm	0.001
...	...		...	...
22.211-080	83	Bud	8.00 mm	0.001

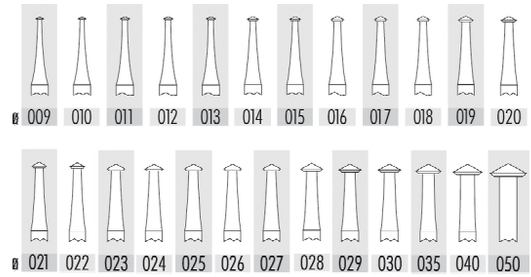


MSA	Type	Shape	Ø head	Kg
22.100-010	A	Fine round	1.00 mm	0.001
...	...		...	...
22.100-100	A	Fine round	10.00 mm	0.001



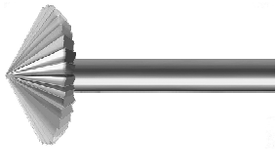


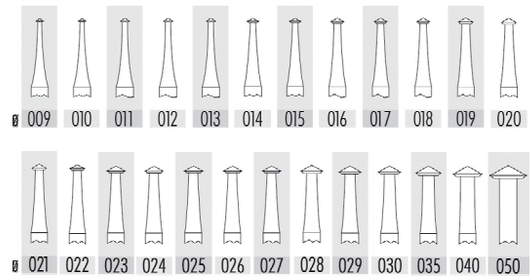
MSA	Type	Shape	Ø head	Kg
22.102-010	G	Fine flame	1.00 mm	0.001
...	...		...	...
22.102-050	G	Fine flame	5.00 mm	0.001



MSA	Type	Shape	Ø head	Kg
22.103-009	H	Double cone 120°	0.90 mm	0.001
...	...		...	...
22.103-050	H	Double cone 120°	5.00 mm	0.001

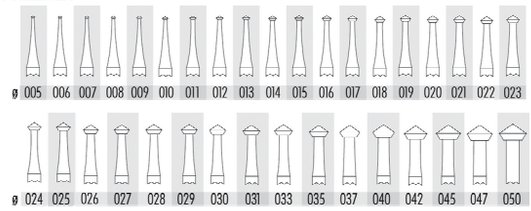
∡ 120°





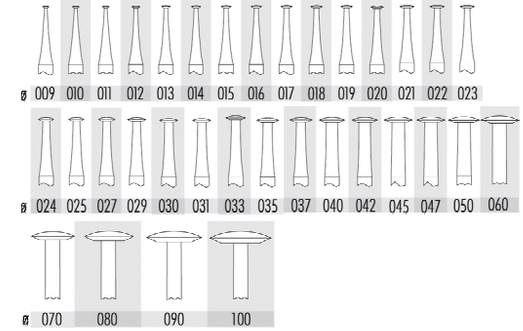
MSA	Type	Shape	Ø head	Kg
22.121-005	HB	Double cone 70°	0.50 mm	0.001
...	...		...	...
22.121-037	HB	Double cone 70°	3.70 mm	0.001

∡ 70°



MSA	Type	Shape	Ø head	Kg
22.104-005	HD	Double cone 90°	0.50 mm	0.001
...	...		...	...
22.104-050	HD	Double cone 90°	5.00 mm	0.001

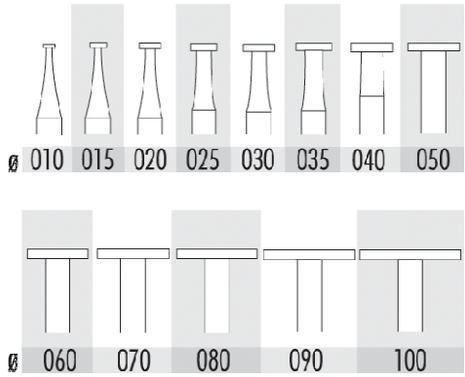
∡ 90°



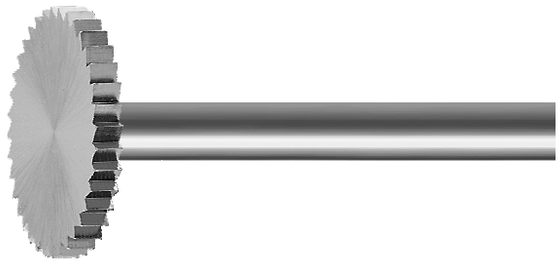
MSA	Type	Shape	Ø head	Kg
22.105-009	HH	Lens	0.90 mm	0.001
...	...		...	...
22.105-100	HH	Lens	10.00 mm	0.001

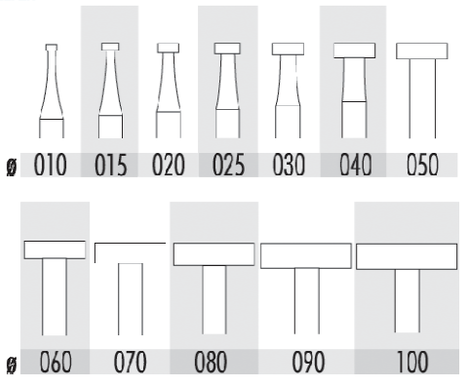
Order example : MSA22.107-xxxx
(Extensions 3 digits = Ø head mm)

MSA22.107-010 = Ø head 0.10 mm
MSA22.107-100 = Ø head 10.00 mm

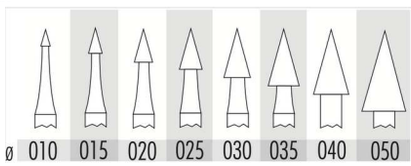


MSA	Type	Shape	Ø head	Kg
22.107-010	K	Wheel	1.00 mm	0.001
...	...		...	...
22.107-100	K	Wheel	10.00 mm	0.001



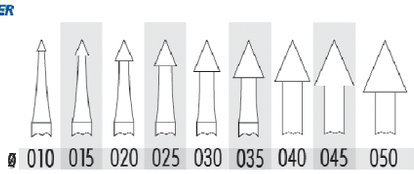


MSA	Type	Shape	Ø head	Kg
22.110-010	KK	Wheel	1.00 mm	0.001
...	...		...	...
22.110-100	KK	Wheel	10.00 mm	0.001



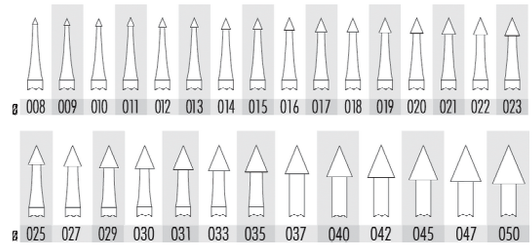
MSA	Type	Shape	Ø head	Kg
22.112-010	N	Cone 30°	1.00 mm	0.001
...	...		...	...
22.112-050	N	Cone 30°	5.00 mm	0.001

∡ 30°



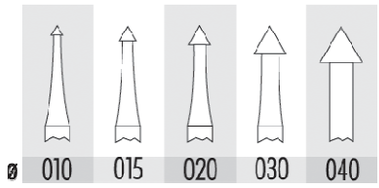
MSA	Type	Shape	Ø head	Kg
22.113-010	NN (fine)	Cone 45°	1.00 mm	0.001
...			...	...
22.113-050	NN (fine)	Cone 45°	5.00 mm	0.001

∡ 45°



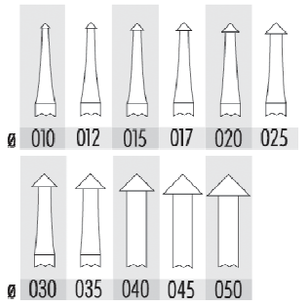
MSA	Type	Shape	Ø head	Kg
22.123-008	NN (coarse)	Cone 45°	0.80 mm	0.001
...			...	...
22.123-050	NN (coarse)	Cone 45°	5.00 mm	0.001

∡ 45°



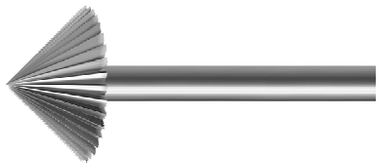
MSA	Type	Shape	Ø head	Kg
22.114-010	O	Cone 60°	1.00 mm	0.001
...	...		...	...
22.114-040	O	Cone 60°	4.00 mm	0.001

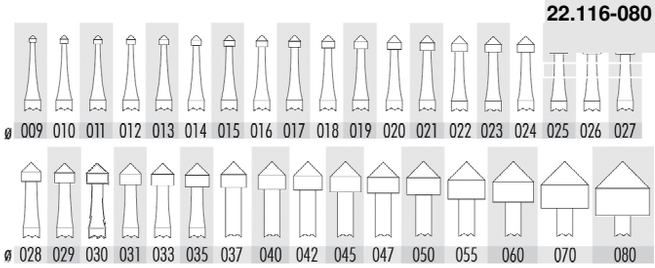
∡ 60°



MSA	Type	Shape	Ø head	Kg
22.115-010	P	Cone 90°	1.00 mm	0.001
...	...		...	...
22.115-050	P	Cone 90°	5.00 mm	0.001

∡ 90°

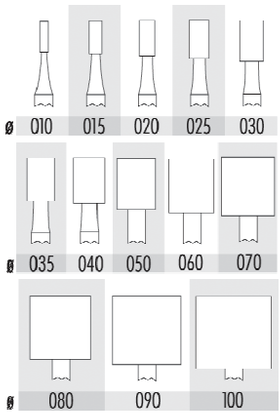




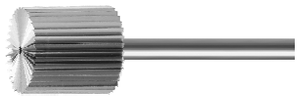
MSA	Type	Shape	Ø head	Kg
22.116-009	Q	Cylindrical sharpened	0.90 mm	0.001
...	...		...	...
22.116-080	Q	Cylindrical sharpened	8.00 mm	0.001

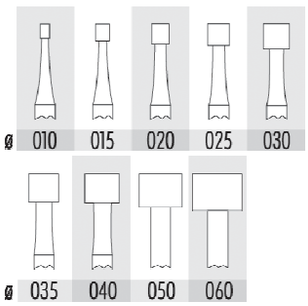
Order example : MSA22.117-xxxx
(Extensions 3 digits = Ø head mm)

MSA22.117-010 = Ø head 0.10 mm
MSA22.117-100 = Ø head 10.00 mm



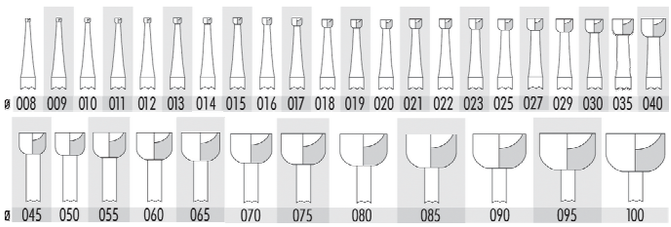
MSA	Type	Shape	Ø head	Kg
22.117-010	R	Cylindrical	1.00 mm	0.001
...	...		...	...
22.117-100	R	Cylindrical	10.00 mm	0.001

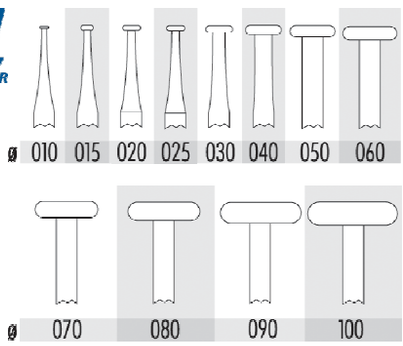




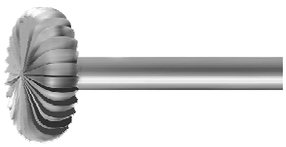
MSA	Type	Shape	Ø head	Kg
22.122-010	RR	Cylindrical	1.00 mm	0.001
...	...		...	0.001
22.122-060	RR	Cylindrical	6.00 mm	0.001

MSA	Type	Shape	Ø head	Kg
22.119-008	S	Cup	0.80 mm	0.001
...	...		...	...
22.119-100	S	Cup	10.00 mm	0.001





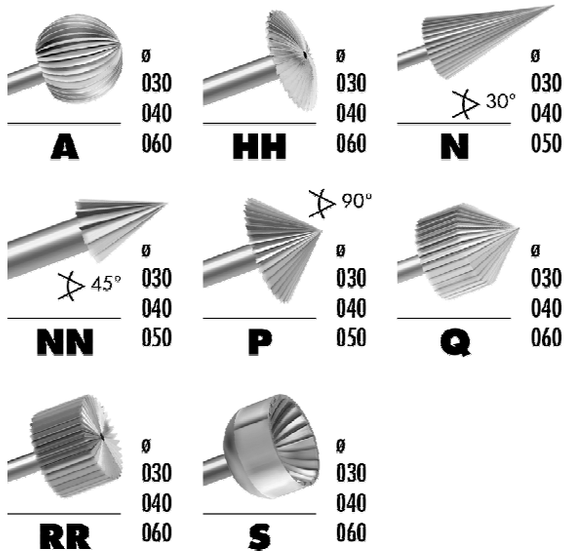
MSA	Type	Shape	Ø head	Kg
22.118-010	Y	Beveled wheel	1.00 mm	0.001
...	...		...	0.001
22.118-100	Y	Beveled wheel	10.00 mm	0.001



Assortments of 24 tool steel burs, delivered in a plastic box.

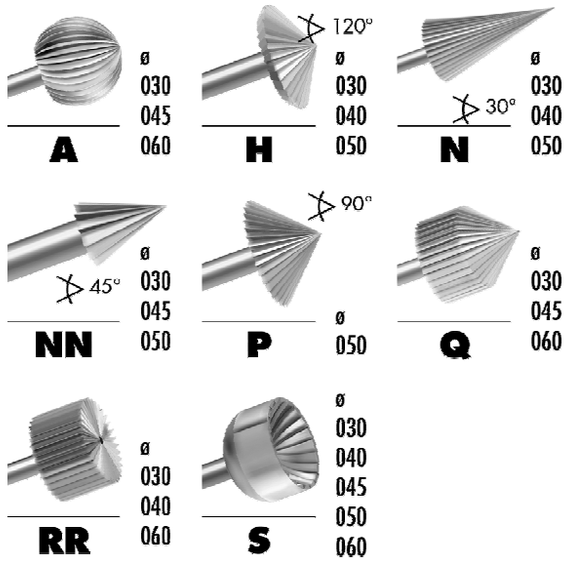
MSA	Type	Ø shank	Kg
22.500	1235	2.35 mm	0.090

ASSORTMENT



MSA	Type	Ø shank	Kg
22.510	3235	2.35 mm	0.090

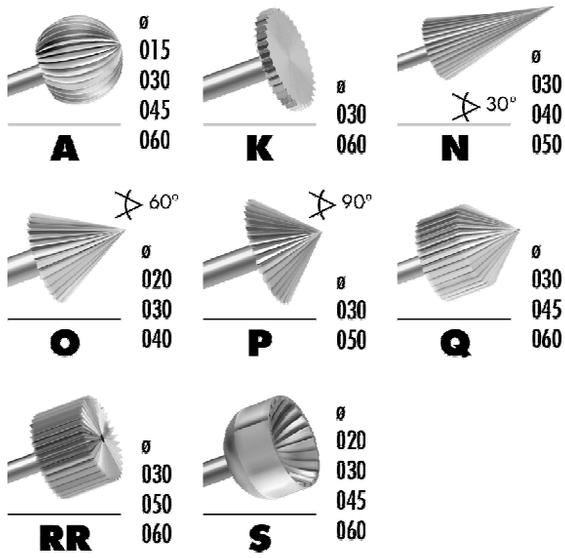
ASSORTMENT



MAILLEFER

ASSORTMENT

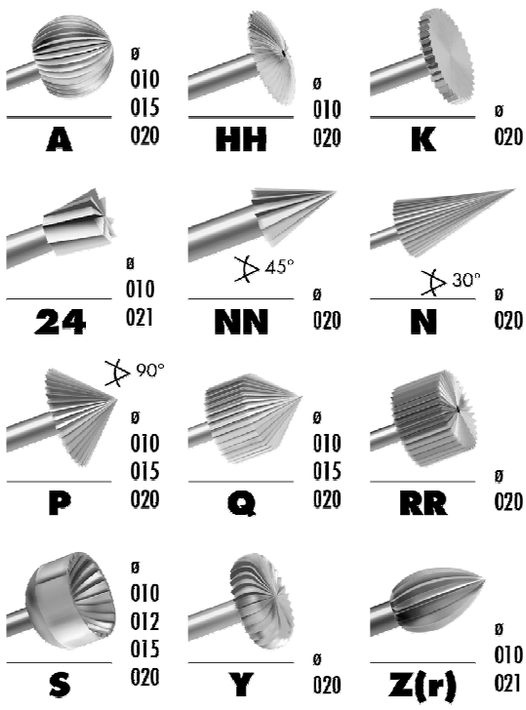
MSA	Type	Ø shank	Kg
22.515	4235	2.35 mm	0.090



MAILLEFER

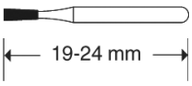
ASSORTMENT

MSA	Type	Ø shank	Kg
22.520	8235	2.35 mm	0.090



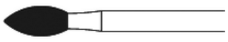
Order example : MSA22.723-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

MSA22.723-016A = Ø 1.60 mm + grain super coarse
MSA22.723-023G = Ø 2.30 mm + grain ultra coarse



Ø 1.60 mm

G	A	B	C	D	E	F
Ultra coarse	Super coarse	Coarse	Standard	Fine	Extra fine	Ultra fine



T. 368

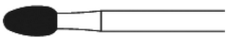
MSA		Ø head 1.6 mm	Ø head 2.1 mm	Ø head 2.3 mm
22.723		-	-	-023G
22.723		-016A	-021A	-023A
22.723		-016B	-021B	-023B
22.723		-016C	-021C	-023C
22.723		-016D	-021D	-023D
22.723		-016E	-021E	-023E
22.723	W	-016F	-021F	-023F
-		-	-	-
L mm		3.50	5.00	5.00

T. A368

MSA		Ø head 2.3 mm
22.739		-023B
22.739		-023C
22.739		-023D
22.739		-023E
-		-
L mm		5.00

T. A369

MSA		Ø head 2.3 mm
22.734		-023A
22.734		-023B
22.734		-023C
22.734		-023D
22.734		-023E
-		-
L mm		5.70

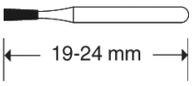


T. 379

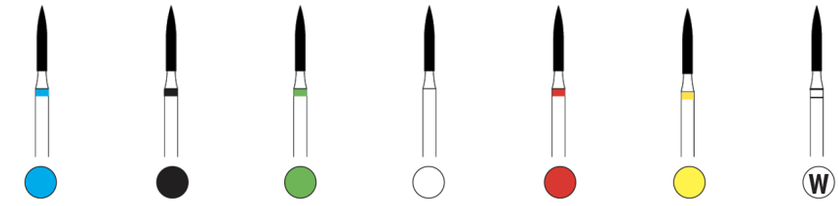
MSA		Ø head 1.4 mm	Ø head 1.8 mm	Ø head 2.3 mm
22.722		-	-	-023G
22.722		-014A	-018A	-023A
22.722		-014B	-018B	-023B
22.722		-014C	-018C	-023C
22.722		-014D	-018D	-023D
22.722		-014E	-018E	-023E
22.722	W	-014F	-018F	-023F
-		-	-	-
L mm		3.00	3.50	4.50

Order example : MSA22.735-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

MSA22.735-016C = Ø 1.60 mm + grain standard
MSA22.735-016E = Ø 1.60 mm + grain extra fine



Ø 1.60 mm



G	A	B	C	D	E	F
Ultra coarse	Super coarse	Coarse	Standard	Fine	Extra fine	Ultra fine

T. 392

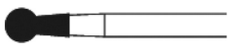
MSA		Ø head 1.6 mm
22.735	○	-016C
22.735	●	-016D
22.735	●	-016E
-		-
L mm	↔	5.00

T. 801

MSA		Ø head 0.8 mm	Ø head 0.9 mm	Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm	Ø head 2.1 mm	Ø head 2.3 mm	Ø head 2.7 mm	Ø head 2.9 mm	Ø head 3.5 mm
22.701	●	-	-	-	-	-	-016G	-018G	-	-023G	-	-	-
22.701	●	-	-	-010A	-012A	-014A	-016A	-018A	-021A	-023A	-027A	-029A	-035A
22.701	●	-008B	-009B	-010B	-012B	-014B	-016B	-018B	-021B	-023B	-027B	-029B	-035B
22.701	○	-008C	-009C	-010C	-012C	-014C	-016C	-018C	-021C	-023C	-027C	-029C	-035C
22.701	●	-008D	-	-010D	-012D	-014D	-016D	-018D	-021D	-023D	-027D	-029D	-035D
22.701	●	-008E	-	-	-012E	-014E	-	-018E	-021E	-023E	-027E	-029E	-035E
22.701	Ⓦ	-008F	-	-	-	-014F	-	-018F	-	-023F	-	-029F	-035F

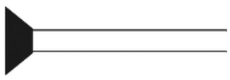
T. A801

MSA		Ø head 1.6 mm
22.732	●	-016B
22.732	○	-016C
22.732	●	-016D



T. 802

MSA		Ø head 0.9 mm	Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm	Ø head 2.1 mm	Ø head 2.3 mm
22.702	●	-	-	-	-	-	-018A	-	-
22.702	●	-009B	-010B	-012B	-014B	-016B	-018B	-	-023B
22.702	○	-009C	-010C	-012C	-014C	-016C	-018C	021C	-023C
22.702	●	-	-	-	-014D	-	-	-	-
22.702	●	-	-	-	-	-	-018E	-	-
-		-	-	-	-	-	-	-	-
L mm	↔	2.00	2.00	3.00	3.00	3.00	3.50	4.00	4.50

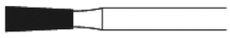


T. 805

MSA		Ø head 0.9 mm	Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm	Ø head 2.3 mm	Ø head 4.0 mm	Ø head 5.0 mm
22.703	●	-	-	-	-	-016A	-018A	-	-	-
22.703	●	-009B	-010B	-012B	-014B	-016B	-018B	-023B	-	-
22.703	○	-009C	-010C	-012C	-014C	-016C	-018C	-023C	-040C	-050C
22.703	●	-	-010D	-012D	-014D	-016D	-	-	-	-
-		-	-	-	-	-	-	-	-	-
L mm	↔	1.00	1.00	1.50	1.50	1.50	1.50	2.00	1.50	2.00

T. 806

MSA		Ø head 0.9 mm	Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm	Ø head 2.3 mm
22.704	●	-	-	-	-014A	-	-	-
22.704	●	-	-010B	-012B	-014B	-016B	-018B	-
22.704	○	-009C	-010C	-012C	-014C	-016C	-018C	-023C
-		-	-	-	-	-	-	-
L mm	↔	2.00	2.00	3.00	3.00	3.00	3.00	3.50

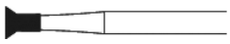


T. 807

MSA		Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.6 mm	Ø head 1.8 mm
22.705	●	-	-012A	-	-
22.705	●	-010B	-012B	-016B	-018B
22.705	○	-010C	-012C	-016C	-018C
-		-	-	-	-
L mm	↔	3.00	3.50	4.00	5.00

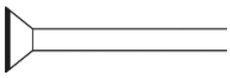
T. 808

MSA		Ø head 1.8 mm	Ø head 2.3 mm
22.708	○	-018C	-023C
-		-	-
L mm	↔	0.70	0.80



T. 809

MSA		Ø head 1.8 mm	Ø head 2.3 mm
22.709	○	-018C	-023C
-		-	-
L mm	↔	2.00	2.50



T. 810

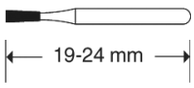
MSA		Ø head 4.0 mm	Ø head 5.0 mm
22.710	○	-040C	-050C
-		-	-
L mm	↔	0.20	0.20

T. 811

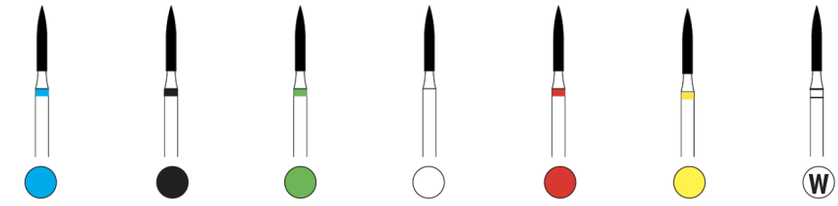
MSA		Ø head 3.1 mm	Ø head 4.0 mm
22.714	●	-031A	-
22.714	●	-031B	-040B
22.714	○	-031C	-040C
-		-	-
L mm	↔	4.00	6.00

Order example : MSA22.711-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

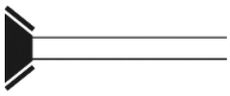
MSA22.711-040C = Ø 4.00 mm + grain standard



Ø 1.60 mm



G	A	B	C	D	E	F
Ultra coarse	Super coarse	Coarse	Standard	Fine	Extra fine	Ultra fine

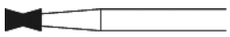


T. 812

MSA		Ø head 4.0 mm	Ø head 5.0 mm
22.711	○	-040C	-050C
-		-	-
L mm	↔	1.50	2.00

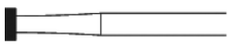
T. 813

MSA		Ø head 1.0 mm	Ø head 1.4 mm	Ø head 1.6 mm
22.712	●	-	-014A	-016A
22.712	●	-	-014B	-016B
22.712	○	-010C	-014C	-016C
22.712	●	-	-014D	-016D
-		-	-	-
L mm	↔	1.50	1.60	1.90



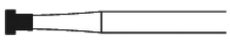
T. 813L

MSA		Ø head 1.4 mm	Ø head 1.6 mm
22.713	●	-014A	-016A
22.713	●	-014B	-016B
22.713	○	-014C	-016C
22.713	●	-014D	-016D
-		-	-
L mm	↔	3.00	3.00



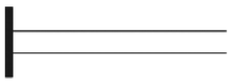
T. 815

MSA		Ø head 1.2 mm	Ø head 1.6 mm	Ø head 1.8 mm	Ø head 2.3 mm
22.715	●	-012B	-016B	-	-
22.715	○	-012C	-016C	-018C	-023C
-		-	-	-	-
L mm	↔	0.50	0.70	0.70	0.80



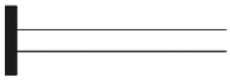
T. 816

MSA		Ø head 1.2 mm	Ø head 1.6 mm	Ø head 1.8 mm
22.716	○	-012C	-016C	-018C
-		-	-	-
L mm	↔	1.50	1.80	2.00



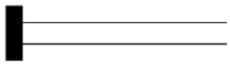
T. 817

MSA		Ø head 3.3 mm	Ø head 4.0 mm	Ø head 5.0 mm
22.737	●	-033B	-040B	-050B
22.737	○	-033C	-040C	-050C
-		-	-	-
L mm	↔	0.70	0.70	0.70



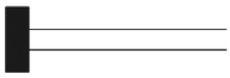
T. 818

MSA		Ø head 3.3 mm	Ø head 4.0 mm	Ø head 5.0 mm
22.717	●	-	-040B	-050B
22.717	○	-033C	-040C	-050C
-		-	-	-
L mm	↔	1.00	1.00	1.00



T. 819

MSA		Ø head 4.0 mm
22.738	○	-040C
-		-
L mm	↔	1.30

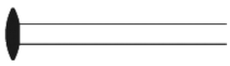


T. 820

MSA		Ø head 4.0 mm	Ø head 5.0 mm
22.718	○	-040C	-050C
-		-	-
L mm	↔	2.00	2.00

T. 822

MSA		Ø head 0.8 mm
22.733	●	-008B
22.733	○	-008C
22.733	●	-008D
22.733	●	-008E
-		-
L mm	↔	2.00



T. 825

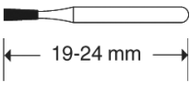
MSA		Ø head 1.8 mm	Ø head 2.5 mm	Ø head 4.0 mm
22.720	●	-	-	-040B
22.720	○	-018C	-025C	-040C
-		-	-	-
L mm	↔	0.80	0.90	1.10

T. 826

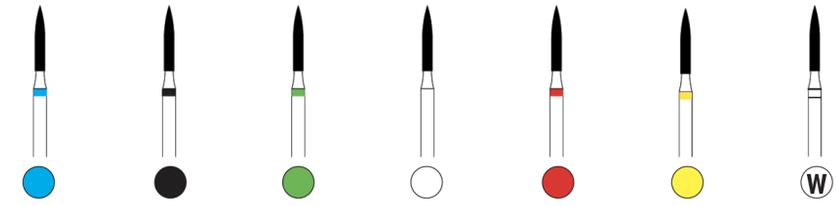
MSA		Ø head 1.8 mm
22.721	○	-018C
-		-
L mm	↔	3.00

Order example : MSA22.706-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

MSA22.706-012G = Ø 1.20 mm + grain ultra coarse
MSA22.706-016E = Ø 1.60 mm + grain extra fine



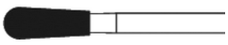
Ø 1.60 mm



G	A	B	C	D	E	F
Ultra coarse	Super coarse	Coarse	Standard	Fine	Extra fine	Ultra fine

T. 830

MSA		Ø head 0.9 mm	Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm
22.706		-	-	-012G	-014G	-
22.706		-	-	-012A	-014A	-016A
22.706		-	-010B	-012B	-014B	-016B
22.706		-009C	-010C	-012C	-014C	-016C
22.706		-	-010D	-012D	-014D	-016D
22.706		-	-010E	-012E	-014E	-016E
-		-	-	-	-	-
L mm		3.00	3.00	3.00	3.00	3.00



T. 830L

MSA		Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm	Ø head 2.5 mm
22.707		-	-012G	-014G	-	-	-025G
22.707		-	-012A	-014A	-016A	-018A	-
22.707		-	-012B	-014B	-016B	-018B	-025B
22.707		-010C	-012C	-014C	-016C	-018C	-025C
22.707		-	-012D	-014D	-016D	-018D	-025D
22.707		-	-012E	-014E	-016E	-	-
-		-	-	-	-	-	-
L mm		4.00	4.00	5.00	5.00	5.00	7.00

T. 832

MSA		Ø head 2.7 mm
22.736		-027C
22.736		-027D
22.736		-027E
-		-
L mm		2.70

T. 835

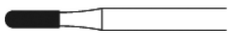
MSA		Ø head 0.8 mm	Ø head 0.9 mm	Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 2.7 mm
22.741		-	-009A	-010A	-012A	-014A	-016A	-
22.741		-008B	-009B	-010B	-012B	-014B	-016B	-
22.741		-008C	-009C	-010C	-012C	-014C	-016C	-027C
22.741		-	-	-010D	-012D	-014D	-016D	-
22.741		-	-	-010E	-	-	-	-
-		-	-	-	-	-	-	-
L mm		3.00	3.00	4.00	4.00	4.00	4.00	5.00

T. 836

MSA		Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.8 mm	Ø head 2.7 mm
22.742		-	-012G	-014G	-	-027G
22.742		-010A	-012A	-014A	-	-
22.742		-010B	-012B	-014B	-018B	-
22.742		-010C	-012C	-014C	-018C	-027C
22.742		-010D	-012D	-014D	-018D	-027D
-		-	-	-	-	-
L mm		6.00	6.00	6.00	6.00	7.00

T. 837

MSA		Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm
22.743		-	-	-014G	-016G	-
22.743		-010A	-012A	-014A	-016A	-
22.743		-010B	-012B	-014B	-016B	-018B
22.743		-010C	-012C	-014C	-016C	-018C
22.743		-010D	-012D	-014D	-016D	-018D
-		-	-	-	-	-
L mm		7.00	8.00	8.00	8.00	8.00

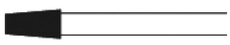


T. 838

MSA		Ø head 0.8 mm	Ø head 0.9 mm	Ø head 1.0 mm	Ø head 1.2 mm
22.745		-	-	-	-012G
22.745		-	-	-010A	-012A
22.745		-	-	-010B	-012B
22.745		-008C	-009C	-010C	-012C
22.745		-	-	-010D	-012D
-		-	-	-	-
L mm		3.00	3.00	4.00	4.00

T. 842

MSA		Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm
22.744		-	-014G	-016G	-018G
22.744		-012B	-014B	-016B	-018B
22.744		-012C	-014C	-016C	-018C
22.744		-012D	-014D	-016D	-
-		-	-	-	-
L mm		10.00	10.00	10.00	10.00

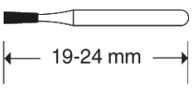


T. 845

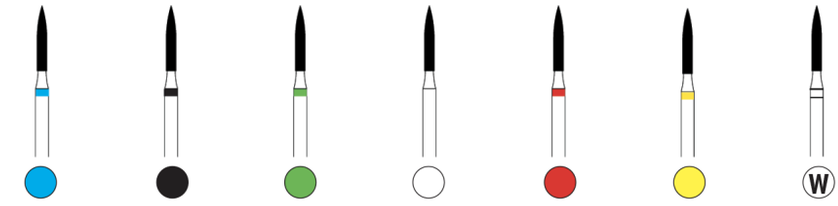
MSA		Ø head 0.9 mm	Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm	Ø head 2.1 mm
22.756		-	-	-012A	-014A	-	-	-
22.756		-	-010B	-012B	-014B	-016B	-	-
22.756		-009C	-010C	-012C	-014C	-016C	-018C	-021C
22.756		-	-	-012D	-	-	-	-
		-	-	-	-	-	-	-
L mm		3.00	4.00	4.00	4.00	4.00	4.00	4.00

Order example : MSA22.757-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

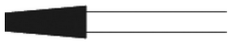
MSA22.757-012A = Ø 1.20 mm + grain super coarse
MSA22.757-018F = Ø 1.80 mm + grain ultra fine



Ø 1.60 mm



G	A	B	C	D	E	F
Ultra coarse	Super coarse	Coarse	Standard	Fine	Extra fine	Ultra fine



T. 846

MSA		Ø head 1.2 mm	Ø head 1.6 mm	Ø head 1.8 mm	Ø head 2.5 mm
22.757		-012A	-016A	-018A	-
22.757		-012B	-016B	-018B	-025B
22.757		-012C	-016C	-018C	-025C
22.757		-012D	-016D	-018D	-025D
22.757		-	-	-018E	-
22.757	W	-	-	-018F	-
-		-	-	-	-
L mm		6.00	6.00	6.00	7.00

T. 847

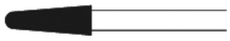
MSA		Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm	Ø head 2.1 mm
22.758		-012G	-	-016G	-018G	-
22.758		-012A	-014A	-016A	-018A	-021A
22.758		-012B	-014B	-016B	-018B	-021B
22.758		-012C	-014C	-016C	-018C	-021C
22.758		-012D	-014D	-016D	-018D	-021D
22.758		-	-	-016E	-	-
-		-	-	-	-	-
L mm		8.00	8.00	8.00	8.00	8.00

T. 848

MSA		Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm	Ø head 2.3 mm	Ø head 2.5 mm
22.759		-012G	-	-016G	-018G	-	-
22.759		-012A	-014A	-016A	-018A	-	-
22.759		-012B	-014B	-016B	-018B	-023B	025B
22.759		-012C	-014C	-016C	-018C	-023C	025C
22.759		-012D	-014D	-016D	-018D	-023D	025D
22.759		-	-	-016E	-	-023E	-
-		-	-	-	-	-	-
L mm		10.00	10.00	10.00	10.00	10.00	10.00

T. 849

MSA		Ø head 0.9 mm	Ø head 1.0 mm	Ø head 1.2 mm
22.760		-	-	-012G
22.760		-	-	-012A
22.760		-	-010B	-012B
22.760		-009C	-010C	-012C
22.760		-009D	-	-012D
22.760		-	-010E	-
-		-	-	-
L mm		4.00	4.00	4.00



T. 850

MSA		Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm	Ø head 2.3 mm
22.765		-012G	-014G	-016G	-018G	-023G
22.765		-012A	-014A	-016A	-018A	-023A
22.765		-012B	-014B	-016B	-018B	-023B
22.765		-012C	-014C	-016C	-018C	-023C
22.765		-012D	-014D	-016D	-018D	-023D
22.765		-012E	-	-016E	-	-023E
-		-	-	-	-	-
L mm		10.00	10.00	10.00	10.00	10.00

T. 852

MSA		Ø head 1.0 mm	Ø head 1.2 mm
22.766		-	-012A
22.766		-	-012B
22.766		-010C	-012C
22.766		-010D	-012D
22.766		-010E	-012E
22.766	W	-010F	-012F
-		-	-
L mm		4.00	6.00

T. 853

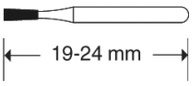
MSA		Ø head 0.8 mm
22.740		-008C
22.740		-008D
22.740		-008E
22.740	W	-008F
-		-
L mm		3.00

T. 855

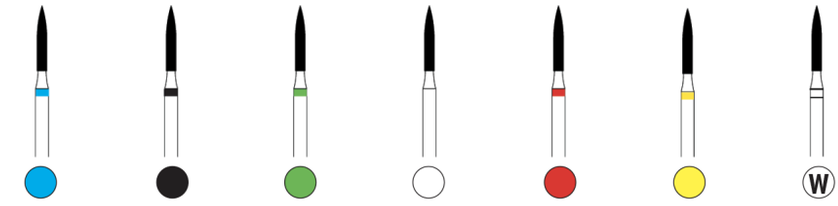
MSA		Ø head 1.2 mm	Ø head 1.4 mm
22.762		-	-014G
22.762		-012A	-014A
22.762		-012B	-014B
22.762		-012C	-014C
22.762		-012D	-014D
-		-	-
L mm		7.00	7.00

Order example : MSA22.761-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

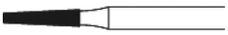
MSA22.761-012B = Ø 1.20 mm + grain coarse
MSA22.761-012D = Ø 1.20 mm + grain fine



Ø 1.60 mm



G	A	B	C	D	E	F
Ultra coarse	Super coarse	Coarse	Standard	Fine	Extra fine	Ultra fine



T. A855

MSA		Ø head 1.2 mm
22.761		-012B
22.761		-012C
22.761		-012D
-		-
L mm	↔	6.00

T. 856

MSA		Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm	Ø head 2.3 mm
22.700		-012G	-014G	-016G	-018G	-023G
22.700		-012A	-014A	-016A	-018A	-023A
22.700		-012B	-014B	-016B	-018B	-023B
22.700		-012C	-014C	-016C	-018C	-023C
22.700		-012D	-014D	-016D	-018D	-023D
22.700		-	-014E	-016E	-	-023E
-		-	-	-	-	-
L mm	↔	8.00	8.00	8.00	8.00	7.00

T. A856

MSA		Ø head 2.1 mm	Ø head 2.3 mm
22.764		-021G	-023G
22.764		-021A	-023A
22.764		-021B	-023B
22.764		-021C	-023C
22.764		-021D	-023D
22.764		-021E	-023E
-		-	-
L mm	↔	8.00	8.00

T. 856L

MSA		Ø head 2.3 mm
22.763		-023G
22.763		-023A
22.763		-023B
22.763		-023C
22.763		-023D
-		-
L mm	↔	8.00

T. 858

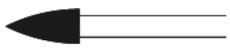
MSA		Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm
22.767	●	-	-014A	-	-
22.767	●	-012B	-014B	-016B	-018B
22.767	○	-012C	-014C	-016C	-018C
22.767	●	-012D	-014D	-016D	-
22.767	●	-012E	-014E	-016E	-
22.767	W	-	-014F	-	-
-		-	-	-	-
L mm	↔	8.00	8.00	8.00	8.00

T. 859

MSA		Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm
22.768	●	-010A	-012A	-014A	-016A	-018A
22.768	●	-010B	-012B	-014B	-016B	-018B
22.768	○	-010C	-012C	-014C	-016C	-018C
22.768	●	-010D	-012D	-014D	-016D	-018D
22.768	●	-010E	-012E	-014E	-016E	-018E
22.768	W	-	-012F	-	-016F	-018F
-		-	-	-	-	-
L mm	↔	10.00	10.00	10.00	10.00	10.00

T. 859L

MSA		Ø head 1.2 mm
22.769	○	-012C
-		-
L mm	↔	11.00



T. 860

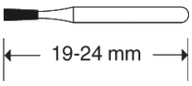
MSA		Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 2.5 mm
22.728	●	-010A	-012A	-014A	-025A
22.728	●	-010B	-012B	-014B	-025B
22.728	○	-010C	-012C	-014C	-025C
22.728	●	-010D	-012D	-014D	-025D
22.728	●	-010E	-012E	-014E	-025E
22.728	W	-010F	-	-	-025F
-		-	-	-	-
L mm	↔	4.00	5.00	5.00	6.00

T. 862

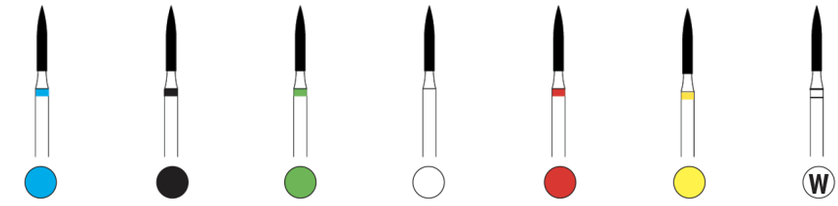
MSA		Ø head 0.9 mm	Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm
22.729	●	-	-	-012G	-014G	-
22.729	●	-	-010A	-012A	-014A	-016A
22.729	●	-	-010B	-012B	-014B	-016B
22.729	○	-009C	-010C	-012C	-014C	-016C
22.729	●	-009D	-010D	-012D	-014D	-016D
22.729	●	-	-010E	-012E	-014E	-
22.729	W	-	-010F	-012F	-014F	-
-		-	-	-	-	-
L mm	↔	8.00	8.00	8.00	8.00	8.00

Order example : MSA22.730-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

MSA22.730-014G = Ø 1.20 mm + grain ultra coarse
MSA22.730-018F = Ø 1.60 mm + grain ultra fine



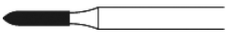
Ø 1.60 mm



G	A	B	C	D	E	F
Ultra coarse	Super coarse	Coarse	Standard	Fine	Extra fine	Ultra fine

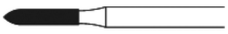
T. 863

MSA		Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm
22.730		-	-	-014G	-016G	-
22.730		-	-012A	-014A	-016A	-
22.730		-	-012B	-014B	-016B	-018B
22.730		-010C	-012C	-014C	-016C	-018C
22.730		-	-012D	-014D	-016D	-018D
22.730		-	-012E	-014E	-016E	-018E
22.730	W	-	-012F	-	-016F	-018F
-		-	-	-	-	-
L mm		10.00	10.00	10.00	10.00	10.00



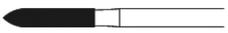
T. 876

MSA		Ø head 1.0 mm
22.752		-010B
22.752		-010C
22.752		-010D
22.752		-010E
-		-
L mm		5.00



T. 877

MSA		Ø head 0.9 mm	Ø head 1.0 mm	Ø head 1.2 mm
22.753		-	-010A	-012A
22.753		-	-010B	-012B
22.753		-009C	-010C	-012C
22.753		-	-010D	-012D
22.753		-	-010E	-
-		-	-	-
L mm		6.00	6.00	6.00

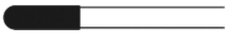


T. 878

MSA		Ø head 0.9 mm	Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm
22.754		-	-010G	-012G	-014G	-
22.754		-	-010A	-012A	-014A	-016A
22.754		-	-010B	-012B	-014B	-016B
22.754		-009C	-010C	-012C	-014C	-016C
22.754		-	-010D	-012D	-014D	-016D
22.754		-009E	-010E	-012E	-014E	-
-		-	-	-	-	-
L mm		8.00	8.00	8.00	8.00	8.00

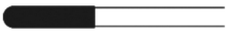
T. 879

MSA		Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm
22.755		-	-012G	-	-
22.755		-010A	-012A	-014A	-016A
22.755		-010B	-012B	-014B	-016B
22.755		-010C	-012C	-014C	-016C
22.755		-010D	-012D	-014D	-016D
22.755		-010E	-012E	-014E	--
-		-	-	-	-
L mm		10.00	10.00	10.00	10.00



T. 880

MSA		Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm
22.746		-012G	-	-	-
22.746		-012A	-014A	-016A	-018A
22.746		-012B	-014B	-016B	-018B
22.746		-012C	-014C	-016C	-018C
22.746		-012D	-014D	-016D	-
22.746		-	-014E	-	-
-		-	-	-	-
L mm		6.00	6.00	6.00	6.00



T. 881

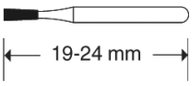
MSA		Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm	Ø head 1.8 mm
22.747		-	-	-014G	-	-018G
22.747		-010A	-012A	-014A	-016A	-018A
22.747		-010B	-012B	-014B	-016B	-018B
22.747		-010C	-012C	-014C	-016C	-018C
22.747		-010D	-012D	-014D	-016D	-018D
22.747		-	-012E	-014E	-016E	-018E
22.747	W	-	-012F	-	-	-
-		-	-	-	-	-
L mm		8.00	8.00	8.00	8.00	8.00

T. 882

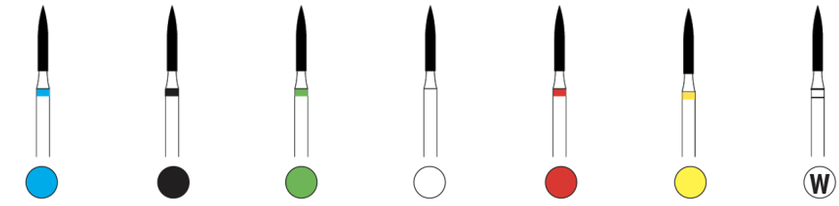
MSA		Ø head 1.2 mm	Ø head 1.4 mm
22.748		-012A	-014A
22.748		-012B	-014B
22.748		-012C	-014C
22.748		-012D	-014D
22.748		-012E	-014E
-		-	-
L mm		10.00	10.00

Order example : MSA22.726-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

MSA22.726-010B = Ø 1.00 mm + grain coarse
MSA22.726-010D = Ø 1.00 mm + grain fine



Ø 1.60 mm



G	A	B	C	D	E	F
Ultra coarse	Super coarse	Coarse	Standard	Fine	Extra fine	Ultra fine

T. 883

MSA		Ø head 1.0 mm
22.726		-010B
22.726		-010C
22.726		-010D
-		-
L mm		3.00

T. 884

MSA		Ø head 1.2 mm
22.749		-012A
22.749		-012B
22.749		-012C
22.749		-012D
22.749		-012E
-		-
L mm		6.00

T. 885

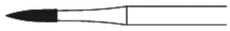
MSA		Ø head 1.0 mm	Ø head 1.2 mm	Ø head 1.4 mm
22.750		-	-012A	-014A
22.750		-	-012B	-014B
22.750		-010C	-012C	-014C
22.750		-	-012D	-014D
22.750		-	-012E	-014E
-		-	-	-
L mm		8.00	8.00	8.00

T. 886

MSA		Ø head 1.2 mm	Ø head 1.4 mm	Ø head 1.6 mm
22.751		-012A	-014A	-
22.751		-012B	-014B	-016B
22.751		-012C	-014C	-016C
22.751		-012D	-014D	-016D
22.751		-012E	-014E	-
-		-	-	-
L mm		10.00	10.00	10.00

T. 888

MSA		Ø head 1.2 mm
22.731	●	-012A
22.731	●	-012B
22.731	○	-012C
22.731	●	-012D
22.731	●	-012E
-		-
L mm	↔	8.00

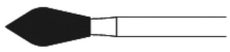


T. 889

MSA		Ø head 0.9 mm	Ø head 1.0 mm
22.727	●	-009B	-010B
22.727	○	-009C	-010C
22.727	●	-009D	-010D
22.727	●	-009E	-010E
22.727	Ⓦ	-009F	-010F
-		-	-
L mm	↔	3.50	4.50

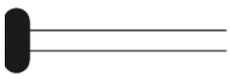
T. 890

MSA		Ø head 1.6 mm
22.724	●	-016B
22.724	○	-016C
22.724	●	-016D
22.724	●	-016E
22.724	Ⓦ	-016F
-		-
L mm	↔	4.00



T. 899

MSA		Ø head 2.1 mm	Ø head 2.7 mm	Ø head 3.1 mm
22.725	●	-021A	-027A	-031A
22.725	●	-021B	-027B	-031B
22.725	○	-021C	-027C	-031C
22.725	●	-021D	-027D	-031D
-		-	-	-
L mm	↔	6.50	7.00	7.00

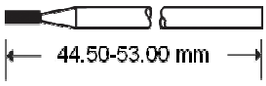


T. 909

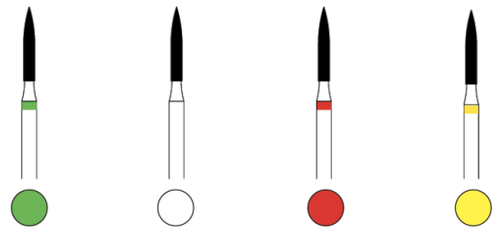
MSA		Ø head 3.3 mm	Ø head 4.0 mm	Ø head 5.0 mm
22.719	●	-	-040A	-
22.719	●	-033B	-040B	-
22.719	○	-033C	-040C	-050C
-		-	-	-
L mm	↔	1.00	1.70	2.20

Order example : MSA22.803-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

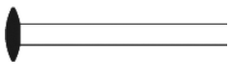
MSA22.803-018C = Ø 1.80 mm + grain standard
MSA22.803-040B = Ø 4.00 mm + grain coarse



Ø 2.35 mm



B Coarse | C Standard | D Fine | E Extra fin



T. 825

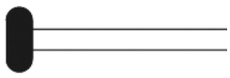
MSA		Ø head 1.8 mm	Ø head 2.5 mm	Ø head 4.0 mm
22.803	●	-	-	-040B
22.803	○	-018C	-025C	-040C
-		-	-	-
L mm	↔	0.80	0.90	1.10

T. 858

MSA		Ø head 1.2 mm	Ø head 1.6 mm
22.800	○	-012C	-016C
22.800	●	-012D	-016D
-		-	-
L mm	↔	8.00	8.00

T. 859

MSA		Ø head 1.4 mm
22.801	○	-014C
-		-
L mm	↔	10.00



T. 909

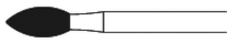
MSA		Ø head 3.3 mm	Ø head 4.0 mm	Ø head 5.0 mm
22.802	●	-	-040B	-
22.802	○	-033C	-040C	-050C
-		-	-	-
L mm	↔	1.00	1.70	2.20

166F

MSA		Ø head 1.4 mm
22.805	●	-F014

248F

MSA		Ø head 1.2 mm
22.806	●	-F012



272F

MSA		Ø head 1.6 mm
22,807	●	-F016

SPIREC HSS-E micro-drills, high speed steel.

Precise the Ø when placing your order.
Examples :
MSA22.630-0.05 for Ø 0.05 mm
MSA22.630-1.50 for Ø 1.50 mm
MSA22.630-2.00 for Ø 2.00 mm

MSA	Length	Ø shank	Ø	Progression	Kg
22.630-0.05	25 mm	**1.00 mm**	0.05 mm	0.01 mm	0.001
...	...	**...**	...	...	...
22.630-0.79	25 mm	**1.00 mm**	0.79 mm	0.01 mm	0.001
22.630-0.80	25 mm	**1.50 mm**	0.80 mm	0.01 mm	0.001
...	...	**...**	...	...	...
22.630-1.00	25 mm	**1.50 mm**	1.00 mm	0.01 mm	0.001
22.630-1.05	25 mm	**1.50 mm**	1.05 mm	0.05 mm	0.001
...	...	**...**	...	...	...
22.630-1.45	25 mm	**1.50 mm**	1.45 mm	0.05 mm	0.001
==========	==========	==========	==========	==========	=========
22.630-1.50	38 mm	**2.00 mm**	1.50 mm	-	0.001
22.630-1.55	38 mm	**2.00 mm**	1.55 mm	-	0.001
22.630-1.58	38 mm	**2.00 mm**	1.587 mm	-	0.001
22.630-1.60	38 mm	**2.00 mm**	1.60 mm	0.05 mm	0.001
...	...	**...**	...	...	...
22.630-1.95	38 mm	**2.00 mm**	1.95 mm	0.05 mm	0.001
22.630-1.98	38 mm	**2.00 mm**	1.984 mm	-	0.001
==========	==========	==========	==========	==========	=========
22.630-2.00	43 mm	**2.50 mm**	2.00 mm	0.05 mm	0.001
...	...	**...**	...	...	...
22.630-2.35	43 mm	**2.50 mm**	2.35 mm	0.05 mm	0.001
22.630-2.38	43 mm	**2.50 mm**	2.384 mm	-	0.001
22.630-2.40	43 mm	**2.50 mm**	2.40 mm	-	0.001
22.630-2.45	43 mm	**2.50 mm**	2.45 mm	-	0.001
==========	==========	==========	==========	==========	=========
22.630-2.50	46 mm	**3.00 mm**	2.50 mm	0.05 mm	0.001
...	...	**...**	...	...	...
22.630-2.75	46 mm	**3.00 mm**	2.75 mm	0.05 mm	0.001
22.630-2.77	46 mm	**3.00 mm**	2.778 mm	-	0.001
22.630-2.80	46 mm	**3.00 mm**	2.80 mm	0.05 mm	0.001
...	...	**...**	...	...	...
22.630-3.00	46 mm	**3.00 mm**	3.00 mm	0.05 mm	0.001
22.630-3.17	46 mm	**3.00 mm**	3.175 mm	-	0.001

TITEX HSS micro-drills, standard for universal use.

Precise the Ø when placing your order.
Examples :
MSA22.660-020 for Ø 0.20 mm
MSA22.660-205 for Ø 2.05 mm
MSA22.660-1000 for Ø 10.00 mm

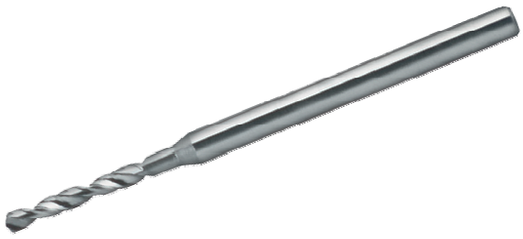
MSA	Ø	Progression	Kg
22.660-020	0.20 mm	0.01 mm	0.001
...	...	...	...
22.660-200	2.00 mm	0.01 mm	0.001
==========	==========	==========	=========
22.660-205	2.05 mm	0.05 mm	0.001
...	...	...	...
22.660-995	9.95 mm	0.05 mm	0.001
==========	==========	==========	=========
22.660-1000	10.00 mm	0.10 mm	0.001
...	...	...	...
22.660-1690	16.90 mm	0.10 mm	0.001

YAMAMOTO HSS micro-drills.

Precise the Ø when placing your order.
Examples :
MSA22.670-010 for Ø 0.10 mm
MSA22.670-076 for Ø 0.76 mm
MSA22.670-135 for Ø 1.35 mm

MSA	Ø shank	Ø	Progression	Kg
22.670-010	**1.00 mm**	0.10 mm	0.01 mm	0.001
...	**...**	...	...	...
22.670-075	**1.00 mm**	0.75 mm	0.01 mm	0.001
22.670-076	**1.50 mm**	0.76 mm	0.01 mm	0.001
...	**...**	...	...	...
22.670-125	**1.50 mm**	1.25 m	0.01 mm	0.001
22.670-130	**1.50 mm**	1.30 mm	-	0.001
22.670-135	**2.00 mm**	1.35 mm	0.05 mm	0.001
...	**...**	...	...	...
22.670-150	**2.00 mm**	1.50 mm	0.05 mm	0.001

SPIREC micro-drills in hardened steel.



Precise the Ø when placing your order.
Examples :
MSA22.640-0.05 for Ø 0.05 mm
MSA22.640-0.80 for Ø 0.80 mm
MSA22.640-1.51 for Ø 1.51 mm

MSA	Ø shank	Ø	Progression	Total length	Kg
22.640-0.05	**1.00 mm**	0.05 mm	0.01 mm	25 mm	0.001
...	**...**	...	...	...	...
22.640-0.79	**1.00 mm**	0.79 mm	0.01 mm	25 mm	0.001
22.640-0.80	**1.50 mm**	0.80 mm	0.01 mm	25 mm	0.001
...	**...**	...	...	...	...
22.640-1.50	**1.50 mm**	1.50 mm	0.01 mm	25 mm	0.001
22.640-1.51	**2.00 mm**	1.51 mm	0.01 mm	38 mm	0.001
...	**...**	...	...	...	...
22.640-2.00	**2.00 mm**	2.00 mm	0.01 mm	38 mm	0.001

Tempered tool steel drills 58PM type, shank Ø 2.35 mm.

MSA	Ø	Kg
22.610-005	**0.50 mm**	0.001
22.610-006	**0.60 mm**	0.001
22.610-007	**0.70 mm**	0.001
22.610-008	**0.80 mm**	0.001
22.610-009	**0.90 mm**	0.001
22.610-010	**1.00 mm**	0.001
22.610-011	**1.10 mm**	0.001
22.610-012	**1.20 mm**	0.001
22.610-013	**1.30 mm**	0.001
22.610-014	**1.40 mm**	0.001

MSA	Ø	Kg
22.610-015	**1.50 mm**	0.001
22.610-016	**1.60 mm**	0.001
22.610-017	**1.70 mm**	0.001
22.610-018	**1.80 mm**	0.001
22.610-019	**1.90 mm**	0.001
22.610-020	**2.00 mm**	0.001
22.610-021	**2.10 mm**	0.001
22.610-022	**2.20 mm**	0.001
22.610-023	**2.30 mm**	0.001

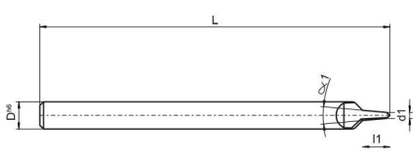
Tungsten carbide drills 58MD type, shank Ø 2.35 mm.

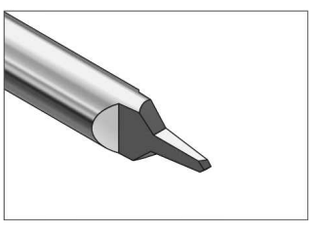
MSA	Ø	Kg	MSA	Ø	Kg
22.412-005	0.50 mm	0.001	22.412-015	1.50 mm	0.001
22.412-006	0.60 mm	0.001	22.412-016	1.60 mm	0.001
22.412-007	0.70 mm	0.001	22.412-017	1.70 mm	0.001
22.412-008	0.80 mm	0.001	22.412-018	1.80 mm	0.001
22.412-009	0.90 mm	0.001	22.412-019	1.90 mm	0.001
22.412-010	1.00 mm	0.001	22.412-020	2.00 mm	0.001
22.412-011	1.10 mm	0.001	22.412-021	2.10 mm	0.001
22.412-012	1.20 mm	0.001	22.412-022	2.20 mm	0.001
22.412-013	1.30 mm	0.001	22.412-023	2.30 mm	0.001
22.412-014	1.40 mm	0.001			

Diamond drills, shank Ø 2.35 mm.

MSA	Ø	Kg
22.650-080	0.80 mm	0.003
22.650-090	0.90 mm	0.003
22.650-100	1.00 mm	0.003
22.650-110	1.10 mm	0.003
22.650-130	1.30 mm	0.003
22.650-140	1.40 mm	0.003
22.650-150	1.50 mm	0.003

Hardened steel drills for poising of watch balances.





MSA	d1	Dh6	Angle	l1	L	Kg
22.572-017	0.17 mm	1.50 mm	16°	0.6 mm	21 mm	0.001
22.572-018	0.18 mm	1.50 mm	16°	0.6 mm	21 mm	0.001
22.572-019	0.19 mm	1.50 mm	16°	0.6 mm	21 mm	0.001
22.572-020	0.20 mm	1.50 mm	16°	0.6 mm	21 mm	0.001
22.572-021	0.21 mm	1.50 mm	16°	0.6 mm	21 mm	0.001
22.572-022	0.22 mm	1.50 mm	16°	0.6 mm	21 mm	0.001

NOTES