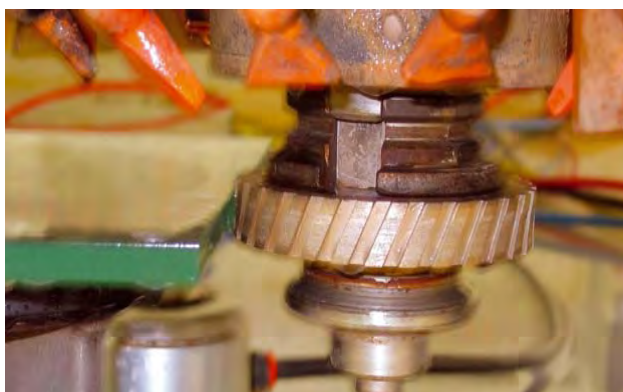


---

# *eledia*



## GLASS PROCESSING TOOL CATALOGUE

GLASS 1.9

***eledia***

Vicolo E. Caruso, 6  
70037 RUVO DI PUGLIA (BA) ITALY

Tel. +39 080 3601661  
Fax. +39 080 3602147

e-mail: [info@eledia.it](mailto:info@eledia.it)  
[http: www.eledia.it](http://www.eledia.it)

N 41° 06' 39,43" / E 16° 29' 54,30"

Skype ID: eledia

---

## Presentation

The company *eledia* turn their 15 years of activity in the area of diamond coated tools and work mainly in the mechanical processing domain. The catalogue hereby groups together a first range of tools concerning the glass processing. The experience gained in the market of the demanding area of mechanical processing, urged us to tune up a product which will find favour among this domain's operators. First quality raw materials, periodically checked are a full part of our production cycle. A skilled

staff engages to guarantee a quality level being up to the customer's expectations. Our main mission is not only to supply the customer with competitive tools but also with valid advices supporting the fundamental economic choices of the modern glass industry. The relationship and the dialogue with our customer are vital to us. The edition 1.9 groups together a first range of tools (others will follow shortly). This range has been tested and encoded by us, after having reached the

primary objectives, so that a quick and unambiguous identification of the tool can be done. A permanent labeling marks every piece. The fundamental data, the powers of the tool and the production lot (represented by four characters, for instance 8B21) are reported. This code identifies unambiguously, in our electronic archives, the operators, the raw materials and the numeric parameters contributing to the production of the tool.



Milling cutters	4
Segment peripheral wheels	6
Round edge wheels	8
Trapezium profile wheels	10
Polishing wheels	12
Cerium polishing wheels	13
Cerium polishing rings	14
Keyhole saws for glass	15
CNC keyhole saws	17
Keyhole saws with countersink	19
Truncated cone countersinks	21
90°, cone-shaped countersinks (complete cone)	23
Segment levelers	25
Trapezium profile milling cutters	26
Combined milling cutters	29
Writing drill and its attachment	30
Attachment with pliers ER	31
LGV shanked milling cutters	32
Set of wheels	33
Dressing abrasive stones	34

## Updates

1. Glass catalogue
2. New tools' family for flat edge and borders 1DD6Y
3. Dressing abrasive stones
4. Trapezium wheel Ø100 and round edge, polishers for CNC, keyhole saws and keyhole saws with countersink

## Glass segmented milling cutters.



During the design stage of **eledia's** milling cutters the main processing problems (every operator has to face daily) were highlighted:

- ✓ Cutting speed
- ✓ Cutting precision
- ✓ Cutting strain
- ✓ Laminated sheets cutting
- ✓ Cutting economy

As we are convinced of these points, we produced a tool which totally satisfies all the needs of the modern glass operator.

Eledia's milling cutters easily move forward in the sheet, lowering as far as possible the strain and the power consumption. Even small work pieces, with a few suction pads, are easily cut and do not move from their initial zero. The shape of the diamond segment, its layout, the coolant drilling are some of the elements carefully studied to make easier and as economic as possible the cutting of laminated sheets. Actually, avoiding a dangerous overheating, we avoid that plastic (PVB) melts causing irreparable damages to the work piece and to the tool. The very high quality bond and abrasive allows to obtain continuous and neat cuttings, without chips and micro-cracks. Here up there

are the constructive sketches of standard milling cutters. We are available to produce specific milling cutters, according the our customer's needs.

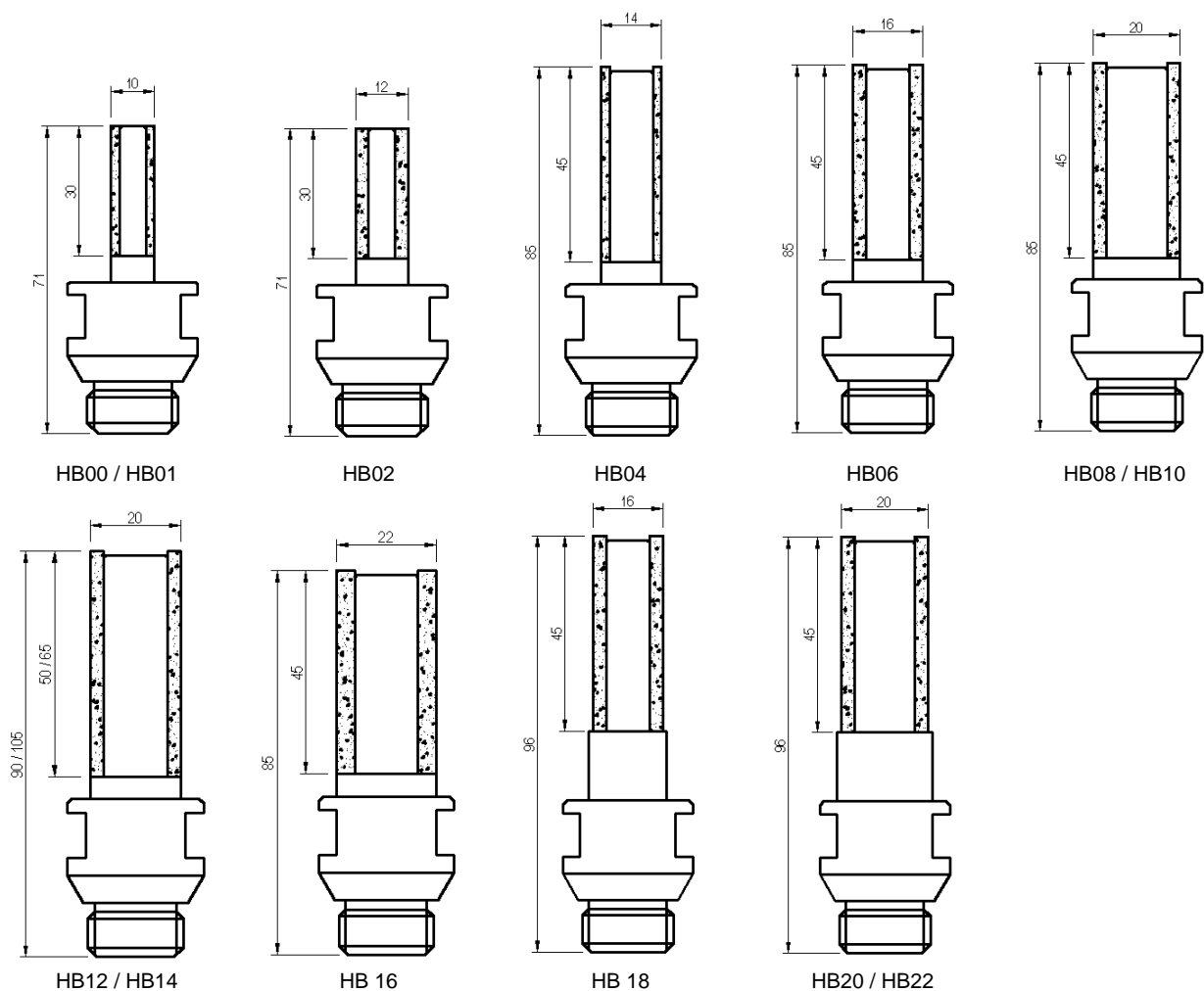
### Instructions for use

Avoid to vary the vertical movement of the spindle (axis Z) during the cutting course. Varying the height causes an early wear of the milling cutter and increases the risk of chipping the edge of the worked piece. It's advisable on the contrary that the milling cutter works always at the same height for the same glass' thickness. Like this, many tracks form on the milling cutter; they improve the cutting finish.

## Standard production list

Code	Ø	L	Z	X	H	Grit	Glass	Feed m/min	turns/min	Sheet
HB.00	10	30	3	2	71	coarse	3 - 19	0,3 - 0,5	9000	horizontal
HB.01	10	30	3	2	71	thin	3 - 19	0,15 - 0,2	9000	horizontal
HB.02	12	30	3	3	71	coarse	3 - 19	0,3 - 0,5	9000	horizontal
HB.04	14	45	4	2	85	coarse	3 - 19	0,3 - 0,5	9000	horizontal
HB.06	16	45	4	3	85	coarse	3 - 19	0,3 - 0,5	9000	horizontal
HB.08	20	45	4	3	85	coarse	12 - 19	0,3 - 0,7	9000	horizontal
HB.10	20	45	6	3	85	coarse	3 - 12	0,3 - 0,7	9000	horizontal
HB.12	20	50	4	3	90	coarse	12 - 19	0,3 - 0,7	9000	horizontal
HB.14	20	65	4	3	105	coarse	12 - 19	0,3 - 0,7	9000	horizontal
HB.16	22	45	6	4	85	coarse	12 - 19	0,3 - 0,7	9000	horizontal
HB.18	16	45	4	3	96	coarse	3 - 19	0,3 - 0,5	9000	vertical
HB.20	20	45	4	3	96	coarse	12 - 19	0,3 - 0,7	9000	vertical
HB.22	20	45	6	3	96	coarse	3 - 12	0,3 - 0,7	9000	vertical

## Standard constructive sketches



## Flat glass coarse stock removal wheels.



Generally after the cutting stage (with the milling cutters), you should proceed with the coarse stock removal. A high quality work, economically profitable, needs that this last stage meets the following features:

- ✓ Removal speed
- ✓ Best (possible) finish
- ✓ Cutting ability
- ✓ Reduction in superficial micro-cracks
- ✓ Reduction in risk of chipping
- ✓ Absence of overheating
- ✓ Reduction of removal work that the successive processing steps must carry out
- ✓ Processing economy

The design of segment wheels took into consideration the primary processing needs. Therefore we studied a tool which totally (and without any negative surprise) satisfies the needs of modern glass industry. The choice of raw materials, the scrupulous controls, together with the still more consolidated and refined processing method, succeed in satisfying totally and sometimes they surpass the fundamental processing parameters. The study of segments, the pace, the inclination, the kind of welding and of realization of the mechanic body are very important elements, which let us obtain valid and competitive products. Hereby the standard wheels, which provide for two kinds of diamond grits: the former to have the better finish possible and the latter to have a higher removal speed. If necessary and conforming strictly to our best quality standards, we produce wheels

according to our customer's needs. We also perform the restoration of the flat profile of our wheels.

## Standard production list

Glass	D151	D181	T	Ø	Removal mm	Feed m/min	turns/min
4	HD.00	HD.44	5	100			
5	HD.02	HD.46	6	100			
6	HD.04	HD.48	7	100			
8	HD.08	HD.52	9	100	2	2,5	5500
10	HD.12	HD.56	11	100	2	2	5500
12	HD.16	HD.60	13	100	2	2	5500
15	HD.22	HD.66	16	100	2	2	5500
16	HD.24	HD.68	17	100	2	2	5500
19	HD.30	HD.74	20	100	2	2	5500
20 - 21	HD.32	HD.76	22	100			
22 - 24	HD.34	HD.78	25	100			
25 - 27	HD.36	HD.80	28	100			
28 - 29	HD.38	HD.82	30	100			
30 - 34	HD.40	HD.84	35	100			
37	HD.41	HD.85	40	100			
48	HD.42	HD.86	50	100			

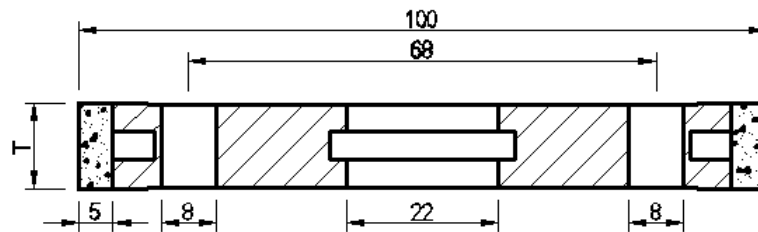
## Information notes

The information about parameters of removal, feed and numbers of turns of the wheel is purely approximate. The operator's experience and the

indications of the machine's maker are much more reliable. Also the wheel's thickness is approximate compared to the glass' thickness. If necessary or if

the customer needs it, we can use thicker wheels (compared to the glass' thickness). A water pressure between 2,5 bar and 5 bar is advisable.

## Standard constructive sketch



## Round edge finish and semi-finish wheels



Generally after the edge removal stage, you should proceed profiling. Hereby the standard production of round edge wheels. The geometrical quotas of the edge's shape are reported in the concerning list. As a rule, after the removal segment wheel D151/D181, you should change to the wheel in grit D107, successively to the wheel in grit

D64 and finally to the polisher. The double use of the continuous rim wheels is apparently disadvantageous from the economic point of view, but on the contrary we noticed an increase of tool-life of the finish wheel D64 and a better quality of the worked profile. The kind of diamond, the bond, the shape and the coolant drilling are elements carefully

studied to obtain the best quality as quick as possible. In the photo carved wheels are represented. Carvings are not necessary on the monolithic glass. On the contrary they facilitate the processing on the laminated sheets as they allow to drain away easily the PVB residues. Our standard production does not provide for cuttings.

### Standard production list

Glass	D107 continuous rim	D64 continuous rim	D107 with cuttings	D64 with cuttings	Ø
3	HL.AA	HL.AJ	HL.AS	HL.BB	100
4	HL.AB	HL.AK	HL.AT	HL.BC	100
5	HL.AC	HL.AL	HL.AU	HL.BD	100
6	HL.AD	HL.AM	HL.AV	HL.BE	100
8	HL.AE	HL.AN	HL.AW	HL.BF	100
10	HL.AF	HL.AO	HL.AX	HL.BG	100
12	HL.AG	HL.AP	HL.AY	HL.BH	100
15	HL.AH	HL.AQ	HL.AZ	HL.BI	100
19	HL.AI	HL.AR	HL.BA	HL.BJ	100



## Advised parameters

glass	D107 semi-finish			D64 finish		
	turns/min	Removal mm	Feed m/min	turns/min	Removal mm	Feed m/min
4	5500	1	7	5500	1	8,5
6	5500	1	5	5500	1	7
8	5500	1	4	5500	0,5	6
10	5500	1	3	5500	0,5	5
12	5500	1	2	5500	0,5	3,5
15	5500	1	1,5	5500	0,5	2,5
19	5500	1	1,3	5500	0,5	2

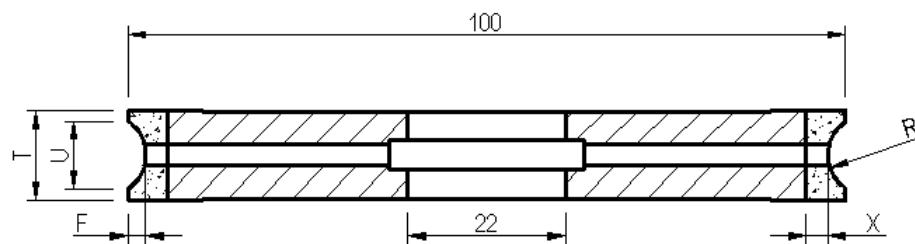
## Information notes

The information about parameters of removal, feed and numbers of turns of the wheel is purely approximate. The

operator's experience and the indications of the machine's maker are much more reliable. A water pressure

between 2,5 bar and 5 bar is advisable.

## Standard constructive sketch of the round edge wheel



## Standard quotas of the round edge groove

Glass	T	U	F	R	X
3	10	4,5	2	2,3	3
4	10,5	5,5	2	2,85	3
5	11,5	6,5	2	3,6	3
6	12,5	7,5	2,5	4,2	3
8	14,5	9,5	2,5	5,7	3
10	16,5	11,5	3	7	3
12	18,5	13,5	3	9,1	3
15	21,5	16,5	3,5	11,5	3
19	25,5	20,5	3,5	16,8	3

## Flat edge and borders wheels



A careful selection of raw materials (among those of first quality) has been made in order to produce the wheels hereby. The refining of processing and the careful control of production parameters, allowed us to produce a certain kind of wheels which grind thoroughly the glass, with constancy of

dimension and yield. In the photo wheels without carvings are represented; they are perfect to process the monolithic float. As an option we can produce carved wheels which better suit to process the laminated sheets with PVB. After the coarse stock removal with segment wheels, it is advisable to

change to a semi-finish in grit D107 and a finish in grit D64. This allows to raise the tool-life of wheels and to increase the quantity of linear metres of worked product. Moreover we obtain a gain of polisher wheels, as the worked surface is suitable for being polished, with a lower pressure.

## Standard production list

Glass	D107 semi-finish	D64 finish	D107 with cuttings	D64 with cuttings	Ø
3	HM.AA	HM.AJ	HM.AS	HM.BB	100
4	HM.AB	HM.AK	HM.AT	HM.BC	100
5	HM.AC	HM.AL	HM.AU	HM.BD	100
6	HM.AD	HM.AM	HM.AV	HM.BE	100
8	HM.AE	HM.AN	HM.AW	HM.BF	100
10	HM.AF	HM.AO	HM.AX	HM.BG	100
12	HM.AG	HM.AP	HM.AY	HM.BH	100
15	HM.AH	HM.AQ	HM.AZ	HM.BI	100
19	HM.AI	HM.AR	HM.BA	HM.BJ	100
37	HM.BK	HM.BL	HM.BM	HM.BN	100

## Advised parameters

glass	D107 semi-finish			D64 finish		
	turns/min	Removal mm	Feed m/min	turns/min	Removal mm	Feed m/min
4	5500	1	7	5500	1	8,5
6	5500	1	5	5500	1	7
8	5500	1	4	5500	0,5	6
10	5500	1	3	5500	0,5	5
12	5500	1	2	5500	0,5	3,5
15	5500	1	1,5	5500	0,5	2,5
19	5500	1	1,3	5500	0,5	2

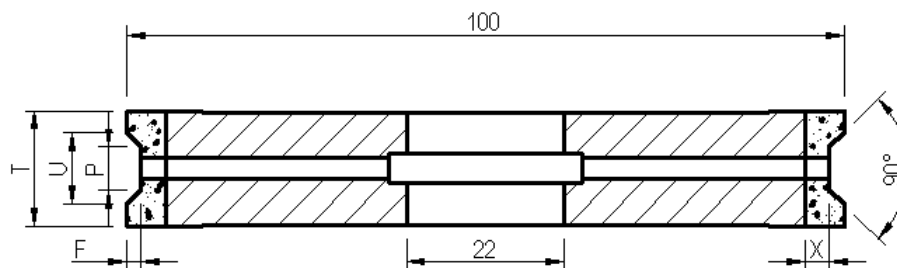
## Information notes

The information about parameters of removal, feed and numbers of turns of the wheel is purely approximate. The

operator's experience and the indications of the machine's maker are much more reliable. A water pressure

between 2,5 bar and 5 bar is advisable.

## Standard constructive sketch of the trapezium wheel



## Standard quotas of the trapezium groove

Glass	U	P	T	F	X
3	5	2	11	2	3
4	6	2,5	12	2	3
5	7	3,5	13	2	3
6	8	4	14	2	3
8	10	6	16	2	3
10	12	8	18	2	3
12	14	10	20	2	3
15	17	13	23	2	3
19	21	17	27	2	3
37	41	35	47	2	3

## Glass' border polishing wheels, raw Sienna colour



Semi-rigid bond wheel in synthetic resin, with the addition of selected abrasives and a percentage of cerium oxide to obtain a better finish and a very good brightness of the border. This

formulation has been purposely studied and directly tested in the glass industry in the definitive resolution of final polishing of glass worked on CNC machines.

### Machine's parameters

Feed: 2500 mm/min

Rotation speed: 3500 turns/min

## Measurements' list

code	Ø	T	H	bond
0146	100	15	22	AB4C
0148	100	20	22	AB4C
0352	100	25	22	AB4C
0651	100	50	22	AB4C
0159	150	20	25	AB4C

## CNC machines wheels



Rubber bond wheel with cerium oxide. The materials used in the formulation of polishing wheels have been chosen among those of excellent quality. The brightness obtained on the border of the glass is surely very good. Adducing as less water as possible during the

processing is advisable. The cerium wheels need to heat the worked glass in order to generate a superficial micro-fusion.

### Machine's parameters

Feed:  
glass < 8 mm - 2000 mm/min  
glass > 8 mm - 1500 mm/min

Rotation speed: 1000–1500 turns/min

## Measurements' list

code	Ø	T	H	bond
0637	100	20	22	CERIT

Cerium rubber bond rings to give a brilliant finish to the bevellings



Polishing rings have to be stuck on the special pans in aluminum the machine is normally equipped with. The product is obtained by means of an advanced and controlled technological process. Only first quality raw materials, carefully checked every time, are used to make the product. The cerium oxide carries

out its polishing action thanks to its high capacities of heat conductor. An increase in temperature, which creates a localized fusion of the glass, occurs on the surface of the worked piece; in this way the superficial roughness is leveled. It is advisable, in order to work in ideal conditions, to reduce the rate of

the coolant during the polishing stage.

### Machine's parameters

Feed: 1700 – 1800 mm/min

Rotation speed: 14000 turns/min.

## Measurements' list

code	Ø	X	H	W	bond
0153	150	30	90	30	CERIT
0155	150	30	106	22	CERIT

Height' drilling: 75 or 95mm

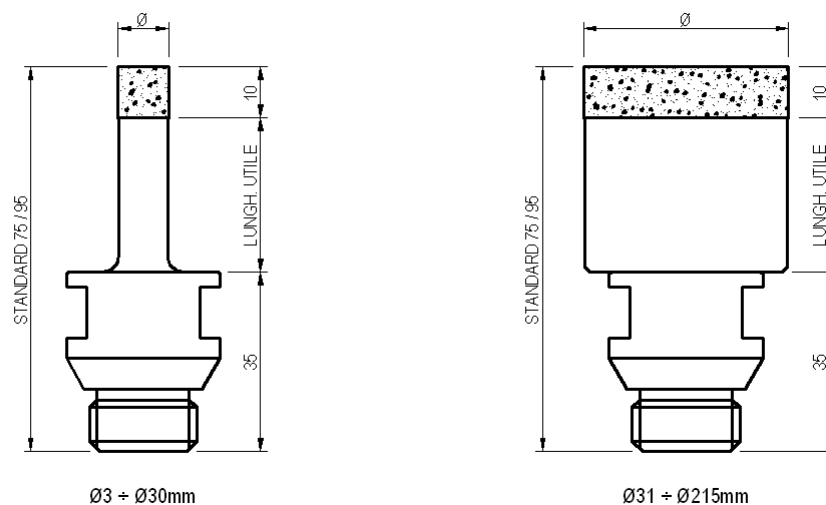


A large range of diameters is available to satisfy all the demands of the modern glass industry. After having tested all our tools on different kinds of glass and of machines and also in different operational conditions, we tuned up a product which satisfies the wide spectrum of drilling. The careful research (as far as the tool: crown's thickness, crown's height and study of the mechanical body); the bond, chosen

among the best raw materials; the diamond with the best features and finally the crown's pressing and the assembly on the keyhole saw's body, are stages carefully analyzed and classified and are subject to strict terms. These tools are highly performing and of high quality; they do not disappoint. They drill easily any kind of glass, from the monolithic to the laminated, from the artistic to the lighting glass. The range

includes two heights of standard keyhole saws 75mm and 95mm (see constructive sketch). The crown's thickness is always 1mm. The body of the keyhole saws is in nickeled iron (to avoid oxidation-rust). We recommend to use a suitable water flow. Low water pressures do not cool suitably and do not facilitate the removal of cutting waste indeed.

## Standard constructive sketch



## List of keyhole saws

code	Ø	code	Ø	code	Ø	code	Ø
HH.AA	3 - 4,99	HH.AS	39 - 40	HH.BL	75 - 76	HH.CD	126 - 130
HH.AB	5 - 6	HH.AT	41 - 42	HH.BM	77 - 78	HH.CE	131 - 135
HH.AC	7 - 8	HH.AU	43 - 44	HH.BN	79 - 80	HH.CF	136 - 140
HH.AD	9 - 10	HH.AV	45 - 46	HH.BO	81 - 82	HH.CG	141 - 145
HH.AE	11 - 12	HH.AW	47 - 48	HH.BP	83 - 84	HH.CH	146 - 150
HH.AF	13 - 14	HH.AX	49 - 50	HH.BQ	85 - 86	HH.CI	151 - 155
HH.AG	15 - 16	HH.AY	51 - 52	HH.BR	87 - 88	HH.CJ	156 - 160
HH.AH	17 - 18	HH.AZ	53 - 54	HH.BS	89 - 90	HH.CK	161 - 165
HH.AI	19 - 20	HH.BA	55 - 56	HH.BT	91 - 92	HH.CL	166 - 170
HH.AJ	21 - 22	HH.BC	57 - 58	HH.BU	93 - 94	HH.CM	171 - 175
HH.AK	23 - 24	HH.BD	59 - 60	HH.BV	95 - 96	HH.CN	176 - 180
HH.AL	25 - 26	HH.BE	61 - 62	HH.BW	97 - 98	HH.CO	181 - 185
HH.AM	27 - 28	HH.BF	63 - 64	HH.BX	99 - 100	HH.CP	186 - 190
HH.AN	29 - 30	HH.BG	65 - 66	HH.BY	101 - 105	HH.CQ	191 - 195
HH.AO	31 - 32	HH.BH	67 - 68	HH.BZ	106 - 110	HH.CR	196 - 200
HH.AP	33 - 34	HH.BI	69 - 70	HH.CA	111 - 115	HH.CS	201 - 205
HH.AQ	35 - 36	HH.BJ	71 - 72	HH.CB	116 - 120	HH.CT	206 - 210
HH.AR	37 - 38	HH.BK	73 - 74	HH.CC	121 - 125	HH.CU	211 - 215

## Advised work parameters

	numero di giri minimo	numero di giri max	avanzam. minimo	avanzam. massimo
Ø	giri/min	giri/min	mm/min	mm/min
5	3820	15280	77	535
10	1910	7640	39	268
15	1280	5100	26	179
20	960	3820	20	134
25	770	3060	16	108
30	640	2550	13	90
35	550	2190	11	77
40	480	1910	10	67
45	430	1700	9	60
50	390	1530	8	54

	numero di giri minimo	numero di giri max	avanzam. minimo	avanzam. massimo
Ø	giri/min	giri/min	mm/min	mm/min
55	350	1390	7	49
60	320	1280	7	45
65	300	1180	6	42
70	280	1100	6	39
75	260	1020	6	36
80	240	960	5	34
85	230	900	5	32
90	220	850	5	30
95	210	810	5	29
100	200	770	4	27

## Information notes about use

In the table a gap between approximate minimum and maximum quotas (as far as the parameters of number of turns and of feed) is reported. According to the diameter of the keyhole saw being used, you notice a minimum number of turns and a minimum feed. Raising the number of turns up to the highest quotas, you need to raise the feed

proportionally, being careful not to pass the values. Generally keyhole saws must have a peripheral speed going from 1 m/sec up to 4 m/sec max; feed vary from a minimum of 0,02 mm/turn up to a maximum of 0,04 mm/turn. You can calculate the ideal work parameters for any keyhole saw's diameter using this group of values. A generous flow of

water is advisable. For monolithic glass drilling it is recommended to stop the feed at regular intervals (about every 4mm of glass). On the contrary, drilling a laminated glass means to stop the feed every 1 mm of thickness. Doing like this, you make the cutting of PVB easier and avoid that the keyhole saw burns or that glass breaks.



Keyhole saws in continuous rim, with carvings, bevelling on the crown and vent



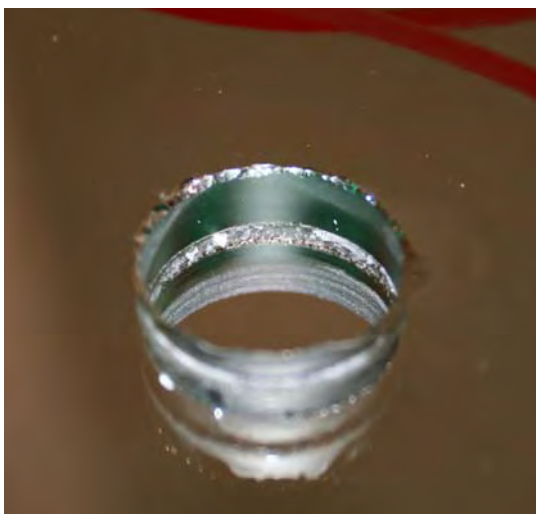
This photo represents some keyhole saws for CNC. This range differs from the range of normal keyhole saws, for the presence of two carvings on the diamond crown and for a bevelling on its whole circumference. Moreover there is a decompression hole on the body of the keyhole saw. All these devices let it

work in the best conditions when it is used on CNC machines. Also the drilling of laminated sheets with high thicknesses of PVB is easier. Even the risk of chipping the edge of the hole (especially on the lower side of the sheet) is minimized. It is important to control the parameters of peripheral

speed, feed and breaking down pace. Like this, you obtain lowly chipped holes, as you can see in the photos below. A minimum bevelling using a countersink allows to obtain perfect and well done holes.

## Holes made with CNC.

Photos of the lower side of sheet. Glass 5+1,2+5.



Hole made using a normal keyhole saw. Pls. note the wide chipping and the PVB torn.

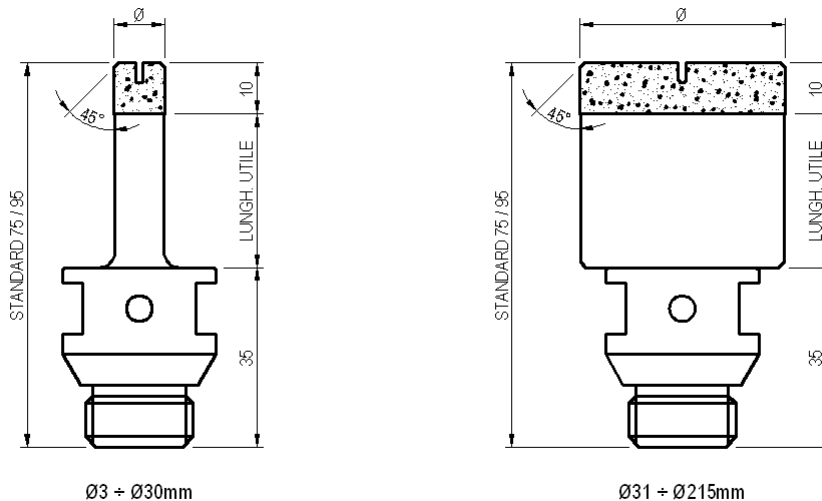


Hole made using keyhole saws for CNC. Pls. note the minimum chipping and the PVB which is not so much torn and well cut.

## List of keyhole saws

code	∅	code	∅	code	∅	code	∅
HJ.AA	3 - 4,99	HJ.AS	39 - 40	HJ.BL	75 - 76	HJ.CD	126 - 130
HJ.AB	5 - 6	HJ.AT	41 - 42	HJ.BM	77 - 78	HJ.CE	131 - 135
HJ.AC	7 - 8	HJ.AU	43 - 44	HJ.BN	79 - 80	HJ.CF	136 - 140
HJ.AD	9 - 10	HJ.AV	45 - 46	HJ.BO	81 - 82	HJ.CG	141 - 145
HJ.AE	11 - 12	HJ.AW	47 - 48	HJ.BP	83 - 84	HJ.CH	146 - 150
HJ.AF	13 - 14	HJ.AX	49 - 50	HJ.BQ	85 - 86	HJ.CI	151 - 155
HJ.AG	15 - 16	HJ.AY	51 - 52	HJ.BR	87 - 88	HJ.CJ	156 - 160
HJ.AH	17 - 18	HJ.AZ	53 - 54	HJ.BS	89 - 90	HJ.CK	161 - 165
HJ.AI	19 - 20	HJ.BA	55 - 56	HJ.BT	91 - 92	HJ.CL	166 - 170
HJ.AJ	21 - 22	HJ.BC	57 - 58	HJ.BU	93 - 94	HJ.CM	171 - 175
HJ.AK	23 - 24	HJ.BD	59 - 60	HJ.BV	95 - 96	HJ.CN	176 - 180
HJ.AL	25 - 26	HJ.BE	61 - 62	HJ.BW	97 - 98	HJ.CO	181 - 185
HJ.AM	27 - 28	HJ.BF	63 - 64	HJ.BX	99 - 100	HJ.CP	186 - 190
HJ.AN	29 - 30	HJ.BG	65 - 66	HJ.BY	101 - 105	HJ.CQ	191 - 195
HJ.AO	31 - 32	HJ.BH	67 - 68	HJ.BZ	106 - 110	HJ.CR	196 - 200
HJ.AP	33 - 34	HJ.BI	69 - 70	HJ.CA	111 - 115	HJ.CS	201 - 205
HJ.AQ	35 - 36	HJ.BJ	71 - 72	HJ.CB	116 - 120	HJ.CT	206 - 210
HJ.AR	37 - 38	HJ.BK	73 - 74	HJ.CC	121 - 125	HJ.CU	211 - 215

## Standard constructive sketch



## Advised work parameters

Follow the same parameters and information notes about the use of keyhole saws with continuous crown; see page 16

## Drilling and countersinking at the same time



The keyhole saw with countersink allows to drill easily monolithic and laminated sheets. The countersink with continuous rim can be adjusted as far as height on the body of the keyhole

saw; loosening the Allen screws, the countersink can change the height. Consequently more or less pronounced bevellings can be obtained. Or else you can keep the bevelling quota equal to

the increase of the wear quota on the crown. The countersink has a minimum diameter which is that of the keyhole saw and a maximum upper diameter of 8mm.

## List of the keyhole saw complete with countersink

code	Ø	code	Ø	code	Ø	code	Ø
HG.AA	4 - 4,99	HG.AN	29 - 30	HG.BA	55 - 56	HG.BN	81 - 82
HG.AB	5 - 6	HG.AO	31 - 32	HG.BB	57 - 58	HG.BO	83 - 84
HG.AC	7 - 8	HG.AP	33 - 34	HG.BC	59 - 60	HG.BP	85 - 86
HG.AD	9 - 10	HG.AQ	35 - 36	HG.BD	61 - 62	HG.BQ	87 - 88
HG.AE	11 - 12	HG.AR	37 - 38	HG.BE	63 - 64	HG.BR	89 - 90
HG.AF	13 - 14	HG.AS	39 - 40	HG.BF	65 - 66	HG.BS	91 - 92
HG.AG	15 - 16	HG.AT	41 - 42	HG.BG	67 - 68	HG.BT	93 - 94
HG.AH	17 - 18	HG.AU	43 - 44	HG.BH	69 - 70	HG.BU	95 - 96
HG.AI	19 - 20	HG.AV	45 - 46	HG.BI	71 - 72	HG.BV	97 - 98
HG.AJ	21 - 22	HG.AW	47 - 48	HG.BJ	73 - 74	HG.BW	99 - 100
HG.AK	23 - 24	HG.AX	49 - 50	HG.BK	75 - 76	HG.BX	101 - 102
HG.AL	25 - 26	HG.AY	51 - 52	HG.BL	77 - 78		
HG.AM	27 - 28	HG.AZ	53 - 54	HG.BM	79 - 80		

The code hereby includes a range of diameters going from the minimum up to the maximum number. When ordering, it is important to state clearly the wished

diameter of keyhole saw. If it passes the maximum value, we take into consideration the higher range. The maximum diameter of the countersink is

equal to the diameter of the keyhole saw +8mm

## Advised work parameters

Follow the same parameters and information notes about the use of keyhole saws with continuous crown; see page 16

## List of the sole countersink in continuous rim

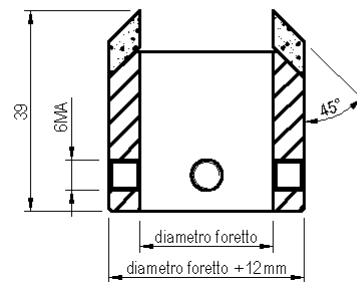
code	Ø	code	Ø	code	Ø	code	Ø
HY.AA	4 - 4,99	HY.AN	29 - 30	HY.BA	55 - 56	HY.BN	81 - 82
HY.AB	5 - 6	HY.AO	31 - 32	HY.BB	57 - 58	HY.BO	83 - 84
HY.AC	7 - 8	HY.AP	33 - 34	HY.BC	59 - 60	HY.BP	85 - 86
HY.AD	9 - 10	HY.AQ	35 - 36	HY.BD	61 - 62	HY.BQ	87 - 88
HY.AE	11 - 12	HY.AR	37 - 38	HY.BE	63 - 64	HY.BR	89 - 90
HY.AF	13 - 14	HY.AS	39 - 40	HY.BF	65 - 66	HY.BS	91 - 92
HY.AG	15 - 16	HY.AT	41 - 42	HY.BG	67 - 68	HY.BT	93 - 94
HY.AH	17 - 18	HY.AU	43 - 44	HY.BH	69 - 70	HY.BU	95 - 96
HY.AI	19 - 20	HY.AV	45 - 46	HY.BI	71 - 72	HY.BV	97 - 98
HY.AJ	21 - 22	HY.AW	47 - 48	HY.BJ	73 - 74	HY.BW	99 - 100
HY.AK	23 - 24	HY.AX	49 - 50	HY.BK	75 - 76	HY.BX	101 - 102
HY.AL	25 - 26	HY.AY	51 - 52	HY.BL	77 - 78		
HY.AM	27 - 28	HY.AZ	53 - 54	HY.BM	79 - 80		

The code hereby includes a range of diameters going from the minimum up to the maximum number. When ordering, it is important to state clearly the wished

diameter of keyhole saw. If it passes the maximum value, we take into consideration the higher range. The maximum diameter of the countersink is

equal to the diameter of the keyhole saw + 8 mm

## List of the (sole) segment countersink



code	Ø	code	Ø	code	Ø	code	Ø
HK.AA	8	HK.AM	31 - 32	HK.AY	55 - 56	HK.BK	79 - 80
HK.AB	9 - 10	HK.AN	33 - 34	HK.AZ	57 - 58	HK.BL	81 - 82
HK.AC	11 - 12	HK.AO	35 - 36	HK.BA	59 - 60	HK.BM	83 - 84
HK.AD	13 - 14	HK.AP	37 - 38	HK.BB	61 - 62	HK.BN	85 - 86
HK.AE	15 - 16	HK.AQ	39 - 40	HK.BC	63 - 64	HK.BO	87 - 88
HK.AF	17 - 18	HK.AR	41 - 42	HK.BD	65 - 66	HK.BP	89 - 90
HK.AG	19 - 20	HK.AS	43 - 44	HK.BE	67 - 68	HK.BQ	91 - 92
HK.AH	21 - 22	HK.AT	45 - 46	HK.BF	69 - 70	HK.BR	93 - 94
HK.AI	23 - 24	HK.AU	47 - 48	HK.BG	71 - 72	HK.BS	95 - 96
HK.AJ	25 - 26	HK.AV	49 - 50	HK.BH	73 - 74	HK.BT	97 - 98
HK.AK	27 - 28	HK.AW	51 - 52	HK.BI	75 - 76	HK.BU	99 - 100
HK.AL	29 - 30	HK.AX	53 - 54	HK.BJ	77 - 78		

The segment countersink is recommended when you need a considerable removal. When ordering, it

is important to state clearly the diameter of keyhole saw. The table shows the minimum diameter of the countersink.

Adding 12mm to it you obtain the maximum one.

## Tools for countersinking holes



The segment, truncated cone countersinks are made taking account of the increasing needs in terms of quality and work schedules. They have been studied in order to fully satisfy the needs of the modern glass industry. The diamond's grit, the bond and the building follow strict quality parameters. The countersink allows a quick dressing of glass, avoiding overheating, micro-cracks and chips, in total absence of vibrations and acoustic troubles. In particular, attention was paid to the

coolant's passing route. These are the best conditions to obtain the best chip elimination, the best cooling and to let the tool work as best it can both with horizontal and vertical sheets. Countersinks are supplied without attachment. If need be, ask for the suitable extension. The same devices can be adopted for countersinks made according to the customer's specifications (both in shape and dimensions).

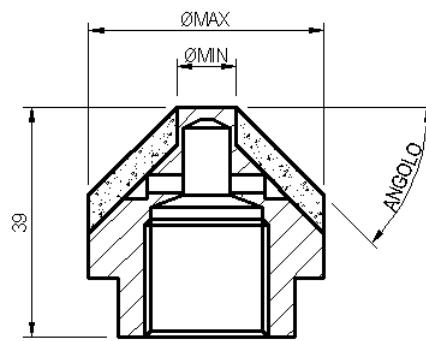
Manual use demands a periodical dressing of the tool with suitable abrasive stones. For CNC use, it is advisable, after a certain number of countersink applications, to have the tool positioned on the abrasive block (on the edge of the machine) and sink it in the abrasive previously pierced with a keyhole saw. We warmly recommend to use our abrasive stones as they were purposely studied and produced to obtain the best dressing of our bonds.

### Instructions for use

## Standard production list

code	Ø min	Ø max	angle	grit	turns/min	Water pressure
HE.00	10	40	45°	D151	800 - 1000	2,5 - 5
HE.02	20	50	45°	D151	800 - 1000	2,5 - 5
HE.04	30	70	45°	D151	800 - 1000	2,5 - 5

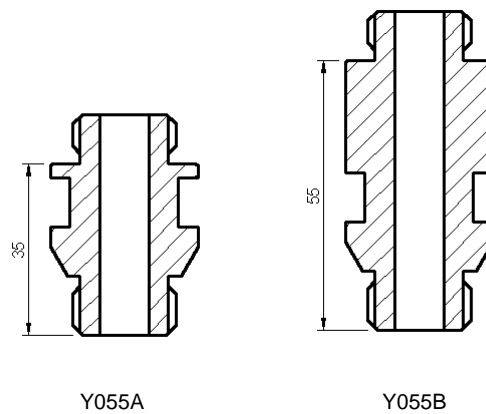
## Constructive sketch



## Extensions

CODE	H mm	height with countersink
Y0.55A	35	75
Y0.55B	55	95

## Extension constructive sketch



# 90°, cone-shaped countersinks (complete cone) *eledia*

Continuous rim and inner water passage



CODE	Ø min	Ø max	angle	H mm	grit
HE.08	0	30	90°	75	D151
HE.10	0	30	90°	95	D151

With segments and inner water passage

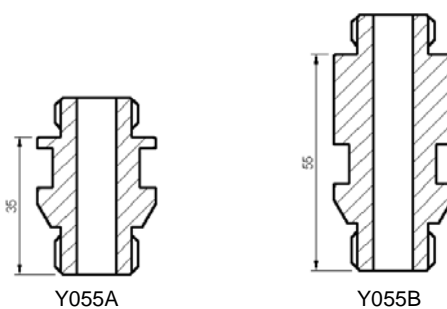


CODE	Ø min	Ø max	angle	grit
HE.06	0	40	90°	D151

Attachments for segment countersinks



CODE	H mm	H with countersink
Y0.55A	35	75
Y0.55B	55	95



To lower sheets or artistic glass.



The leveler is useful to make cylindrical grooves on the surface of flat or artistic glass. A special layout of the diamond segments has been studied and adopted. This allows to the tool to sink

in the glass a remove lot of material easily. Besides, the segments' layout avoids some faults such as the development of the central spot. On the active front of the tool, there are many

water passage holes. Water, suitably channeled, allows to remove the material and avoids a dangerous overheating. The adopted diamond's grit let us obtain a semi-finished surface.

CODE	Ø	H mm	grit
HP00	10 ÷ 15	75	D151
HP01	16 ÷ 20	75	D151
HP02	21 ÷ 25	75	D151
HP03	26 ÷ 30	75	D151
HP04	31 ÷ 35	75	D151
HP05	36 ÷ 40	75	D151
HP06	41 ÷ 45	75	D151
HP07	46 ÷ 50	75	D151
HP08	51 ÷ 55	75	D151
HP09	56 ÷ 60	75	D151
HP10	61 ÷ 65	75	D151
HP11	66 ÷ 70	75	D151
HP12	71 ÷ 75	75	D151
HP13	76 ÷ 80	75	D151
HP14	81 ÷ 85	75	D151
HP15	86 ÷ 90	75	D151
HP16	91 ÷ 95	75	D151
HP17	96 ÷ 100	75	D151



Tools 1DD6Y for flat edge and borders; for manual machines and CNC



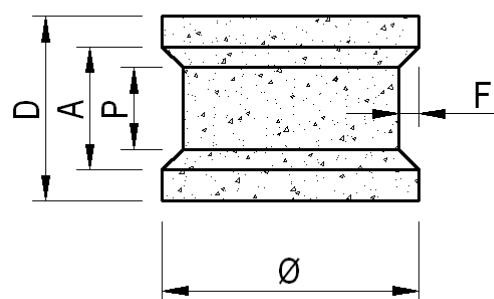
After thorough endurance and quality tests, we made ready this new family of tools, that is the milling cutters/wheels with trapezium groove, suitable for grinding the flat edge and the borders of the sheet. These are tools that grind the glass border in a sole passage and notwithstanding narrow routes such as holes or notches. Processing is precise and the surface is ready to be polished.

The assembling on the 1/2" gas attachment (in its many lengths) provides for the execution of holes facilitating the coolant's escape, so avoiding that the machines sounds the alarm due to the block of the coolant's flow through the spindle. Grit D107 was tested with excellent results. This grit, matched with a very good bond, let us obtain a quick grinding, free from cracks and/or burns,

all having a very good finish. We guarantee the same quality also for tools made upon the customer's specifications, having grit, groove's shapes and attachments different from our standards. A protective nickel layer avoids the oxidation of the support and consequently a thread blocking on the spindle's attachment of the machine.

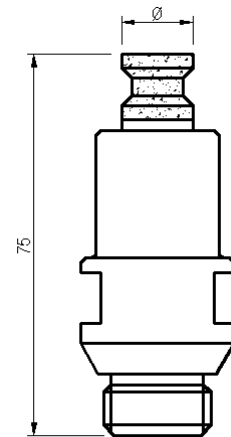
## Standard sketch of the trapezium groove

GLASS	P	A	F	D
3	2	5	2	11
4	2,5	6	2	12
5	3,5	7	2	13
6	4	8	2	14
8	6	10	2	16
10	8	12	2	18
12	10	14	2	20
15	13	17	2	23
19	17	21	2	27
21	19	23	2	30
22	20	24	2	30

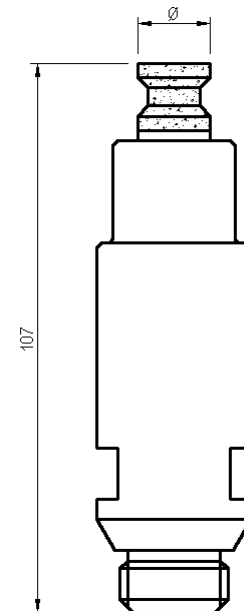


## Standard production list

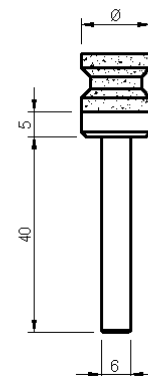
1/2"gas H=75					
GLASS	Ø10	Ø12	Ø14	Ø20	Ø25
3	HF.AA	HF.AJ	HF.AS	HF.BB	HF.BK
4	HF.AB	HF.AK	HF.AT	HF.BC	HF.BL
5	HF.AC	HF.AL	HF.AU	HF.BD	HF.BM
6	HF.AD	HF.AM	HF.AV	HF.BE	HF.BN
8	HF.AE	HF.AN	HF.AW	HF.BF	HF.BO
10	HF.AF	HF.AO	HF.AX	HF.BG	HF.BP
12		HF.AP	HF.AY	HF.BH	HF.BQ
15			HF.AZ	HF.BI	HF.BR
19			HF.BA	HF.BJ	HF.BS



1/2"gas H=107					
GLASS	Ø10	Ø12	Ø14	Ø20	Ø25
3	HF.BT	HF.CC	HF.CL	HF.CU	HF.DD
4	HF.BU	HF.CD	HF.CM	HF.CV	HF.DE
5	HF.BV	HF.CE	HF.CN	HF.CW	HF.DF
6	HF.BW	HF.CF	HF.CO	HF.CX	HF.DG
8	HF.BX	HF.CG	HF.CP	HF.CY	HF.DH
10	HF.BY	HF.CH	HF.CQ	HF.CZ	HF.DI
12		HF.CI	HF.CR	HF.DA	HF.DJ
15			HF.CS	HF.DB	HF.DK
19			HF.CT	HF.DC	HF.DL

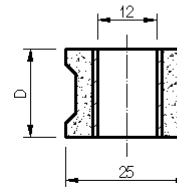
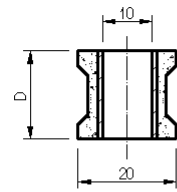


shank Ø6x40					
GLASS			Ø14	Ø20	Ø25
3			HF.EE	HF.EN	HF.EW
4			HF.EF	HF.EO	HF.EX
5			HF.EG	HF.EP	HF.EY
6			HF.EH	HF.EQ	HF.EZ
8			HF.EI	HF.ER	HF.FA
10			HF.EJ	HF.ES	HF.FB
12			HF.EK	HF.ET	HF.FC
15			HF.EL	HF.EU	HF.FD
19			HF.EM	HF.EV	HF.FE



## Standard production list

WITH HOLE					
GLASS				Ø20	Ø25
3				HF.FG	HF.FP
4				HF.FH	HF.FQ
5				HF.FI	HF.FR
6				HF.FJ	HF.FS
8				HF.FK	HF.FT
10				HF.FL	HF.FU
12				HF.FM	HF.FV
15				HF.FN	HF.FW
19				HF.FO	HF.FX



Cut and rectification of trapezium edge.

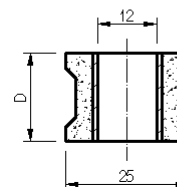
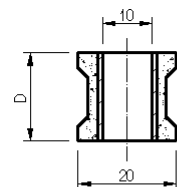


## List of attachments

CODE	Ø shaft	TRAPEZIUM WHEEL	GLASS
Y0.9A	10	Ø20	V3 / V4
Y0.9B	10	Ø20	V5 / V6
Y0.9C	10	Ø20	V8 / V10
Y0.9D	10	Ø20	V12
Y0.9E	12	Ø25	V3 / V4
Y0.9F	12	Ø25	V5 / V6
Y0.9G	12	Ø25	V8 / V10
Y0.9H	12	Ø25	V12

## Wheels' list

GLASS	Ø20	Ø25
3	HF.FG	HF.FP
4	HF.FH	HF.FQ
5	HF.FI	HF.FR
6	HF.FJ	HF.FS
8	HF.FK	HF.FT
10	HF.FL	HF.FU
12	HF.FM	HF.FV



## Milling cutters' list

CODE	Ø	L	Z	X
HB.11	20	22	6	4

## Diamond drill for writing on CNC machines



**Eledia's** writing drills are made as one can see in the constructive sketch hereby. A selected diamond grit is

anchored on the tip through a nickel electroplated bond. The right grit size and the bond allow a uniform stroke and

an acceptable finish, which can be easily polished. We can make drills upon the customer's specifications.

### List

CODE	R	Constructive sketch
Y1.00	2	
Y1.02	1,35	

### Attachment

CODE	Ø hole
Y0.10	4

## Attachment for shanked milling cutters Ø3 and Ø6



The pliers-holder attachment ER was studied to use shanked tools with more flexibility. The attachment allows to shut tightly the shank of the tool and tries to

make it turn perfectly, without fluttering on its axis. Water passes through the pliers-holder; the attachment is provided with an adjustable axial screw which

creates an adjustable limit switch. Tools hit against it and cannot come back in the body, thus avoiding to alter their initial coordinates.

## List

CODE	item
Y0.70	Complete attachment with pliers Ø3 and Ø6 and key
Y0.7A	Pliers-holder body
0111	Ring
0105	Pliers Ø3
0107	Pliers Ø6
0109	Tightening spanner

For engraving and cut



LGV milling cutters are equipped with diamond grits fixed on the surface of the mechanical body by means of an electroplated bond (electrolytic nickel).

Therefore there is on this surface a sole and thick series of diamond grits. Milling cutters are suitable for engraving and cut of small glass' thicknesses. There

are two shanked models: Ø3 and Ø6. They can be both assembled on the attachment with pliers.








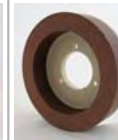


## Shanked milling cutters Ø3 mm.

<b>code</b>	B100	B102	B104	B106	B108	B110					
<b>dimens.</b>	Ø 2	Ø3	Ø4	Ø6	Ø8	Ø10					
<b>grit</b>	D126	D126	D126	D126	D126	D126					
<b>shape</b>											











## Shanked milling cutters Ø6 mm.

<b>code</b>	B40A	B40B	B40C	B40D	B40E	B40F	B40G	B40H	
<b>dimens.</b>	Ø3,3x60	Ø4,3x60	Ø5,3x60	Ø7,3x60	Ø9,3x60	Ø11,3x60	Ø15,3x60	Ø8,6x36x65	
<b>grit</b>	D126	D126	D126	D126	D126	D126	D126	D213	
<b>shape</b>									

## Complete set for BOTTERO 810BCS

FOR MACHINES PROCESSING MAINLY LAMINATED SHEETS									
0039	0041	0045	0047	0049	0051	0053	0055	0053	0055
pos. 1	pos. 2	pos. 3	pos. 4	pos. 5	pos. 6	pos. 7	pos. 8	pos. 9	pos. 10
									
coarse stock removal	semi-finish	finish	coarse grit polisher	thin grit polisher	cerium oxide	diamond resin upper border	upper border polisher	diamond resin lower border	lower border polisher
Ø150x17x10 D151	Ø150x8x8 D91	Ø150x15x12 D76	Ø150x40 G40	Ø150x40 G60	Ø150x40	Ø150x15x12 D64	Ø150x40	Ø150x15x12 D64	Ø150x40

## Complete set for SCHIATTI FPS 20R/20RS

FOR MACHINES PROCESSING MAINLY MONOLITHIC GLASS									
0641	0642	0643	0644	0645	0644	0645	0646	0647	0648
pos. 1	pos. 2	pos. 3	pos. 4	pos. 5	pos. 6	pos. 7	pos. 8	pos. 9	pos. 10
									
coarse stock removal	semi-finish	finish	right border diamond wheel	right border polisher	left border diamond wheel	left border polisher	semi-finish edge polisher	finish edge polisher	cerium oxide for a brilliant finish of the edge
Ø150x8x8 H=25 D151	Ø150x8x8 H=25 D107	Ø150x8x8 H=25 D76	Ø130x8x8 H=20 D54	Ø125/35/18 H=22 G60	Ø130x8x8 H=20 D54	Ø125/35/18 H=22 G60	Ø150/40/22 H=68 G40	Ø150/40/22 H=68 G80	Ø150/40/22 H=22 CERIT



## Alumina oxide abrasive



It is very important to dress tools in order to exalt their performances. A correct dressing should remove a part of the metallic bond without damaging the diamond abrasive. Well-exposed diamond grits allow a better and a

quicker work of the tool and avoid useless power consumptions which usually cause superficial burns, micro-cracks and chips. Our work experience, directly in touch with this field's operators, allowed us to select the

under-mentioned range of abrasives. If need be, we can supply our customers with abrasives in different shapes and dimensions.

## Product list

CODE	DIMENSIONS	GRIT
370.220	200x80x20	100
370.070	150x25x12	120

---

***eledia***

Vicolo E. Caruso, 6  
70037 RUVO DI PUGLIA (BA) ITALY

Tel. +39 080 3601661  
Fax. +39 080 3602147

e-mail: [info@eledia.it](mailto:info@eledia.it)  
[http: www.eledia.it](http://www.eledia.it)

N 41° 06' 39,43" / E 16° 29' 54,30""

Skype ID: eledia

---