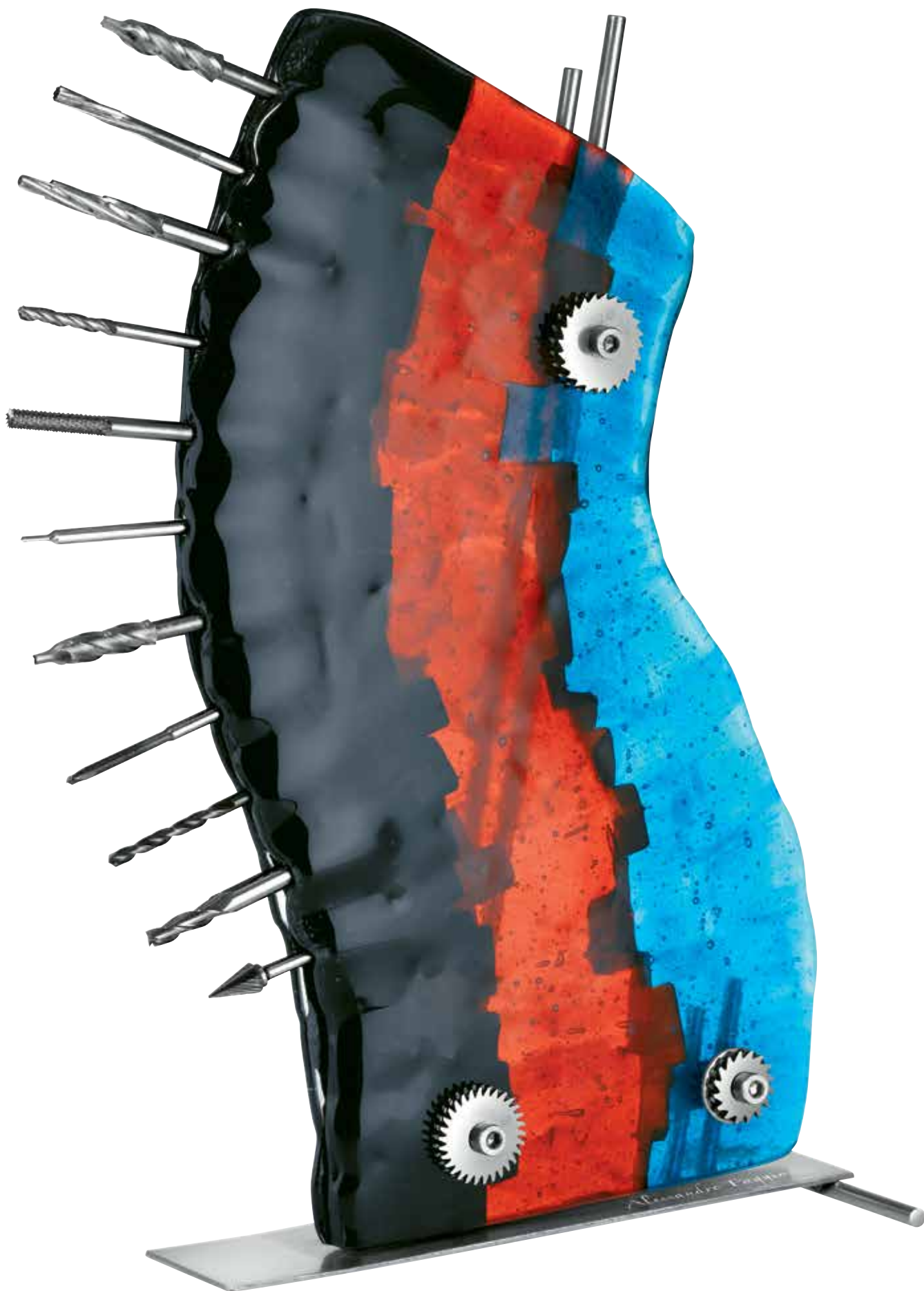


TOMMASIN

UTENSILI s.r.l.





TOMMASIN UTENSILI s.r.l.

Via G. Galilei, 2 - Z.I. - 35030 - Caselle di Selvazzano - PADOVA (Italy) - Tel. +39 049 8975268 - Fax +39 049 8975310
www.tommasin.com - info@tommasin.com



TOMMASIN SPECIAL TOOLS

Sin dal 1968 la **TOMMASIN Utensili S.r.l.** è stata la prima azienda italiana a creare un servizio completo per la fornitura di utensili nel settore specifico dell'occhialeria.

Il diretto contatto con i problemi quotidiani della nostra clientela più esigente e un continuo sviluppo tecnologico, sia nell'ambito produttivo, che nel controllo qualità, ci hanno arricchito di esperienza e professionalità

necessarie a risolvere qualsiasi problema inerente alla fresatura, taglio e foratura su ogni materiale. Vi invitiamo, quindi a visionare l'aggiornamento del nostro nuovo catalogo, in cui siamo lieti di mettere a disposizione il nostro know-how e proporvi un'intera gamma di frese standard o speciali.

Siamo onorati di collaborare con Voi. Grazie della Vostra fiducia.

Since 1968 **TOMMASIN tools** company is the first in Italy to set up a complete cutter-supply service for the eyewear industry. The direct contact with the day-to-day problems of customers along with the continuous technology research make us acquire experience with the necessary professionalism needed to tackle any issue

concerning milling, cutting and drilling any material. We make available our know-how offering a complete innovative and standard tools range. We invite you to examine this catalogue and join our products.

Thank you for trusting us, we are proud to collaborate with you.

La nostra gamma di utensili:

- Utensili normali e speciali in metallo duro micrograna per l'occhialeria, la meccanica, l'industria orafa.
- Seghe circolari, frese cilindriche, punte elicoidali, alesatori.
- Qualsiasi utensile speciale su disegno e consulenza tecnica.
- Servizio completo di affilatura.

Cutters range:

- Normal and special tools in micrograne tungsten-carbide for eyewear industry, mechanics and goldsmithery.
- Circular saws, cylindrical cutter, drill, reamer.
- Any special tools on your specific drawing can be made with technical advice.
- Sharpening service on all our items.

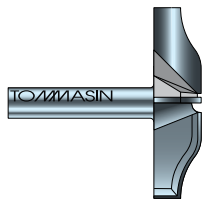


INDICE - SUMMARY

Tutte le frese normali, illustrate in questo catalogo, sono disponibili a magazzino.
Gli articoli indicati con il simbolo "*" sono da intendersi speciali (solo su richiesta).
All the normal cutters of this catalogue are available on stock. All the items marked with "*" are special (only on request).

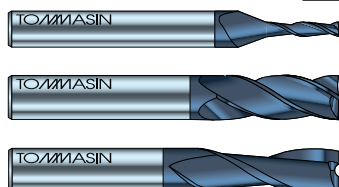
TAL FRESE FRONTALI SPECIALI PER ALETTE SPECIAL MILLING TOOLS FOR LUGS

P. 17



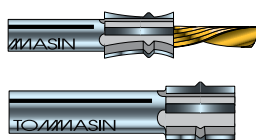
TFC FRESE CILINDRICO FRONTALI, TAGLIENTI ELICOIDALI TWIST END MILL, 2 AND MORE CUTTING EDGES

P. 28



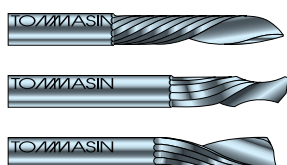
TGB FRESE PER INTERNI DI MONTATURE MILLING TOOLS FOR LENS GROOVE

P. 08



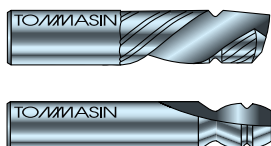
TGE/1 FRESE MONOELICA SINGLE FLUTED TWIST MILLING TOOL

P. 04



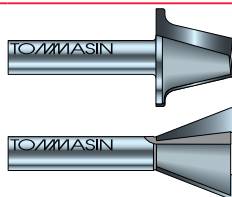
TGH FRESE PER LAVORAZIONI SAGOME CUTTER FOR EXPANSION FIXING PAWNS

P. 21



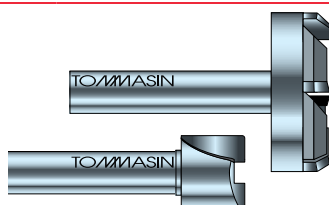
TGKX FRESE PER ANGOLATURE ESTERNE MILLING TOOLS FOR EXTERNAL ANGULATIONS

P. 18



TGN FRESE FRONTALI MILLING CUTTERS

P. 14



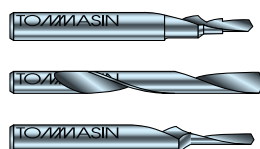
TAM ALESATORI A MACCHINA REAMERS

P. 26



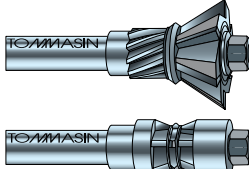
TFP PUNTE SPECIALI MONOELICA - PER MATERIE PLASTICHE SINGLE FLUTED TWIST DRILL FOR SYNTHETIC MATERIAL

P. 24



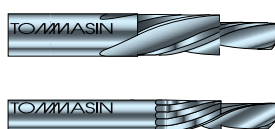
TGC FRESE COMPOSTE COMPOUNDED CUTTERS

P. 06



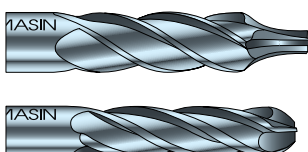
TGE/2 FRESE A DUE DIAMETRI BIDIAMETRIC CUTTERS

P. 05



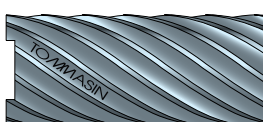
TGI FRESE CILINDRICHE CYLINDRICAL MILLING TOOLS

P. 16



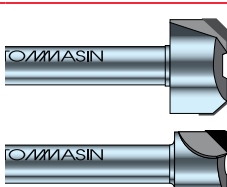
TGL FRESE PER SPESSORATRICI AUTOMATICHE MILLING TOOLS FOR AUTOMATIC MACHINE

P. 17



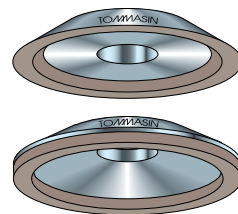
TGN FRESE FRONTALI PCD MILLING CUTTERS PCD

P. 15



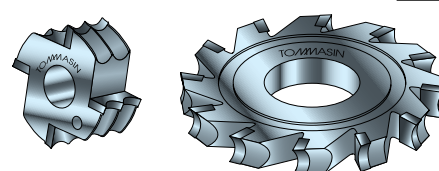
TDM MOLE DIAMANTE DIAMOND WHEELS

P. 46



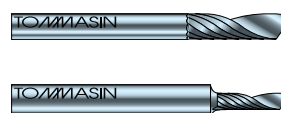
TGA FRESE PER LAVORAZIONI ASTE MILLING TOOLS FOR TEMPLE

P. 22



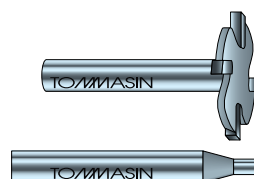
TGD/1 FRESE MONOELICA DESTRA SINGLE FLUTED TWIST MILLING TOOL RIGHT SPIRAL-CUTTING

P. 05



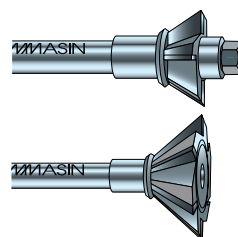
TGF FRESE CIRCOLARI CON GAMBO CIRCULAR CUTTERS WITH SHANK

P. 15



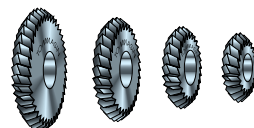
TGK FRESE PER ANGOLATURE ESTERNE CUTTERS FOR EXTERNAL ANGLE

P. 12



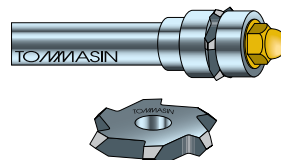
TGM FRESETTI CIRCOLARI ANGOLATE SMALL ANGLED CIRCULAR CUTTERS

P. 30



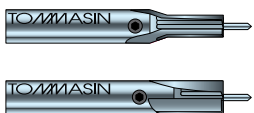
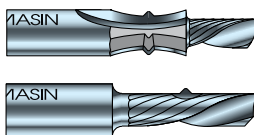
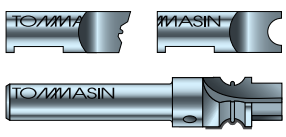
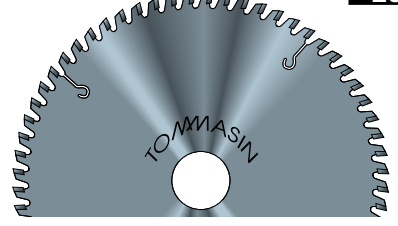
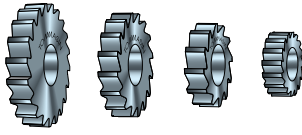
TGP FRESE CIRCOLARI CIRCULAR CUTTERS

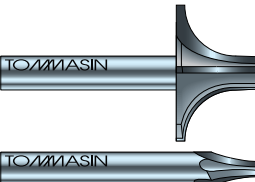
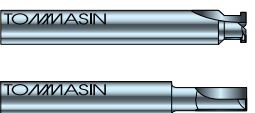
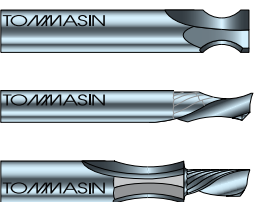
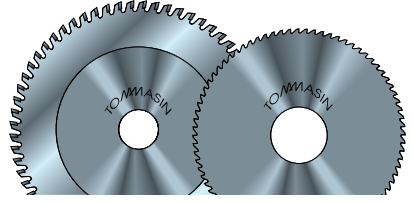
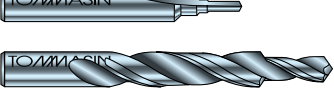
P. 06

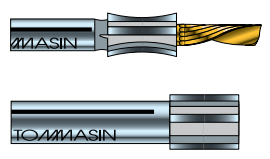
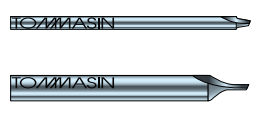
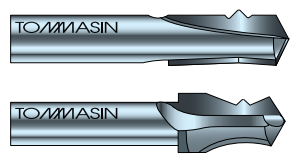
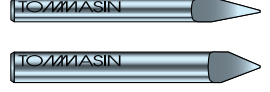
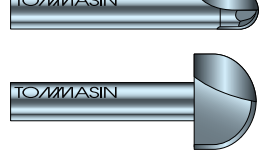


INDICE - SUMMARY

Tutte le frese normali, illustrate in questo catalogo, sono disponibili a magazzino.
Gli articoli indicati con il simbolo "*" sono da intendersi speciali (solo su richiesta).
All the normal cutters of this catalogue are available on stock. All the items marked with "*" are special (only on request).

TYPE	TGQ	MICROPUNTE MICRO GRAIN REINFORCED SHANK	P. 27
			
TYPE	TGT	FRESE TAGLIO FRONTALE CON GUIDA PILOTA MILLING TOOLS WITH PILOT GUIDE	P. 23
			
TYPE	TGW	FRESE PER INTERNI DI MONTATURE MILLING TOOLS FOR FRAME INTERNAL ZONE	P. 10
			
TYPE	TGZ	UTENSILI PER FRESATURA LENTI CUTTERS FOR LENS SHAPING	P. 38
			
TYPE	TNB	SEGA CIRCOLARE CON PLACCHETTE IN METALLO DISK SAW WITH CARBIDE BLADE	P. 25
			
TYPE	TPE	PUNTE ELICOIDALI TWIST DRILLS	P. 26
			
TYPE	TSC	FRESETTI CIRCOLARI PIANE SMALL FLAT CIRCULAR CUTTERS	P. 30
			

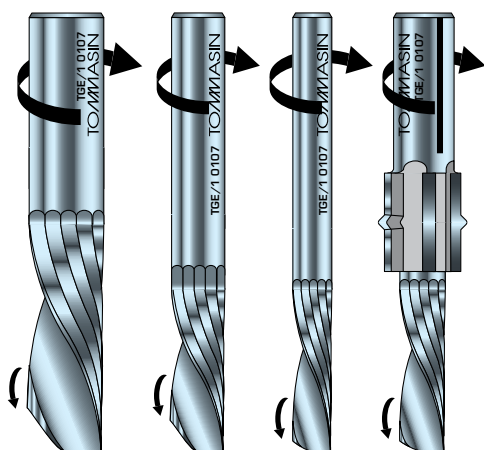
TYPE	TGR	FRESE PER BOMBATURE ESTERNE CUTTERS FOR EXTERNAL ROUNDING	P. 19
			
TYPE	TGU	FRESE PER SEDI CERNIERE CUTTERS FOR LOCATION OF HINGES	P. 23
			
TYPE	TGY	FRESE PER ESTERNI DI MONTATURE CUTTERS FOR FRAME EXTERNAL PARTS	P. 13
			
TYPE	TMF	MICROFRESE - TESTA PIANA MICRO END MILL - FLAT NOSE	P. 28
			
TYPE	TNC	SEGHE CIRCOLARI IN METALLO DURO INTEGRALE CIRCULAR SAWS IN SOLID CARBIDE	P. 32
			
TYPE	TPS	PUNTE SPECIALI A DISEGNO SPECIAL TWIST DRILLS ON YOUR SPECIFIC DRAWING	P. 26
			
TYPE	TSC/S	FRESE CIRCOLARI PROFILI SPECIALI CIRCULAR CUTTERS WITH SPECIAL SHAPE	P. 37
			

TYPE	TGS	FRESE PER ESTERNI DI MONTATURE CUTTERS FOR FRAME EXTERNAL PARTS	P. 12
			
TYPE	TGV	FRESE CILINDRICA AD UN TAGLIANTE SINGLE FLUTED CYLINDRICAL CUTTERS	P. 24
			
TYPE	TGX	FRESE PER INTERNI DI MONTATURE CUTTERS FOR FRAME INTERNAL ZONES	P. 07
			
TYPE	TMF/R	MICROFRESE - TESTA RAGGIATA MICRO END MILL - BALL NOSE	P. 28
			
TYPE	TPB	PUNTE PER LAVORAZIONE SU PANTOGRAFI GRAVER FOR PANTOGRAPH	P. 25
			
TYPE	TRC	FRESE RAGGIATE PER BOMBATURE CONCAVE RADIAL CUTTERS FOR CAMBERING	P. 20
			

È proibita la riproduzione anche parziale degli articoli riportati in questo catalogo.

Any kind of reproduction of any items on this catalogue is strictly prohibited.

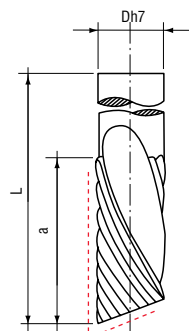
art. **0107**



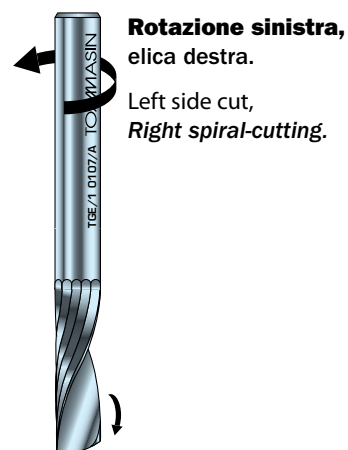
Rotazione destra, elica sinistra.

Right side cut, Left spiral-cutting.

D	L	a
2 x 40	10	
3 x 40	12	
4 x 50	15	
5 x 50	18	
6 x 60	20	
8 x 63	22	
8 x 70	32	
*10 x 80	30	



*art. **0107/A**

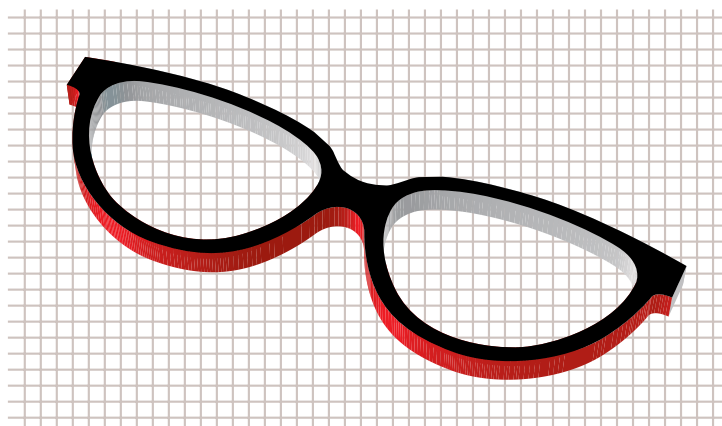


Rotazione sinistra, elica destra.

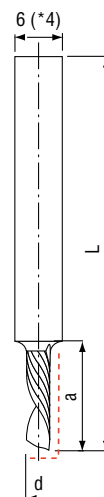
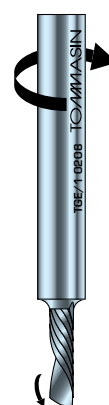
Left side cut, Right spiral-cutting.

Si usano su pantografi manuali o automatici con n. di giri/min. variabile da 16.000 a 27.000 in rapporto al diametro dell'utensile.

They are used on manual or automatic pantographs with 16.000 to 27.000 R.P.M. in relation of cutter diameter.



art. **0208**



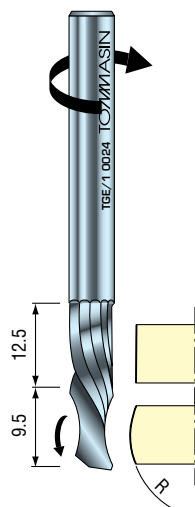
STANDARD

d	L	a
2,0 x 57	10	
2,5 x 57	12	
3,0 x 57	12	

art. **0024**

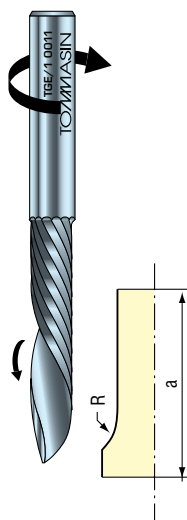
STANDARD

D	6 or 8
R	10 ÷ 18
a	22
L	60



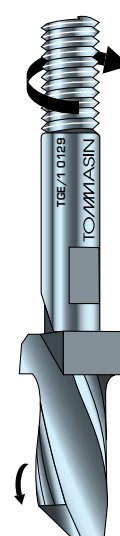
Per finiture bombate.
For rounded surface milling.

*art. **0011**



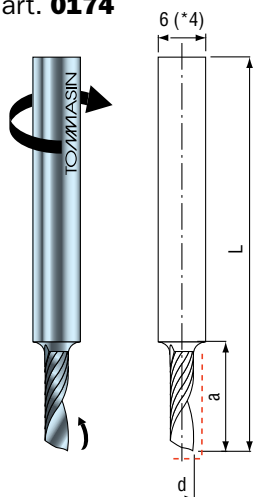
Per taglio e spessoratura.
Cutting and thicknessing cutter.

*art. **0129**



Gambo filettato per attacco speciale.
Threaded shank for special connection.

art. **0174**

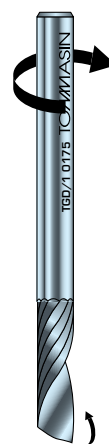


STANDARD

d	L	a
2,0 x 57	10	
2,5 x 57	12	
3,0 x 57	12	

Per lavorazioni particolari con piccoli diametri. (24.000 ÷ 28.000 RPM)
For special machining on little diameters.

art. **0175**

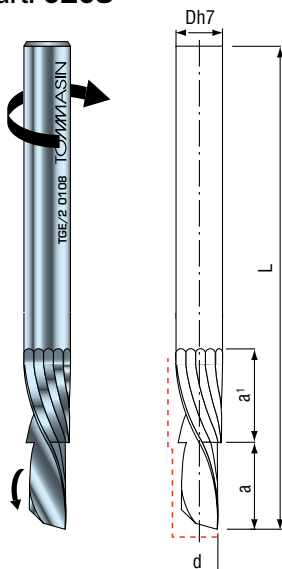


STANDARD

d	L	a
3 x 40	12	
4 x 50	15	
5 x 50	18	
6 x 60	20	
8 x 60	22	

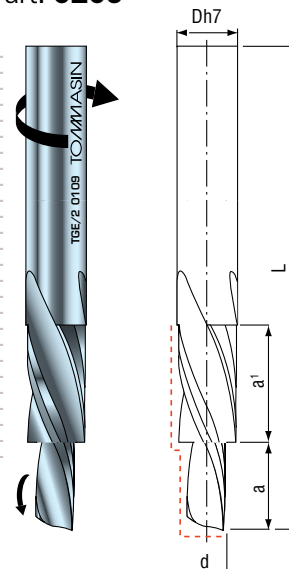
Per materie plastiche ed alluminio.
For plastic and aluminium materials.

*art. **0108**



d	3	4	5
D	5	6	6
L	50	60	60
a1	10	10	12
a	10	10	12

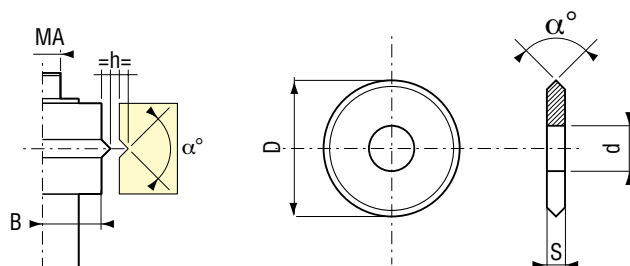
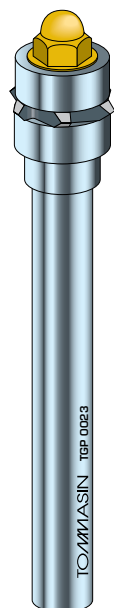
*art. **0109**



d	4	5	6
D	6	6	8
L	60	60	80
a1	10	12	15
a	10	12	12

Si usano su pantografi manuali o automatici a doppio scatto. (18.000 ÷ 24.000 RPM)
They're used on manual or automatic double release pantographs.

art. **0023**



STANDARD

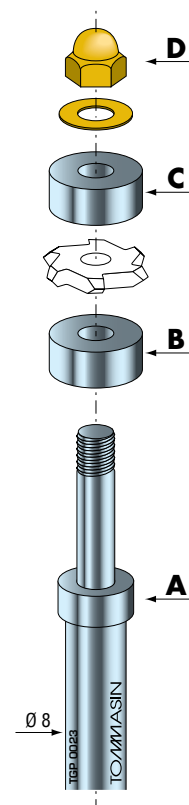
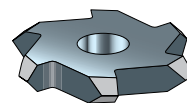
D	15	12
d	4 or 5	4
s	2 or 2,2	2 or 2,2

$\alpha = 90^\circ$

Lavorazione manuale, su fresatrici a mandrino verticale con velocità di rotazione da 12.000 ÷ 20.000 giri/min..
Il diametro «B» delle battute laterali, determina la profondità «h» del canalino.

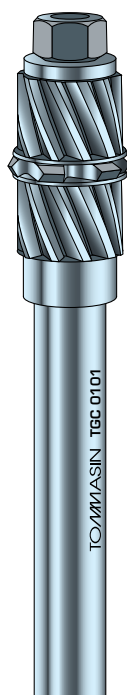
Manual manufacture, on vertical milling machine with rotation speed from 12.000 ÷ 20.000 R.P.M.
«B» diameter of lateral beatings determines «H» depth of groove.

art. **0100**

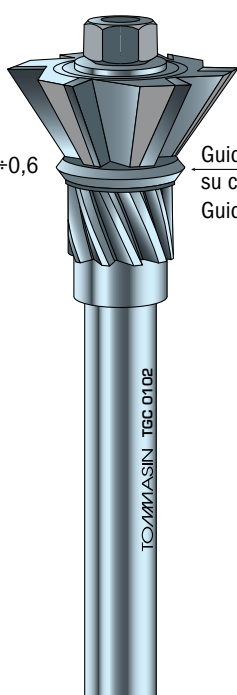


art. **0023/A**

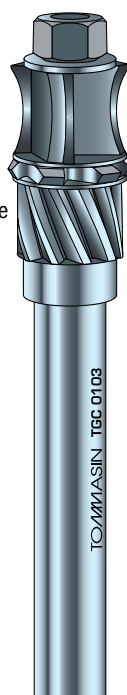
*art. **0101**



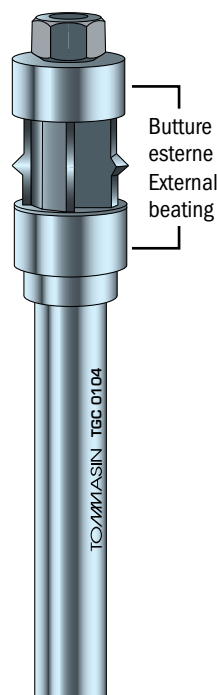
*art. **0102**



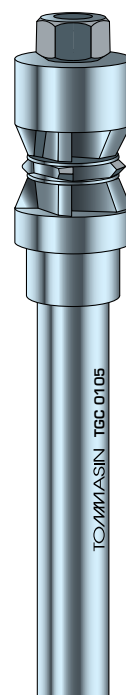
*art. **0103**



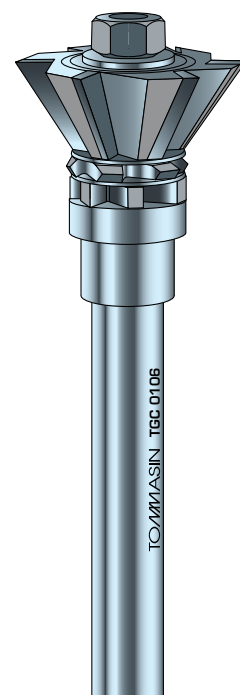
*art. **0104**



*art. **0105**



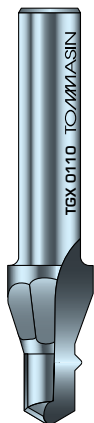
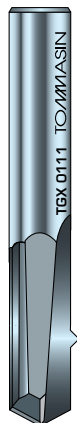
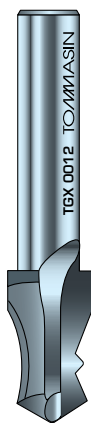
*art. **0106**

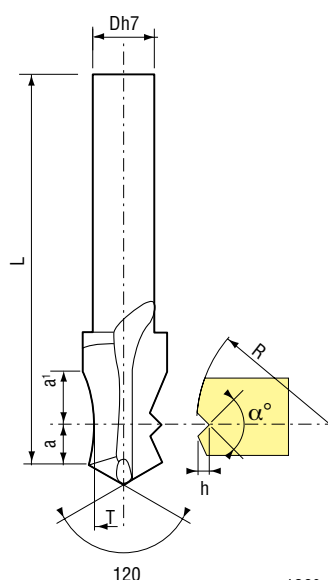
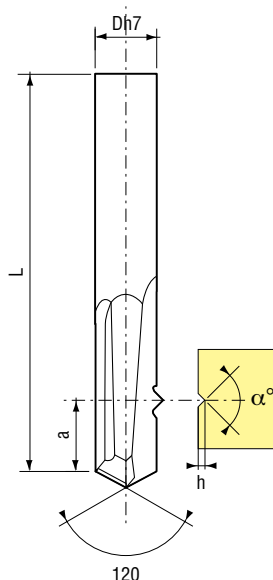
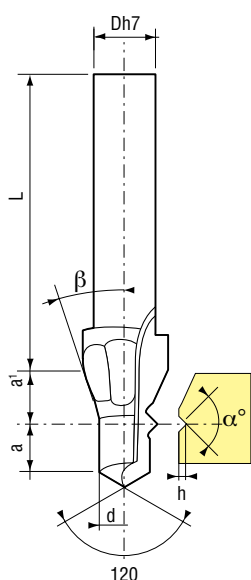


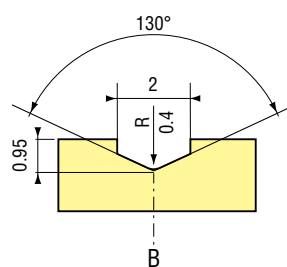
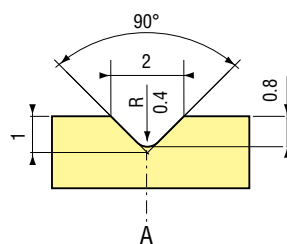
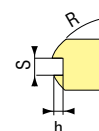
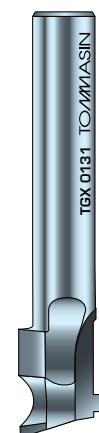
Sistema adatto per produzioni piccole e medie.

(10.000 ÷ 16.000 RPM.)

Used for little and middle production.

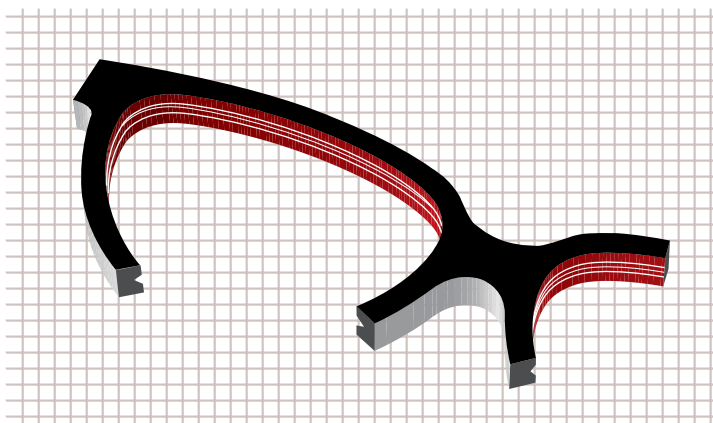
*art. **0110**

 *art. **0111**

 *art. **0012**

 *art. **0046**

 *art. **0047**

 *art. **0130**

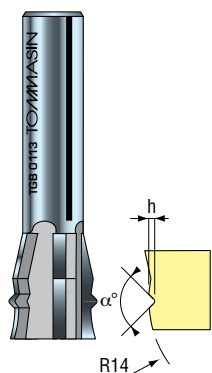
 *art. **0131**


Lavora in asportazione unica l'interno di montature. Dovendo pertanto sopportare sforzi notevoli, raccomandiamo agli operatori la massima precisione dei mandrini, delle pinze di fissaggio ed il perfetto bloccaggio del pezzo da lavorare. N. di giri/min. 12.000 ÷ 20.000.

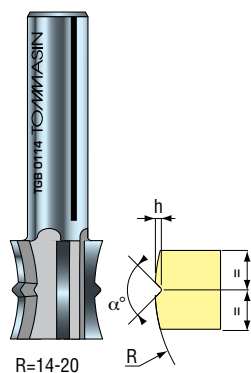
They work the inside of frame in one step. Since they must sustain great stress, it's very important the highest precision of mandrils, of fixing jaw, the perfect blocking of material which has to be processed. Minimum number of revolutions: 12.000 ÷ 20.000 per minute.



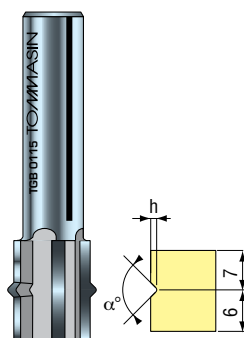
art. **0113**



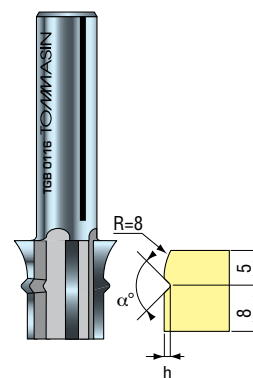
art. **0114**



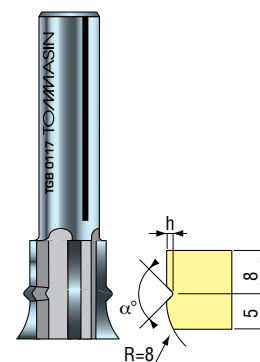
art. **0115**



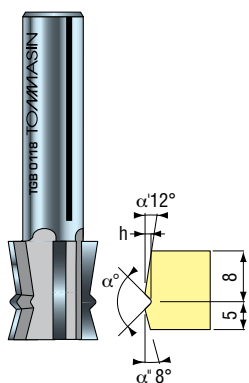
art. **0116**



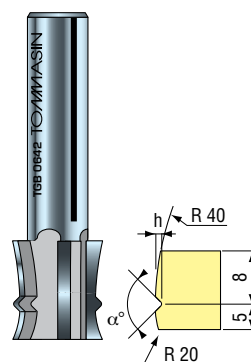
art. **0117**



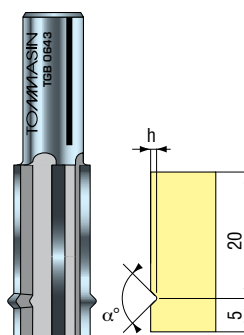
art. **0118**



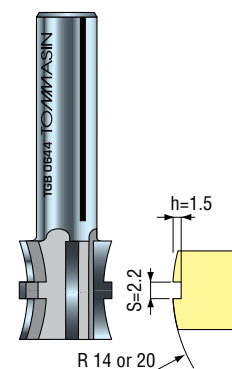
art. **0642**



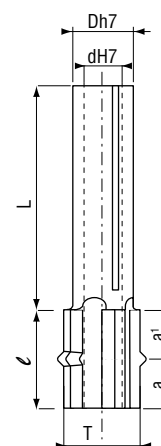
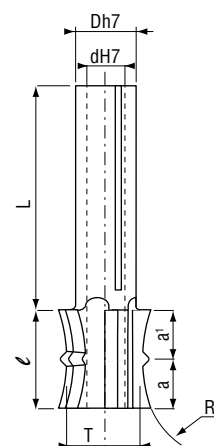
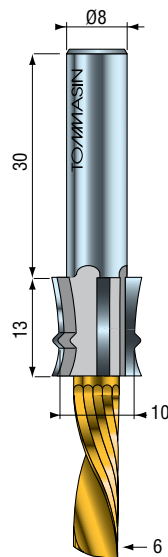
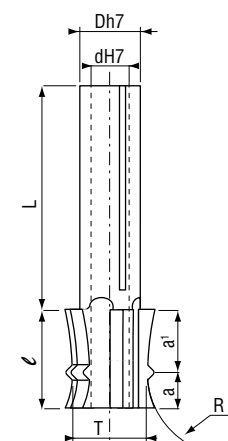
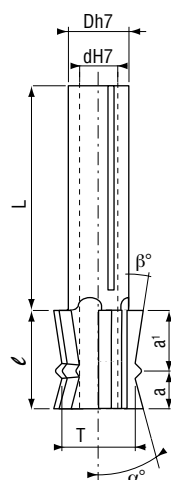
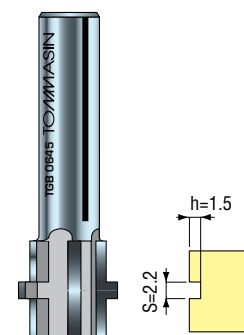
art. **0643**



art. **0644**

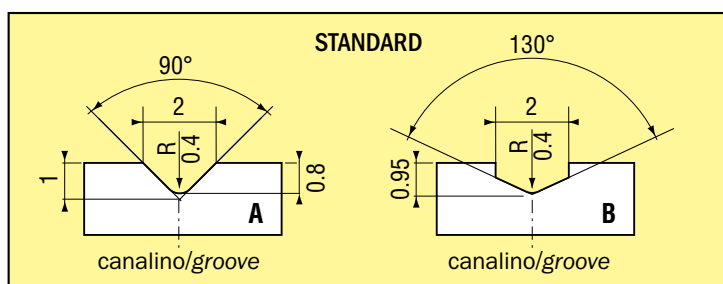


art. **0645**



Si usano su pantografi a mano o automatici da 14.000 a 20.000 giri/min. doppio scatto con a tastatori a gradino.

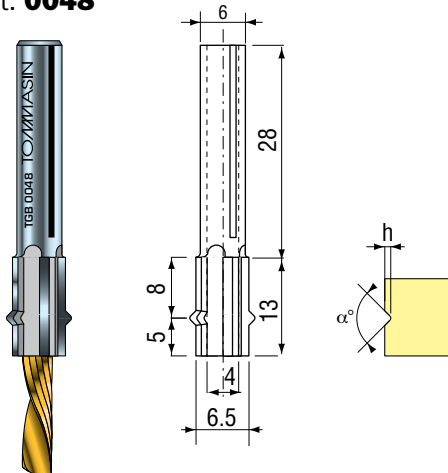
They are used on manual or automatic double release pantographs, from 14.000 to 20.000 RPM.



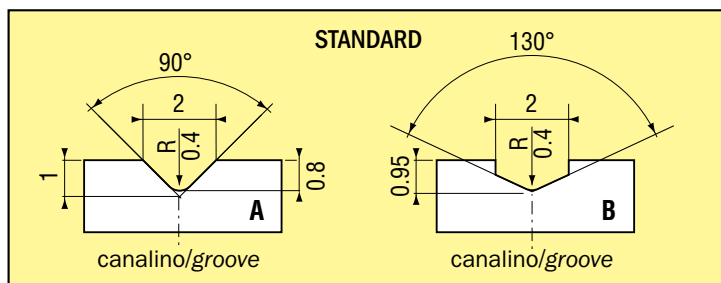
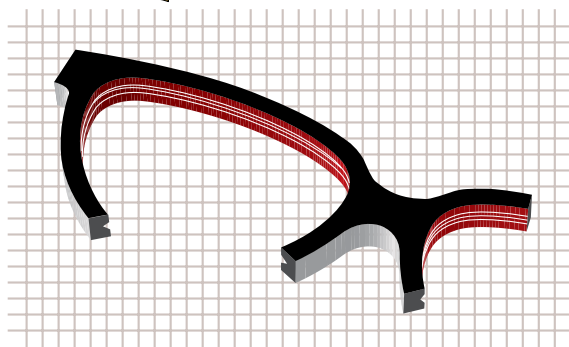
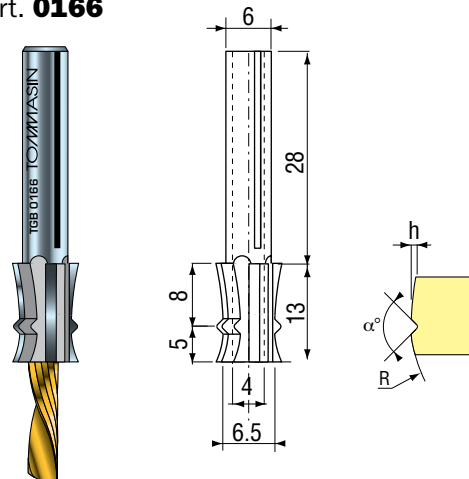
STANDARD

D = 8 • ℓ 13 • T = 10
d = 6 • L 30

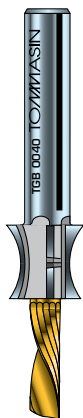
art. **0048**



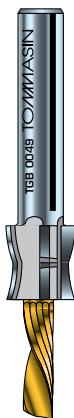
art. **0166**



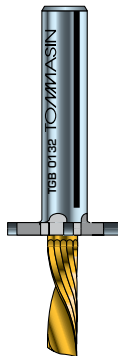
*art. **0040**



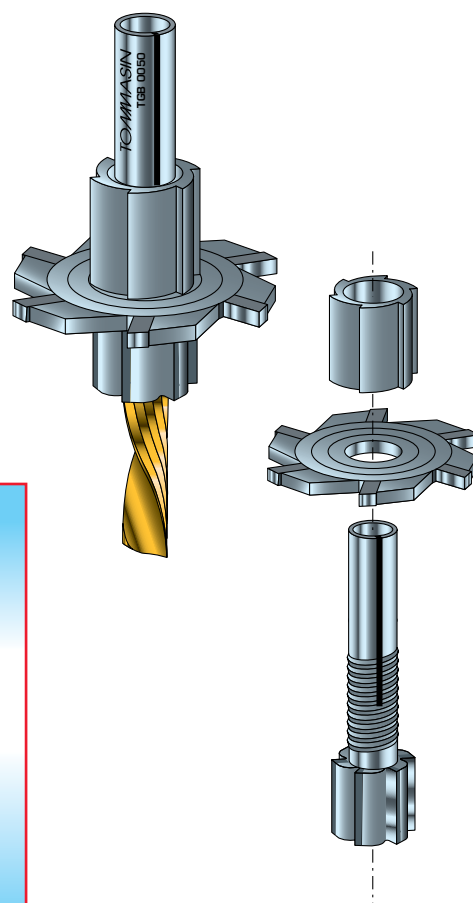
*art. **0049**



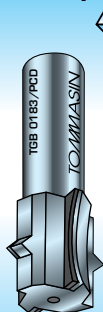
*art. **0132**



*art. **0050**

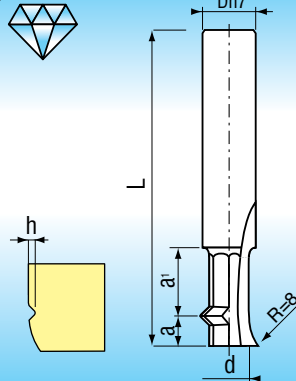
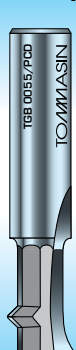


*art. **0183/PCD**

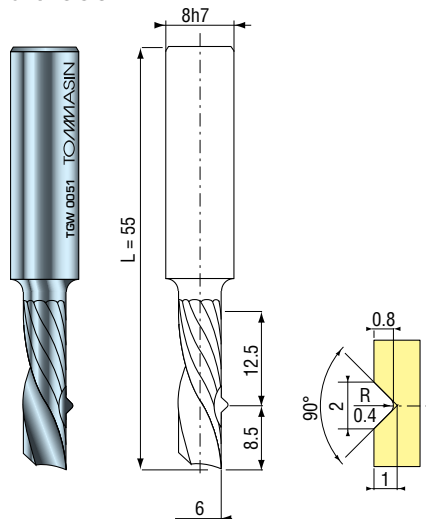


- **Diamante (PCD)**
solo a richiesta
- **Diamond (PCD)**
only upon request

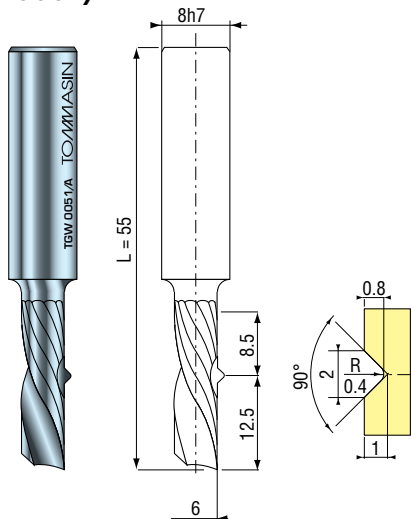
*art. **0055/PCD**



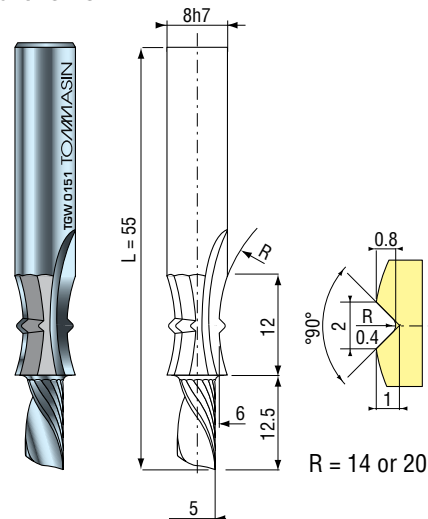
art. **0051**



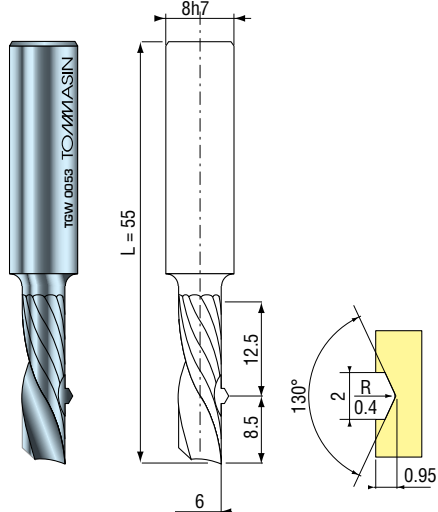
art. **0051/A**



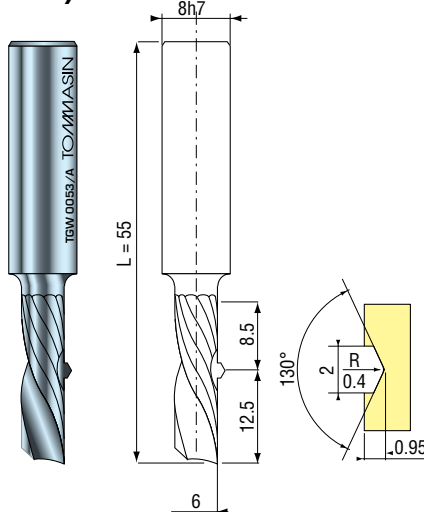
art. **0151**



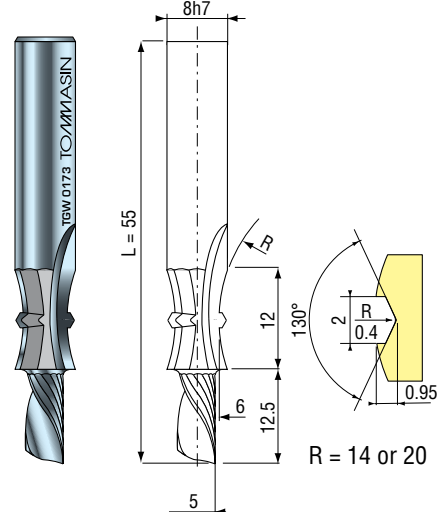
art. **0053**



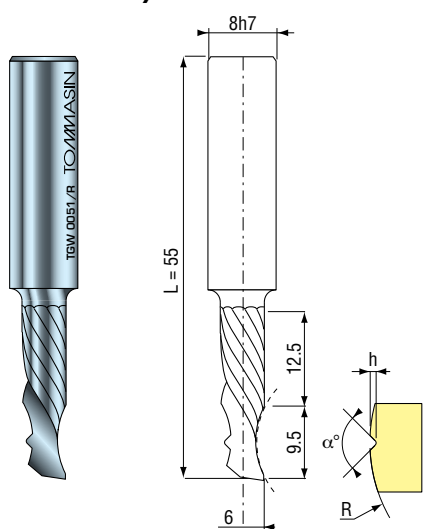
art. **0053/A**



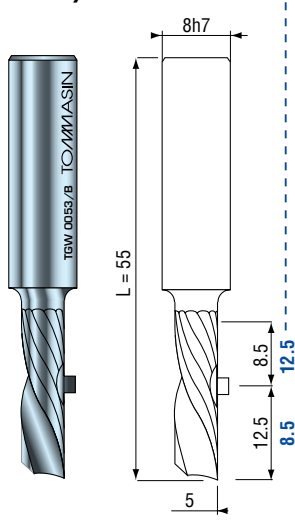
art. **0173**



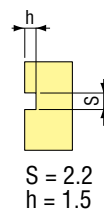
*art. **0051/R**



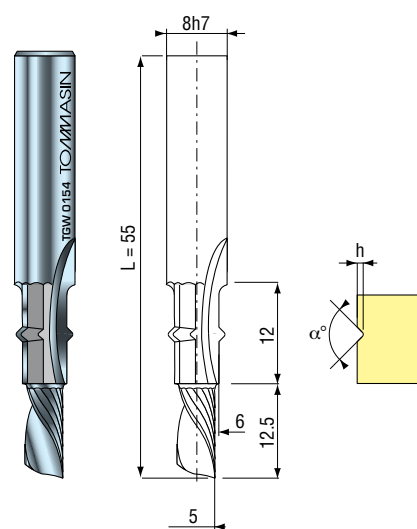
art. **0053/B**



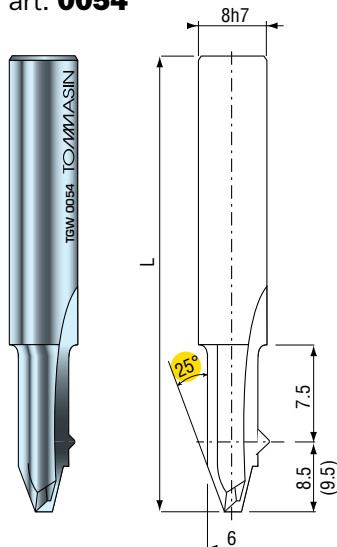
art. **0053/C**



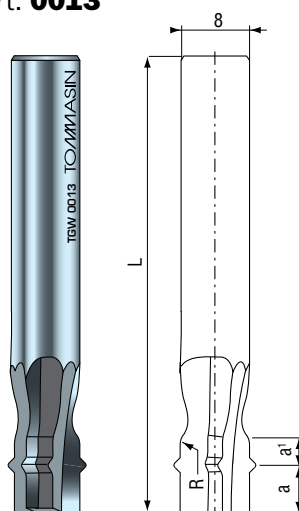
*art. **0154**



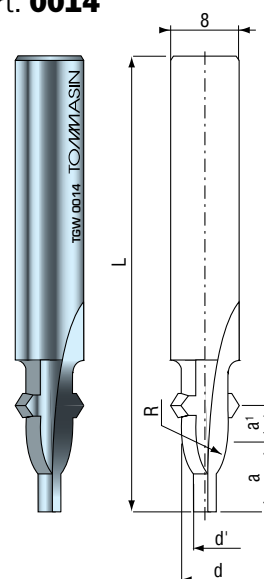
art. **0054**



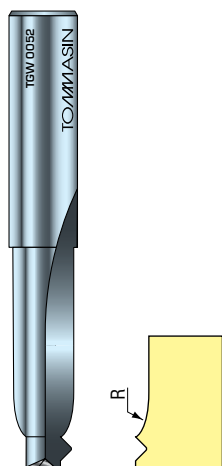
*art. **0013**



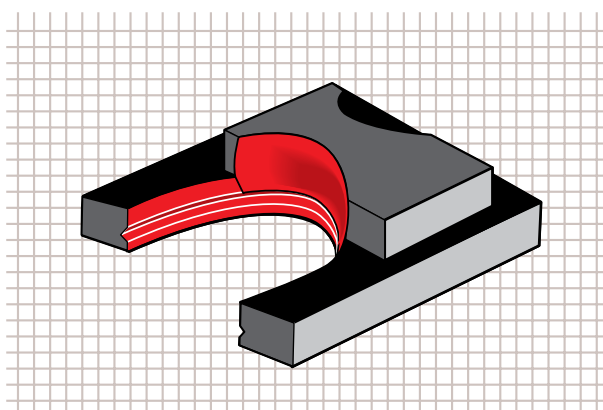
*art. **0014**



*art. **0052**

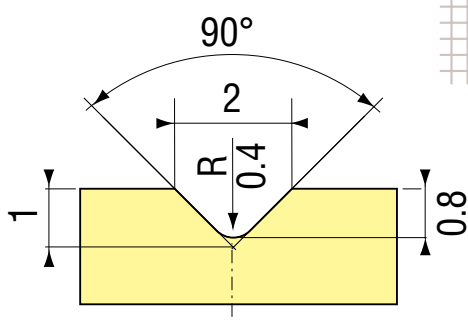


Per fresatura alette sottosquadra.
For milling lugs.



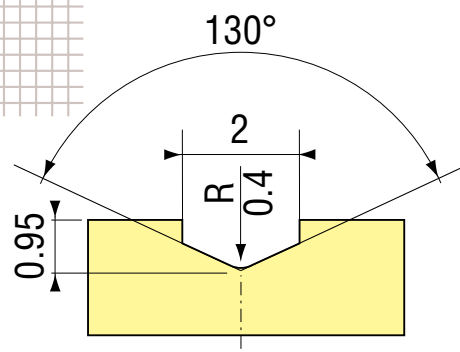
canalino vista
eyewear lens groove

A



canalino sole
sunglasses lens groove

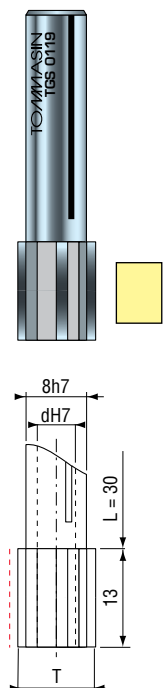
B



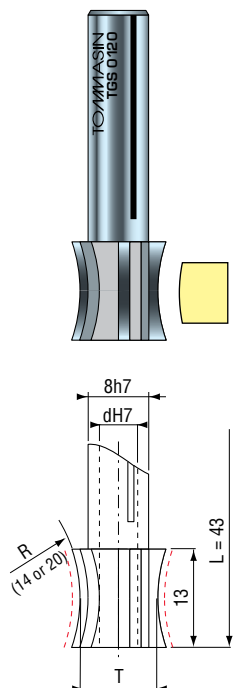
Tutti i tipi di fresa per interni,
sono disponibili a magazzino;
sia per il profilo canalino "A"
che per il profilo canalino "B".

Both groove types "A" and "B"
are available on stock.

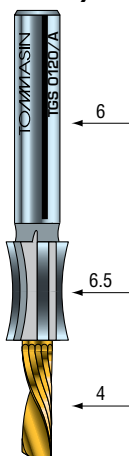
art. **0119**



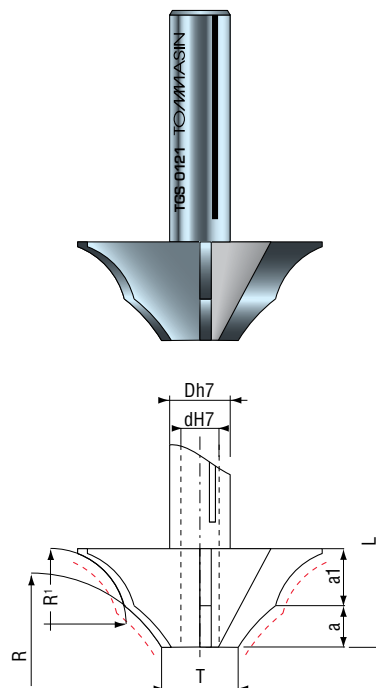
art. **0120**



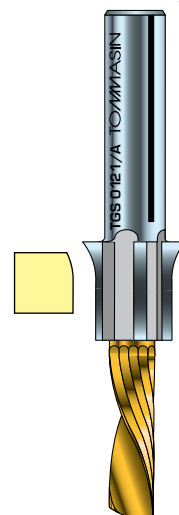
*art. **0120/A**



*art. **0121**



*art. **0121/A**

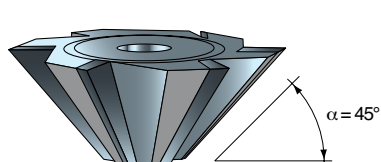


STANDARD

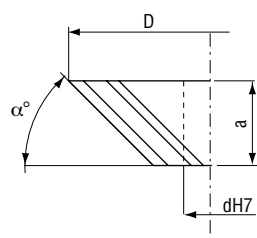
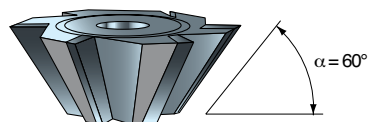
T = 10	• d = 6
T = 8	• d = 5

Si usano pantografi a doppio scatto.
14.000 ÷ 20.000 R.P.M.
They're used on double release pantographs.

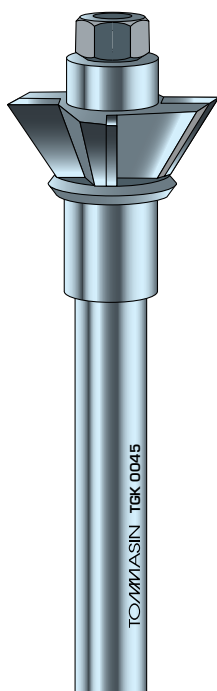
*art. **0124**



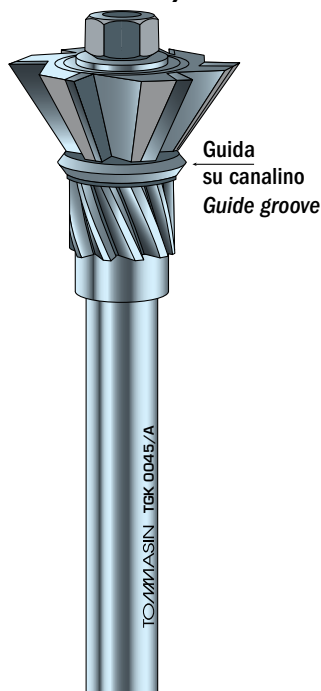
*art. **0124/A**



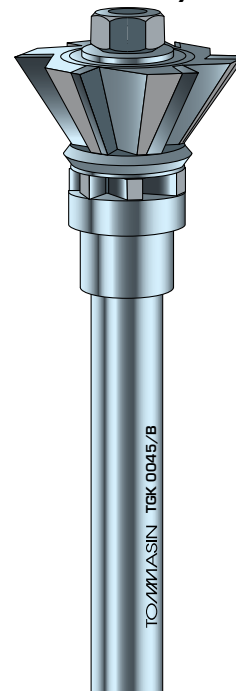
*art. **0045**



*art. **0045/A**

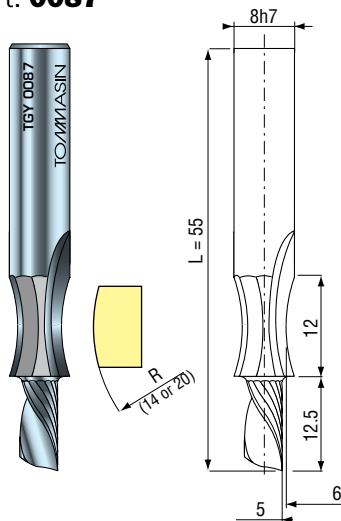


*art. **0045/B**

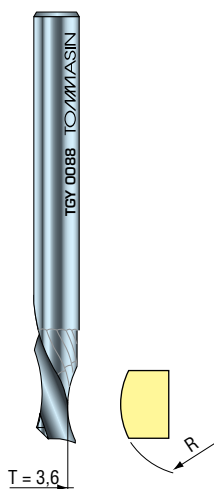


Lavorano su fresatrici manuali ad albero verticale.
(8.000 ÷ 16.000 R.P.M.)
They work on manual vertical shaft milling machine.

art. **0087**



art. **0088**



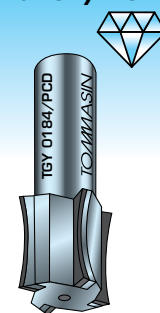
*art. **0188**



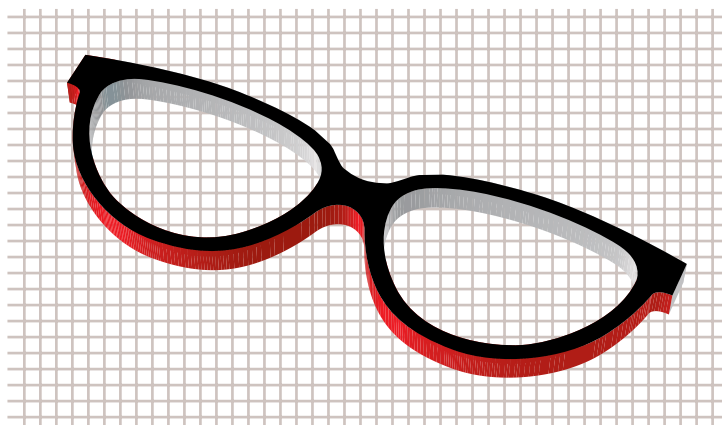
STANDARD

D	6 or *8
R	11 or *18

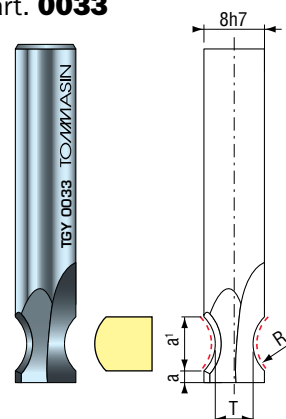
*art. **0184/PCD**



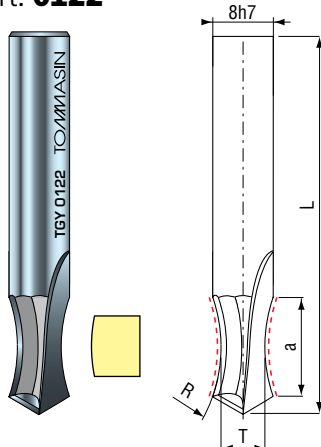
- **Diamante (PCD)**
solo a richiesta
- **Diamond (PCD)**
only on request



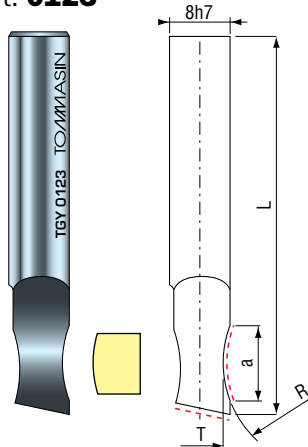
*art. **0033**



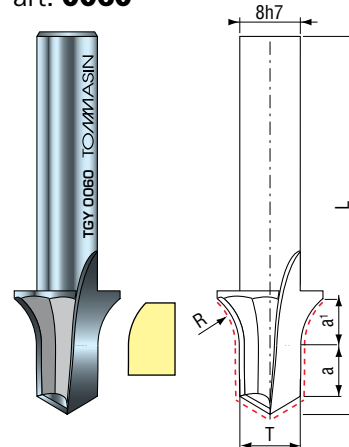
*art. **0122**



*art. **0123**



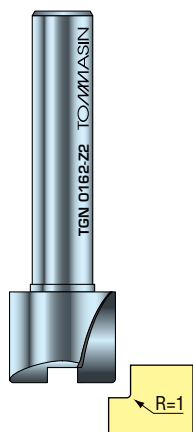
*art. **0060**



Si usano esclusivamente su pantografi automatici,
passaggio unico (10.000 ÷ 18.000 giri/min.)

They're used only on automatic pantographs,
single step (10.000 ÷ 18.000 RPM).

art. **0162-Z2**

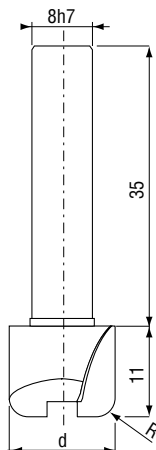
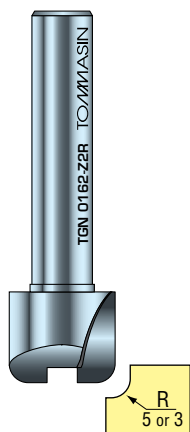


12.000 ÷ 16.000 R.P.M.

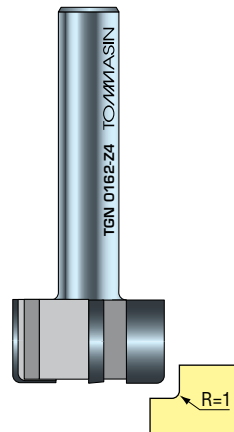
STANDARD

d	8 • 10 • 12 • 14
---	------------------

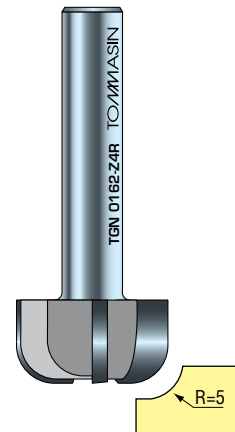
art. **0162-Z2R**



art. **0162-Z4**



art. **0162-Z4R**



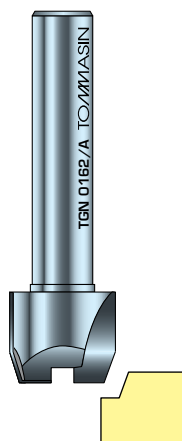
6.500 -11.500 R.P.M.

STANDARD

d	16 • 18 • 20 • 25
---	-------------------

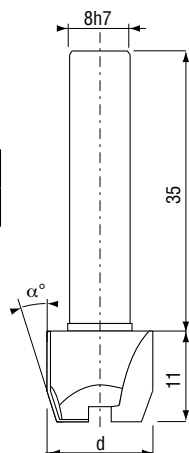
PER PANTOGRAFI AUTOMATICI E MANUALI
FOR AUTOMATIC AND MANUAL PANTOGRAPHS

art. **0162/A**

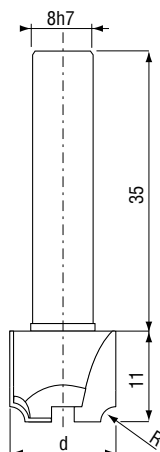
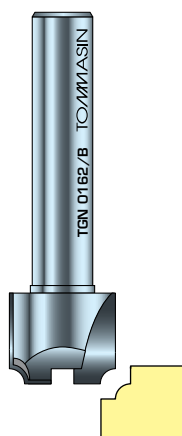


STANDARD

d	14 or 20
α	10° or 30°

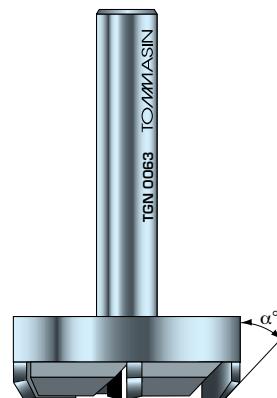


*art. **0162/B**



PER SPIANATURE LEVIGATE - FOR SMOOTH SURFACING

art. **0063**

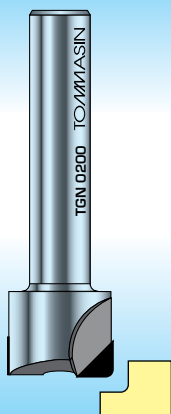


7.000 ÷ 8.000 R.P.M.

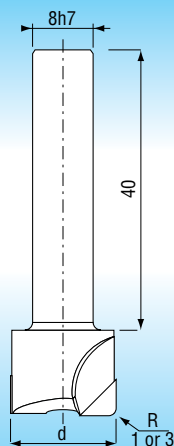
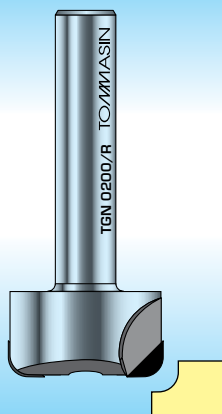
STANDARD

D	8
d	30 • Z6
α	45°

art. **0200**



art. **0200/R**



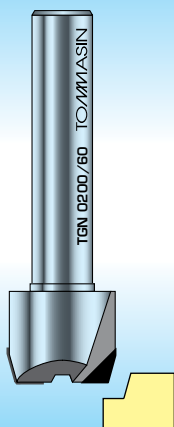
STANDARD

d = 14	Z = 2
d = 20	Z = 2
d = *25	Z = 3

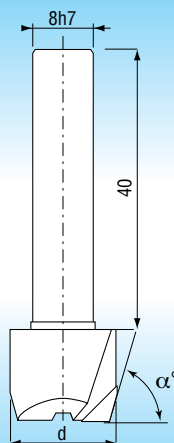
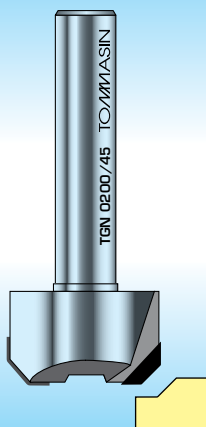
16.000 ÷ 20.000 RPM

avanzamento/feeding
 0.05 ÷ 0.07 mm per dente/mm thooth

art. **0200/60**



art. **0200/45**



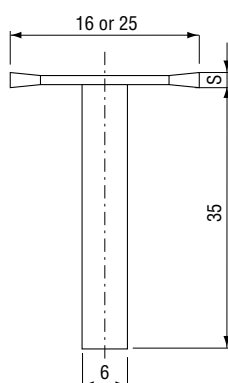
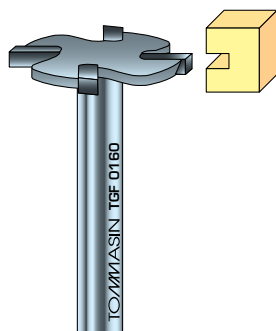
STANDARD

d = 14	α = 60°
d = 20	α = 45°

16.000 ÷ 20.000 RPM

avanzamento/feeding
 0.05 ÷ 0.07 mm per dente/mm thooth

art. **0160**

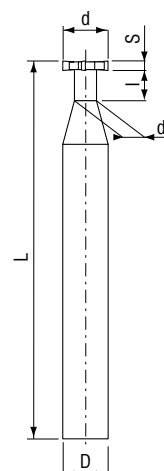
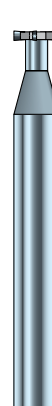


STANDARD

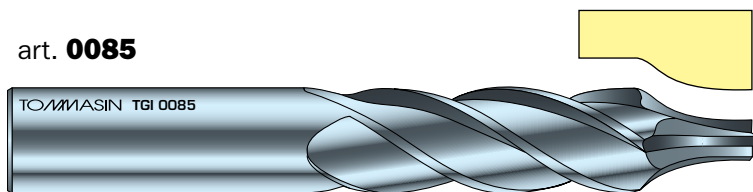
S	1 • 1,2 • 1,40 • 2 • 2,2
----------	--------------------------

V = 8.000 ÷ 12.000 R.P.M.

*art. **0061**



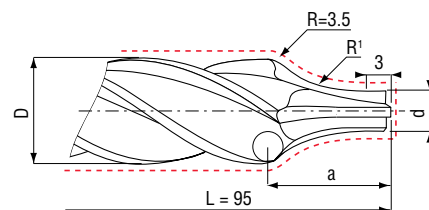
art. **0085**



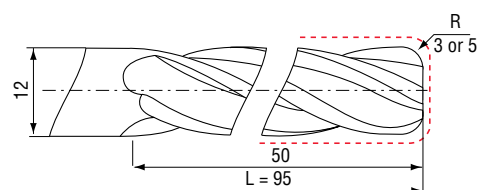
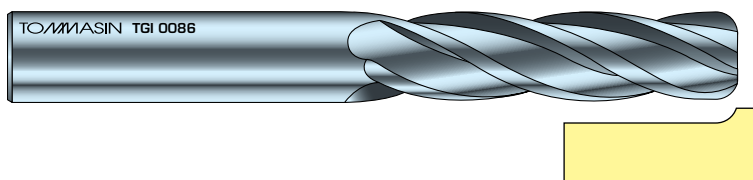
STANDARD

Fresa per sagomatura alette.
For lugs shaping.

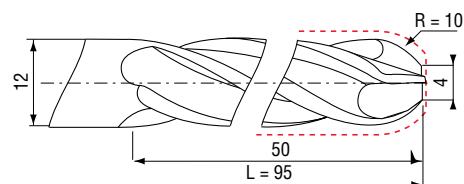
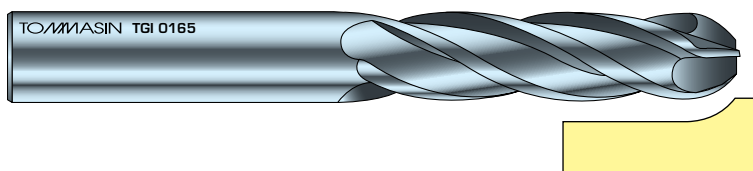
D	d	R1	a
12	5	8 or 16	10.8
14	7	8 or 16	14.2



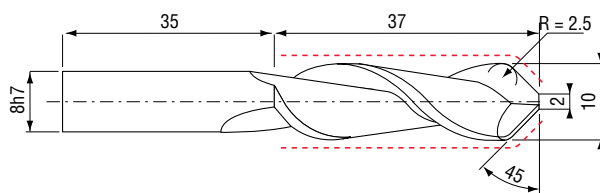
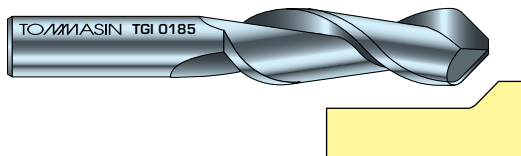
art. **0086**



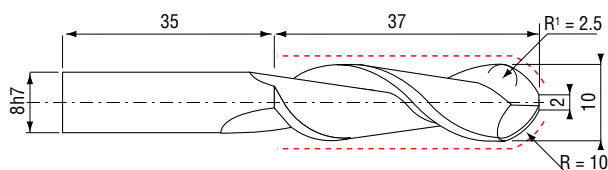
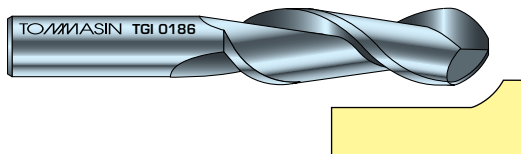
art. **0165**



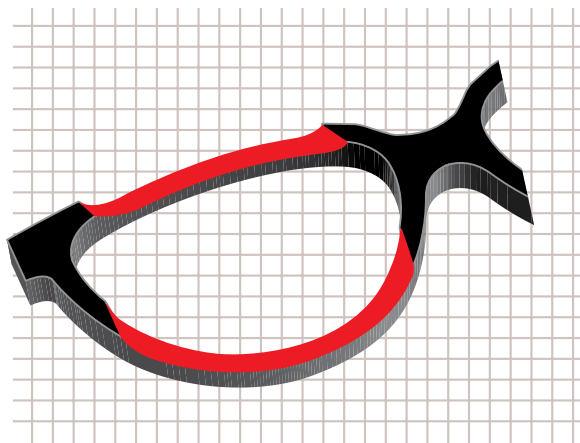
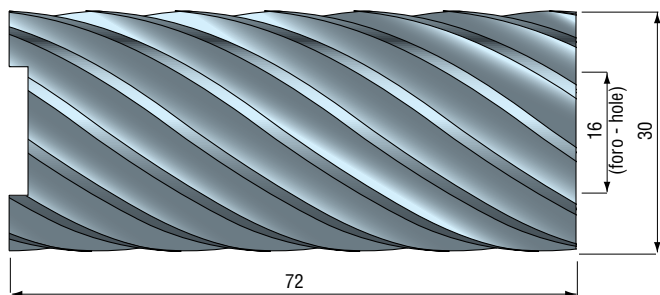
art. **0185**



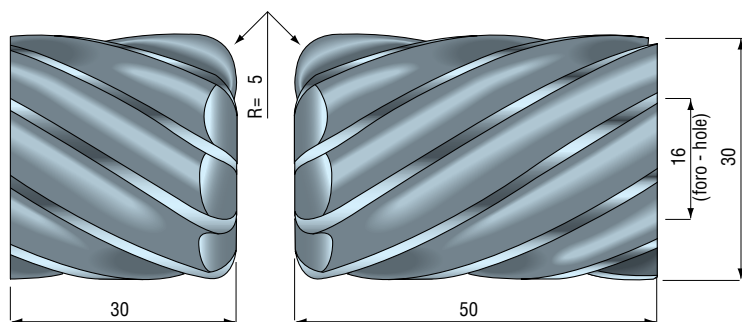
art. **0186**



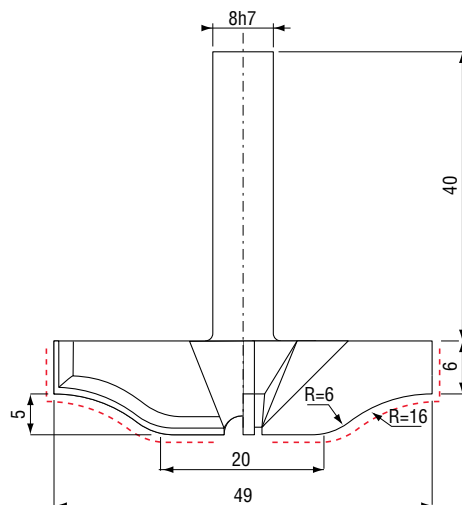
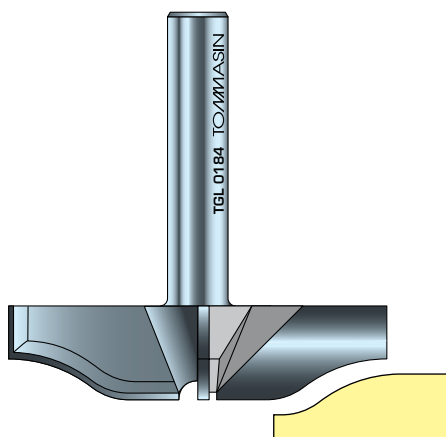
art. **0163 (Z14)**



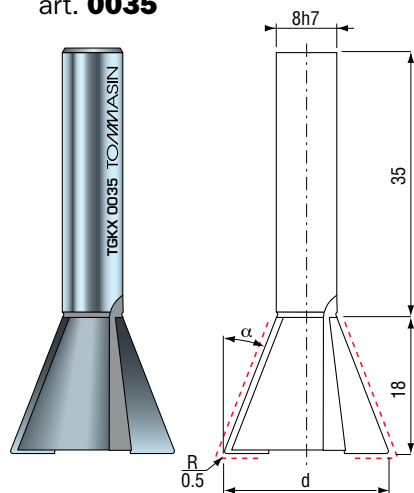
art. **0164 (Z12 or 10)**



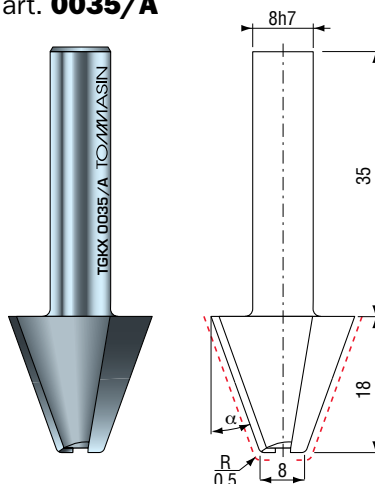
*art. **0184**



art. **0035**



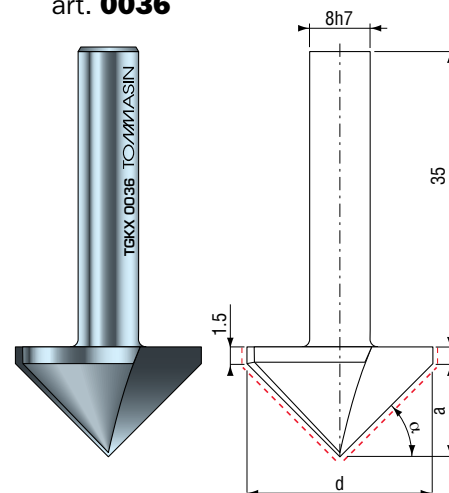
art. **0035/A**



STANDARD

d	18	22	26
α	15°	20°	25°

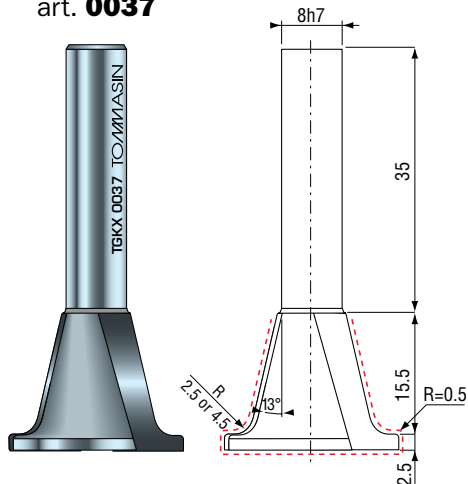
art. **0036**



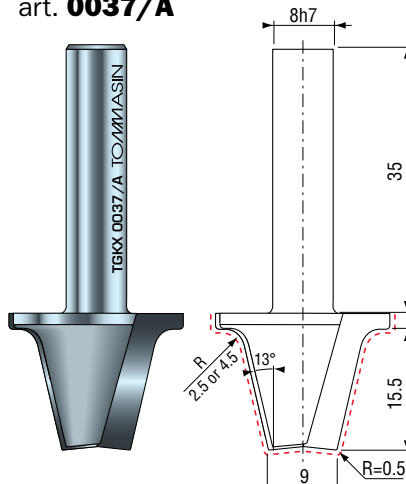
STANDARD

d	36	32	24	15
α	20°	30°	45°	60°

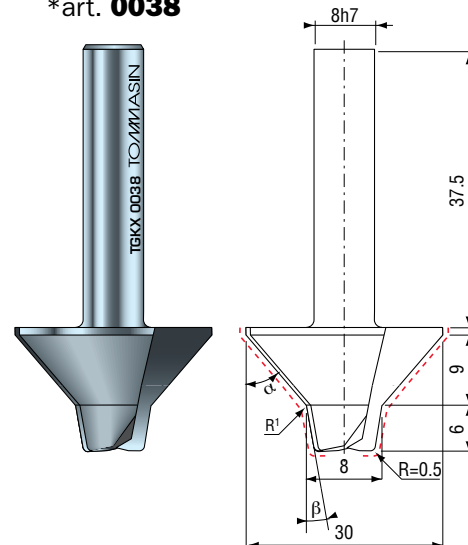
art. **0037**



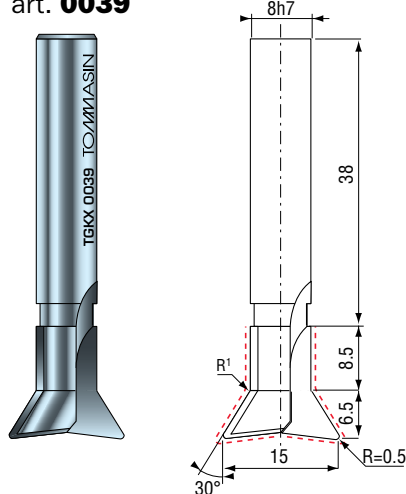
art. **0037/A**



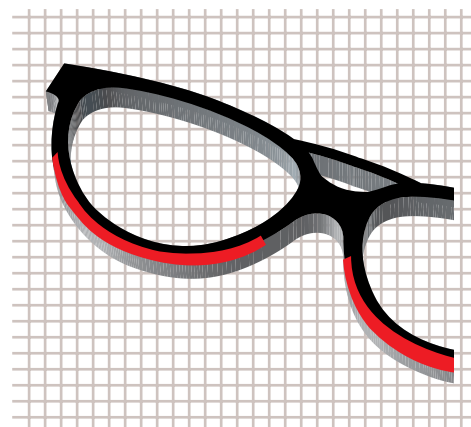
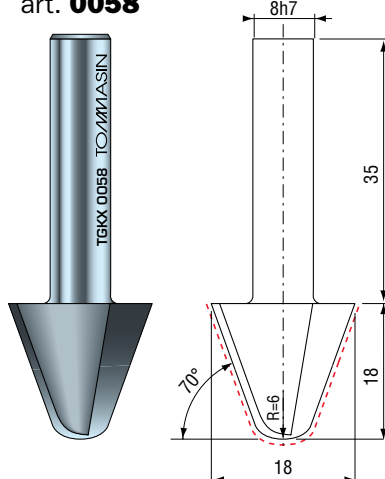
*art. **0038**



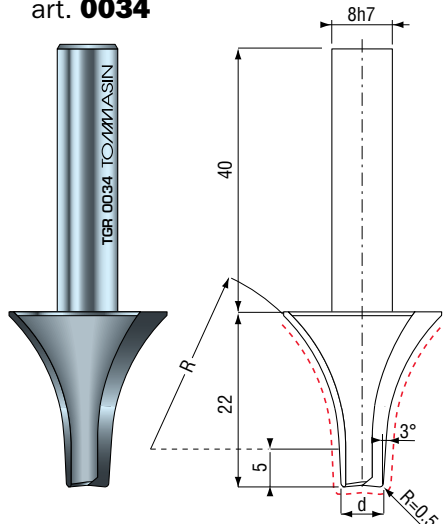
art. **0039**



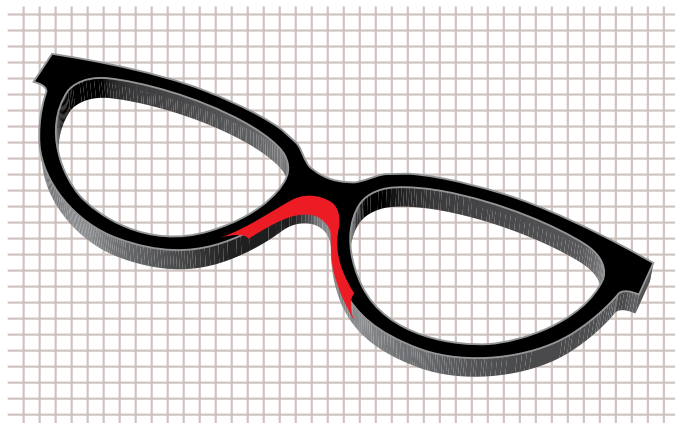
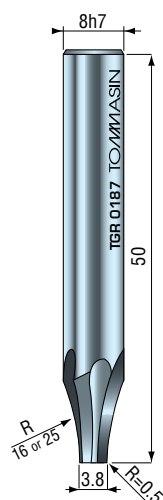
art. **0058**



art. **0034**



art. **0187**



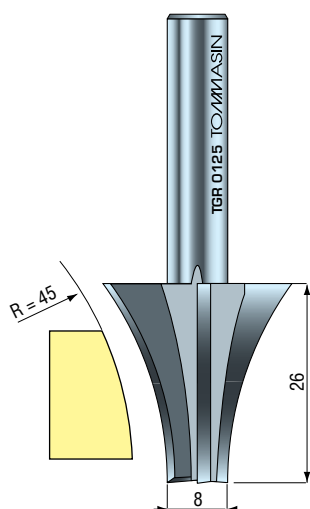
STANDARD

R	16	25
d	5	5 or 7.3

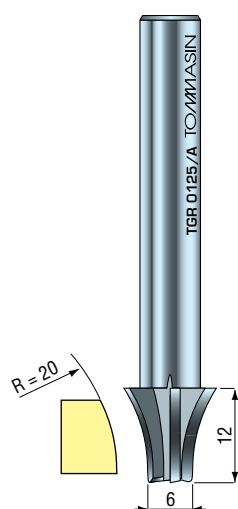
Frese per raggiare esternamente e raccordare naselli
10.000 ÷ 18.000 R.P.M.

Cutters for external rounding and joint of bridge.

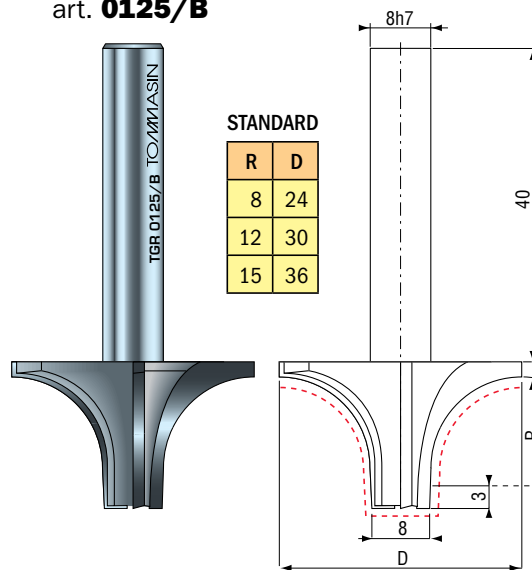
art. **0125**



art. **0125/A**



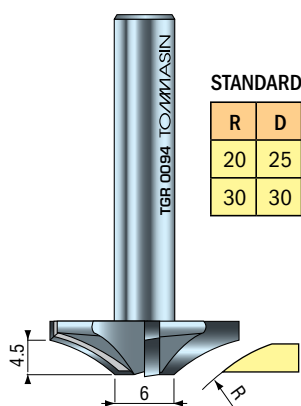
art. **0125/B**



STANDARD

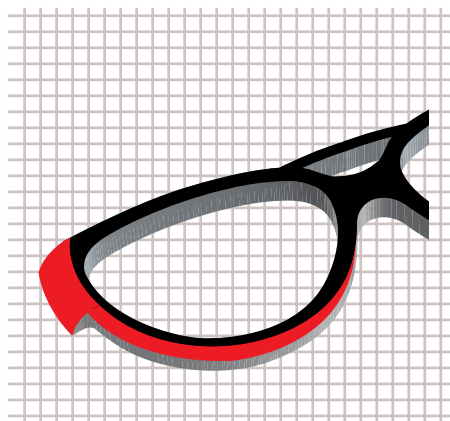
R	D
8	24
12	30
15	36

art. **0094**

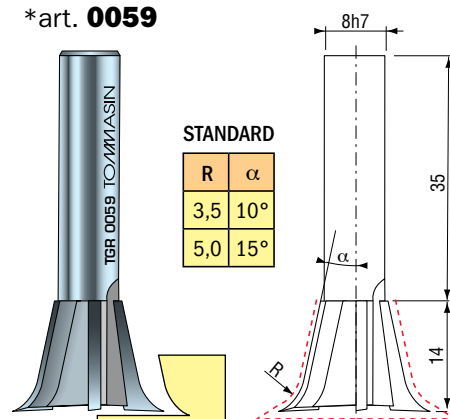


STANDARD

R	D
20	25
30	30



*art. **0059**

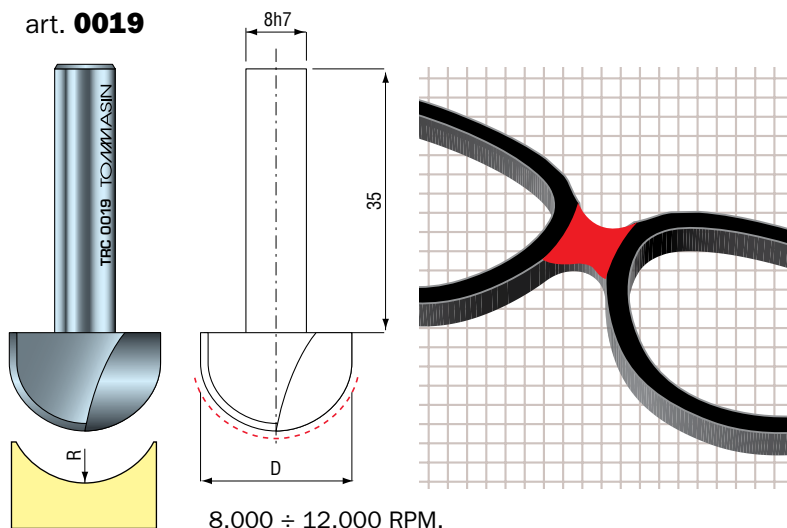


STANDARD

R	α
3,5	10°
5,0	15°

Frese per musi incollati. - Cutter for glued lugs.

art. **0019**

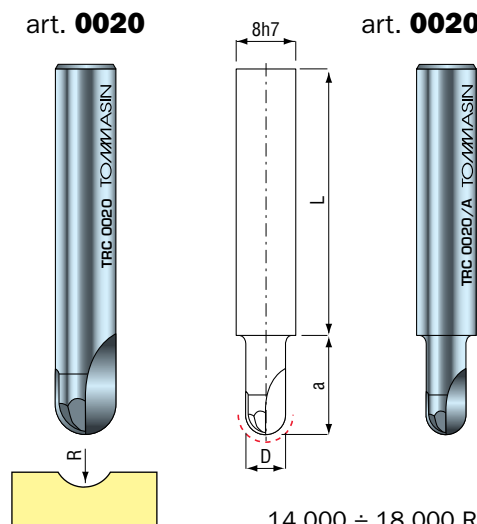


8.000 ÷ 12.000 RPM.

STANDARD

R	5	6	8	9	10	12	14	15
D	10	12	16	18	20	24	28	30

art. **0020**

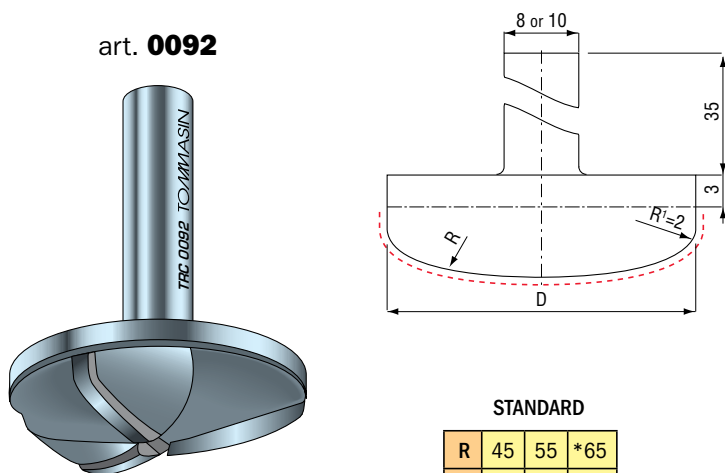


14.000 ÷ 18.000 RPM.

STANDARD

R	1,5	2,0	2,5	3,0	4,0
D	3,0	4,0	5,0	6,0	8,0

art. **0092**

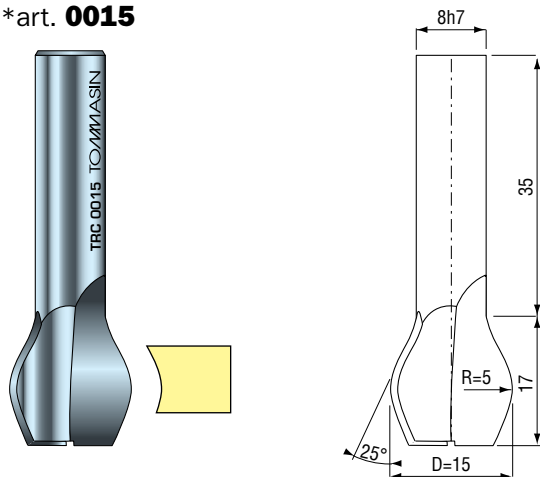


6.000 ÷ 8.000 RPM.

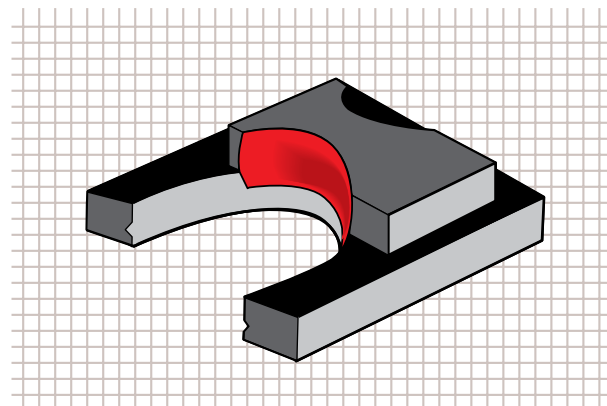
STANDARD

R	45	55	*65
D	35	40	45
Z	3	3	4

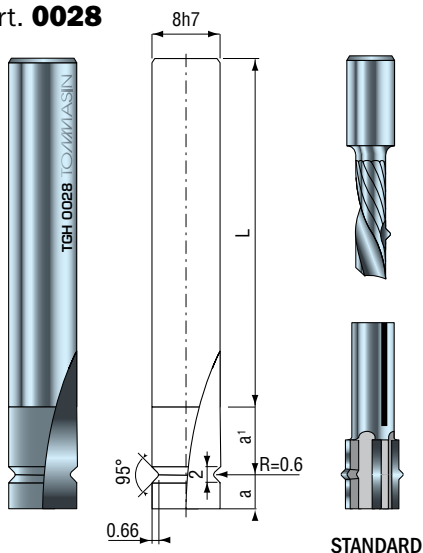
*art. **0015**



8.000 ÷ 10.000 RPM.



art. **0028**

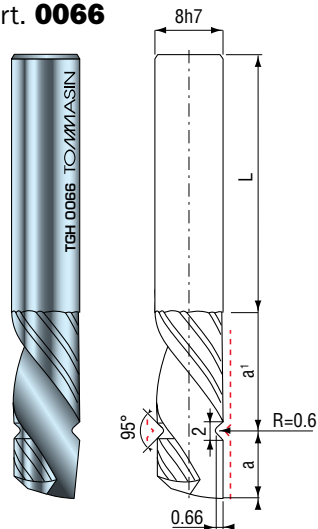


STANDARD

Z2 Sagoma diritta.
Z2 Straight shape.

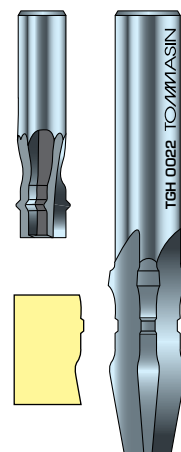
a 3,5 • 5 • 7,5

art. **0066**

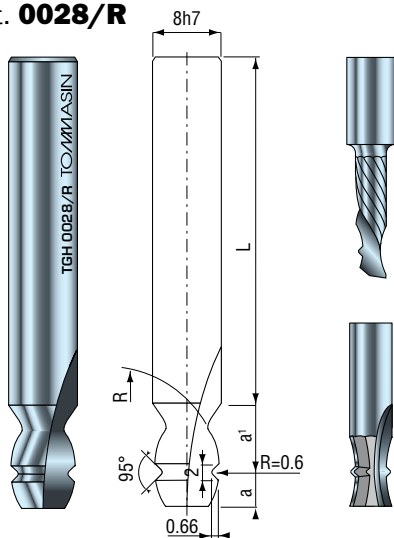


Elicoidale sagoma dritta
Twist fluted. Straight shape

*art. **0022**

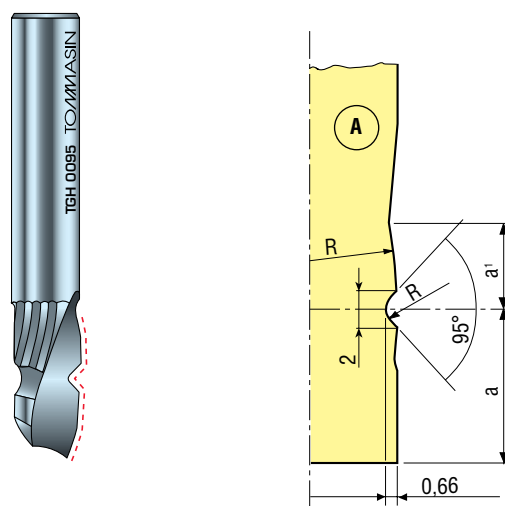


art. **0028/R**



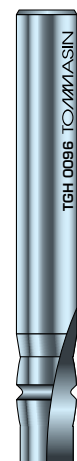
Z2 Sagoma bombata.
Z2 Rounded shape.

*art. **0095**

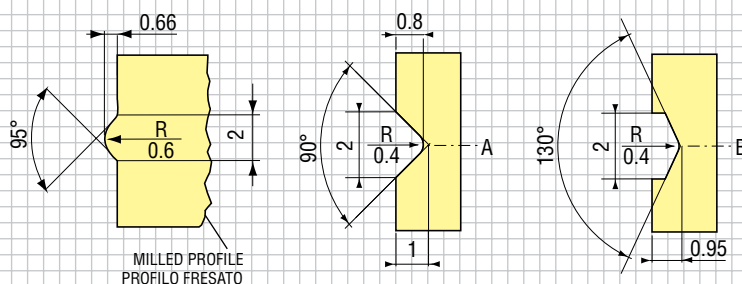
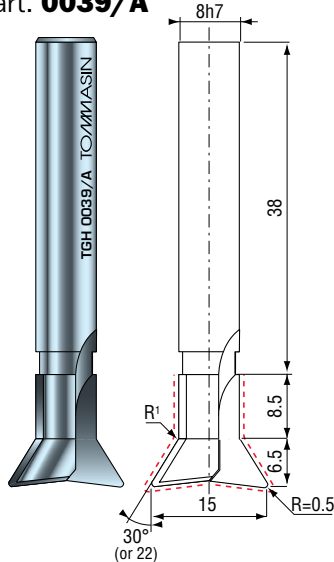


Elicoidale sagoma bombata
Twist fluted. Rounded shape

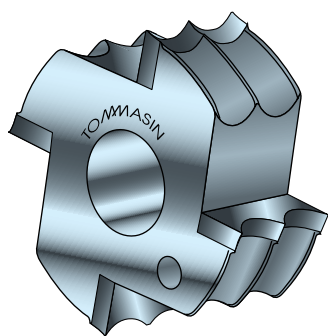
*art. **0096**



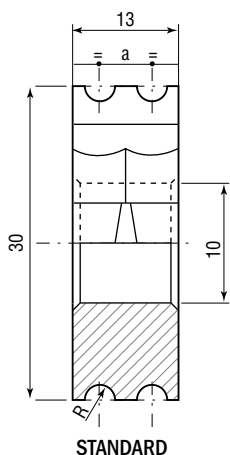
art. **0039/A**



*art. **0126**



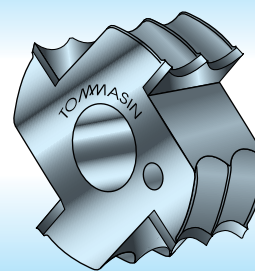
Per macchine automatiche.
(10.000 ÷ 12.000 R.P.M.).
For automatic machines.



STANDARD

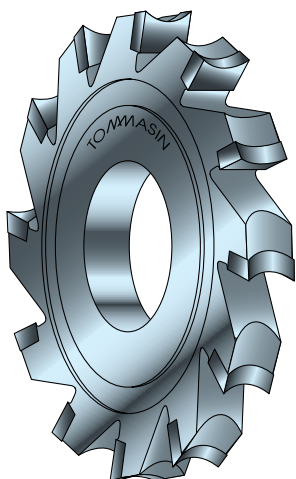
R	2,5 • 3 • 3,5 • 5
---	-------------------

*art. **0126/PCD**

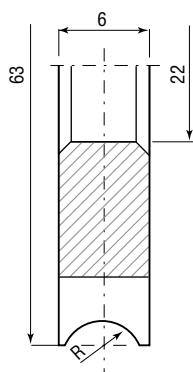


(18.000 / 20.000 R.P.M.).

art. **0127**



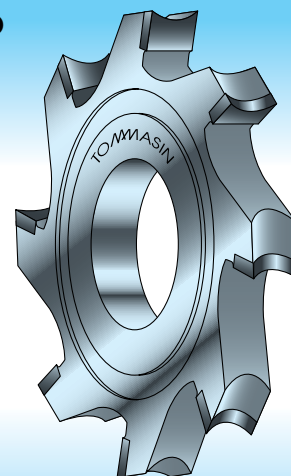
Per fresatrici automatiche.
(8.000 ÷ 12.000 R.P.M.).
For automatic milling machines.



STANDARD

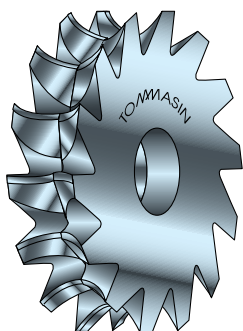
R	2,5 • 3 • 3,5 • 4 • 5
---	-----------------------

*art. **0127/PCD**

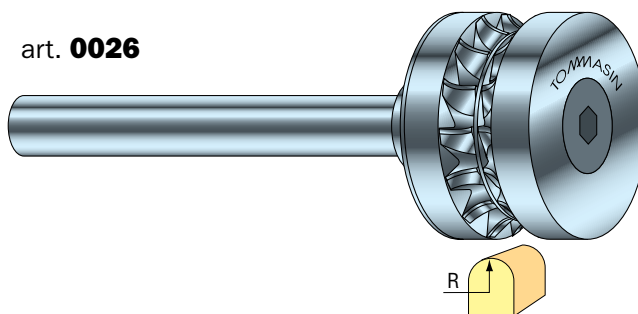


(18.000 / 20.000 R.P.M.).

art. **0128**



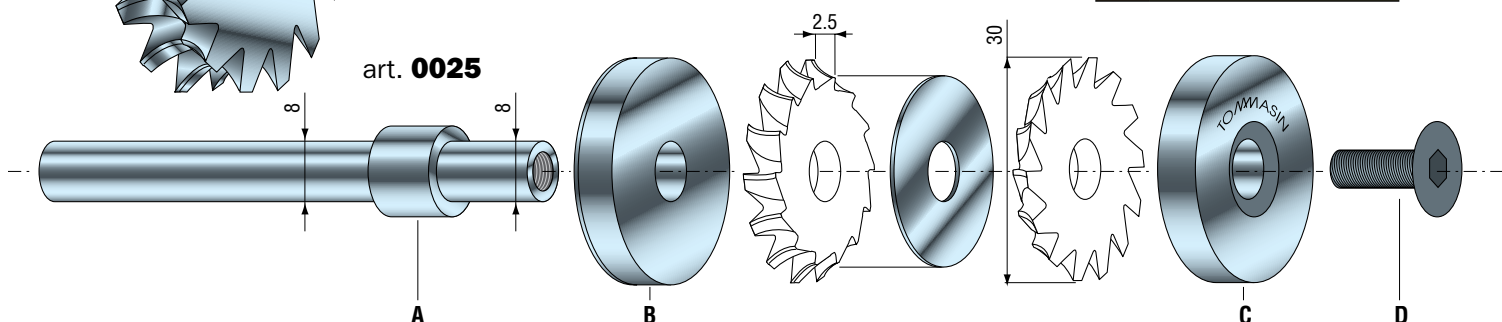
art. **0026**



STANDARD

R	1,5 • 2 • 2,5 • 3 • 3,5 • 4
---	-----------------------------

art. **0025**

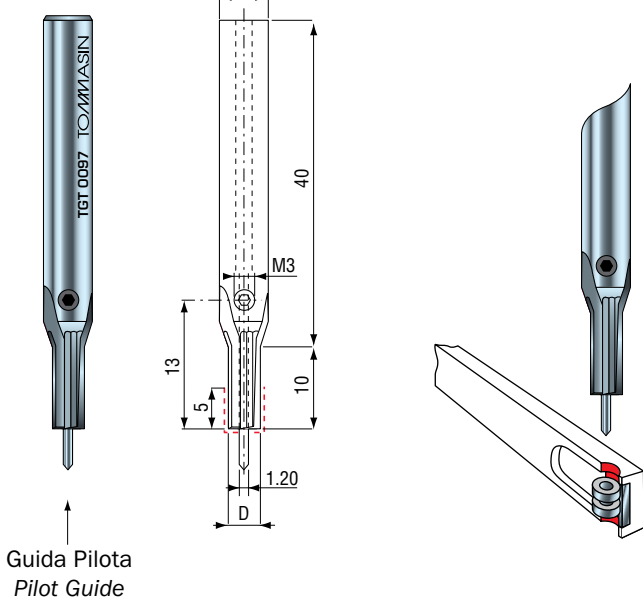


Per fresatrici manuali con albero verticale.

(10.000 ÷ 16.000 R.P.M.).

For manual vertical shaft milling machines.

art. **0097**

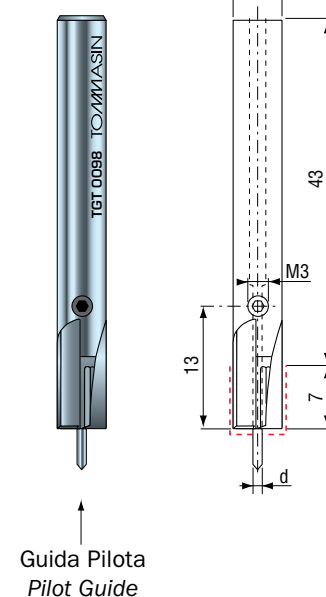


STANDARD

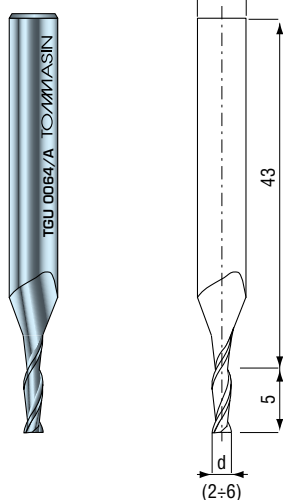
D	3 • 3,5 • 4
---	-------------

Su trapani o macchine automatiche (4.500 ÷ 6.000 R.P.M.) On drills or automatic machines

*art. **0098**



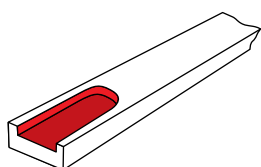
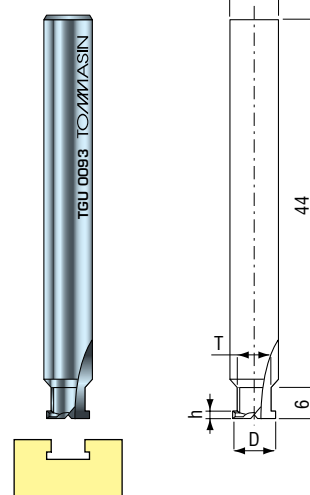
art. **0064/A**



art. **0065**



*art. **0093**

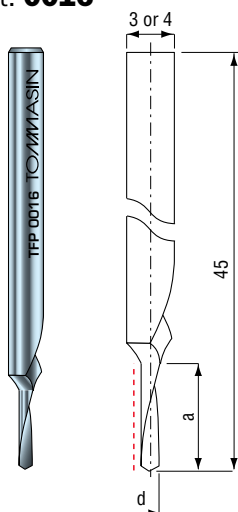


Per fresatrici manuali ed automatiche.

(14.000 ÷ 18.000 R.P.M.).

For manual and automatic milling machines

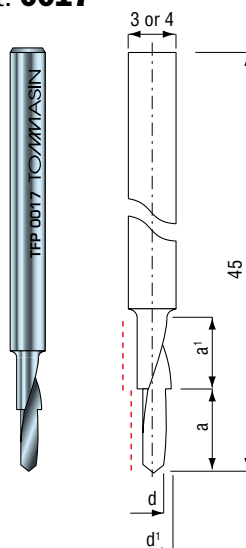
*art. **0016**



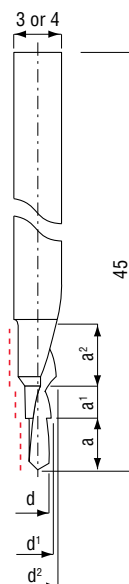
*art. **0016/A**



*art. **0017**



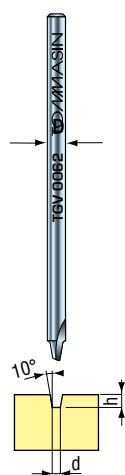
*art. **0018**



In metallo duro micrograna da usare su pantografi o fresatrici ad altissima velocità:
 15.000 ÷ 27.000 R.P.M.

Tugsten cardibe micro grain they have to be used on pantographs or milling machines at very high speed.

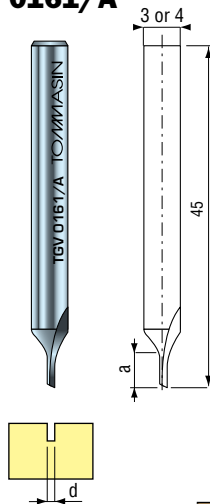
art. **0062**



STANDARD

D	3
d	0,5 ÷ 1,5
α	10°

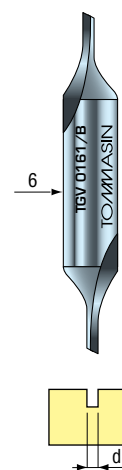
art. **0161/A**



STANDARD

D	4	6
d	0.6 ÷ 2.5	2.6 ÷ 3.5
a	1.8 ÷ 3.5	3.5 ÷ 4.8

*art. **0161/B**

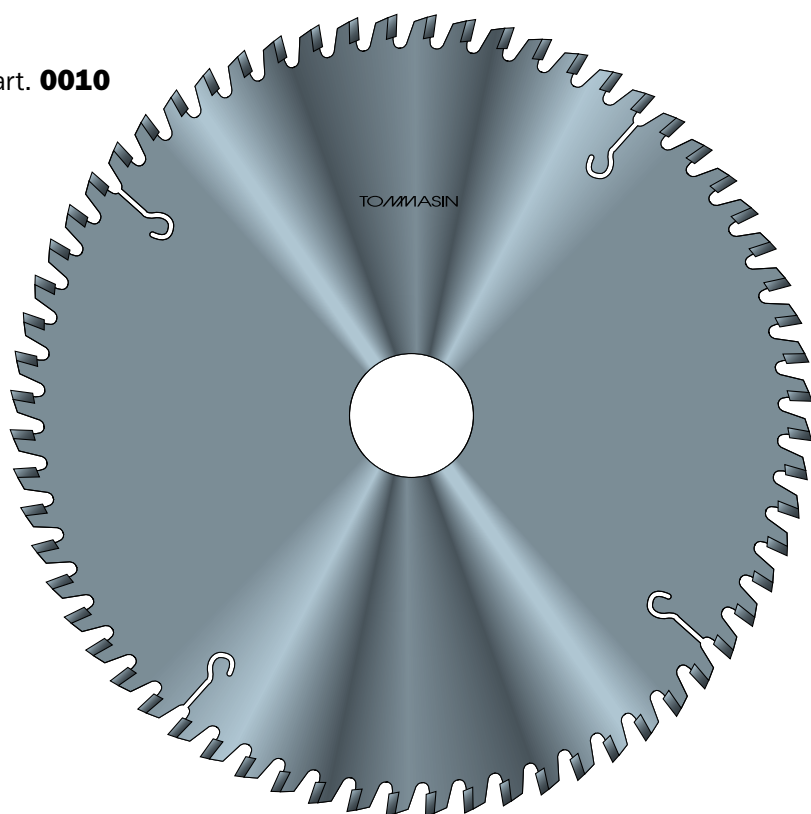


Da usare su pantografi o fresatrici ad altissima velocità:
 (24.000 ÷ 28.000 R.P.M.).

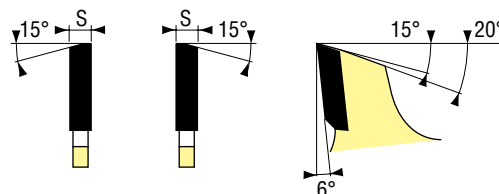
They have to be used on pantographs or milling machines at very high speed.

Per il taglio di materie plastiche e fibre sintetiche. (4.500 ÷ 5.500 R.P.M.) Plastic and synthetic materials cutter.

art. **0010**



Forma ed affilatura dei denti.
Teeth shape and grinding.



STANDARD

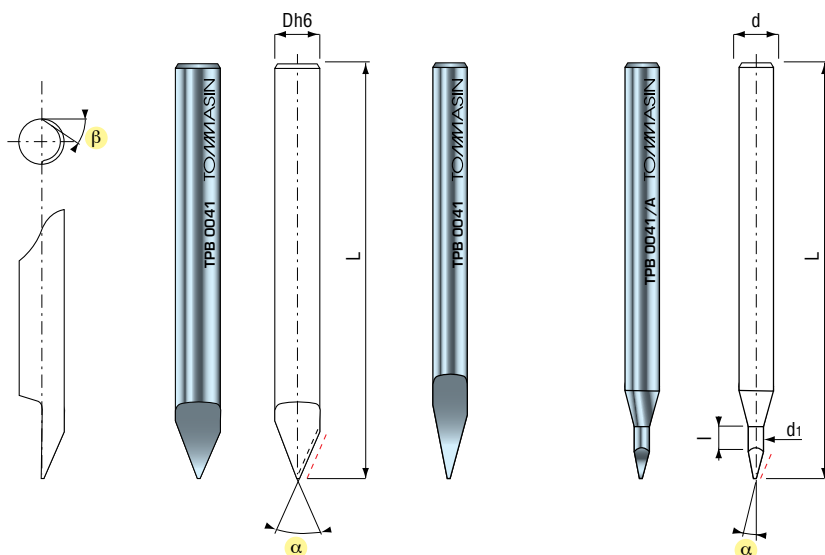
D	200
S	2 • (*1,8)
foro hole	30
Z	64

in metallo duro micrograna.

tungsten carbide micro grain.

art. **0041**

art. **0041/A**



STANDARD

D	3,0	4,0	6,0
L	40	50	57
α	15° or 25°	15° or 25°	15° or 25°

ANGOLI DI AFFILATURA

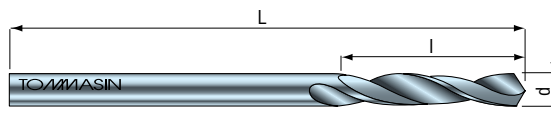
Per materiali	β°
acciai legati	12-15
acciai da costruzione	20-25
ottone duro	25-35
ottone tenero	35-40
alluminio duro	40
alluminio tenero	45
celluloide	45-60
legno, fibra prespan, ecc.	45-50

VELOCITÀ

Per materiali	sgross. m/ min.	finit. m/ min.
Acciai da utensili e dolci	60	90
Acciai da utensili duri	40	70
Ghisa e ghisa dura	50	80
Acciai da costr. e forg. R. 40/60 Kg/mm ²	60	90
Acciai da costr. e forg. R. 80 Kg/mm ²	40	70
Acciai da costr. e forg. R > 80 Kg/mm ²	25	45
Ottone duro	100	150
Ottone tenero	70	120
Alluminio, fibra ecc.	200	200
Legno, celluloidi	200	250

art. **0169**
Serie Standard
Standard Size

con ricopertura
da Ø 1,5
with coating
from Ø 1,5

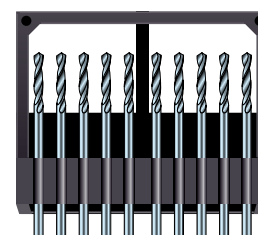
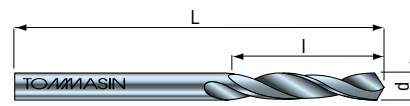


DIN 338

d	L	l	d	L	l	d	L	l	d	L	l
*0,5	22	6	1,4÷1,5	40	18	3,4÷3,7	70	39	8,6 ÷ 9,5	125	81
*0,6	24	7	1,6÷1,7	43	20	3,8÷4,2	75	43	9,6 ÷ 10,5	133	87
*0,7	28	9	1,8÷1,9	46	22	4,3÷4,7	80	47	*10,8 ÷ 11,9	142	94
*0,8	30	10	2,0÷2,1	49	24	4,8÷5,3	86	52	*12,0 ÷ 13,0	150	101
*0,9	32	11	2,2÷2,3	53	27	5,4÷6,0	93	57	*13,5 ÷ 14,5	160	108
1,0	34	12	2,4÷2,6	57	30	6,1÷6,7	101	63	*15	169	114
1,1	36	14	2,7÷3,0	61	33	6,8÷7,5	109	69	*15,5 ÷ 16,0	178	120
1,2÷1,3	38	16	3,1÷3,3	65	36	7,6÷8,5	117	75			

art. **0169/A**
Serie Corta
Short Size

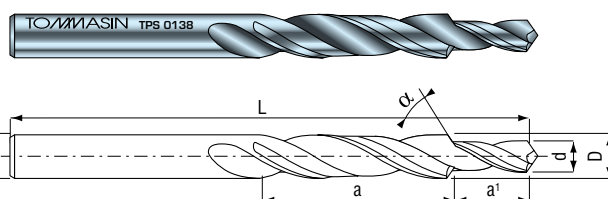
con ricopertura
da Ø 1,5
with coating
from Ø 1,5



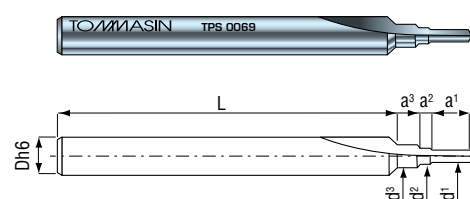
DIN 1897

d	L	l	d	L	l	d	L	l	d	L	l
0,3	22	4	1,8÷1,9	36	11	4,3 ÷ 4,7	58	24	11 ÷ 11,5	95	47
0,35 ÷ 0,6	22	5	2,0÷2,1	38	12	4,8 ÷ 5,3	62	26	12 ÷ 13	102	51
0,65 ÷ 0,7	28	6	2,2÷2,3	40	13	5,4 ÷ 6,0	66	28	14	107	54
0,75 ÷ 0,9	28	8	2,4÷2,6	43	14	6,1 ÷ 6,7	70	31	*14,5 ÷ 15	111	56
1,0 ÷ 1,1	26	6	2,7÷3,0	46	16	6,8 ÷ 7,5	74	34	*16	115	58
1,2 ÷ 1,3	30	8	3,1÷3,3	49	18	7,6 ÷ 8,5	79	37	*18	123	62
1,4 ÷ 1,5	32	9	3,4÷3,7	52	20	8,6 ÷ 9,5	84	40	*20	131	66
1,6 ÷ 1,7	34	10	3,8÷4,2	55	22	9,6 ÷ 10,5	89	43			

*art. **0138**



*art. **0069**

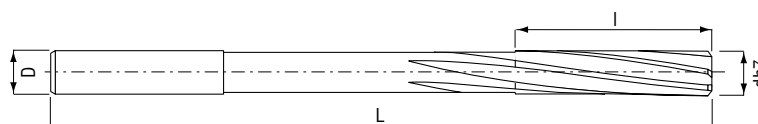


A E

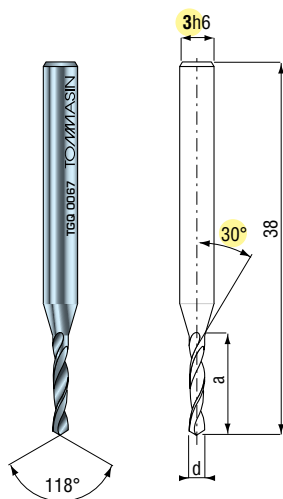
- Alesatore elicoidale spirale sinistra
- Left hand twist reamer right hand cut

DIN 212

art. **0171**



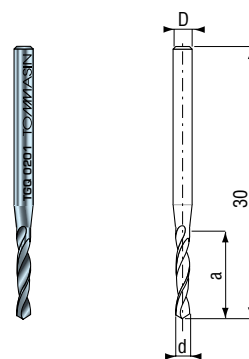
art. **0067**



d	D	a	d	D	a
*0,3	3,0	4,0	1,3	3,0	10
*0,4	3,0	4,0	1,4	3,0	10
0,5	3,0	5,0	1,5	3,0	10
0,6	3,0	6,0	1,6	3,0	12
0,7	3,0	6,0	1,7	3,0	12
0,8	3,0	8,0	1,8	3,0	12
0,9	3,0	9,0	1,9	3,0	12
1,0	3,0	9,0	2,0	3,0	12
1,1	3,0	9	2,1	3,0	12
1,2	3,0	10	2,2	3,0	12

Diametri semidecimali - Half decimal diameters

art. **0201**



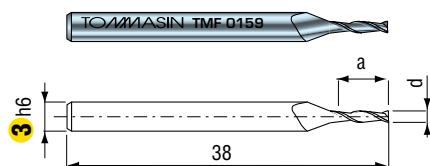
d	D
0,50 - 1,95	2,0 mm
2	2,5 mm

d h6	a	d h6	a	d h6	a
*0,25	3,00	0,85	8,00	1,45	12,00
*0,30	3,00	0,90	8,00	1,50	12,00
*0,35	4,00	0,95	10,00	1,55	12,00
*0,40	4,00	1,00	10,00	1,60	12,00
*0,45	6,00	1,05	10,00	1,65	12,00
0,50	6,00	1,10	10,00	1,70	12,00
0,55	6,00	1,15	10,00	1,75	12,00
0,60	6,00	1,20	12,00	1,80	12,00
0,65	7,00	1,25	12,00	1,85	12,00
0,70	7,00	1,30	12,00	1,90	12,00
0,75	8,00	1,35	12,00	1,95	12,00
0,80	8,00	1,40	12,00	2,00	12,00

Diametri semidecimali - Half decimal diameters

art. **0159-Z2**

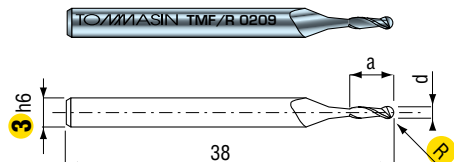
*art. **0219-Z3** d > 1mm



d	*0,4	0,5	0,6	0,7	0,8	0,9	1,0	1,1	1,2	1,3	1,4	1,5	1,6	1,7	1,8	2,0	2,5
a	1,5	1,5	2,0	3,0	3,2	3,2	3,5	3,5	3,5	4,0	4,0	4,5	4,5	5,0	5,0	5,0	5,0

art. **0209-Z2**

*art. **0210-Z3** d > 1,5mm

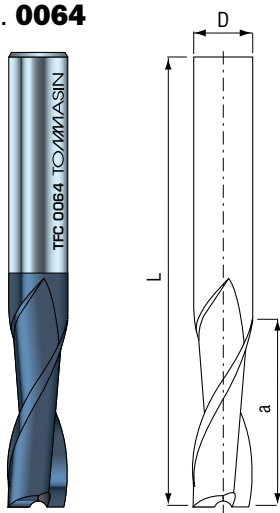


d	*0,4	0,5	0,6	0,8	1,0	1,5
a	1,5	1,5	2,0	3,0	3,5	4,5
R	0,2	0,25	0,3	0,4	0,5	0,75

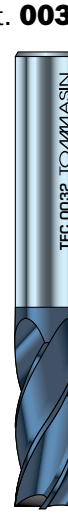
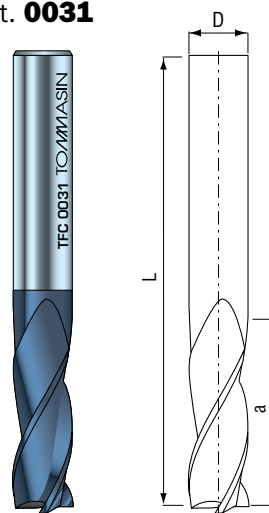
art. **0064**

art. **0031**

art. **0032**



STANDARD		
d	a	L
*2	8	38
3	12	38
4	12	40
5	14	50
6	16	54
8	20	64
10	22	70
12	24	75
14	27	75
15	27	75
16	27	82
18	32	100
20	32	100



Z2

Z3

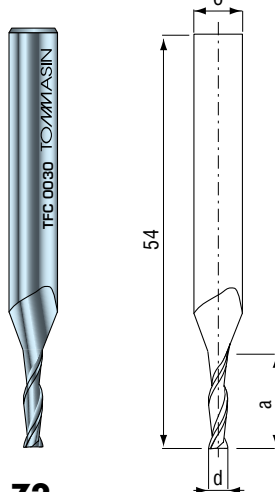
Z4

con ricopertura
with coating

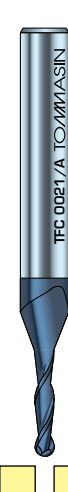
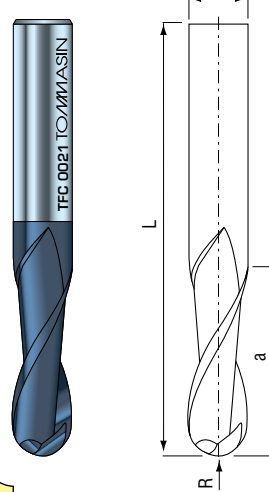
art. **0030**

art. **0021**

art. **0021/A**



STANDARD	
d	a
2,0	5 or 10
2,5	5 or 11
3,0	6 or 12
3,5	6 or 12
4,0	6 or 12



Z2

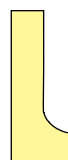
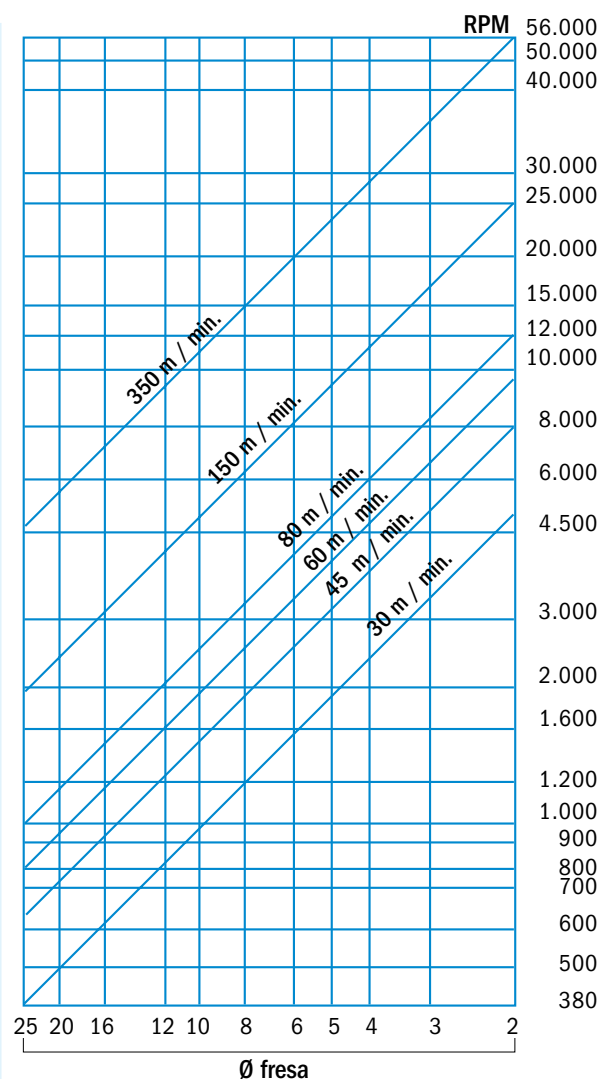


Tabelle indicative per velocità di taglio ed avanzamenti per frese

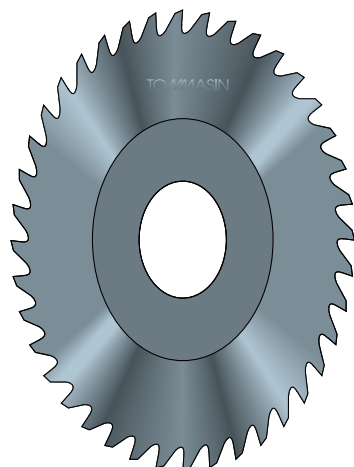
Indicative tables for cutting speeds and feeding for cutters

MATERIALE/MATERIAL	VELOCITÀ SPEED	AVANZAMENTO PER DENTE IN BASE AL DIAMETRO END MILL DIAMETER FEED PER TOOTH (mm)				
	M/MIN	3.00 mm	6.00 mm	12.00 mm	20.00 mm	25.00 mm
ALLUMINIO E LE SUE LEGHE ALUMINIUM	150 250	0.03	0.05	0.10	0.15	0.20
OTTONE BRASS/SOFT BRASS	150 230	0.03	0.05	0.10	0.15	0.20
BRONZO BRONZE	95 125	0.03	0.05	0.08	0.10	0.13
RAME COPPER	250 300	0.03	0.05	0.08	0.13	0.18
GHISA TENERA CAST IRON SOFT	150 230	0.03	0.05	0.10	0.15	0.20
GHISA DURA CAST IRON HARD	80 155	0.01	0.02	0.05	0.08	0.10
GHIISA MALLEABILE MALLEABLE CAST IRON	80 150	0.01	0.03	0.08	0.13	0.20
MAGNESIO MAGNESIUM	300 460	0.03	0.05	0.13	0.20	0.25
MONEL/LEGHE A FORTE TENORE NIKEL MONEL/HIGH NIKEL STEEL	60 77	0.01	0.03	0.05	0.08	0.10
VETRORESINA IN BLOCCHI PLASTIC-GLASS FILLED	110 185	0.04	0.08	0.10	0.15	0.30
MATERIE PLASTICHE PLASTICS	250 495	0.04	0.08	0.15	0.25	0.38
ACCIAIO-BASSO TENORE CARBONIO STEEL-LOW CARBON	100 150	0.01	0.03	0.08	0.13	0.15
ACCIAIO-MEDIO TENORE CARBONIO STEEL-MED CARBON	62 125	0.01	0.03	0.08	0.13	0.15
ACCIAI LEGATI - 39 - 48 RC STEEL ALLOYS - 39 - 48 RC	62 80	0.01	0.01	0.03	0.05	0.08
ACCIAI LEGATI - 46 - 51 RC STEEL ALLOYS - 46 - 51 RC	23 46	0.01	0.01	0.03	0.05	0.08
ACCIAI LEGATI - 52 - 86 RC STEEL ALLOYS - 52 - 86 RC	15 31	0.01	0.01	0.03	0.05	0.08
ACCIAI PER UTENSILI TOOL STEEL	54 62	0.01	0.03	0.08	0.13	0.15
ACCIAIO INOX STAINLESS STEEL FREE MACHINE	92 125	0.01	0.03	0.05	0.10	0.15
ACCIAI INOX TEMPERATI STAINLESS STEEL WORK HARDENING	62 92	0.01	0.01	0.03	0.08	0.13
TITANIO DUTTILE TITANIUM SOFT	62 125	0.01	0.03	0.05	0.10	0.15
TITANIO DURO TITANIUM HARD	15 62	0.01	0.01	0.03	0.05	0.10



$$v \text{ (m/min)} = \frac{d \times \pi \times n}{1000}$$

$$n \text{ (r.p.m.)} = \frac{v \times 1000}{d \times \pi}$$

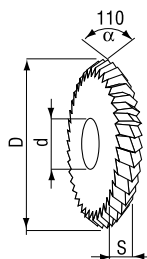


Velocità di taglio Cutting speed			
Materiale	Materials	V = m/min	Avanzamento x Z Feet for feet auto x Z
Acciaio 50 Kg./mm²	Steel 50 Kg./mm²	140 ÷ 160	0,01 ÷ 0,02
Acciaio 120 Kg./mm²	Steel 120 Kg./mm²	35 ÷ 45	0,003 ÷ 0,005
Ghisa in fusione	Grey cast iron	110 ÷ 130	0,007 ÷ 0,01
Acciaio inox	Stainless steel	80 ÷ 150	0,005 ÷ 0,007
Acciaio fuso	Steel jets	25 ÷ 35	0,003 ÷ 0,006
Metalli non ferrosi	Non ferrous metals	150 ÷ 220	0,02 ÷ 0,003
Materie sintetiche	Synthetic materials	280 ÷ 360	0,025 ÷ 0,04

art. **0152**



Per asportazione
For milling



art. **0153**



Per finitura
For finishing



STANDARD

D	15	12,5	10	8
Z	40	32	26	22
d	4 or 5	4 or 5	-	-
S	2	2	2	2

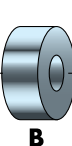
STANDARD

D	15	12,5
Z	20	16
d	5	5

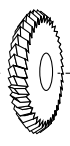
art. **0199**



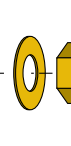
A



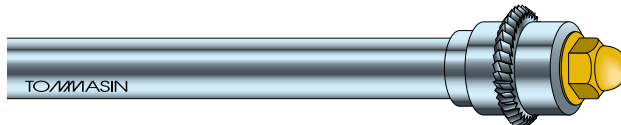
B



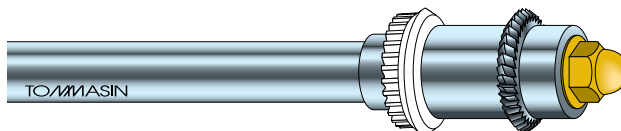
C



D



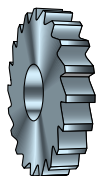
art. **0056**



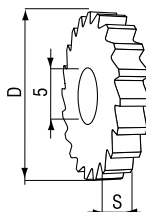
art. **0099**

Per fresature e lucidature di canalini di montature in metallo (8.000 ÷ 12.000 RPM.) For milling and buffing of metal frame grooves.

art. **0149**



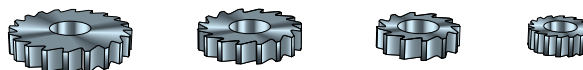
Dentatura grossa.
Large toothing.



art. **0150**



Dentatura fine.
Thin toothing.



STANDARD

D	15	12,5	10	8
Z	28	24	20	16
d	5	5	5	4
S	2,5	2,5	2,5	2,5

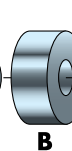
STANDARD

D	15	12,5	10
Z	20	16	12
d	5	5	5

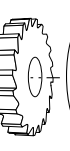
art. **0199/A**



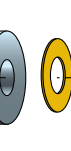
A



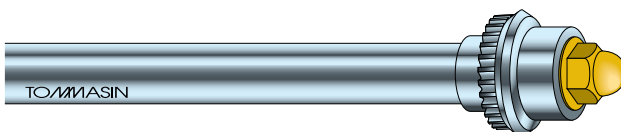
B



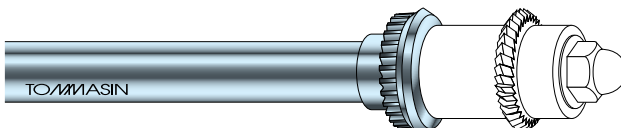
C



D



art. **0057**



art. **0099/A**

Per fresature di musci su montature in metallo con guida su canalino. (8.000 ÷ 12.000 R.P.M.) For milling metal frames with groove guide.

SEGHE CIRCOLARI IN METALLO DURO INTEGRALE

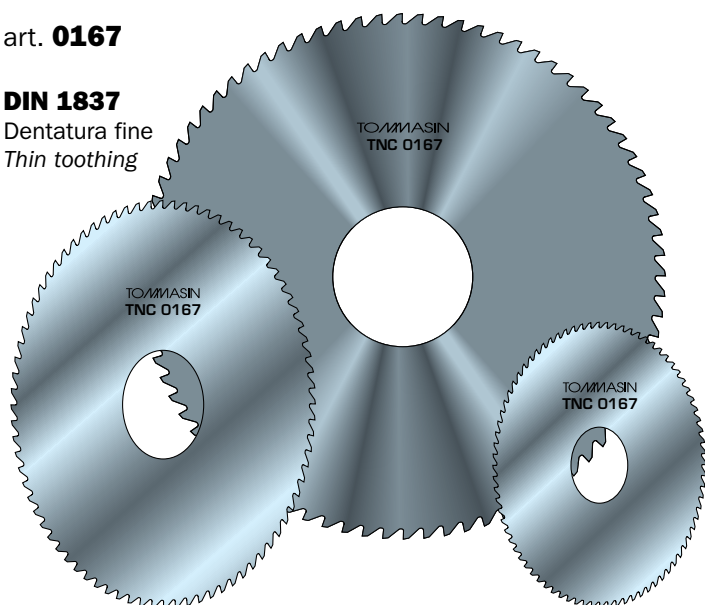
DISK SAWS (tungsten carbide)



art. **0167**

DIN 1837

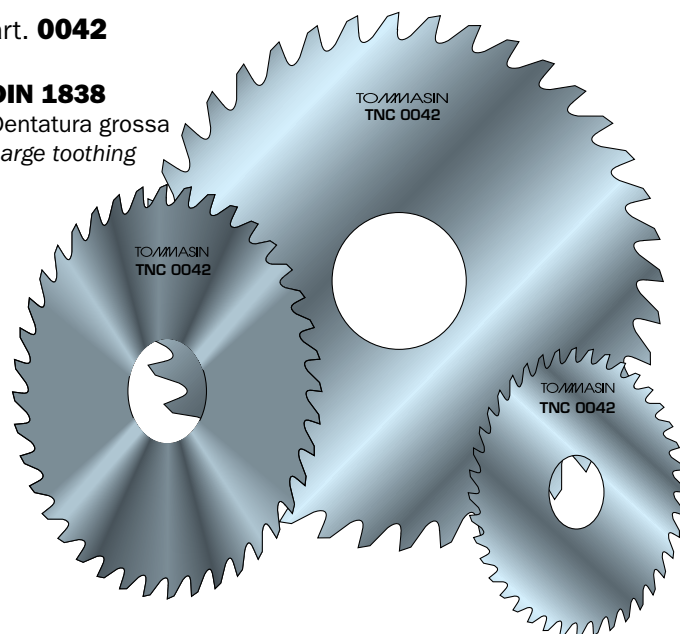
Dentatura fine
Thin toothing



art. **0042**

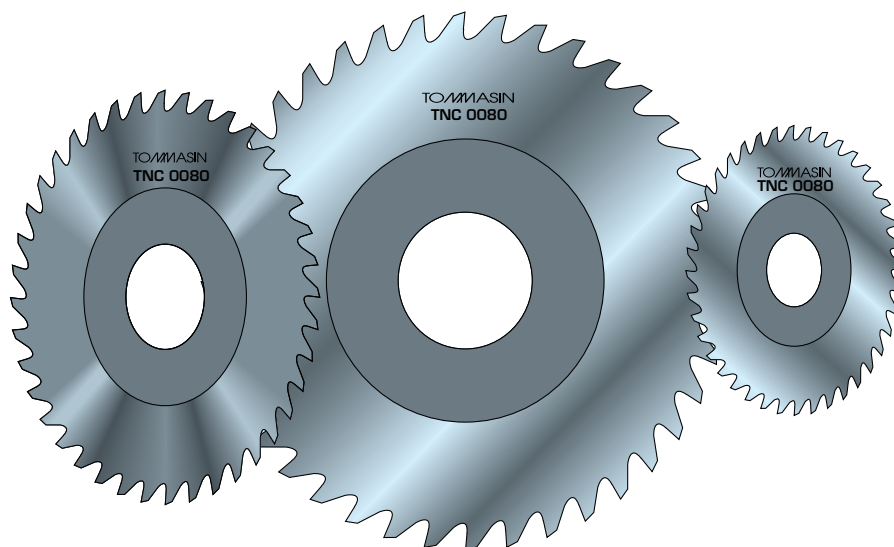
DIN 1838

Dentatura grossa
Large toothing



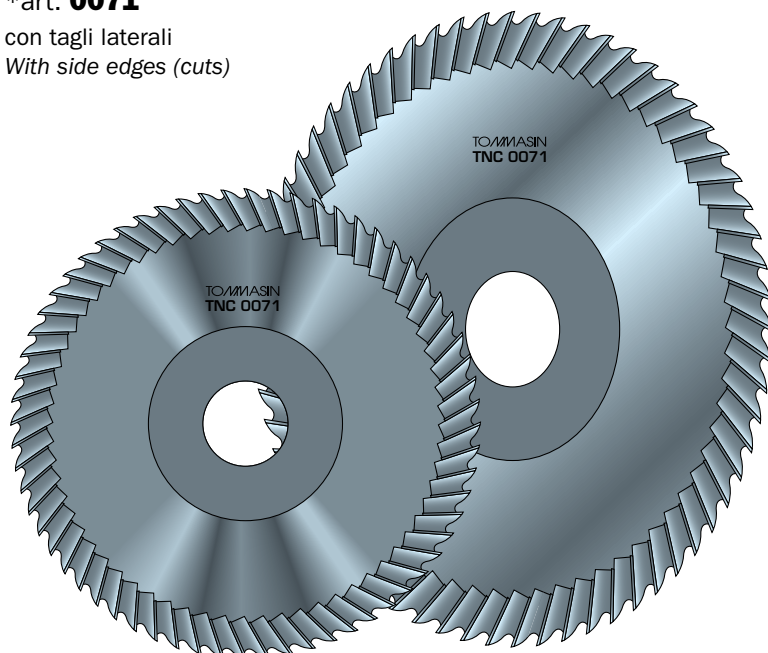
*art. **0256**

Con Mozzo
With Hub



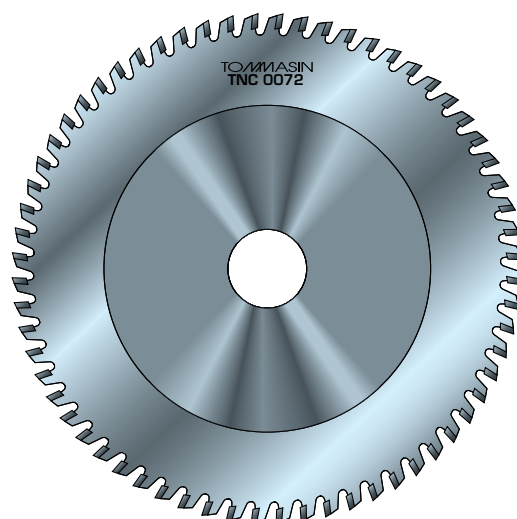
*art. **0071**

con tagli laterali
With side edges (cuts)



*art. **0072**

con placchette riportate
With reported blade



Ø mm	Ø 20		Ø 25		Ø 30		Ø 40			Ø 50			Ø 63		
FORO/Hole	5h7		8h7		8h7		10h7			13h7			16h7		
SPESSORE Thickness	DIN 1837	DIN 1838	DIN 1837	DIN 1838	DIN 1837	DIN 1838	DIN 1837	DIN 1838		DIN 1837	DIN 1838		DIN 1837	DIN 1838	
0,2	80	40	80	48	100	72	128	80	64	128	100	64	160	128	100
0,3	64	30	80	48	80	72	100	80	64	128	100	64	140	128	80
0,4	64	30	64	38	80	60	100	60	44	100	80	64	128	100	64
0,5	48	22	64	38	80	60	100	60	44	100	64	48	128	80	64
0,6	48	22	64	38	80	60	100	60	44	100	64	48	128	64	48
0,7	48	22	48	28	64	36	80	48	30	80	64	40	100	64	48
0,8-0,9	48	20	48	28	64	36	80	48	30	80	64	40	100	64	48
1-1,1	40	20	48	28	64	30	64	48	30	80	64	40	100	64	48
1,2-1,5	40	20	48	28	48	24	64	48	30	80	64	40	80	64	40
1,6-1,9	40	20	40	24	48	24	64	48	30	64	40	32	80	64	40
2÷2,4	32	18	40	24	48	24	48	40	30	64	40	32	80	64	40
2,5÷2,9	32	16	40	24	40	22	48	40	30	64	40	24	64	40	32
3÷3,5	24	14	32	18	40	22	48	40	28	48	32	24	64	40	32
3,6÷4	24	14	32	18	40	22	48	40	28	48	32	24	64	32	24
4,1÷5,2	24	14	32	18	32	16	40	36	22	48	30	24	48	32	24
5,3÷6	24	14	24	14	32	14	40	36	26	40	24	20	48	32	20

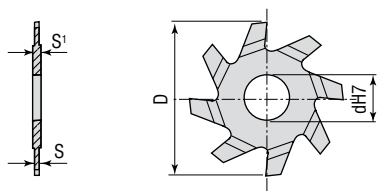
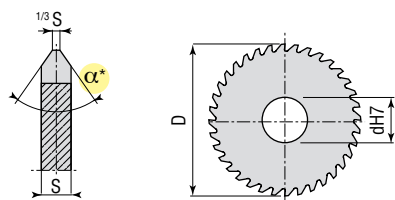
Ø mm	Ø 80			Ø 100			Ø 125			Ø 160			Ø 200		
FORO/Hole	22h7			22h7			22h7			32h7			32h7		
SPESSORE Thickness	DIN 1837	DIN 1838		DIN 1837	DIN 1838		DIN 1837	DIN 1838		DIN 1837	DIN 1838		DIN 1837	DIN 1838	
0,4÷0,5	160	128	100	160	128	100	/	/	/	/	/	/	/	/	/
0,6÷0,7	128	100	64	160	128	80	160	120	64	/	/	/	/	/	/
0,8÷0,9	128	100	64	128	80	64	160	100	64	180	120	80	200	160	120
1÷1,1	100	64	48	128	64	48	160	100	64	160	120	80	200	140	100
1,2÷1,5	100	64	48	128	64	48	128	80	64	160	120	80	200	140	100
1,6÷1,9	100	64	48	100	64	48	128	80	64	160	120	80	160	100	80
2÷2,5	80	64	40	100	64	48	100	64	48	128	80	64	160	100	80
2,6÷2,9	80	64	40	100	64	40	100	64	48	128	80	64	160	80	64
3÷3,5	80	64	40	80	64	40	100	64	48	128	80	64	128	80	64
3,6÷4	64	40	32	80	64	40	100	64	48	100	64	48	128	80	64
4,1÷5,2	64	40	24	80	64	40	80	64	40	100	64	48	128	80	64
5,3÷6	64	32	24	64	40	32	80	64	40	100	64	48	100	64	48

*art. **0161**

Ø		foro/hole	Z
50	0,30	10	160
50	0,40	10	160
50	0,45	10	160
50	0,50	10	160
50	0,60	10	160
50	0,70	10	160
50	0,80	10	160

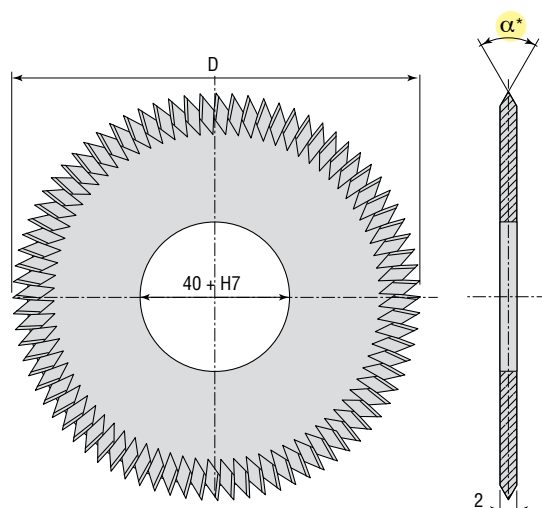
Ø		foro/hole	Z
63	0,30	10	200
63	0,40	10	200
63	0,45	10	200
63	0,50	10	200
63	0,60	10	200
63	0,70	10	200
63	0,80	10	200

FRESE PER SMICCAGGIO COLLETTORI ELETTRICI
MILLING CUTTERS FOR ELECTROMOTOR

*Art. **0089** Profilo normale - Normal profile

*Art. **0090** Profilo a "V" - "V" profile

FRESE CIRCOLARI PER CIRCUITI STAMPATI
CIRCULAR CUTTERS FOR PRINTED CIRCUIT

*Art. **0091**

Per macchine scoring - For scoring machines



Impiego: Scegliendo il metallo duro con le caratteristiche adatte al materiale da lavorare, le ns. seghe circolari permettono di ottenere la maggior produzione determinata dalle alte velocità di taglio, con il minimo costo di unità di prodotto.

La massima resa si ottiene curando alcuni accorgimenti essenziali, quali: l'assenza dei giochi dell'albero porta frese, bloccaggio rigido del pezzo da lavorare, evitando pressioni laterali.

Entrata in lavoro morbida ed avanzamento costante, che varia da 0,002 a 0,04 in rapporto al materiale da lavorare, spessore e diametro della sega ed eventuali vibrazioni.

Lubrificare dovunque è possibile con oli emulsionabili se si lavorano materiali ferrosi; petrolio o kerosene per leghe leggere, quali alluminio, alpacca, ecc.; getto d'aria compressa, se ghisa o fibre plastiche.

Use: Choosing carbide with the right characteristic for material to work, our circular saws let obtain the greatest production determined by high cutting speed, with the minimum product unit cost.

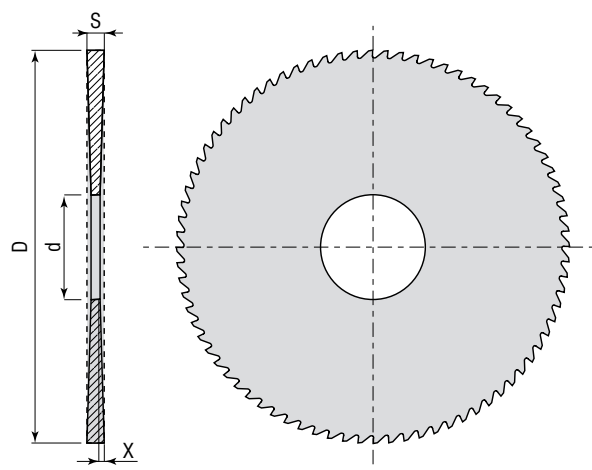
You can get the greatest result observing some main shrewdness, like the lack of cutters shaft play, rigid blocking of the part to mill, avoiding side pressing.

Smooth working entrance and invariable feeding, with a tolerance from 0,002 to 0,04, with respect to material to mill, thickness, saw diameter and possible vibrations.

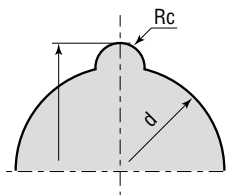
It's possible to lubricate everywhere with emulsible oil if working on ferrous metal; petroleum or kerosene for light alloy, like aluminium, nickel silver, etc.; compressed air jet if working on cast iron or plastic fibre.

Sega circolare senza mozzo

Circular saw without hub



*OPTIONAL

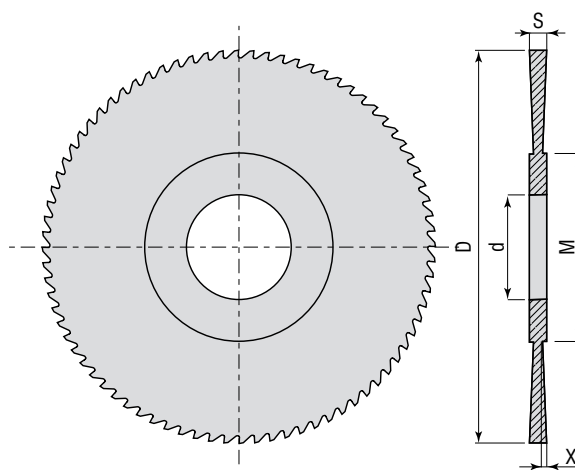


DRAGGING
SPLINE

CHIAVETTA
TRASCINAMENTO

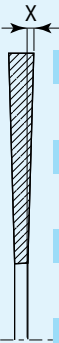
Sega circolare con mozzo

Circular saw with hub



Rastremazioni e scarichi (X) - Ns. standard Tapering and releasing (X) - Our Standard

Scarico Tot. / Tot. Releasing = X2

D	12-30		0,01 ÷ 0,03
D	40		0,02 ÷ 0,03
D	50		0,03 ÷ 0,04
D	63		0,04 ÷ 0,06
D	70		0,05 ÷ 0,07
D	80		0,06 ÷ 0,08
D	100		0,07 ÷ 0,09
D	125		0,08 ÷ 0,1

Velocità di taglio Cutting speed

Materiale	Materials	V = m/min
Acciaio 50 Kg./mm ²	Steel 50 Kg./mm ²	140 ÷ 160
Acciaio inox	Stainless steel	80 ÷ 150
Acciaio 120 Kg./mm ²	Steel 120 Kg./mm ²	35 ÷ 45
Acciaio fuso	Steel jets	25 ÷ 35
Ghisa in fusione	Grey cast iron	110 ÷ 130
Titanio	Titanium	25 ÷ 35
Metalli non ferrosi	Non ferrous metals	150 ÷ 220
Materie sintetiche	Synthetic materials	280 ÷ 360

Grado di finitura

PIANI LATERALI = Lappatura speculare
SPOGLIA INFERIORE = Superfinitura
SPOGLIA SUPERIORE = Lappatura

Finishing limit

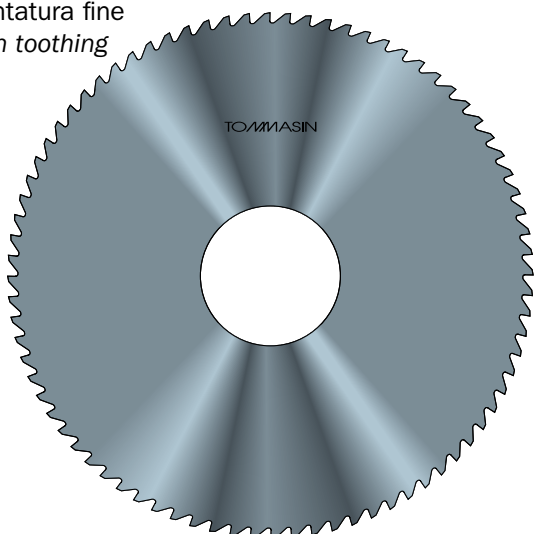
SIDE FACE = Specular lapping
LOWER RELIEF ANGLE = Super finishing
UPPER RELIEF ANGLE = Lapping

Tolleranze / Tolerance

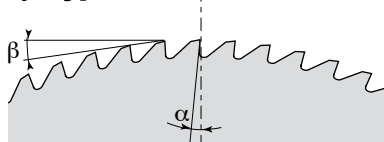
Spessore / Thickness + 0,01 Diametro / Diameter + 0,2 - 0 Foro / Hole H7 0

Art. 0167 DIN 1837

Dentatura fine
Thin toothing



Tipo / Type A **DIN 1837**



Dentatura fine - Thin teeth

Acciaio 120 Kg./mm² - Ghisa in fusione - Acciaio fuso

Steel 120 Kg./mm² - Grey cast iron - Steel jets

$\alpha = 0 \div 5^\circ$ $\beta = 6 \div 8^\circ$

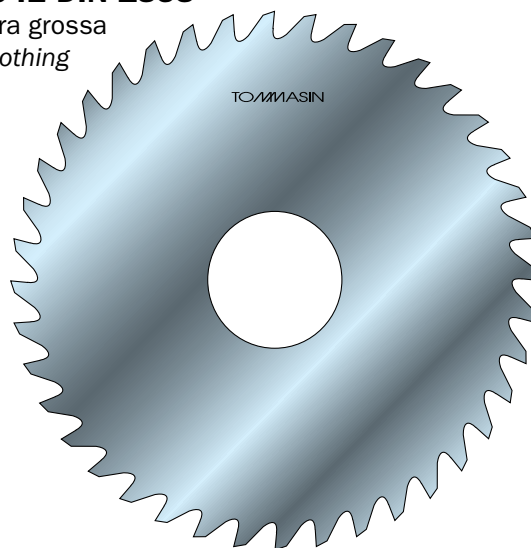
Acciaio 50 Kg./mm² - Metalli non ferrosi

Steel 50 Kg./mm² - Non ferrous metals

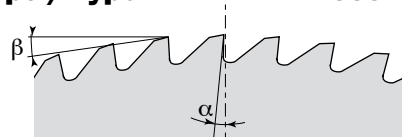
$\alpha = 3 \div 7^\circ$ $\beta = 10 \div 14^\circ$

Art. 0042 DIN 1838

Dentatura grossa
Large toothing



Tipo / Type B **DIN 1838**



Dentatura grossa - Large teeth

Per bronzo, ottone e simili

For bronze, brass and similar

$\alpha = 2 \div 5^\circ$ $\beta = 9 \div 12^\circ$

Per alluminio, rame, materie sintetiche

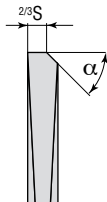
For aluminium copper and synthetic material

$\alpha = 6 \div 12^\circ$ $\beta = 10 \div 16^\circ$

Tipo / Type "C"

***Art. 0248 Dentatura stradata**
Alternating teeth

S = > 0.8



La stradatura alternata dei denti genera la continua interruzione del truciolo, favorendo così una maggior capacità di scarico. Ottima resa su acciaio inox e materiali pastosi.

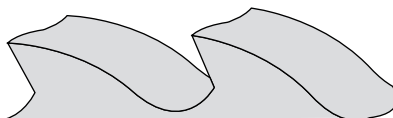
Alternating teeth make a continuous interruption of chip, favouring a greater releasing capacity.

Very good result on stainless steel and plastic material.

Tipo / Type "D"

***Art. 0249 Dentatura elicoidale**
Helicoidal teeth

S = > 2.2



Il dente elicoidale garantisce una asportazione omogenea e continua, eliminando così notevolmente le bavature residue. Consigliato soprattutto per ottenere buone finiture, lavorando con grossi spessori.

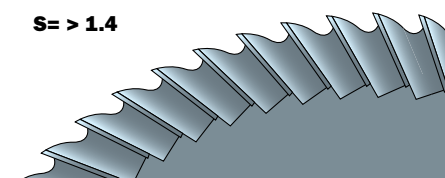
Helicoidal teeth guarantees an homogeneous and continuous removal, taking away in great quantity the remaining residue.

It's recommended specially to obtain good finishing, working with large thickness.

Tipo / Type "E"

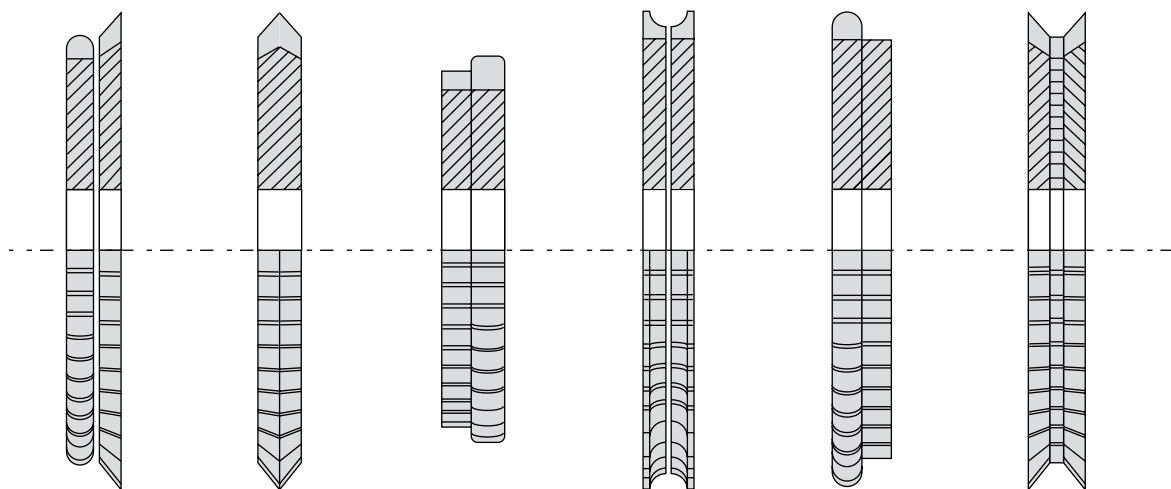
***Art. 0071 con tagli laterali**
with side edges (cuts)

S = > 1.4



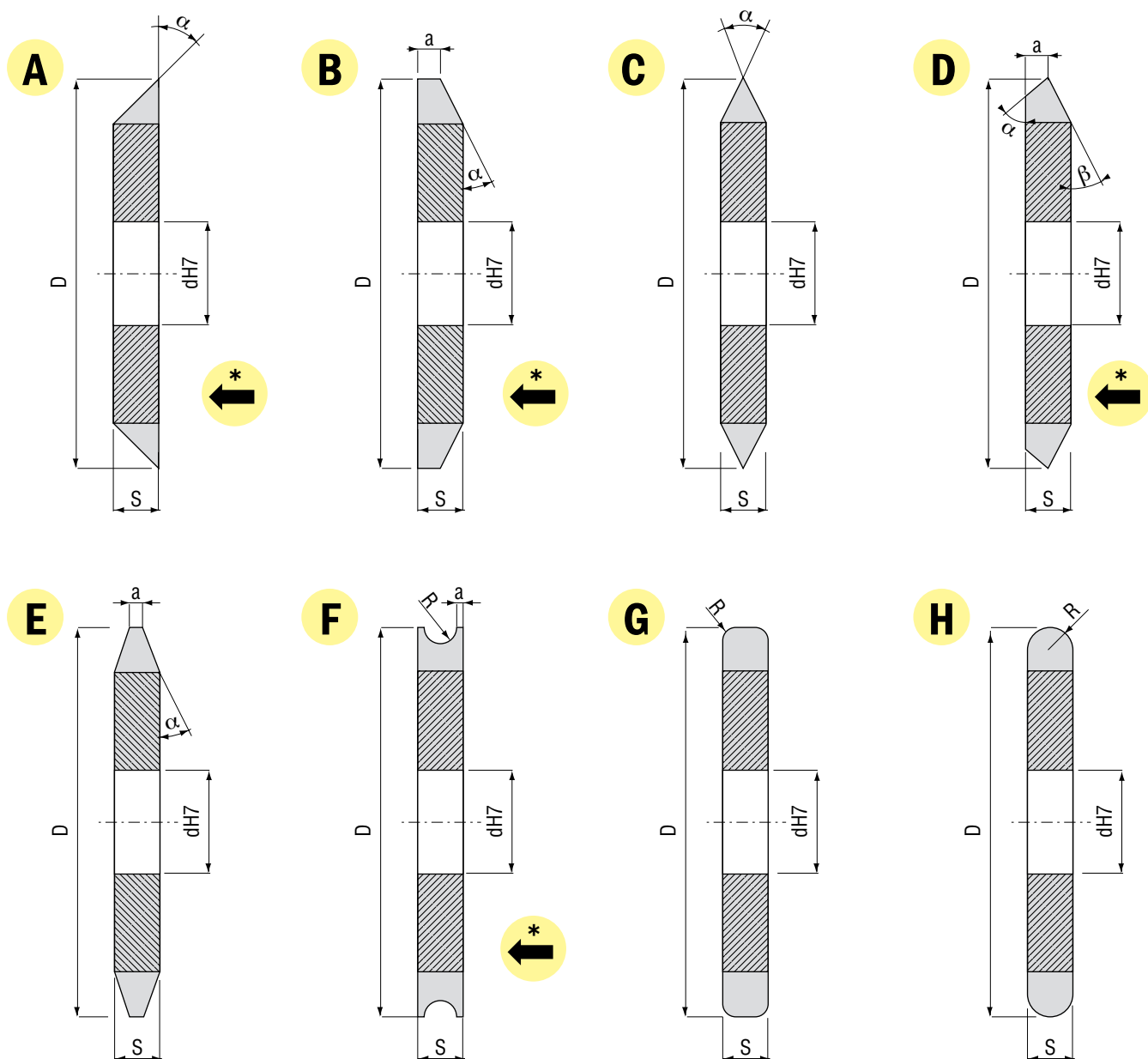
Gli scarichi laterali permettono di ottenere una buona finitura, senza rigature, anche in tagli profondi, riducendo al minimo l'attrito laterale.

The side cuts let obtain a good finishing, without lines, even in deep cut, reducing to a minimum the lateral friction.



Elementi indispensabili per richieste specifiche di profili

Essential sizes for requests of special shape



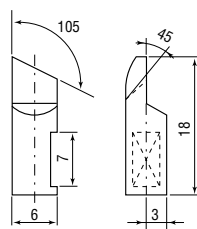
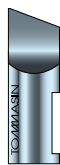
*Indicare senso di rotazione.

*Indicate rotational direction.

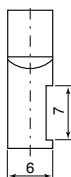
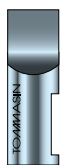
Frese destre per macchine monoalbero

Right cutters for one shaft machine

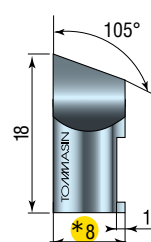
art. **0141**



*art. **0141/P**



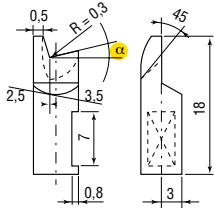
*art. **0141**



art. **0141/A**



B6



art. **0141/A**



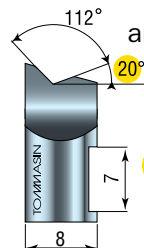
B8

STANDARD

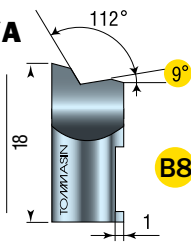
B6 $\alpha = 20^\circ$

B8 $\alpha = 9^\circ$

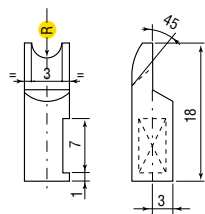
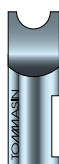
art. **0141/A**



art. **0141/A**



art. **0141/R**

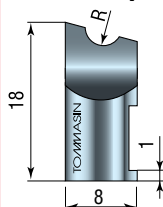


STANDARD

R = 2,2

R = 1,8

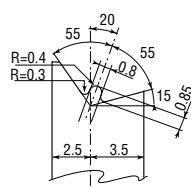
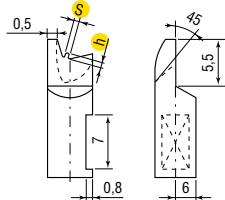
art. **0141/R**



STANDARD

R = 2,2

art. **0141/B**

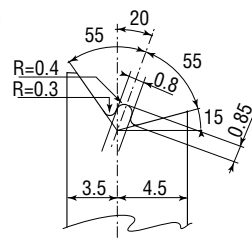
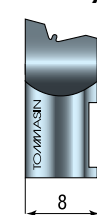


STANDARD

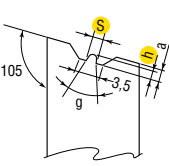
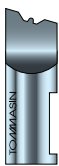
S = 0,6 • h = 0,65

S = 0,8 • h = 0,85

art. **0141/B**



art. **0141/C**

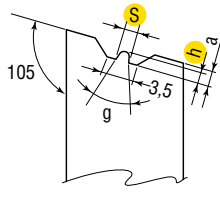
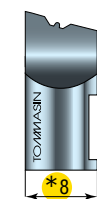


STANDARD

S = 0,6 • h = 0,65

S = 0,8 • h = 0,85

*art. **0141/C**



in diamante PCD



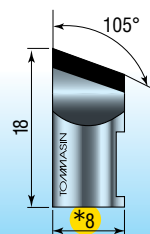
in PCD (diamond)



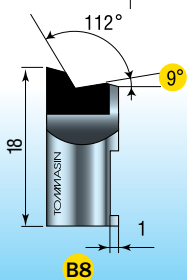
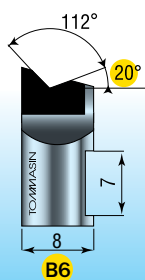
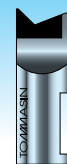
art. **0141**



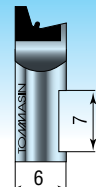
6



art. **0141/A**



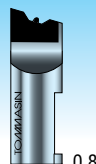
art. **0141/B**



7



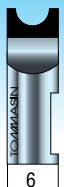
art. **0141/C**



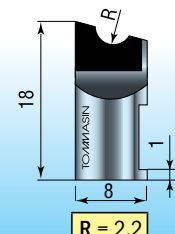
0,8



art. **0141/R**



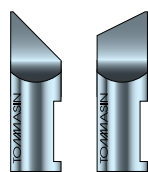
6



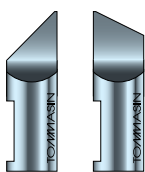
Frese destre e sinistre per macchine bialbero

Right and left cutters for double shaft machine

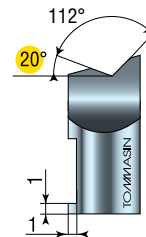
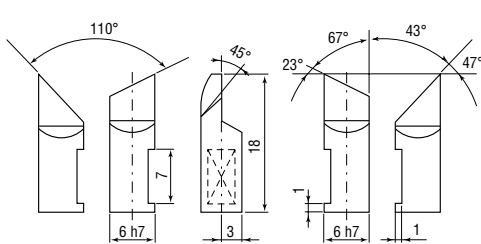
*art. **0141/F**



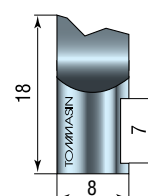
GRUPPO DX



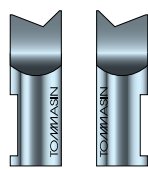
GRUPPO SX



art. **0141/AF B6**



art. **0141/AF**

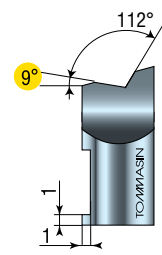
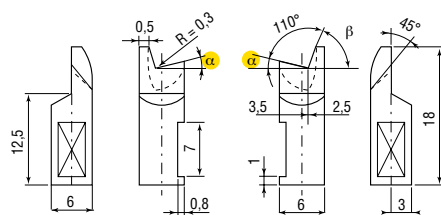


SX DX

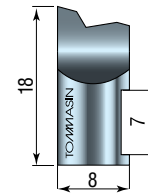
B6 or B8

STANDARD

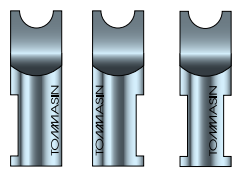
B6 $\alpha = 20^\circ$
B8 $\alpha = 9^\circ$



art. **0141/AF B8**



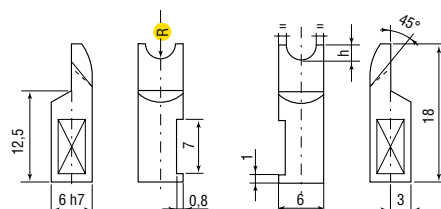
art. **0141/R 0141/R1**



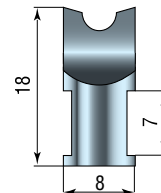
SX DX

STANDARD

R = 2,2
R = 1,8

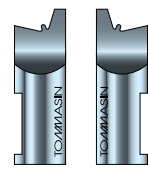


art. **0141/RF1**



R = 2,2

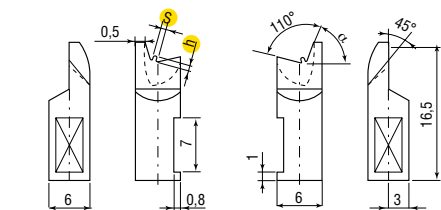
art. **0141/BF**



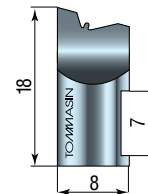
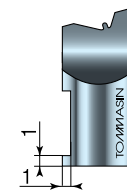
SX DX

STANDARD

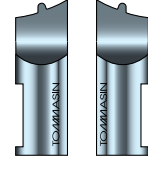
S = 0,6 • h = 0,65
S = 0,8 • h = 0,85



*art. **0141/BF**



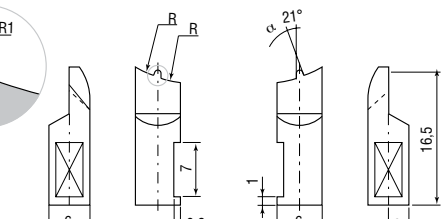
art. **0141/BFR**



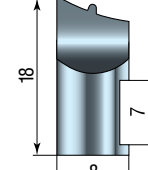
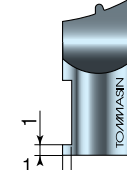
SX DX

STANDARD

R = 0,3 • h = 0,6
R = 0,4 • h = 0,8



art. **0141/BFR**



in diamante PCD



in PCD (diamond)

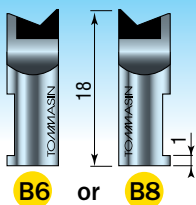


art. **0141AF**

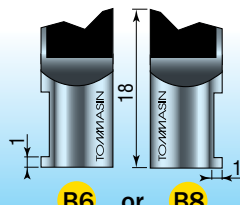
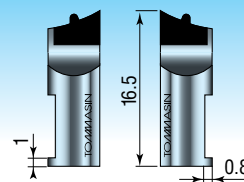
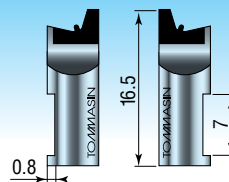
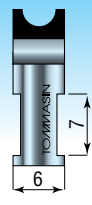
art. **0141/RF**

art. **0141/BF**

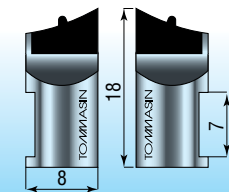
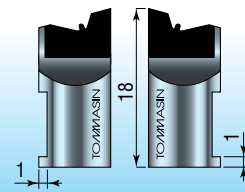
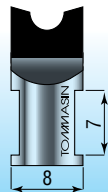
art. **0141/BFR**



B6 or B8

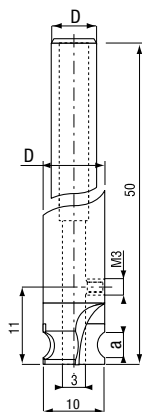
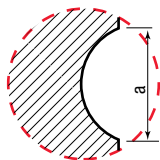
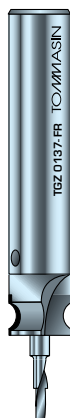


B6 or B8



0137-FR

In metallo duro o in
diamante PCD

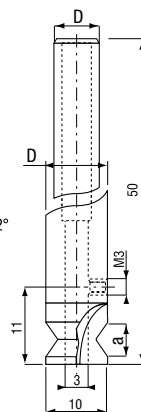
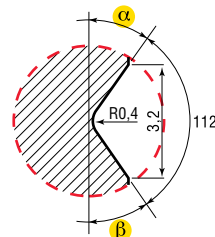
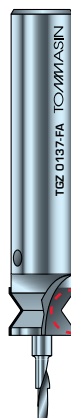


STANDARD

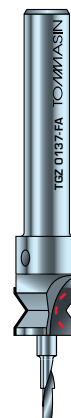
$R = 2,2 \bullet a = 3,7$
$R = 3,0 \bullet a = 4,4$
$R = 5,0 \bullet a = 4,8$
$D = 10 \text{ or } 6$

0137-FA

In metallo duro o in
diamante PCD



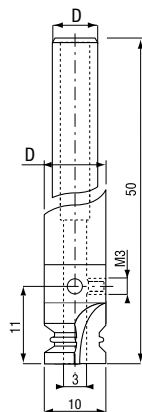
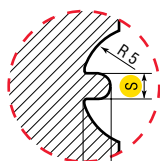
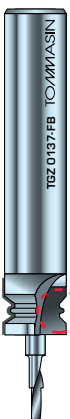
0137-FA



$D = 10 \text{ or } 6$

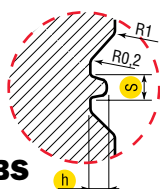
0137-FB

In metallo duro o in
diamante PCD



STANDARD

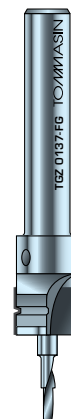
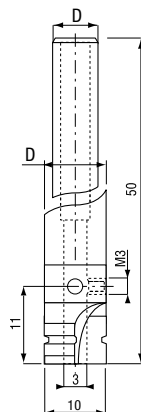
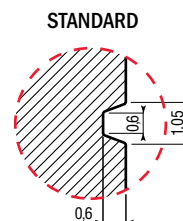
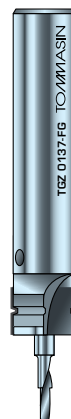
$S = 0,6 \bullet h = 0,65$
$S = 0,8 \bullet h = 0,85$
$D = 10 \text{ or } 6$



***0137-FBS**

0137-FG

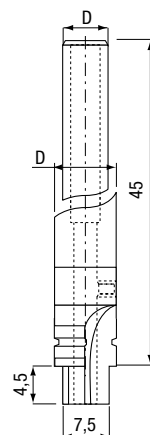
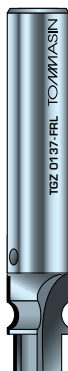
In metallo duro o in
diamante PCD



$D = 10 \text{ or } 6$

***0137-FRL**

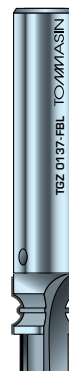
***0137-FAL**



$D = 10 \text{ or } 6$

***0137-FBL**

***0137-FGL**

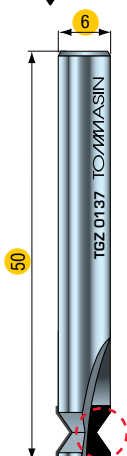
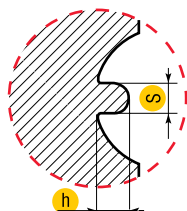
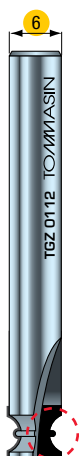


In metallo duro o in **diamante PCD** 

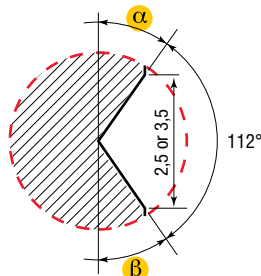
art. **0112**

STANDARD

S	0,6 • h = 0,65
S	0,8 • h = 0,85



art. **0137**

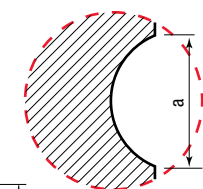


In tungsten carbide or in **PCD (diamond)** 

art. **0137/R**

STANDARD

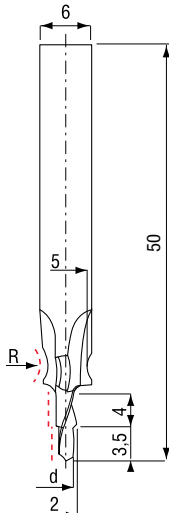
R	1,8	2,2	3,0	5,0
a	2,5	3,2	3,7	4,2



In metallo duro sub micrograna
In tungsten carbide micrograin

TGD 0174/R

***TGD 0174/R**



Tagli Dritti
Straight blades

STANDARD

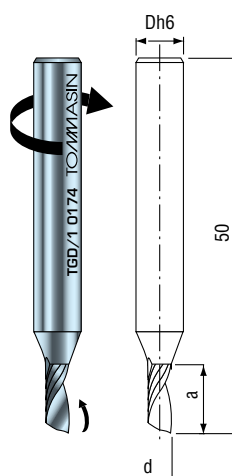
d	1,1	1,2	1,4	1,6	1,8
R	2,0				



*Tagli Elicoidali (a richiesta)
*Twisted blades (on request)

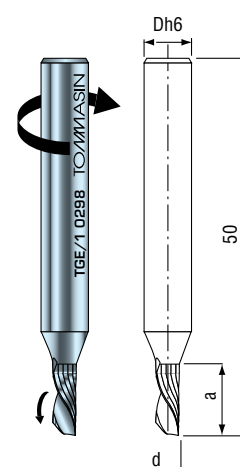
F 1 N S G

TGD/1
art. **0174**



F 1 E S G

art. **0298**



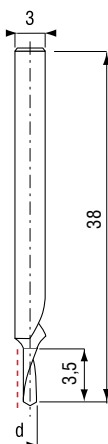
STANDARD

d	2	2,5	3
D	4	4	6
a	5	6	7

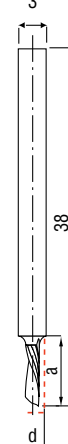
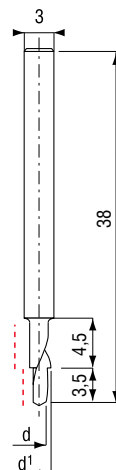
TGD/1 0174 G3

TGD/2 0174/2 G3

***F1ESG**



d	1 ÷ 2,5
---	---------



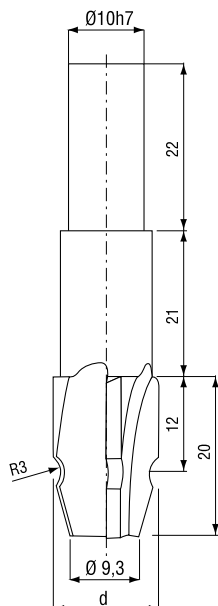
Utensili in metallo duro micrograna o **diamante policristallino (PCD)**



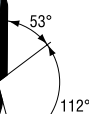
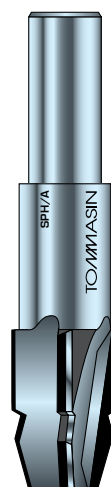
Micrograin tungsten carbide or **PCD lens cutter**



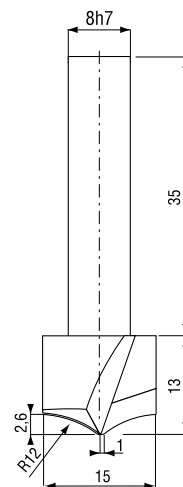
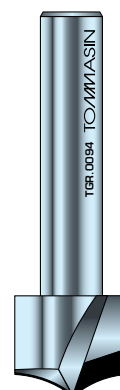
SPH/R



SPH/A



TGR.0094



M.D./Carbide	d=	12	14	16
PCD	d=	*	14	*

M.D./Carbide	d=	14
PCD	d=	14

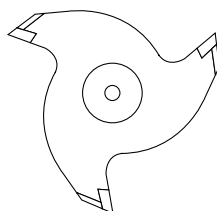
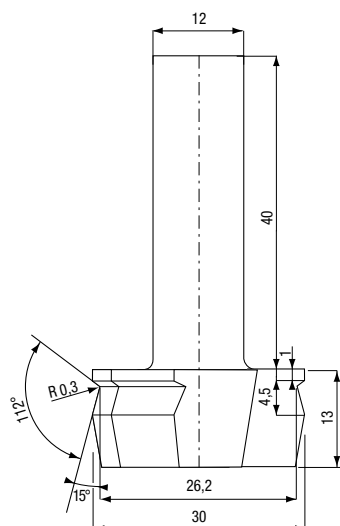
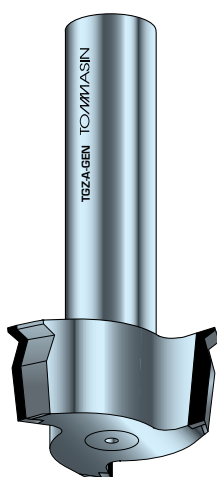
Utensili in metallo duro micrograna o **diamante policristallino (PCD)**



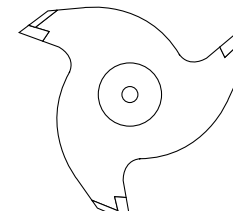
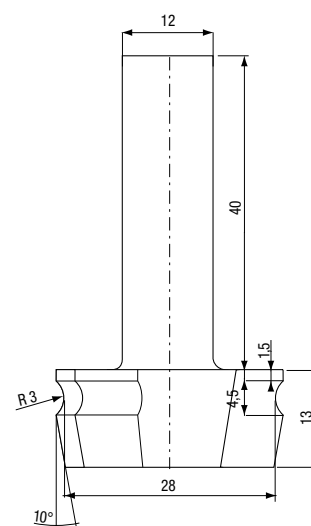
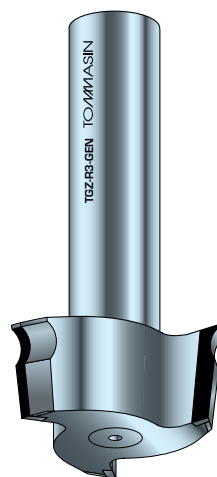
Micrograin tungsten carbide or **PCD lens cutter**



TGZ-A-GEN



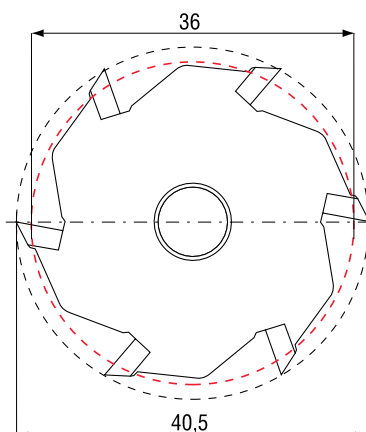
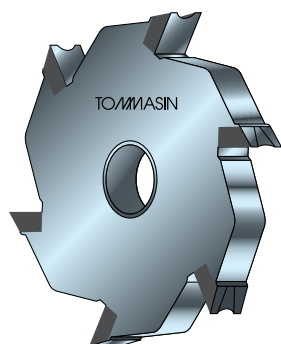
TGZ-R3-GEN



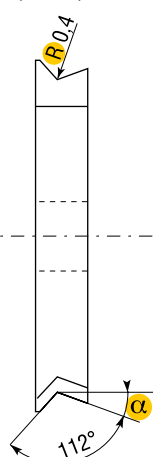
Frese taglienti monoblocco

Rounded lens cutter

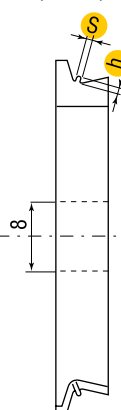
TGZ 040



040/A
(SX-DX)



040/B
(SX-DX)



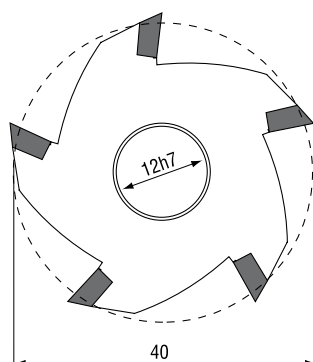
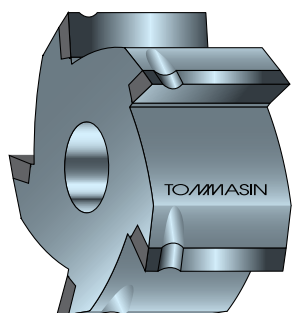
040/R



Fresa per taglienti LMF500 - METALLO DURO

LMF500 machine cutter - CARBIDE

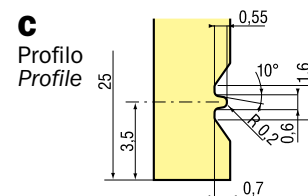
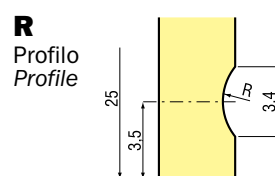
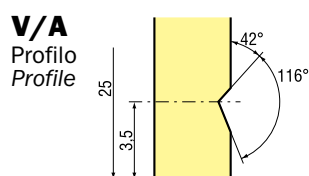
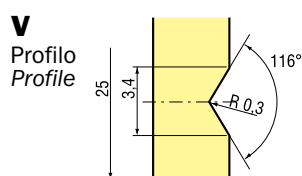
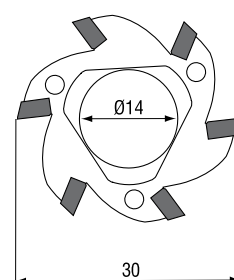
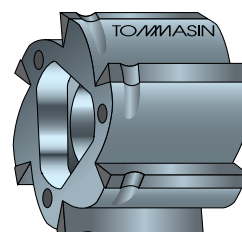
Z5 Carbide FV - FV/A - FR - FC



Per taglienti HAUG - METALLO DURO

HAUG machine cutter - CARBIDE

(HLV - HLVA - HLR - HLC)
HL Z6 Carbide



• Altri profili a richiesta • Any other shape on request

R = 2,5 • 3 • 6

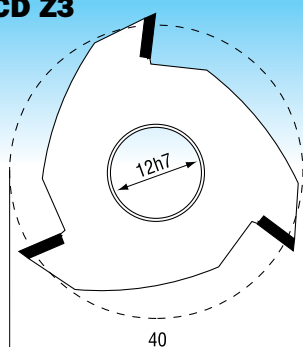
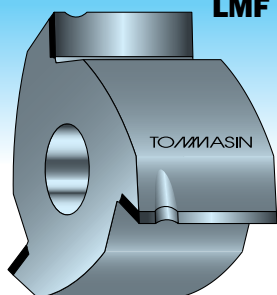
in diamante PCD



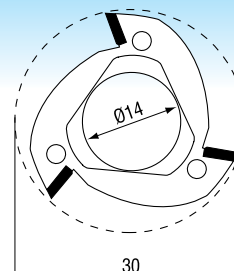
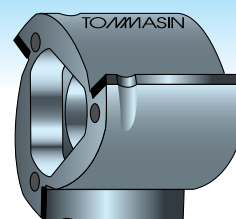
in PCD (diamond)



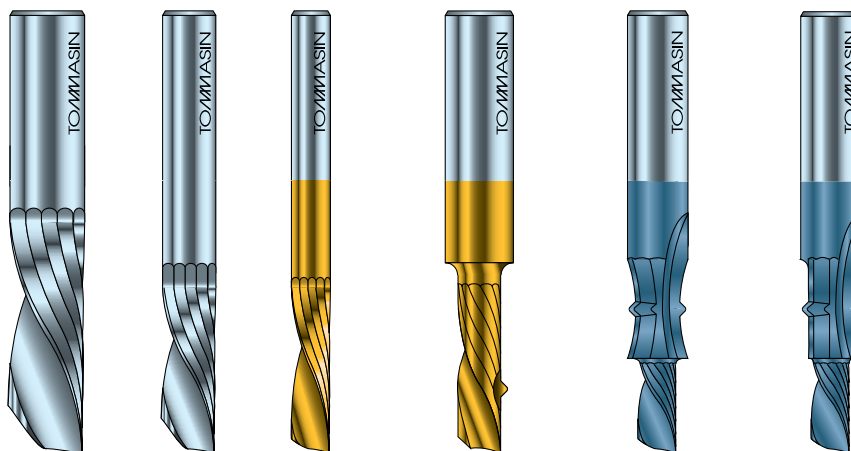
LMF PCD Z3



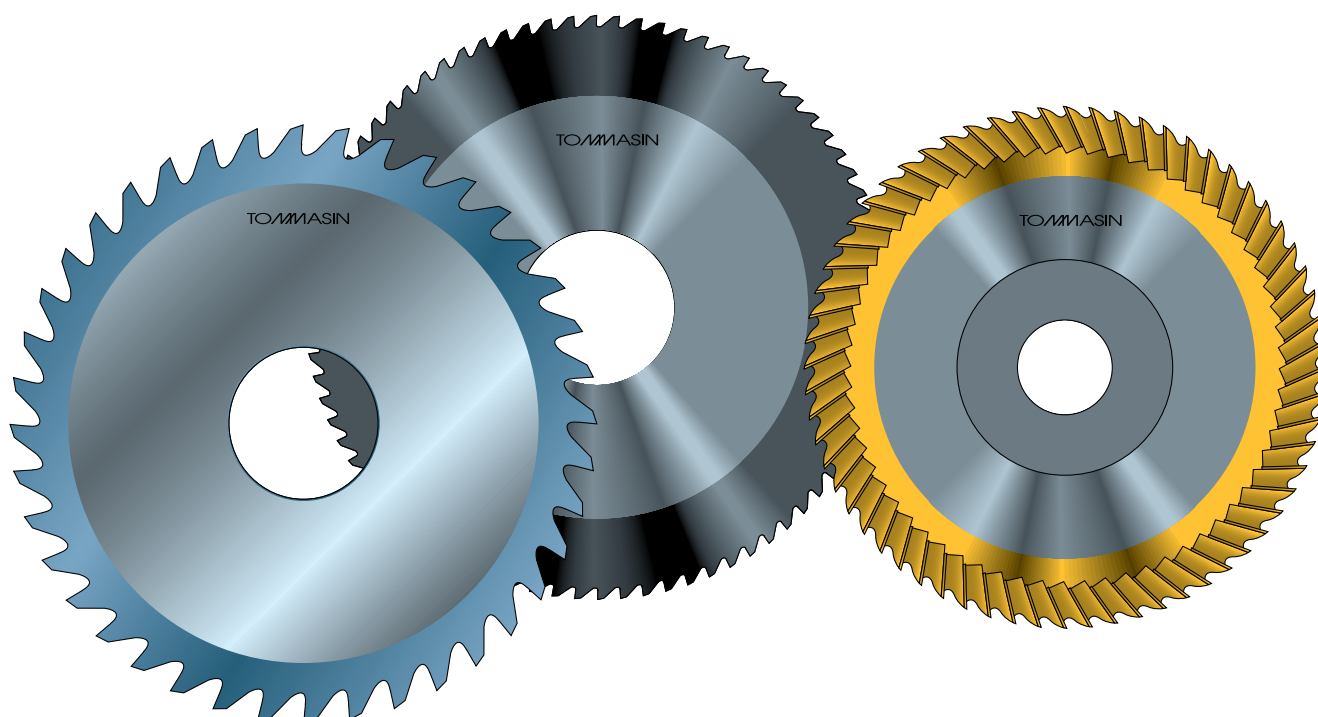
HL PCD Z3



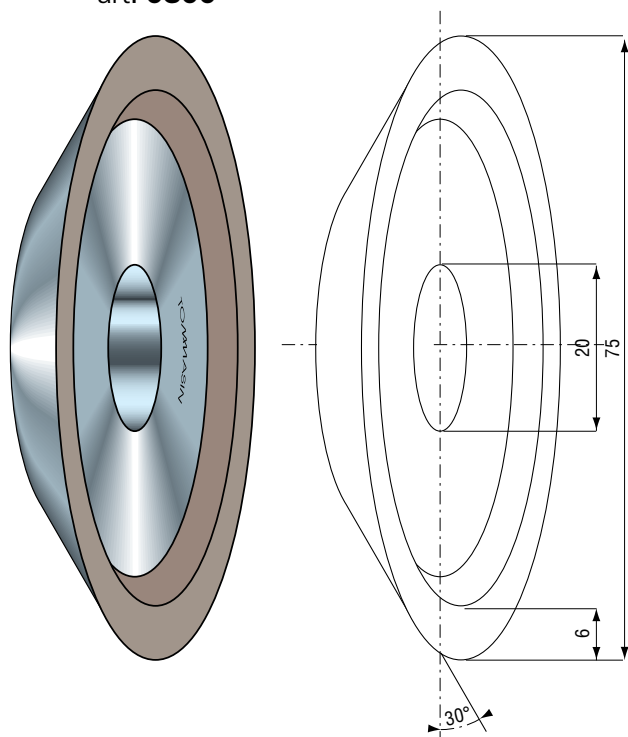
*** FRESE CON RICOPERTURA**
*** COATED CUTTERS**



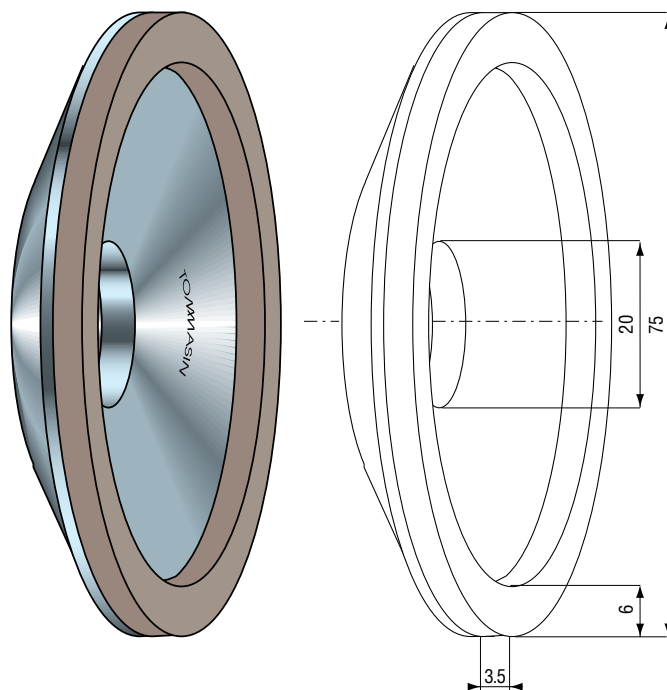
COMPOSIZIONE	COLORE	TEMP. DI COATING	TEMP. MAX DI LAVORO	~VICKERS	COEFFICIENTE D'ATTRITO	CONDUCIBILITÀ TERMICA
TiALN	Nero-antracite	450°C	800°C	3.300	0.3	0.05
TiCN	Blu-grigio	420°C	450°C	3.280	0.3	0.10
TiN	Giallo oro	420°C	550°C	2.500	0.4	0.07
CrN	Argento	180-450°C	650°C	1.800	0.3	
Diamante	Nero	900°C	700°C	10.000	0.05	2.00
DLC	Blu-nero	<100°C	500°C	5.300	0,1	



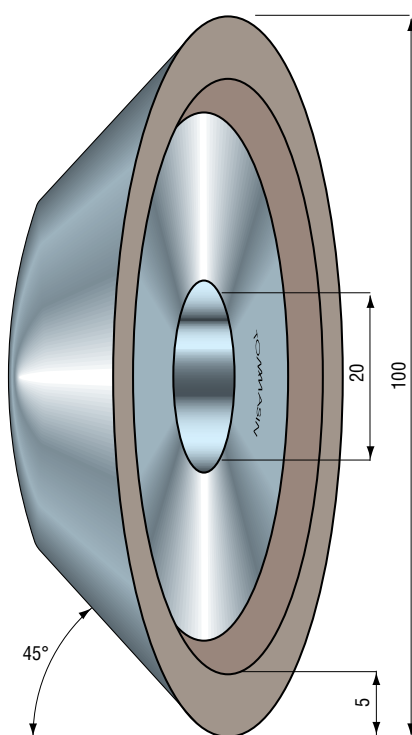
art. **0300**



art. **0301**



art. **0300/A**



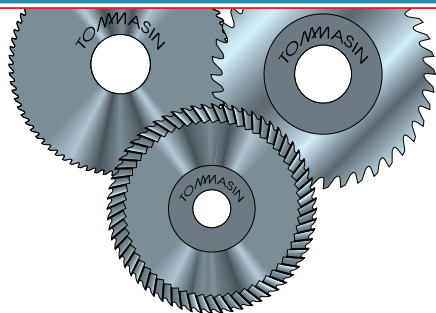
STANDARD

D	100
d	20
α	45°
a	5

Gamma frese per meccanica - Mechanic tools

Richiedete il catalogo - Request our mechanic catalogue

Seghe circolari in metallo duro integrale Tungsten carbide circular saws



Frese monoelica dx Single fluted twist milling tools right spiral



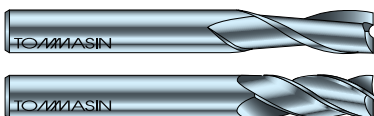
Frese monoelica sx Single fluted twist milling tools left spiral



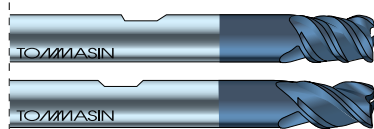
Frese frontali denti dritti Straight-fluted end milling tools



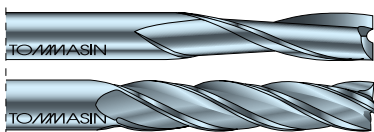
Frese cilindriche normali Z2/Z3/Z4 Twist end milling tools Z2/Z3/Z4



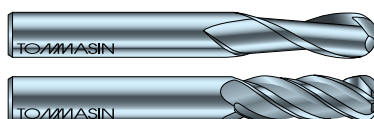
Frese cilindriche elica 45/*60 Twist end mills, 45/*60 twist fluted



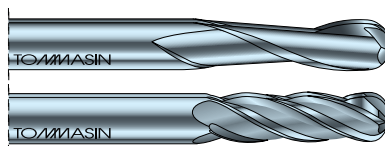
Frese cilindriche serie lunga - extra lunga Extra-long and long length



Frese testa semisferica Ball-nosed twist fluted end mills



Frese testa semisferica lunghe ed extralunghe Long and extra-long length



Frese con dentatura rompitruciolo Roughing end milling tools



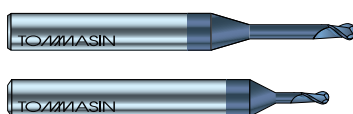
Frese multitaglianti per super finitura High speed multi-cut end mill for finishing



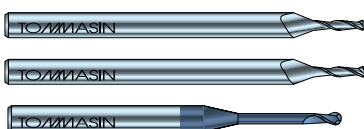
Frese elicoidali gambo rinforzato Twist fluted end mills with reinforced shank



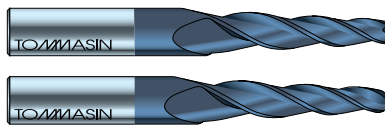
Frese gambo rinforzato per stampi Twist with reinforced shank mould line



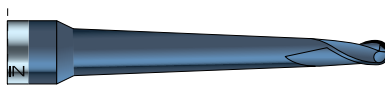
Micro frese testa raggiata e piana Micro end mill flat nose - ball nose



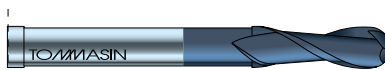
Frese coniche per stampi Tapered die-sinking cutters



Frese con codolo allungato conico Ball nose end mill with tapered shank



Frese gambo lungo a testa raggiata per stampi Radius twist end mills long shank



Frese toriche Toroidal end mill



Micro frese toriche gambo rinforzato Micro toroidal end mill



Punte elicoidali Twist drills



Micropunte gambo rinforzato Micro twist drills, reinforced shank



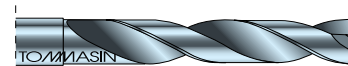
Punte a 3 eliche 3 Fluted twist drills



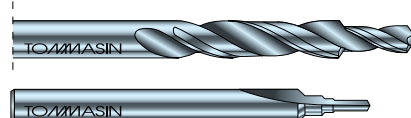
Punte a centrare Center drills



Punte elicoidali con fori di lubrificazione Twist drills with inner coolant holes



Punte speciali a disegno Special twist drills on your specific drawing



Alesatori a macchina Reamers



Punte per lavorazione su pantografi Gravers for pantograph



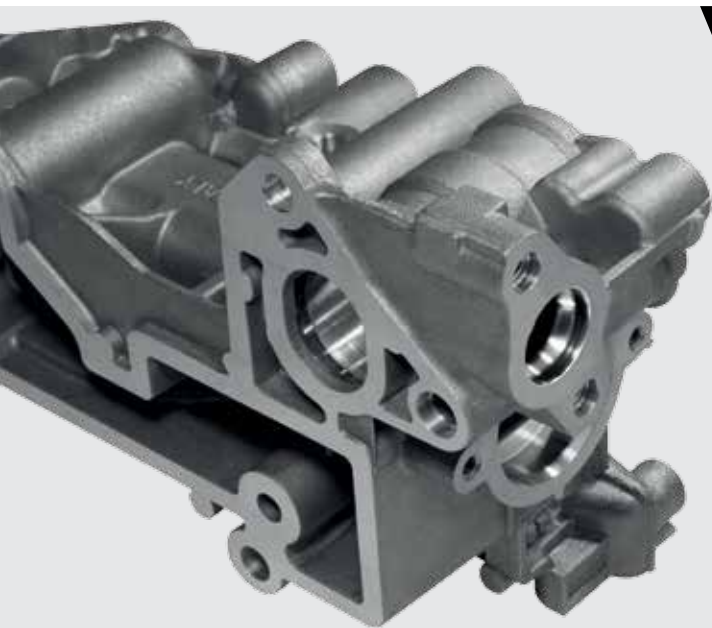
Cilindretti rettificati - bulini smezzati Grounder rods - engraving tools



Utensili PCD - PCD Tools

Produciamo utensili in PCD cilindrici, circolari, a barra quadra per tornio e inserti speciali di qualsiasi geometria e, a seconda del materiale lavorato e del tipo di lavorazione eseguita, selezioniamo la migliore grana e tipologia di PCD da impiegare.

PCD Tools - We produce all kind of PCD tools: cylindric, circular, square bar for lathe and special inserts of any geometry. For each kind of material worked and on the basis of the production process, we select the right type of PCD.



Lappatura - Lapping

Una speciale finitura garantisce l'asportazione precisa del truciolo per una migliore resa sul pezzo.
A special lapping guarantees the precise chip removal for a better rendering on the worked piece.

Studio di fattibilità - Feasibility studies

Progettiamo l'utensile più idoneo al pezzo da lavorare sia in termini di durata sia di finitura.
We design the most suitable tool for the piece to be worked both in terms of durability and finishing.

Convenienza - Value

Macchine innovative e materie prime selezionate ci consentono di offrire un ottimo rapporto qualità prezzo sulle frese PCD.
The use of innovative machines and selected raw materials allows us to offer an excellent quality-price combination.

Consegna - Delivery

Grazie alla flessibilità della nostra struttura, riusciamo a garantire consegne rapide anche sui pezzi speciali in PCD.
Thanks to our structure flexibility, we are able to guarantee prompt delivery also on customer's drawing tool and resharping.



Scopri di più su
Find out More on

pcd.tommasin.com

Sede direzionale commerciale



Sede produttiva - *Manufacturing site*



www.tommasin.com



DAL 1969
SINCE 1969

TOMMASIN
UTENSILI s.r.l.

Via G. Galilei, 2 - Z.I. - 35030
Caselle di Selvazzano - Padova (Italy)
Tel. +39 049 8975268 - Fax +39 049 8975310

www.tommasin.com
info@tommasin.com

