

Router bits and chucks for CNC routers



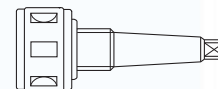
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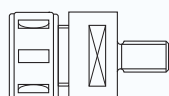
HW ROUTER BITS Z=2
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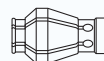
VHW ROUTER BITS Z=2
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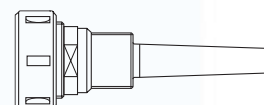
CONCENTRIC CHUCKS S=MK2
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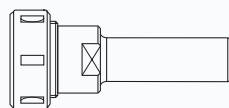
CONCENTRIC CHUCKS
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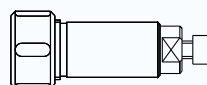
SPRING COLLETS
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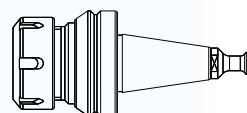
COLLET CHUCKS MORSE TAPER
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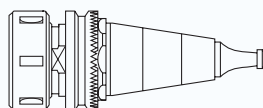
COLLET CHUCKS CYL SHANK Ø 20
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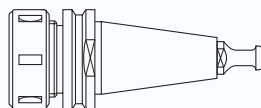
COLLET CHUCKS CYL SHANK Ø 25
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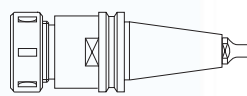
COLLET CHUCKS ISO 30
TAPERED FLANGE
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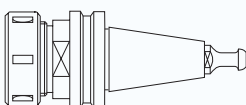
COLLET CHUCKS ISO 30
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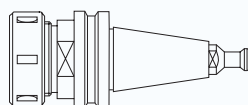
COLLET CHUCKS ISO 30
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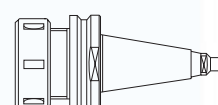
COLLET CHUCKS ISO 30
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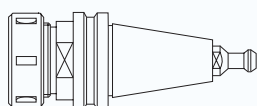
COLLET CHUCKS ISO 30
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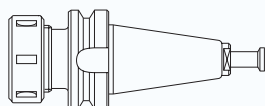
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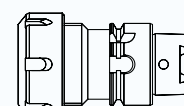
COLLET CHUCKS ISO 30
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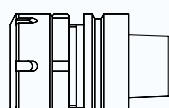
COLLET CHUCKS ISO 40
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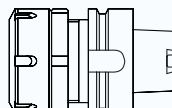
COLLET CHUCKS BT 30 - BT 35 - BT 40
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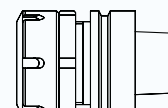
COLLET CHUCKS HSK40A
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COLLET CHUCKS HSK63F
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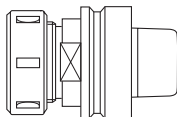
COLLET CHUCKS HSK63A
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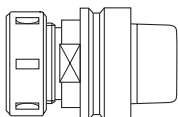
COLLET CHUCKS HSK63F
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Klein®

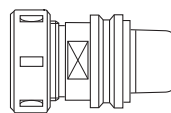




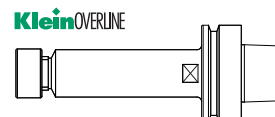
COLLET CHUCKS HSK TYPE "F"
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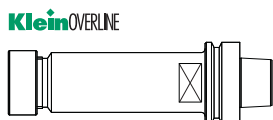
COLLET CHUCKS HSK63E
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COLLET CHUCKS HSK50E 40
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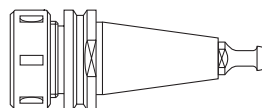
KleinOVERLINE
COLLET CHUCKS HSK63F ER16 - G 2.5
BALANCING
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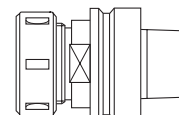
KleinOVERLINE
COLLET CHUCKS HSK63F ER32 - G 2.5
BALANCING
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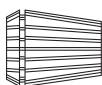
KleinOVERLINE
COLLET CHUCKS HSK63F
DIN6388/EOC25 - G 2.5 BALANCING
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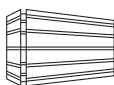
COLLET CHUCKS ISO 30 INOX
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COLLET CHUCKS HSK63F INOX
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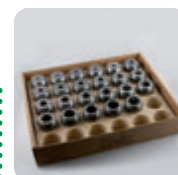
SPRING COLLETS ER 32 - DIN 6499
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SPRING COLLETS ER 40 - DIN 6499
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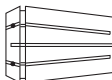
SPRING COLLET SET ER 32 - DIN 6499
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SPRING COLLET SET ER 40 - DIN 6499
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WATER-TIGHT
SPRING COLLETS ER 32 - DIN 6499
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WATER-TIGHT
SPRING COLLETS ER 40 - DIN 6499
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WATER-TIGHT
SPRING COLLET SET ER 32 - DIN 6499
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WATER-TIGHT
SPRING COLLET SET ER 40 - DIN 6499
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SPRING COLLETS ER 20 - DIN 6499
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SPRING COLLETS ER 25 - DIN 6499
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SPRING COLLET SET ER25 - DIN 6499
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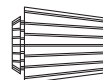
SPRING COLLETS ER 16 - DIN 6499
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SPRING COLLETS ER 11 - DIN 6499
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SPRING COLLETS ETS 32 - DIN 6499
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SPRING COLLETS ETS 40 - DIN 6499
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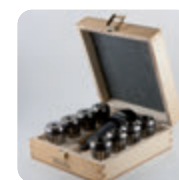
SPRING COLLETS EOC12 - DIN 6388 (407E)
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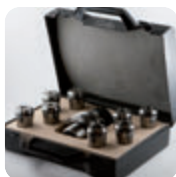
SPRING COLLETS EOC16 - DIN 6388 (415E)
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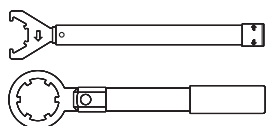
SPRING COLLET SET + WIPE OFF KIT
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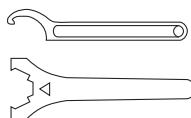
SET IN WOODEN BOX
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SET IN PLASTIC BOX
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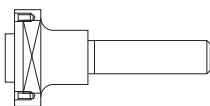
TORQUE WRENCHES
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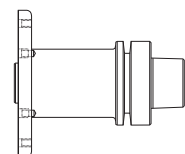
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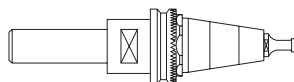
COLLET NUTS
"NO-NOISE" COLLET NUTS
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ADAPTERS FOR CIRCULAR SAWBLADES
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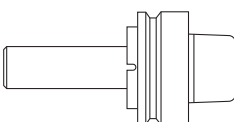
HSK63F ADAPTERS FOR CIRCULAR SAWBLADES
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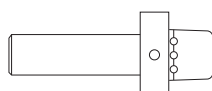
CUTTER ARBORS WITH ISO 30 TAPER
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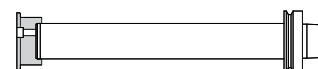
CUTTER ARBORS WITH ISO 30 - ISO 40 TAPER
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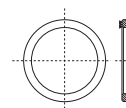
CUTTER ARBORS WITH HSK63F TAPER
CUTTER ARBORS WITH HSK63E
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CUTTER ARBORS WITH HSK85 TAPER
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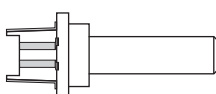
CUTTER ARBORS WITH HSK85S TAPER
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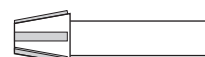
SPACERS 2-SIDES GRINDED
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RETAINING PAWLS FOR CONCENTRIC CHUCK
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CONE WIPERS
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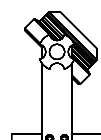
COLLET WIPERS
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BRUSHES FOR COLLET BORE
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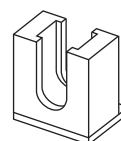
WIPE OFF KIT
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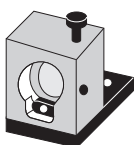
ADJUSTABLE DEMOUNT DEVICES
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DEMOUNT DEVICES FOR FLANGE Ø80 - Ø85
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DEMOUNT DEVICES
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ISO 30 DEMOUNT DEVICES
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PROFILE CUTTERS, GROUP 1
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PROFILE CUTTERS, GROUP 2
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SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=1
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SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=1
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SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=2
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SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=2
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SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=3
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SOLID CARBIDE SPIRAL CUTTERS,
FINISH STYLE Z=3
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SOLID CARBIDE SPIRAL CUTTERS,
ROUGHING STYLE Z=3
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SOLID CARBIDE SPIRAL CUTTERS,
ROUGHING STYLE Z=3
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SOLID CARBIDE SPIRAL CUTTERS Z=3
RH ROTATION
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SOLID CARBIDE SPIRAL CUTTERS Z=3
LH ROTATION
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SOLID CARBIDE SPIRAL CUTTERS,
FINISH STYLE Z=1
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SOLID CARBIDE SPIRAL CUTTERS,
FINISH STYLE Z=1
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SOLID CARBIDE SPIRAL CUTTERS,
FINISH STYLE Z=2
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SOLID CARBIDE SPIRAL CUTTERS,
FINISH STYLE Z=2
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SOLID CARBIDE SPIRAL CUTTERS,
FINISH STYLE Z=3
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SOLID CARBIDE SPIRAL CUTTERS,
FINISH STYLE Z=3
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SOLID CARBIDE SPIRAL CUTTERS,
ROUGHING STYLE Z=3
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SOLID CARBIDE SPIRAL CUTTERS,
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SOLID CARBIDE COMPRESSION
CUTTERS Z=1+1
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SOLID CARBIDE COMPRESSION CUTTERS
Z=1+1
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SOLID CARBIDE COMPRESSION
CUTTERS Z=2+2
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SOLID CARBIDE COMPRESSION
CUTTERS Z=2+2
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SOLID CARBIDE SPIRAL CUTTERS Z=2 - Z=3
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SOLID CARBIDE SPIRAL CUTTERS Z=3
FOR LOCKS
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SOLID CARBIDE SPIRAL
CUTTERS Z=2
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SOLID CARBIDE SPIRAL CUTTERS Z=2
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SOLID CARBIDE SPIRAL CUTTERS,
FINISH STYLE S=6 Z=2
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SOLID CARBIDE SPIRAL CUTTERS,
FINISH STYLE S=6 Z=2
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SOLID CARBIDE SPIRAL CUTTERS,
FINISH STYLE S=8 Z=2
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SOLID CARBIDE SPIRAL CUTTERS,
FINISH STYLE S=8 Z=2
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SOLID CARBIDE SPIRAL CUTTERS,
ROUGHING STYLE Z=2
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SOLID CARBIDE SPIRAL CUTTERS,
ROUGHING STYLE Z=2
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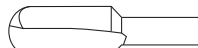
SOLID CARBIDE SPIRAL CUTTERS
RADIUS STYLE Z=2
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HS ROUTER BITS FOR "HUNDEGGER"
MACHINES
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HS CARVING BITS, PLANE STYLE
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HS CARVING BITS, ROUND STYLE
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KleinDIA



SOLID CARBIDE SPIRAL ROUTER
BITS FINISH/ROUGHING STYLE
Page 7.49, 7.50



MODULAR DRAWER UNIT
Page 7.51

TOOL HOLDERS

Useful information:

SISTEMI has always been known for the high quality of the products offered. Keywords of this success are the **attention to production materials** and the use of the most modern construction techniques together with more accurate controls and the continuous research of innovative products.

A large complete stock helps even more our customers to be more competitive in the market.

The tool holders made of stainless steel (see page 7.18) allow to solve permanently any possibility of oxidation.

All our standard collet chucks are balanced at G 6.3 (24.000 RPM) and, on request, can be also at G 2.5 (36.000 RPM). The new collet chucks Klein^{OVERLINE} (see page 7.16) are balanced at G 2.5 36.000 RPM for performing special executions.



Use instructions:

- 1) The collect chuck may be used only on router machines and machining centers for processing wood and wood-based material with comparable cutting characteristics.
- 2) The instructions of the machine manufacturer regarding the suitability of the clamping device have to be observed.
- 3) The direction of rotation marked on the clamping device has to be observed and followed. The direction of rotation of the tool and the collet chuck have to be the same.
- 4) Do not exceed the maximum RPM "n max" marked on the collet chuck. The maximum RPM of the system is determined by the tool, if the RPM of the tool is lower than that of the chuck.

Safety regulations:

- 1) All European and national safety regulations shall be adhered to include the safety requirements as set out in **EN 847-1, EN 847-2 e EN 847-3**.
- 2) The clamping device has to be mounted, secured and started up as per instructions of the machine manufacturer. Check the machine set-up and the direction of the rotation.

Maintenance:

A regular and **proper cleaning** of mechanical components is critical to avoid jamming during processing operations and the consequent risk of a poor finishing of the piece or even tool breakage.

The worked pieces leave impurities and debris in the collets holes, in the seats of tool holders or electro-spindles. These should be therefore cleaned daily using the **right wipers** (see items T137 and X137 at the page 7.33)



In order to avoid the risk of tool breakage during the job, make sure you answered the following questions:

- 1- Are you using the proper tool for the desired job?
- 2- Collets and tool holders are clean and the tool is inserted properly?
- 3- RPM and feed speed are correct?
- 4- Is the depth cut not too excessive for the material processed?
- 5- Are there any evident vibrations of the mechanical parts?
- 6- No right answer to your problem? Stop running parts and check with your "**Klein**" distributor.

If you have to contact your distributor of technical support, have ready the following information:

- a- Type of machine being used
- b- Type of material being cut
- c- Part number of tool, "**Klein**" item
- d- RPM/feed speed/depth of cut
- e- How long did the tool worked before it broke/damaged?
- f- Have you done this operation in the past using the same tool?

SAFETY NORMS

Table 1.1:

Calculation of the minimum clamping length (Safety regulation EN847-1).

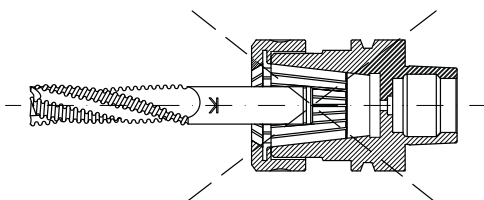
On the tool shank the minimum clamping length is marked.

The shank has to be clamped as far as possible, but at least up to the marking of the minimum clamping length (K).

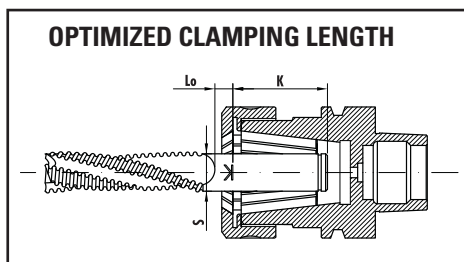
The free shank length (Lo) should be as short as possible, granting a higher rigidity and smaller risk of tool breakage.

Shank diameter S (mm)	Min. clamping length K (mm)
$S \leq 10$	$K \geq 20$
$10 < S < 25$	$K = S \times 2$
$S \geq 25$	$K = S \times 1,8$

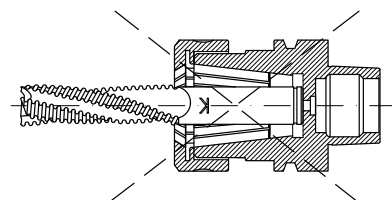
WRONG ASSEMBLING



OPTIMIZED CLAMPING LENGTH



WRONG ASSEMBLING



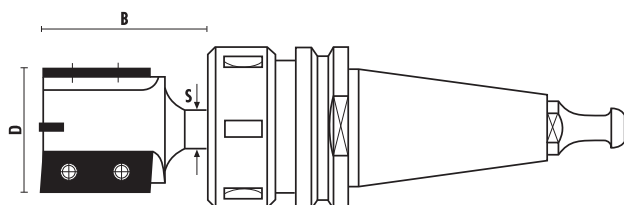
Safety norm for the calculation of the minimum clamping length

D = Tool diameter

B = Maximum safe length of the tool

S = Shank diameter

COLLET CHUCKS ISO30



COLLET CHUCKS HSK63F

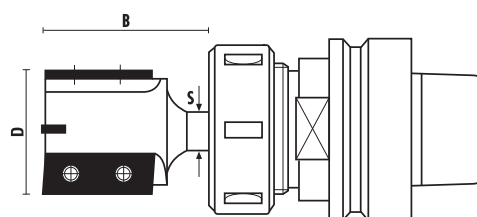


Table 2.1: Method for the calculation of the measure **B** for collet chucks ISO30

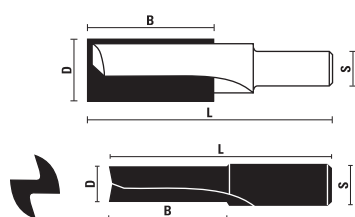
D (mm)	S (mm)							
	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20
6	81							
8	66	94						
10	59	82	105					
12	53	73	94	115				
14	48	66	85	105	124			
16	44	61	78	96	114	133		
18	41	57	73	89	106	123	140	
20	38	53	68	84	99	115	132	148
25		45	59	72	86	100	114	129
30		40	52	64	77	89	102	115
35			47	58	69	81	92	104
40			43	53	64	74	85	91
45				49	59	68	78	80
50				46	55	64	71	71
55					51	60	64	64
60					48	56	58	59
65					46	52	53	54
70						48	49	50
75						46	47	49
80							47	47
85								47
90								47
95								47
100								47
105								49
110								49

Table 2.2: Method for the calculation of the measure **B** for collet chucks HSK63F

D (mm)	S (mm)							
	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20
6	81							
8	68	94						
10	59	82	105					
12	53	73	94	115				
14	48	66	85	105	124			
16	44	61	78	96	114	133		
18	41	57	73	89	106	123	140	
20	38	53	68	84	99	115	132	148
25		45	59	72	86	100	114	129
30		40	52	64	77	89	102	115
35			47	58	69	81	92	104
40			43	53	64	74	85	95
45				49	59	68	78	88
50				46	55	64	73	83
55					51	60	69	78
60					48	56	65	73
65					46	53	61	69
70						51	59	66
75						48	55	63
80							53	60
85							51	58
90							49	56
95								56
100								52
105								65
110								64

HW ROUTER BITS Z=2

ART. T110

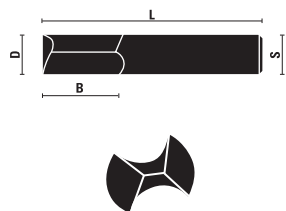


RH rotation	D	B	L	S
T110.030.R ▲	3	8	38	9,5x20
T110.040.R ▲	4	10	39	9,5x20
T110.050.R ▲	5	12	41	9,5x20
T110.060.R ▲	6	16	43	9,5x20
T110.070.R ▲	7	18	45	9,5x20
T110.080.R ▲	8	20	48	9,5x20
T110.081.R ▲	8	30	60	9,5x20
T110.090.R ▲	9	22	52	9,5x20
T110.100.R ▲	10	24	52	9,5x20
T110.101.R ▲	10	35	65	9,5x20
T110.110.R	11	30	60	9,5x20
T110.120.R	12	30	60	12x20
T110.121.R ▲	12	40	70	12x20
T110.130.R	13	30	60	12x20
T110.140.R	14	40	65	12x20
T110.150.R	15	40	65	12x20
T110.160.R	16	40	65	12x20
T110.180.R	18	40	70	12x20
T110.200.R	20	40	70	12x20
T110.220.R	22	40	70	12x20
T110.240.R	24	40	70	12x20
T110.250.R	25	40	70	12x20
T110.260.R	26	42	70	12x20
T110.280.R	28	42	70	12x20
T110.300.R	30	42	70	12x20

▲ Solid carbide

VHW ROUTER BITS Z=2

ART. T112

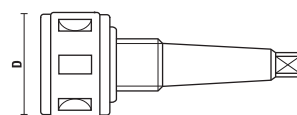


- Solid carbide
- Indicated for plastic and acrylic material, plexiglass, polypropylene etc.
- "O" flute straight

RH rotation	D	B	L	S
T112.050.R	5	12	48	5
T112.060.R	6	14	50	6
T112.080.R	8	18	55	8
T112.100.R	10	20	58	10
T112.120.R	12	26	64	12

CONCENTRIC CHUCKS S=MK2

ART. T116



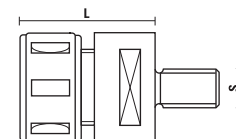
- Wrench art. Z052.301.N
- Spare parts see page 10.07

Supplied with nut (without collet)

Item	D	Shank	Clamping nut
T116.100.R	40	C.M. 2/FIL M20	Z091.000.R
T116.100.L	40	C.M. 2/FIL M20	Z091.000.L

CONCENTRIC CHUCKS

ART. T116



- Wrench art. Z052.301.N
- Spare parts see page 10.07

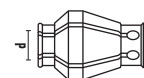
- With spare collets Art. T117
- To use on spindle moulder
- Supplied with nut (without collet)

RH rotation	S	L	Clamping nut
T116.500.R	M16	42	Z091.000.R
T116.501.R	M14	42	Z091.000.R
T116.502.R	M18	42	Z091.000.R
T116.503.R	M20	42	Z091.000.R

X116.500.R	Set with chuck M16 + 3 spring collets Ø 6/8/12
X116.501.R	Set with chuck M14 + 3 spring collets Ø 6/8/12
X116.502.R	Set with chuck M18 + 3 spring collets Ø 6/8/12
X116.503.R	Set with chuck M20 + 3 spring collets Ø 6/8/12

SPRING COLLETS

ART. T117

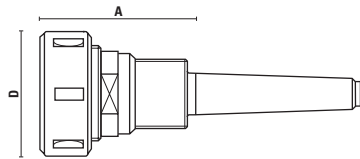


For Art. T116

Item	D
T117.060.N	6
T117.064.N	6,4
T117.080.N	8
T117.090.N	9
T117.095.N	9,5
T117.100.N	10
T117.110.N	11
T117.120.N	12
T117.127.N	12,7
T117.130.N	13
T117.140.N	14

COLLET CHUCKS MORSE TAPER

ART. T118

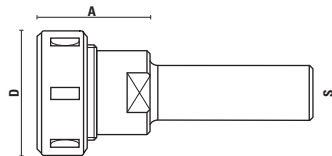


- Supplied with nut (without collet)
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20
- Threaded nut DIN 6499

Item	Shank	A	D	Spring collets	Clamping nut	Rot.
T118.200.R	MK2 / FIL. M30	70	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.200.L	MK2 / FIL. M30	70	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.L	LH
T118.202.R	MK2 / FIL. M30	70	50	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.300.R	MK3 / FIL. M30	70	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.300.L	MK3 / FIL. M30	70	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.L	LH
T118.302.R	MK3 / FIL. M30	70	50	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH

COLLET CHUCKS CYL SHANK Ø 20

ART. T118

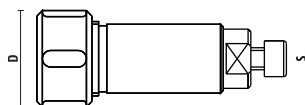


- Supplied with nut (without collet)
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20
- Threaded nut DIN 6499

Item	S	A	D	Spring collets	Clamping nut	Rot.
T118.400.R	Ø 20	51	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.402.R	Ø 20	51	50	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH

COLLET CHUCKS CYL SHANK Ø 25

ART. T118



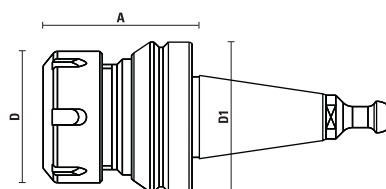
- Supplied with nut (without collet)
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20
- Threaded nut DIN 6388/EOC12

- For: **Weeke**

Item	S	D	Spring collets	Clamping nut	Rot.
T118.580.R NEW	Ø 25	35	Ø 1÷12,7 (Art. T136/EOC12)	Z091.205.R	RH

COLLET CHUCKS ISO 30 TAPERED FLANGE

ART. T118



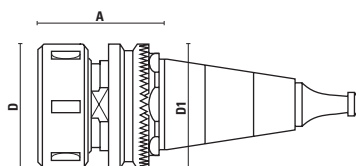
- Supplied with nut (without collet) and retaining pawl
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20
- Threaded nut DIN 6499

- Retaining pawl T118.891.R for: **Thermwood**

Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.680.R NEW	58	50	57	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH

COLLET CHUCKS ISO 30

ART. T118



- Supplied with nut (without collet) and retaining pawl
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20, 7.22
- Threaded nut DIN 6499
- Threaded nut DIN 6388/EOC25

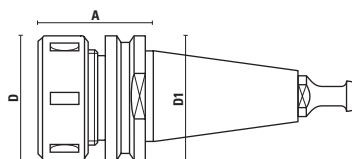
With anti-adherent surface treatment "Impreglon"

- Retaining pawl T118.790.R for: **Morbidelli, SCM**

Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.700.R	55	50	49	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.702.R	55	50	49	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.701.R	71	60	49	Ø 3÷25 (Art. T124/EOC25)	Z091.203.R ball bearing nut	RH
T118.711.R	71	60	49	Ø 3÷25 (Art. T124/EOC25)	Z091.202.R	RH
T118.711.L selling out	71	60	49	Ø 3÷25 (Art. T124/EOC25)	Z091.202.L	LH

COLLET CHUCKS ISO 30

ART. T118



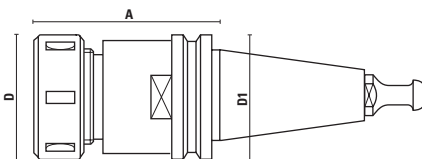
- Supplied with nut (without collet) and retaining pawl
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20
- Threaded nut DIN 6499

- Retaining pawl T118.891.R for: **Biesse** (after 09/09/92), **Masterwood - Bulleri** (motor H.S.D.)

Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.800.R	50	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.800.L	50	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.L	LH
T118.802.R	50	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.830.R	60	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.002.R	RH
T118.830.L	60	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.002.L	LH
T118.832.R	60	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.102.R ball bearing nut	RH

COLLET CHUCKS ISO 30

ART. T118



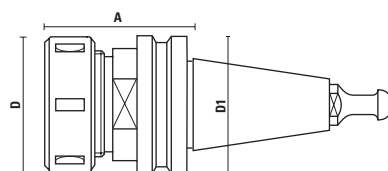
- Supplied with nut (without collet) and retaining pawl
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20
- Threaded nut DIN 6499

- Retaining pawl T118.891.R for: **Biesse** (after 09/09/92), **Masterwood - Bulleri** (motor H.S.D.)

Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.804.R	68	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.804.L	68	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.L	LH
T118.806.R	68	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.834.R	68	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.002.R	RH
T118.834.L	68	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.002.L	LH
T118.836.R	68	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.102.R ball bearing nut	RH

COLLET CHUCKS ISO 30

ART. T118



- Supplied with nut (without collet) and retaining pawl
- Threaded nut and wrenches see page 7.26, spring collets see page 7.22
- Threaded nut DIN 6388 (EOC25)

- Retaining pawl T118.791.R (DIN 69872) for:
Busellato, Weeke, Ima, Bulleri, Maka, Cosmec, Reichenbacher

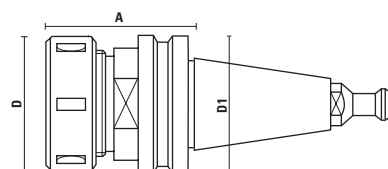
Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.828.R NEW	68	60	50	Ø 3÷25 (Art. T124/EOC25)	Z091.202.R	RH
T118.829.R NEW	68	60	50	Ø 3÷25 (Art. T124/EOC25)	Z091.203.R ball bearing nut	RH

- Retaining pawl T118.891.R for:
Biesse (after 09/09/92), **Masterwood - Bulleri** (motor H.S.D.)

Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.838.R NEW	68	60	50	Ø 3÷25 (Art. T124/EOC25)	Z091.202.R	RH
T118.839.R NEW	68	60	50	Ø 3÷25 (Art. T124/EOC25)	Z091.203.R ball bearing nut	RH

COLLET CHUCKS ISO 30

ART. T118



- Supplied with nut (without collet) and retaining pawl
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20, 7.23
- Threaded nut DIN 6499

- Retaining pawl T118.792.R for:
Alberti, Vitap, Masterwood (motor G. Colombo)

Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.810.R	68	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.810.L	68	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.L	LH
T118.812.R	68	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.814.R	68	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.002.R	RH
T118.814.L	68	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.002.L	LH
T118.816.R	68	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.102.R ball bearing nut	RH

- Retaining pawl T118.791.R (DIN 69872) for:
Busellato, Weeke, Ima, Bulleri, Maka, Cosmec, Reichenbacher

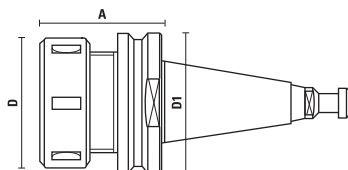
Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.820.R	68	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.820.L	68	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.L	LH
T118.822.R	68	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.824.R	68	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.002.R	RH
T118.824.L	68	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.002.L	LH
T118.826.R	68	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.102.R ball bearing nut	RH

- Retaining pawl T118.794.R for:
CMS (flange Ø 46)

Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.880.R	52	50	46	Ø 3÷20 (Art. T134/ETS32)	Z091.301.R	RH
T118.881.R	52	50	46	Ø 3÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.882.R	57	63	46	Ø 4÷25 (Art. T135/ETS40)	Z091.302.R	RH
T118.883.R	57	63	46	Ø 4÷25 (Art. T123/ER40)	Z091.002.R	RH

COLLET CHUCKS ISO 30

ART. T118



- Supplied with nut (without collet) and retaining pawl
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20
- Threaded nut DIN 6499

- Retaining pawl T118.791.R for electrospindles **Elte**

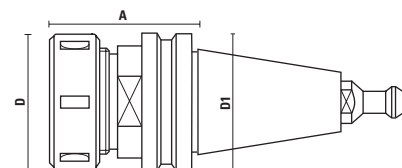
Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.845.R	50	50	58	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.846.R	50	50	58	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.847.R	56	63	58	Ø 2÷30 (Art. T123/ER40)	Z091.002.R	RH
T118.848.R	56	63	58	Ø 2÷30 (Art. T123/ER40)	Z091.102.R ball bearing nut	RH

- Retaining pawl T118.793.R for: **Esseteam** (solid flange)

Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.861.R	50	50	58	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.862.R	50	50	58	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.864.R	56	63	58	Ø 2÷30 (Art. T123/ER40)	Z091.002.R	RH
T118.866.R	56	63	58	Ø 2÷30 (Art. T123/ER40)	Z091.102.R ball bearing nut	RH

COLLET CHUCKS ISO 40

ART. T118



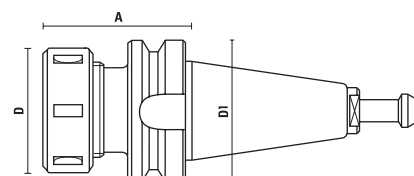
- Supplied with nut (without collet) and retaining pawl
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20
- Threaded nut DIN 6499

- Retaining pawl T118.893.R for:
IMA, Weeke, Maka, Reichenbacher, Stegherr

Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.850.R	73	50	63,5	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.852.R	73	50	63,5	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.870.R	73	63	63,5	Ø 2÷30 (Art. T123/ER40)	Z091.002.R	RH
T118.872.R	73	63	63,5	Ø 2÷30 (Art. T123/ER40)	Z091.102.R ball bearing nut	RH

COLLET CHUCKS BT 30 - BT 35 - BT 40

ART. T118



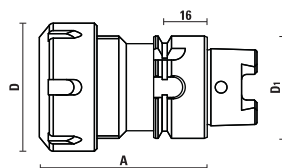
- Supplied with nut (without collet) and retaining pawl
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20
- Threaded nut DIN 6499

- Retaining pawl T118.895.R for: BT 30 **Shoda**
- Retaining pawl T118.896.R for: BT 35 **Heian**
- Retaining pawl T118.897.R for: BT 40 **Shoda**

Item	Tipo	A	D	D1	Spring collets	Clamping nut	Rot.
T118.910.R	BT 30	60	50	46	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.912.R	BT 30	70	63	46	Ø 2÷30 (Art. T123/ER40)	Z091.102.R ball bearing nut	RH
T118.920.R	BT 35	69	50	53	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.922.R	BT 35	60	63	53	Ø 2÷30 (Art. T123/ER40)	Z091.102.R ball bearing nut	RH
T118.930.R	BT 40	65	50	63	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH

COLLET CHUCKS HSK40A

ART. T118



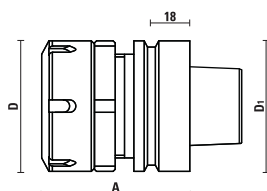
- Supplied with nut (without collet)
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20
- Threaded nut DIN 6499

- For "Centaurus"

Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.950.R NEW	65	50	40	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH

COLLET CHUCKS HSK63F

ART. T118



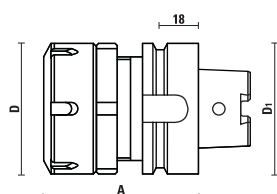
- Supplied with nut (without collet) and return ring nut
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20
- Threaded nut DIN 6499

- For "Essetre"

Item	A	D	D1	Spring collets	Clamping nut	Return ring nut	Rot.
T118.953.R NEW	71	63	63	Ø 2÷30 (Art. T123/ER40)	Z091.002.R	Z091.902.R	RH

COLLET CHUCKS HSK63A

ART. T118



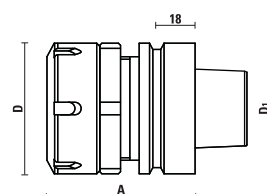
- Supplied with nut (without collet) and return ring nut
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20
- Threaded nut DIN 6499

- For "Essetre"

Item	A	D	D1	Spring collets	Clamping nut	Return ring nut	Rot.
T118.956.R NEW	71	63	63	Ø 2÷30 (Art. T123/ER40)	Z091.002.R	Z091.902.R	RH

COLLET CHUCKS HSK63F

ART. T118



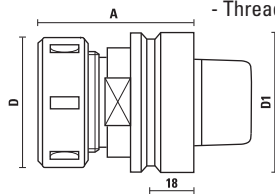
- Supplied with nut (without collet) and return ring nut
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20
- Threaded nut DIN 6499

- For "Uniteam"

Item	A	D	D1	Spring collets	Clamping nut	Return ring nut	Rot.
T118.959.R NEW	79	63	63	Ø 2÷30 (Art. T123/ER40)	Z091.002.R	Z091.902.R	RH

COLLET CHUCKS HSK TYPE "F"

ART. T118

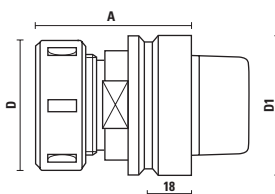


- Supplied with nut (without collet)
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20, 7.22
- Threaded nut DIN 6499
- Threaded nut DIN 6388 (EOC25)

Item		A	D	D1	Spring collets	Clamping nut	Rot.
T118.966.R	HSK 50 F	73	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.968.R	HSK 50 F	76	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.974.R	HSK 50 F	78	60	50	Ø 3÷26 (Art. T124/EOC25)	Z091.203.R	RH
T118.975.R NEW	HSK 63 F	70	42	63	Ø 3÷16 (Art. T125/ER25)	Z091.103.R	RH
T118.976.R	HSK 63 F	75	50	63	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.976.L	HSK 63 F	75	50	63	Ø 2÷20 (Art. T119/ER32)	Z091.001.L	LH
T118.978.R	HSK 63 F	76	50	63	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.980.R	HSK 63 F	75	63	63	Ø 2÷30 (Art. T123/ER40)	Z091.002.R	RH
T118.980.L	HSK 63 F	75	63	63	Ø 2÷30 (Art. T123/ER40)	Z091.002.L	LH
T118.982.R	HSK 63 F	78	63	63	Ø 2÷30 (Art. T123/ER40)	Z091.102.R ball bearing nut	RH
T118.983.R	HSK 63 F	78	60	63	Ø 3÷26 (Art. T124/EOC25)	Z091.202.R	RH
T118.984.R	HSK 63 F	78	60	63	Ø 3÷26 (Art. T124/EOC25)	Z091.203.R ball bearing nut	RH
T118.994.R NEW	HSK 63 F	115	60	63	Ø 2÷30 (Art. T124/EOC25)	Z091.203.R ball bearing nut	RH

COLLET CHUCKS HSK63E

ART. T118

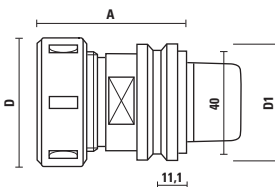


- Supplied with nut (without collet)
- Threaded nut and wrenches see page 7.26, spring collets see page 7.20, 7.23
- Threaded nut DIN 6499

Item		A	D	D1	Spring collets	Clamping nut	Rot.
T118.985.R		76	50	63	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.986.R		76	50	63	Ø 2÷30 (Art. T134/ETS32)	Z091.301.R	RH
T118.987.R		76	63	63	Ø 2÷30 (Art. T123/ER40)	Z091.002.R	RH
T118.988.R		76	63	63	Ø 4÷25 (Art. T135/ETS40)	Z091.302.R	RH

COLLET CHUCKS HSK50E 40

ART. T118



- Supplied with nut (without collet)
- Threaded nut and wrenches see page 7.26, spring collets see page 7.22
- Threaded nut DIN 6388 (EOC25)

- For ALBERTI "Polar"

Item		A	D	D1	Spring collets	Clamping nut	Rot.
T118.996.R		75	60	50	Ø 3÷26 (Art. T124/EOC25)	Z091.203.R ball bearing nut	RH

COLLET CHUCKS HSK63F HIGH SPEED LOW NOISE KleinOVERLINE

The increasing use of 5-axis machines has enabled to the step up the possible workings and with it the need to perform operations in tight and hard to reach spaces.

In order to meet these needs with the utmost precision and excellent finishes we offer a range of special HSK63F tool holders for collets **ER16**, **ER32** and **DIN6388/EOC25**, balanced at grade **G 2.5 at 36,000 RPM**.

Main features **KleinOVERLINE**

- x - Accessibility**
- x - Balance**
- x - Rotation speed**
- x - Noiselessness**
- ✓ - Extended length tool holders, reaching 200 mm.**
- ✓ - G 2.5 balancing grade**
- ✓ - 36.000 RPM**
- ✓ - No-noise nuts, with ground contours**

These nuts should be tightened with a torque wrench (our item Z052 see page 10.08) on a proper demount device (our item T139 see page 7.34), as shown in the pictures.

The toolholders are supplied with a special design nut, with no lengthwise cuts, suitable for machining at high speed. A remarkable noise decrease is also achieved.



Adjustable demount devices Art. T139 page 7.34



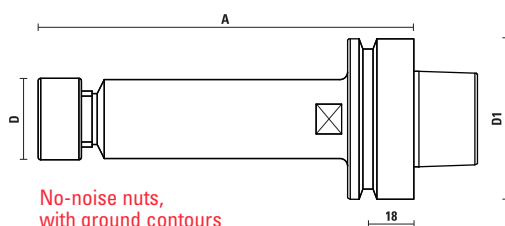
Insert the collet chuck in the demount devices



Tighten the nut using the torque wrench Art Z052 page 10.13

COLLET CHUCKS HSK63F ER16 - G 2.5 BALANCING

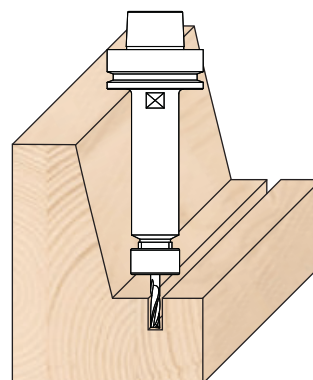
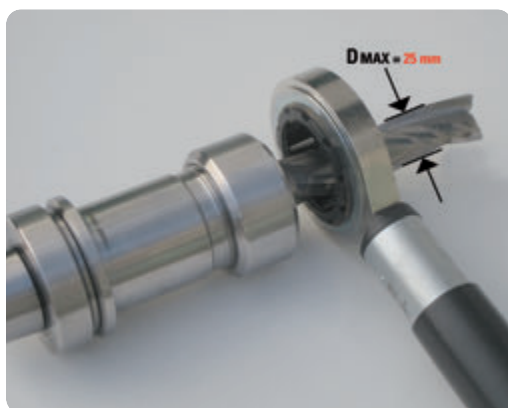
ART. TK118



- Balanced at grade G 2.5 at 36.000 RPM
- Noise and vibrations reduction
- Supplied with nut (without collet)
- Threaded nut and wrenches see page 7.26, spring collets see page 7.23
- Threaded nut DIN 6499

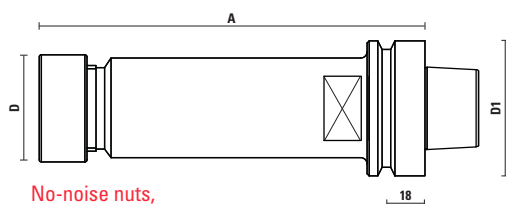
On request can be supplied the standard clamping nuts (Items Z091 see page 7.26, 10.13)

Item	A	D	D1	Spring collets	Clamping nut	Rot.
TK118.900.R150 NEW	150	32	63	Ø 2÷10 (Art. T127/ER16)	Z091.505.R	Rh



COLLET CHUCKS HSK63F ER32 - G 2.5 BALANCING

ART. TK118



No-noise nuts,
with ground contours

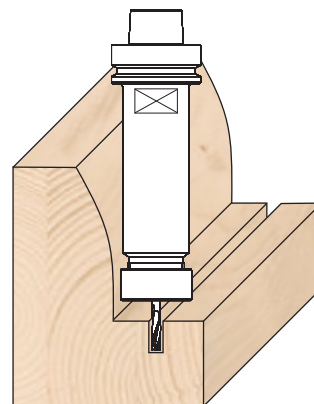
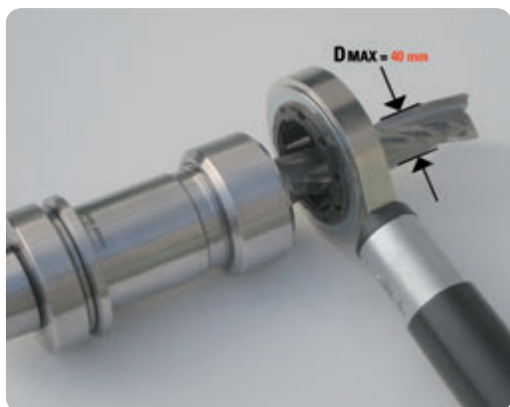
- Balanced at grade G 2.5 at 36.000 RPM
- Noise and vibrations reduction
- Supplied with nut (without collet)

- Threaded nut and wrenches see page 7.26,
spring collets see page 7.20

- Threaded nut DIN 6499

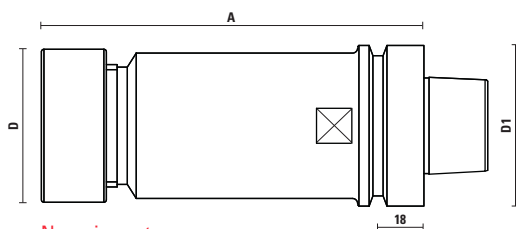
On request can be supplied the standard clamping nuts
(Items Z091 see page 7.26, 10.13)

Item	A	D	D1	Spring collets	Clamping nut	Rot.
TK118.976.R075 NEW	75	50	63	Ø 2÷20 (Art. T119/ER32)	Z091.501.R	Rh
TK118.976.R125 NEW	125	50	63	Ø 2÷20 (Art. T119/ER32)	Z091.501.R	Rh
TK118.976.R180 NEW	180	50	63	Ø 2÷20 (Art. T119/ER32)	Z091.501.R	Rh



COLLET CHUCKS HSK63F DIN6388/EOC25 - G 2.5 BALANCING

ART. TK118



No-noise nuts,
with ground contours

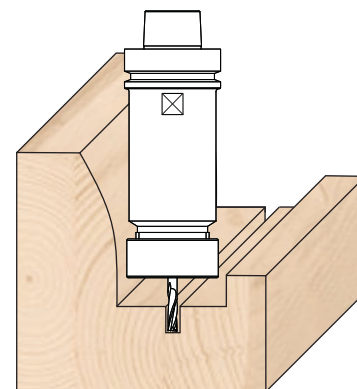
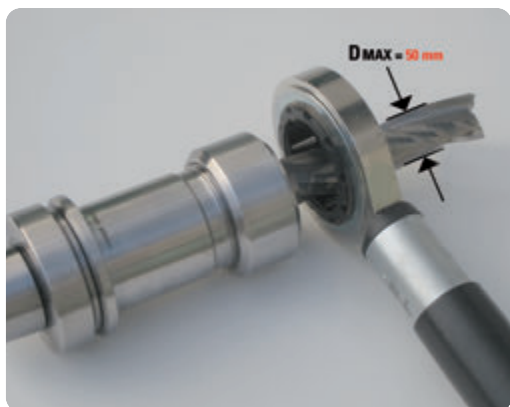
- Balanced at grade G 2.5 at 36.000 RPM
- Noise and vibrations reduction
- Supplied with nut (without collet)

- Threaded nut and wrenches see page 7.26,
spring collets see page 7.22

- Threaded nut DIN 6388 (EOC25)

On request can be supplied the standard clamping nuts
(Items Z091 see page 7.26, 10.13)

Item	A	D	D1	Spring collets	Clamping nut	Rot.
TK118.984.R078 NEW	78	60	63	Ø 3÷26 (Art. T124/ER25)	Z091.522.R	Rh
TK118.984.R115 NEW	115	60	63	Ø 3÷26 (Art. T124/ER25)	Z091.522.R	Rh
TK118.984.R150 NEW	150	60	63	Ø 3÷26 (Art. T124/ER25)	Z091.522.R	Rh
TK118.984.R200 NEW	200	60	63	Ø 3÷26 (Art. T124/ER25)	Z091.522.R	Rh



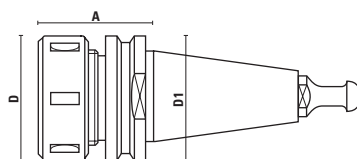
STAINLESS STEEL COLLET CHUCKS

Useful information:

- Solid stainless steel collet chucks are more resistant and have a longer life span;
- The micro-shot peening treatment guarantees an excellent resistance to corrosion and an aesthetic pleasing;
- No problems of peeling compared to coated chucks.
- Better working performances and longer life of the electrospindles.

COLLET CHUCKS ISO 30 INOX

ART. T118



- **Produced in stainless steel AISI 420**
- Special micro-shot peening treatment;
- Supplied with nut (without collet) and retaining pawl;
- Needed when working with coolant: machines for marble, glass, aluminium working and others;
- Highly recommended when processing resinoid wood and composite materials
- Suggested when working in "humid" environment.
- Extremely low maintenance costs, easy to clean;
- When used with coolant our water-tight spring collets are suggested

Retaining paw T118.891.R For: **Biesse** (after 09/09/92), **Masterwood - Bulleri** (motor H.S.D.)

Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.800.RAI	50	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.802.RAI	50	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.830.RAI	55	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.002.R	RH
T118.832.RAI	55	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.102.R ball bearing nut	RH

Retaining paw T118.792.R For: **Alberti, Vitap, Masterwood** (motor G. Colombo)

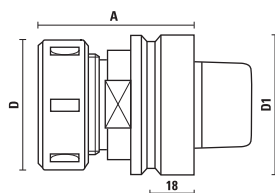
Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.811.RAI	50	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.813.RAI	50	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.815.RAI	55	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.002.R	RH
T118.817.RAI	55	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.102.R ball bearing nut	RH

Retaining paw T118.791.R (DIN 69872) For: **Busellato, Weeke, Ima, Bulleri, Maka, Cosmec, Reichenbacher, Elte**

Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.821.RAI	50	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.823.RAI	50	50	50	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.825.RAI	55	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.002.R	RH
T118.827.RAI	55	63	50	Ø 2÷30 (Art. T123/ER40)	Z091.102.R ball bearing nut	RH

COLLET CHUCKS HSK63F INOX

ART. T118

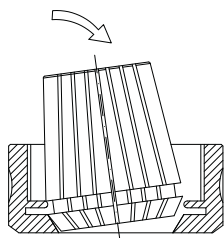


- **Produced in stainless steel AISI 420**
- Special micro-shot peening treatment;
- Supplied with nut (without collet) and retaining pawl;
- Needed when working with coolant: machines for marble, glass, aluminium working and others;
- Highly recommended when processing resinoid wood and composite materials
- Suggested when working in "humid" environment.
- Extremely low maintenance costs, easy to clean;
- When used with coolant our water-tight spring collets are suggested

Item	A	D	D1	Spring collets	Clamping nut	Rot.
T118.976.RAI	74	50	63	Ø 2÷20 (Art. T119/ER32)	Z091.001.R	RH
T118.978.RAI	74	50	63	Ø 2÷20 (Art. T119/ER32)	Z091.101.R ball bearing nut	RH
T118.980.RAI	77	63	63	Ø 2÷30 (Art. T123/ER40)	Z091.002.R	RH
T118.982.RAI	77	63	63	Ø 2÷30 (Art. T123/ER40)	Z091.102.R ball bearing nut	RH
T118.983.RAI	78	60	63	Ø 3÷26 (Art. T124/EOC25)	Z091.203.R	RH
T118.984.RAI	78	60	63	Ø 3÷26 (Art. T124/EOC25)	Z091.203.R ball bearing nut	RH

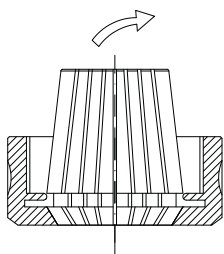
SPRING COLLETS

HOW TO INSERT THE SPRING COLLET IN THE NUT



Right procedure to assemble the collet in the nut:

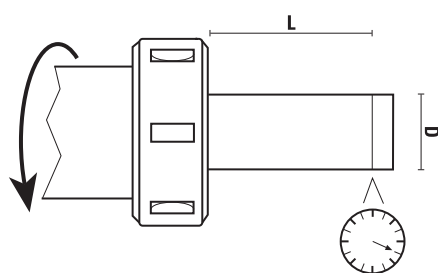
- place the collet diagonal to the clamping nut and lock it from the side by pressing it from top
- screw the nut and be sure the shank is correctly inserted in the spring collet (see table 1.1).
- Tighten the nut using the apposite key on the proper demount device (Art. T139, see page 7.34)
- Do not place the spring collet in the collet chuck before you have it properly inserted in the nut.**



Correct procedure for tool and spring collet change:

- place the collet chuck in the mounting device
- untighten the clamping nut
- open the clamping nut and pull the cutting tool out holding it on the shank
- release the collet from the clamping nut by lateral pressure

Klein OFFERS ONLY HIGH PRECISION SPRING COLLETS:



D	L	Standard Precision	High Precision Klein®
Ø3 - Ø4 - Ø5	16	0,015	> 0,010
Ø6 ÷ Ø9,5	25	0,015	> 0,010
Ø10 ÷ Ø17	40	0,020	> 0,010
Ø18 ÷ Ø26	50	0,020	> 0,010

Using high precision spring collets vibrations on the tools and motors are reduced, assuring better results and a longer life of the tools and electrospindles.

COLLET LIFE SPAN:

Spring collets have a life span of approximately 3 months if used 8 hours a day.
Replacing the collets will ensure your operation runs consistency and prevents from tool breakage.

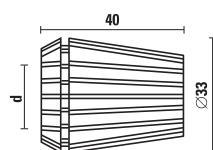
MAINTENANCE:

Keeping spring collets and tools clean is essential for a longer life.
The worked material produces chips and dirt which can cause an elliptical tool rotation.
The seats of collet chucks and electrospindles should be cleaned daily with the correct tapers
(see our items **T137** and **X137** at the page 7.33)



SPRING COLLETS ER 32 - DIN 6499

ART. T119



Precision= 0,01

Item	d
T119.020.N	Ø 2 - 1
T119.030.N	Ø 3 - 2
T119.032.N	Ø 3,2 - (1/8")
T119.040.N	Ø 4 - 3
T119.048.N	Ø 4,8 - (3/16")
T119.050.N	Ø 5 - 4
T119.060.N	Ø 6 - 5
T119.064.N	Ø 6,4 - (1/4")
T119.070.N	Ø 7 - 6
T119.079.N	Ø 7,9 - (5/16")
T119.080.N	Ø 8 - 7
T119.090.N	Ø 9 - 8
T119.095.N	Ø 9,5 - (3/8")
T119.100.N	Ø 10 - 9
T119.110.N	Ø 11 - 10
T119.120.N	Ø 12 - 11
T119.127.N	Ø 12,7 (1/2")
T119.130.N	Ø 13 - 12
T119.140.N	Ø 14 - 13
T119.150.N	Ø 15 - 14
T119.159.N	Ø 15,9 - (5/8")
T119.160.N	Ø 16 - 15
T119.170.N	Ø 17 - 16
T119.180.N	Ø 18 - 17
T119.190.N	Ø 19 - 18
T119.191.N	Ø 19,1 - (3/4")
T119.200.N	Ø 20 - 19

SPRING COLLET SET ER 32 - DIN 6499

ART. X119

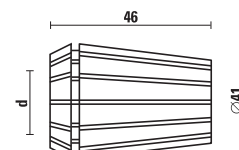


- Complete with 18 pcs
- In carton Box

Item	Diameters:
X119.118.N	Ø3 - Ø4 - Ø5 - Ø6 - Ø7 - Ø8
	Ø9 - Ø10 - Ø11 - Ø12 - Ø13 - Ø14
	Ø15 - Ø16 - Ø17 - Ø18 - Ø19 - Ø20

SPRING COLLETS ER 40 - DIN 6499

ART. T123



Precision= 0,01

Item	d
T123.030.N	Ø 3 - 2
T123.040.N	Ø 4 - 3
T123.048.N	Ø 4,8 - (3/16")
T123.050.N	Ø 5 - 4
T123.060.N	Ø 6 - 5
T123.064.N	Ø 6,4 - (1/4")
T123.070.N	Ø 7 - 6
T123.079.N	Ø 7,9 - (5/16")
T123.080.N	Ø 8 - 7
T123.090.N	Ø 9 - 8
T123.095.N	Ø 9,5 - (3/8")
T123.100.N	Ø 10 - 9
T123.110.N	Ø 11 - 10
T123.120.N	Ø 12 - 11
T123.127.N	Ø 12,7 - (1/2")
T123.130.N	Ø 13 - 12
T123.140.N	Ø 14 - 13
T123.150.N	Ø 15 - 14
T123.159.N	Ø 15,9 - (5/8")
T123.160.N	Ø 16 - 15
T123.170.N	Ø 17 - 16
T123.180.N	Ø 18 - 17
T123.190.N	Ø 19 - 18
T123.191.N	Ø 19,1 - (3/4")
T123.200.N	Ø 20 - 19
T123.210.N	Ø 21 - 20
T123.220.N	Ø 22 - 21
T123.230.N	Ø 23 - 22
T123.240.N	Ø 24 - 23
T123.250.N	Ø 25 - 24
T123.254.N	Ø 25,4 - (1")
T123.260.N	Ø 26 - 25
T123.300.N NEW	Ø 30 - 29

SPRING COLLET SET ER 40 - DIN 6499

ART. X123

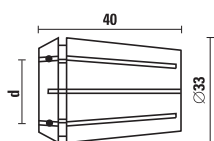


- Complete with 23 pcs
- In carton Box

Item	Diameters:
X123.023.N	Ø3 - Ø4 - Ø5 - Ø6 - Ø7 - Ø8
	Ø9 - Ø10 - Ø11 - Ø12 - Ø13 - Ø14
	Ø15 - Ø16 - Ø17 - Ø18 - Ø19 - Ø20
	Ø21 - Ø22 - Ø23 - Ø24 - Ø25

WATER-TIGHT SPRING COLLETS ER 32 - DIN 6499

ART. T119



- Precision= 0,01
- Highly recommended when working with lubricant
- Indicated for working aluminium, marble, glass and others

Item	d
T119.020.NTS	Ø 2 - 1
T119.030.NTS	Ø 3 - 2
T119.040.NTS	Ø 4 - 3
T119.050.NTS	Ø 5 - 4
T119.060.NTS	Ø 6 - 5
T119.070.NTS	Ø 7 - 6
T119.080.NTS	Ø 8 - 7
T119.090.NTS	Ø 9 - 8
T119.100.NTS	Ø 10 - 9
T119.110.NTS	Ø 11 - 10
T119.120.NTS	Ø 12 - 11
T119.130.NTS	Ø 13 - 12
T119.140.NTS	Ø 14 - 13
T119.150.NTS	Ø 15 - 14
T119.160.NTS	Ø 16 - 15
T119.170.NTS	Ø 17 - 16
T119.180.NTS	Ø 18 - 17
T119.190.NTS	Ø 19 - 18
T119.200.NTS	Ø 20 - 19

WATER-TIGHT SPRING COLLET SET ER 32 - DIN 6499

ART. X119

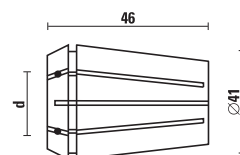


- Complete with 18 pcs
- In carton Box

Item	Diameters:
X119.118.NTS	Ø3 - Ø4 - Ø5 - Ø6 - Ø7 - Ø8
	Ø9 - Ø10 - Ø11 - Ø12 - Ø13 - Ø14
	Ø15 - Ø16 - Ø17 - Ø18 - Ø19 - Ø20

WATER-TIGHT SPRING COLLETS ER 40 - DIN 6499

ART. T123



- Precision= 0,01
- Highly recommended when working with lubricant
- Indicated for working aluminium, marble, glass and others

Item	d
T123.030.NTS	Ø 3 - 2
T123.040.NTS	Ø 4 - 3
T123.050.NTS	Ø 5 - 4
T123.060.NTS	Ø 6 - 5
T123.070.NTS	Ø 7 - 6
T123.080.NTS	Ø 8 - 7
T123.090.NTS	Ø 9 - 8
T123.100.NTS	Ø 10 - 9
T123.110.NTS	Ø 11 - 10
T123.120.NTS	Ø 12 - 11
T123.130.NTS	Ø 13 - 12
T123.140.NTS	Ø 14 - 13
T123.150.NTS	Ø 15 - 14
T123.160.NTS	Ø 16 - 15
T123.170.NTS	Ø 17 - 16
T123.180.NTS	Ø 18 - 17
T123.190.NTS	Ø 19 - 18
T123.200.NTS	Ø 20 - 19
T123.210.NTS	Ø 21 - 20
T123.220.NTS	Ø 22 - 21
T123.230.NTS	Ø 23 - 22
T123.240.NTS	Ø 24 - 23
T123.250.NTS	Ø 25 - 24
T123.260.NTS	Ø 26 - 25

WATER-TIGHT SPRING COLLET SET ER 40 - DIN 6499

ART. X123

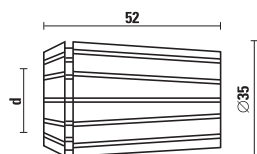


- Complete with 23 pcs
- In carton Box

Item	Diameters:
X123.023.NTS	Ø3 - Ø4 - Ø5 - Ø6 - Ø7 - Ø8
	Ø9 - Ø10 - Ø11 - Ø12 - Ø13 - Ø14
	Ø15 - Ø16 - Ø17 - Ø18 - Ø19 - Ø20
	Ø21 - Ø22 - Ø23 - Ø24 - Ø25

SPRING COLLETS EOC25 - DIN 6388 (462 E)

ART. T124

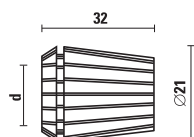


Precision= 0,01

Item	d
T124.020.N	Ø 2 - 1,5
T124.030.N	Ø 3 - 2,5
T124.040.N	Ø 4 - 3,5
T124.050.N	Ø 5 - 4,5
T124.060.N	Ø 6 - 5,5
T124.064.N	Ø 6,4 - (1/4")
T124.070.N	Ø 7 - 6,5
T124.080.N	Ø 8 - 7,5
T124.095.N	Ø 9,5 - (3/8")
T124.100.N	Ø 10 - 9,5
T124.110.N	Ø 11 - 10,5
T124.120.N	Ø 12 - 11,5
T124.130.N	Ø 13 - 12,5 - (1/2")
T124.140.N	Ø 14 - 13,5
T124.159.N	Ø 15,9 - (5/8")
T124.160.N	Ø 16 - 15,5
T124.180.N	Ø 18 - 17,5
T124.191.N	Ø 19,1 - (3/4")
T124.200.N	Ø 20 - 19,5
T124.220.N	Ø 22 - 21,5
T124.250.N	Ø 25 - 24,5
T124.254.N	Ø 25,4 - (1")

SPRING COLLETS ER 20 - DIN 6499

ART. T126

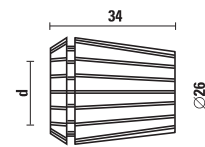


Precision= 0,01

Item	d
T126.030.N	Ø 3 - 2
T126.032.N	Ø 3,2 - (1/8")
T126.040.N	Ø 4 - 3
T126.050.N	Ø 5 - 4
T126.060.N	Ø 6 - 5
T126.064.N	Ø 6,4 - (1/4")
T126.080.N	Ø 8 - 7
T126.090.N	Ø 9 - 8
T126.095.N	Ø 9,5 - (3/8")
T126.100.N	Ø 10 - 9
T126.110.N	Ø 11 - 10
T126.120.N	Ø 12 - 11
T126.127.N	Ø 12,7 - (1/2")
T126.130.N	Ø 13 - 12

SPRING COLLETS ER 25 - DIN 6499

ART. T125



Precision= 0,01

Item	d
T125.030.N	Ø 3 - 2
T125.032.N	Ø 3,2 - (1/8")
T125.040.N	Ø 4 - 3
T125.048.N	Ø 4,8 - (3/16")
T125.050.N	Ø 5 - 4
T125.060.N	Ø 6 - 5
T125.064.N	Ø 6,4 - (1/4")
T125.070.N	Ø 7 - 6
T125.079.N	Ø 7,9 - (5/16")
T125.080.N	Ø 8 - 7
T125.090.N	Ø 9 - 8
T125.095.N	Ø 9,5 - (3/8")
T125.100.N	Ø 10 - 9
T125.110.N	Ø 11 - 10
T125.120.N	Ø 12 - 11
T125.127.N	Ø 12,7 - (1/2")
T125.130.N	Ø 13 - 12
T125.140.N	Ø 14 - 13
T125.159.N	Ø 15,9 - (5/8")
T125.160.N	Ø 16 - 15

SPRING COLLET SET ER25 - DIN 6499

ART. X125

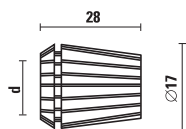


- Complete with 14 pcs
- In wooden Box

Item	Diameters:
X125.014.N	Ø3 - Ø4 - Ø5 - Ø6 - Ø7 - Ø8 - Ø9 Ø10 - Ø11 - Ø12 - Ø13 - Ø14 - Ø15 - Ø16

SPRING COLLETS ER 16 - DIN 6499

ART. T127

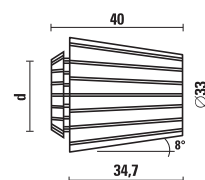


Precision= 0,01

Item	d
T127.020.N	Ø 2 - 1
T127.030.N	Ø 3 - 2
T127.032.N	Ø 3,2 - (1/8")
T127.040.N	Ø 4 - 3
T127.050.N	Ø 5 - 4
T127.060.N	Ø 6 - 5
T127.064.N	Ø 6,4 - (1/4")
T127.070.N	Ø 7 - 6
T127.080.N	Ø 8 - 7
T127.090.N	Ø 9 - 8
T127.095.N	Ø 9,5 - (3/8")
T127.100.N	Ø 10 - 9

SPRING COLLETS ETS 32 - DIN 6499

ART. T134

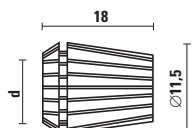


Precision= 0,01

Item	d
T134.030.N	Ø 3 - 2
T134.040.N	Ø 4 - 3
T134.050.N	Ø 5 - 4
T134.060.N	Ø 6 - 5
T134.070.N	Ø 7 - 6
T134.080.N	Ø 8 - 7
T134.100.N	Ø 10 - 9
T134.120.N	Ø 12 - 11
T134.130.N	Ø 13 - 12
T134.140.N	Ø 14 - 13
T134.160.N	Ø 16 - 15
T134.180.N	Ø 18 - 17
T134.200.N	Ø 20 - 19

SPRING COLLETS ER 11 - DIN 6499

ART. T129

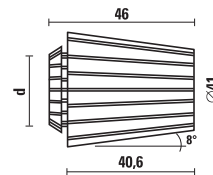


Precision= 0,01

Item	d
T129.010.N	Ø 1-0,5
T129.015.N	Ø 1,5-1
T129.020.N	Ø 2-1,5
T129.025.N	Ø 2,5-2
T129.030.N	Ø 3-2,5
T129.035.N	Ø 3,5-3
T129.040.N	Ø 4-3,5
T129.045.N	Ø 4,5-4
T129.050.N	Ø 5-4,5
T129.055.N	Ø 5,5-5
T129.060.N	Ø 6-5,5
T129.065.N	Ø 6,5-6
T129.070.N	Ø 7-6,5

SPRING COLLETS ETS 40 - DIN 6499

ART. T135

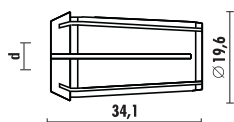


Precision= 0,01

Item	d
T135.040.N	Ø 4 - 3
T135.050.N	Ø 5 - 4
T135.060.N	Ø 6 - 5
T135.070.N	Ø 7 - 6
T135.080.N	Ø 8 - 7
T135.100.N	Ø 10 - 9
T135.120.N	Ø 12 - 11
T135.130.N	Ø 13 - 12
T135.140.N	Ø 14 - 13
T135.160.N	Ø 16 - 15
T135.180.N	Ø 18 - 17
T135.200.N	Ø 20 - 19
T135.250.N	Ø 25 - 24

SPRING COLLETS EOC12 - DIN 6388 (407E)

ART. T136

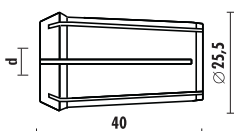


- To be used with Art. T118.580.R
- Precision= 0,01

Item	d
T136.040.N NEW	Ø 4 - 3
T136.060.N NEW	Ø 6 - 5
T136.064.N NEW	Ø 6,4 - (1/4")
T136.080.N NEW	Ø 8 - 7
T136.095.N NEW	Ø 9,5 - (3/8")
T136.100.N NEW	Ø 10 - 9
T136.120.N NEW	Ø 12 - 11
T136.127.N NEW	Ø 12,7 - (1/2")

SPRING COLLETS EOC16 - DIN 6388 (415E)

ART. T138



- Precision= 0,01

Item	d
T138.040.N NEW	Ø 4 - 3
T138.060.N NEW	Ø 6 - 5
T138.064.N NEW	Ø 6,4 - (1/4")
T138.080.N NEW	Ø 8 - 7
T138.095.N NEW	Ø 9,5 - (3/8")
T138.100.N NEW	Ø 10 - 9
T138.120.N NEW	Ø 12 - 11
T138.127.N NEW	Ø 12,7 - (1/2")

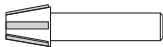
SPRING COLLET SET + WIPE OFF KIT

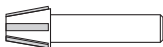


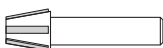
The **wipe off set** allows maintaining the inside as well as the seat of the spring collet on the chuck clean, helps increasing cutting efficiency and reduce vibrations for a longer tool life. No more risk of wrong positioning of both the collet and the tool due to chips and resin.

- In plastic box

- Set complete with:
nr. 10 spring collets
Collet wipers
Brushes for collet bore

Item	
 X125.515.N	
	Set complete with 10 spring collets ER25: Ø3 - Ø4 - Ø5 - Ø6 - Ø7 Ø8 - Ø10 - Ø12 - Ø14 - Ø16
	T137.525.N - Collet wipers ER25
	X137.004.N - nr. 4 brushes for collet bore ER25

Item	
 X119.515.N	
	Set complete with 10 spring collets ER32: Ø4 - Ø5 - Ø6 - Ø8 - Ø10 - Ø12 - Ø14 - Ø16 - Ø18 - Ø20
	T137.532N - Collet wipers ER32
	X137.004.N - nr. 4 brushes for collet bore ER32

Item	
 X123.515.N	
	Set complete with 10 spring collets ER40: Ø4 - Ø6 - Ø8 - Ø10 - Ø12 - Ø14 - Ø16 - Ø18 - Ø20 - Ø25
	T137.540N - Collet wipers ER40
	X137.004.N - nr. 4 brushes for collet bore ER40

Item	
 X124.515.N	
	Set complete with 10 spring collets DIN6388: Ø4 - Ø6 - Ø8 - Ø10 - Ø12 - Ø14 - Ø16 - Ø18 - Ø20 - Ø25
	T137.662N - Collet wipers DIN6388-EOC25
	X137.004.N - nr. 4 brushes for collet bore DIN6388-EOC25

SET IN WOODEN BOX

ART. X118



Complete with concentric chuck ISO30 + 8 spring collets ER32

Item	Item
X118.700.R	X118.800.R
complete with:	complete with:
concentric chuck ISO 30/ER32	concentric chuck ISO 30/ER32
T118.700.R	T118.800.R
spring collets	spring collets
Ø6 T119.060.N	Ø6 T119.060.N
Ø8 T119.080.N	Ø8 T119.080.N
Ø10 T119.100.N	Ø10 T119.100.N
Ø12 T119.120.N	Ø12 T119.120.N
Ø14 T119.140.N	Ø14 T119.140.N
Ø16 T119.160.N	Ø16 T119.160.N
Ø18 T119.180.N	Ø18 T119.180.N
Ø20 T119.200.N	Ø20 T119.200.N

SET IN PLASTIC BOX

ART. X118



- Complete with
concentric chuck HSK63F
+ 8 spring collets ER32

Item	Item
X118.976.R NEW	
complete with:	
concentric chuck HSK63F/ER32	T118.976.R
spring collets	
Ø6 T119.060.N	
Ø8 T119.080.N	
Ø10 T119.100.N	
Ø12 T119.120.N	
Ø14 T119.140.N	
Ø16 T119.160.N	
Ø18 T119.180.N	
Ø20 T119.200.N	

SET IN PLASTIC BOX

ART. X118



- Complete with
concentric chuck HSK63F
+ 8 spring collets ER40

Item	Item
X118.980.R NEW	
complete with:	
concentric chuck HSK63F/ER40	T118.980.R
spring collets	
Ø6 T123.060.N	
Ø8 T123.080.N	
Ø10 T123.100.N	
Ø12 T123.120.N	
Ø16 T123.160.N	
Ø18 T123.180.N	
Ø20 T123.200.N	
Ø25 T123.250.N	

SET IN PLASTIC BOX

ART. X118



- Complete with
concentric chuck HSK63F
with ball bearing nut
+ 8 spring collets EOC25

Item	Item
X118.984.R NEW	
complete with:	
concentric chuck HSK63F/EOC25	T118.984.R
spring collets	
Ø6 T124.060.N	
Ø8 T124.080.N	
Ø10 T124.100.N	
Ø12 T124.120.N	
Ø16 T124.160.N	
Ø18 T124.180.N	
Ø20 T124.200.N	
Ø25 T124.250.N	

TORQUE WRENCHES

While setting a tool it is extremely important to tighten it appropriately.

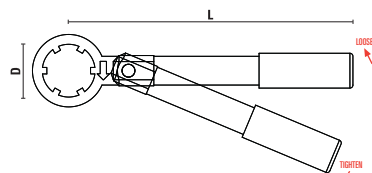
If not effectively tight indeed a cutting tool could slide away from the tool holder during the working process.

On the other side, an excessive tightening can cause damages to the tool holder or spring collet or the tool itself.

The wrench indicates when the torque (Nm) is reached according to the value in the corresponding table.

TORQUE WRENCHES FOR "MINI" NUTS

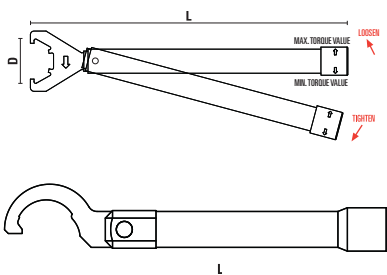
ART. Z052

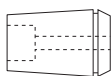
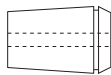


Item	D	L	Nm	Threaded nut
Z052.704.N	35	185	40	ER25

TORQUE WRENCHES FOR "STANDARD" NUTS

ART. Z052

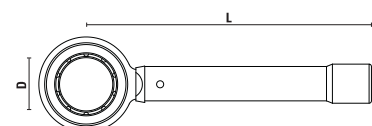


- Dr. ①  Collets as per drawing n. 1 must be tightened by setting the minimum torque value and rotating the handle counterclockwise.
- Dr. ②  Collets as per drawing n. 2 must be tightened by setting the maximum torque value and rotating the handle clockwise.

Item	D	L	Nm (Dr. 1)	Nm (Dr. 2)	Threaded nut
Z052.712.N	40	400	40-55	80-90	ER25
Z052.713.N	50	400	66-70	120-130	ER32
Z052.714.N	63	450	110-120	190-200	ER40
Z052.732.N	58-62	380	110-120	190-200	DIN6388

TORQUE WRENCHES FOR "NO-NOISE" NUTS

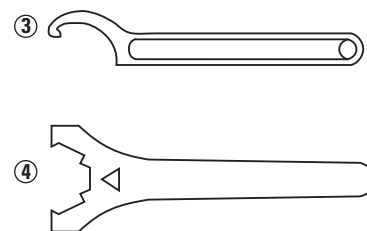
ART. Z052



Item	D	L	Nm (dis. 1)	Nm (dis. 2)	Threaded nut
Z052.790.N NEW	32	400	25-35	45-55	ER 16
Z052.793.N NEW	50	400	65-70	120-130	ER 32
Z052.795.N NEW	60	400	110-120	190-200	DIN 6388/EOC25

KEYS

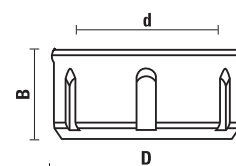
ART. Z052



Item	Draw.	Description	Threaded nut
Z052.300.N	3	Wrench 34/38	DIN6388/EOC12
Z052.301.N	3	Wrench 40/42	Z091.000.R
Z052.310.N	3	Wrench 58/62	DIN6388/EOC25
Z052.401.N	4	Wrench for collet nut ER 32 "standard" type	
Z052.402.N	4	Wrench for collet nut ER 40 "standard" type	
Z052.407.N	4	Wrench for collet nut ER 25 "standard" type	

COLLET NUTS

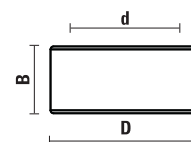
ART. Z091



Item	Type	D	B	d	Rot.
Z091.001.R	DIN 6499 (ER 32)	50	23	M 40x1,5	RH
Z091.001.L	DIN 6499 (ER 32)	50	23	M 40x1,5	LH
Z091.002.R	DIN 6499 (ER 40)	63	25	M 50x1,5	RH
Z091.002.L	DIN 6499 (ER 40)	63	25	M 50x1,5	LH
Z091.100.R	DIN 6499 (ER 25) ball bearing	42	20	M 32x1,5	RH
Z091.101.R	DIN 6499 (ER 32) ball bearing	50	26	M 40x1,5	RH
Z091.102.R	DIN 6499 (ER 40) ball bearing	63	29	M 50x1,5	RH
Z091.103.R	DIN 6499 (ER 25)	42	20	M 32x1,5	RH
Z091.104.R	DIN 6499 (ER 20)	35	19	M 25x1,5	RH
Z091.105.R	DIN 6499 (ER 16)	32	17,5	M 22x1,5	RH
Z091.202.R	DIN 6388 (EOC25)	60	30	M 48x2	RH
Z091.203.R	DIN 6388 (EOC25) ball bearing	60	30	M 48x2	RH
Z091.301.R	ETS 32	50	23	M 40x1,5	RH
Z091.302.R	ETS 40	63	25	M 50x1,5	RH

"NO-NOISE" COLLET NUTS

ART. Z091



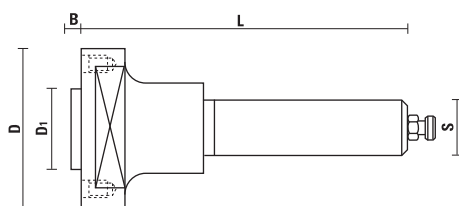
- Recommended when using router bits working at higher RPM
- Threaded nut with ground contours, remarkable reduction of noise

Item	D	B	d	Rot.
Z091.501.R NEW	DIN 6499 (ER 32)	50	23	M 40x1,5 RH
Z091.505.R NEW	DIN 6499 (ER 16)	32	17,5	M 22x1,5 RH
Z091.522.R NEW	DIN 6499 (EOC 25)	60	30	M 48x2 RH

You can find all spare parts in the section n. 10

ADAPTERS FOR CIRCULAR SAWBLADES

ART. T128



- Nr. 4 pin holes with M6/90° and 48 mm pitch circle diameter
- Complete with nr. 4 screws to fix the sawblade
- For mounting of sawblades with 30 mm bore
- Recommended to use sawblades with diameters between 150 and 200 mm

Item	D	D1	B	S	L
T128.140.R	60	30	3,5	Ø20x60	90



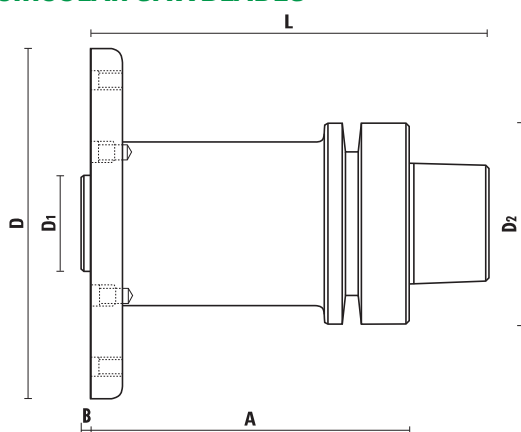
Z051.014.R



Z051.506.R

HSK63F ADAPTERS FOR CIRCULAR SAWBLADES

ART. T128



- For mounting Saws with 30 mm bore
- 6 screws M6/60° at 90 mm distance
- For mounting Saw Blades with diameter between 200 and 300 mm.

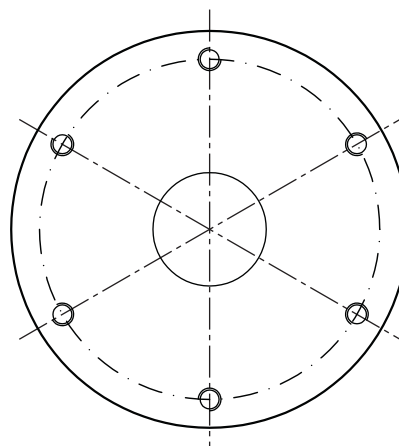
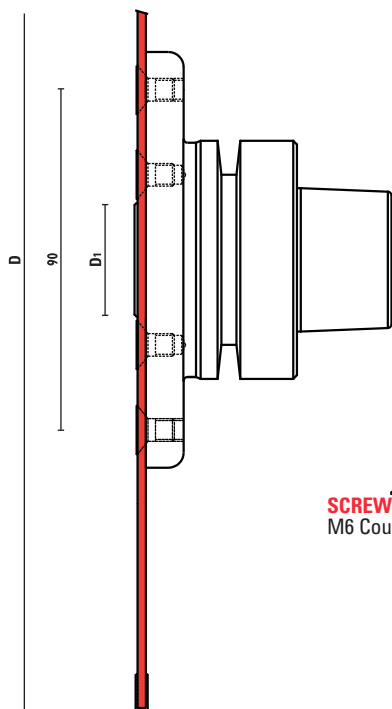
Item	A	D	D1	D2	B	L
T128.160.R	40	110	30	63	2,5	65
T128.165.R	100	110	30	63	2,5	125



Z051.014.R

EXAMPLE OF USE:
HSK63F adapter with mounted Saw Blade

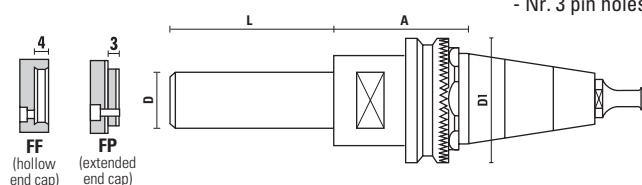
TECHNICAL DATA OF SAW BLADE PIN HOLES:
6 Pin holes with 6 mm. diameter at 60° degrees and 90mm. pitch circle diameter



SCREW:
M6 Countersunk flat head screw

CUTTER ARBORS WITH ISO 30 TAPER

ART. T128



- Complete with retaining pawl page 7.33
and end cap page 10.14

- Nr. 3 pin holes to 120°

- Retaining pawl T118.790.R for: **Morbidelli, SCM**

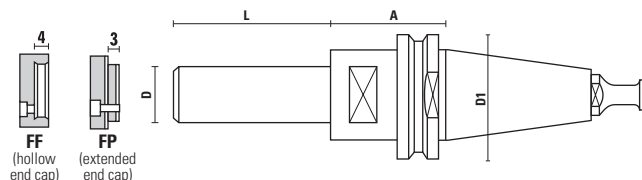
Item		A	D	D1	L	End cap
T128.690.N	ISO 30	39	30	49	70	FF - Z092.001.R
T128.700.N	ISO 30	39	30	49	100	FF - Z092.001.R
T128.690.NM NEW	ISO 30	39	30	49	70	FP - Z092.002.R
T128.700.NM NEW	ISO 30	39	30	49	100	FP - Z092.002.R



Z051.016.R

CUTTER ARBORS WITH ISO 30 - ISO 40 TAPER

ART. T128



- Complete with retaining pawl page 7.33
and end cap page 10.14

- Other retaining pawl on request

Retaining pawl T118.891.R for: **Biesse, Masterwood - Bulleri (motor H.S.D.)**

Item		A	D	D1	L	End cap
T128.790.N	ISO 30	35	30	50	70	FF - Z092.001.R
T128.800.N	ISO 30	35	30	50	100	FF - Z092.001.R
T128.790.NM NEW	ISO 30	35	30	50	70	FP - Z092.002.R
T128.800.NM NEW	ISO 30	35	30	50	100	FP - Z092.002.R
T128.800.N120 NEW	ISO 30	35	30	50	120	FF - Z092.001.R
T128.800.N120M NEW	ISO 30	35	30	50	120	FP - Z092.002.R

Retaining pawl T118.792.R for: **Alberti, Vitap, Masterwood (motor G. Colombo)**

Item		A	D	D1	L	End cap
T128.791.N	ISO 30	35	30	50	70	FF - Z092.001.R
T128.801.N	ISO 30	35	30	50	100	FF - Z092.001.R
T128.791.NM NEW	ISO 30	35	30	50	70	FP - Z092.002.R
T128.801.NM NEW	ISO 30	35	30	50	100	FP - Z092.002.R

Retaining pawl T118.791.R (DIN 69872) for: **Busellato, Weeke, Ima, Bulleri, Maka, Cosmec, Reichenbacher, Elte**

Item		A	D	D1	L	End cap
T128.792.N	ISO 30	35	30	50	70	FF - Z092.001.R
T128.802.N	ISO 30	35	30	50	100	FF - Z092.001.R
T128.792.NM NEW	ISO 30	35	30	50	70	FP - Z092.002.R
T128.802.NM NEW	ISO 30	35	30	50	100	FP - Z092.002.R

Retaining pawl T118.893.R for: **Ima, Weeke, Maka, Reichenbacher, Stegherr**

Item		A	D	D1	L	End cap
T128.850.N	ISO 40	35	30	63,5	100	FF - Z092.001.R
T128.850.NM NEW	ISO 40	35	30	63,5	100	FP - Z092.002.R



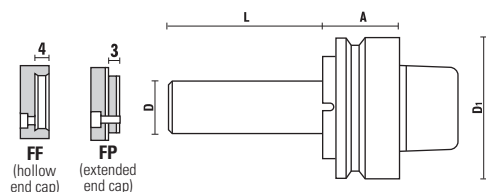
Z051.016.R

CUTTER ARBORS WITH HSK63F TAPER

ART. T128

- Complete with end cap page 10.14

- Nr. 3 pin holes to 120°



Item		A	D	D1	L	End cap
T128.970.R	HSK 63 F	33	30	63	70	FF - Z092.001.R
T128.970.RM NEW	HSK 63 F	33	30	63	70	FP - Z092.002.R
T128.980.R	HSK 63 F	33	30	63	100	FF - Z092.001.R
T128.980.RM NEW	HSK 63 F	33	30	63	100	FP - Z092.002.R
T128.980.R060M	HSK 63 F	33	30	63	60	FP - Z092.002.R
T128.980.R075M	HSK 63 F	33	30	63	75	FP - Z092.002.R
T128.980.R080M	HSK 63 F	33	30	63	80	FP - Z092.002.R
T128.980.R090M	HSK 63 F	33	30	63	90	FP - Z092.002.R
T128.980.R095M	HSK 63 F	33	30	63	95	FP - Z092.002.R
T128.980.R105M	HSK 63 F	33	30	63	105	FP - Z092.002.R
T128.980.R110M	HSK 63 F	33	30	63	110	FP - Z092.002.R
T128.980.R115M	HSK 63 F	33	30	63	115	FP - Z092.002.R
T128.980.R120M	HSK 63 F	33	30	63	120	FP - Z092.002.R
T128.980.R125M	HSK 63 F	33	30	63	125	FP - Z092.002.R
T128.980.R130M	HSK 63 F	33	30	63	130	FP - Z092.002.R
T128.980.R135M	HSK 63 F	33	30	63	135	FP - Z092.002.R
T128.980.R140M	HSK 63 F	33	30	63	140	FP - Z092.002.R
T128.980.R145M	HSK 63 F	33	30	63	145	FP - Z092.002.R
T128.980.R150M	HSK 63 F	33	30	63	150	FP - Z092.002.R
T128.980.R180M	HSK 63 F	33	30	63	180	FP - Z092.002.R
T128.980.1x125M NEW	HSK 63 F	33	1"	63	125	FP - Z092.008.R
T128.980.1,25x125M NEW	HSK 63 F	33	1-1/4"	63	125	FP - Z092.010.R
T128.980.35x100 NEW	HSK 63 F	33	35	63	100	FF - Z092.003.R
T128.980.35x100M NEW	HSK 63 F	33	35	63	100	FP - Z092.004.R
T128.980.40x100 NEW	HSK 63 F	33	40	63	100	FF - Z092.005.R
T128.980.40x100M NEW	HSK 63 F	33	40	63	100	FP - Z092.006.R

Item		A	D	D1	L	End cap
T128.972.R	HSK 63 F	42	30	63	70	FF - Z092.001.R
T128.972.RM NEW	HSK 63 F	42	30	63	70	FP - Z092.002.R
T128.982.R	HSK 63 F	42	30	63	80	FF - Z092.001.R
T128.982.RM NEW	HSK 63 F	42	30	63	80	FP - Z092.002.R
T128.982.R080 NEW	HSK 63 F	42	30	63	80	FF - Z092.001.R
T128.982.R080M NEW	HSK 63 F	42	30	63	80	FP - Z092.002.R
T128.982.R125 NEW	HSK 63 F	42	30	63	125	FF - Z092.001.R
T128.982.R125M NEW	HSK 63 F	42	30	63	125	FP - Z092.002.R
T128.982.1,25x125M NEW	HSK 63 F	42	1-1/4"	63	125	FP - Z092.010.R
T128.982.35x100 NEW	HSK 63 F	42	35	63	100	FF - Z092.003.R
T128.982.35x100M NEW	HSK 63 F	42	35	63	100	FP - Z092.004.R

CUTTER ARBORS WITH HSK63E

T128.988.R	HSK 63 E	42	30	63	100	FF - Z092.001.R
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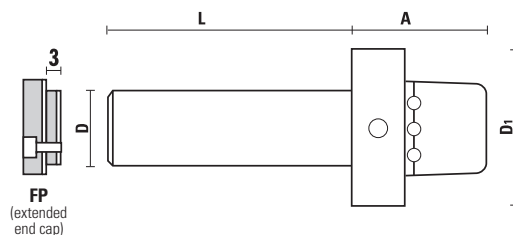
Z051.016.R

CUTTER ARBORS WITH HSK85 TAPER

ART. T130 - T131 - T132

- Complete with end cap page 10.14

- Nr. 3 pin holes to 120°



for: **Weinig Powerlock system**

Item	A	D	D ₁	L	End cap
T130.060.N	58	30	85	60	FP - Z092.002.R
T130.080.N	58	30	85	80	FP - Z092.002.R
T130.100.N	58	30	85	100	FP - Z092.002.R
T130.130.N	58	30	85	130	FP - Z092.002.R
T130.150.N	58	30	85	150	FP - Z092.002.R
T130.180.N	58	30	85	180	FP - Z092.002.R
T130.200.N	58	30	85	200	FP - Z092.002.R
T130.230.N	58	30	85	230	FP - Z092.002.R
T130.240.N	58	30	85	240	FP - Z092.002.R
T131.080.N	58	35	85	80	FP - Z092.004.R
T131.100.N	58	35	85	100	FP - Z092.004.R
T131.120.N	58	35	85	120	FP - Z092.004.R
T131.150.N	58	35	85	150	FP - Z092.004.R
T131.200.N	58	35	85	200	FP - Z092.004.R
T132.060.N	58	40	85	60	FP - Z092.006.R
T132.080.N	58	40	85	80	FP - Z092.006.R
T132.100.N	58	40	85	100	FP - Z092.006.R
T132.150.N	58	40	85	150	FP - Z092.006.R
T132.180.N	58	40	85	180	FP - Z092.006.R
T132.200.N	58	40	85	200	FP - Z092.006.R
T132.240.N	58	40	85	240	FP - Z092.006.R



Z051.016.R

CUTTER ARBORS WITH HSK85S TAPER

ART. T132

- Complete with end cap page 10.14

- Nr. 3 pin holes to 120°



for: **SCM**

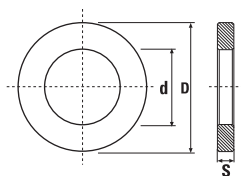
Item	A	D	D ₁	L	End cap
T132.320.NS NEW	58	50	85	320	FF - Z092.050.R



Z051.016.R

SPACERS 2-SIDES GRINDED

ART. YD300 - YD350 - YD400



- For arbors Art. T128 - Art. T130 - Art. T131 - Art. T132
- Burnished
- Spacer rings fine-blanking processed for thickness 0,1±1 mm (tolerance ± 0,02)
- Spacer rings grinded on two sides for thickness 2÷50 mm (tolerance ± 0,01)

Item	D	D1	S
YD300.001 NEW	30	50	0,1
YD300.002 NEW	30	50	0,2
YD300.005 NEW	30	50	0,5
YD300.010 NEW	30	50	1
YD300.020	30	50	2
YD300.030	30	50	3
YD300.040	30	50	4
YD300.050	30	50	5
YD300.060	30	50	6
YD300.080	30	50	8
YD300.100	30	50	10
YD300.120	30	50	12
YD300.150 NEW	30	50	15
YD300.200	30	50	20
YD300.250	30	50	25
YD300.300	30	50	30
YD300.400 NEW	30	50	40
YD300.500 NEW	30	50	50
YD350.001 NEW	35	55	0,1
YD350.002 NEW	35	55	0,2
YD350.005 NEW	35	55	0,5
YD350.010 NEW	35	55	1
YD350.020	35	55	2
YD350.030	35	55	3
YD350.040	35	55	4
YD350.050	35	55	5
YD350.060	35	55	6
YD350.080	35	55	8
YD350.100	35	55	10
YD350.120	35	55	12
YD350.150 NEW	35	55	15
YD350.200	35	55	20
YD350.250	35	55	25
YD350.300	35	55	30
YD350.400 NEW	35	55	40
YD350.500 NEW	35	55	50

Item	D	D1	S
YD400.001 NEW	40	60	0,1
YD400.002 NEW	40	60	0,2
YD400.005 NEW	40	60	0,5
YD400.010 NEW	40	60	1
YD400.020	40	60	2
YD400.030	40	60	3
YD400.040	40	60	4
YD400.050	40	60	5
YD400.060	40	60	6
YD400.080	40	60	8
YD400.100	40	60	10
YD400.120	40	60	12
YD400.150 NEW	40	60	15
YD400.200	40	60	20
YD400.250	40	60	25
YD400.300	40	60	30
YD400.400 NEW	40	60	40
YD400.500 NEW	40	60	50
YD500.001 NEW	50	70	0,1
YD500.002 NEW	50	70	0,2
YD500.005 NEW	50	70	0,5
YD500.010 NEW	50	70	1
YD500.020 NEW	50	70	2
YD500.030 NEW	50	70	3
YD500.040 NEW	50	70	4
YD500.050 NEW	50	70	5
YD500.060 NEW	50	70	6
YD500.080 NEW	50	70	8
YD500.100 NEW	50	70	10
YD500.120 NEW	50	70	12
YD500.150 NEW	50	70	15
YD500.200 NEW	50	70	20
YD500.250 NEW	50	70	25
YD500.300 NEW	50	70	30
YD500.400 NEW	50	70	40
YD500.500 NEW	50	70	50
YD600.001 NEW	60	80	0,1
YD600.002 NEW	60	80	0,2
YD600.005 NEW	60	80	0,5
YD600.010 NEW	60	80	1
YD600.020 NEW	60	80	2
YD600.030 NEW	60	80	3
YD600.040 NEW	60	80	4
YD600.050 NEW	60	80	5
YD600.060 NEW	60	80	6
YD600.080 NEW	60	80	8
YD600.100 NEW	60	80	10
YD600.120 NEW	60	80	12
YD600.150 NEW	60	80	15
YD600.200 NEW	60	80	20
YD600.250 NEW	60	80	25
YD600.300 NEW	60	80	30
YD600.400 NEW	60	80	40
YD600.500 NEW	60	80	50



SPACERS SET

ART. YD300 - YD350 - YD400 - YD500 - YD600

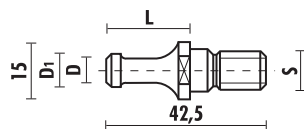
Item	D	D1
YD300.990	30	50
YD350.990	35	55
YD400.990	40	60
YD500.990 NEW	50	70
YD600.990 NEW	60	80

Complete with:

nr. 4 sp. 2 mm - nr. 3 sp. 4 mm - nr. 2 sp. 5 mm
nr. 2 sp. 10 mm - nr. 1 sp. 20 mm - nr. 1 sp. 30 mm

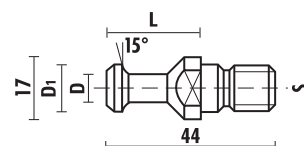
RETAINING PAWLS FOR CONCENTRIC CHUCK

ART. T118



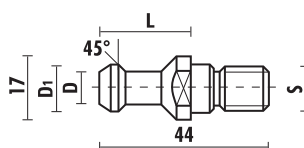
For: **Morbidelli, SCM**

Item		D1	D	L	S
T118.790.R	ISO 30	8,5	6,5	22	M10



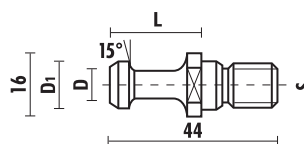
DIN 69872 for:
Busellato, Weeke, Ima, Bulleri, Maka, Cosmec, Reichenbacher, Elte

Item		D1	D2	D	L	LT	S
T118.791.R	ISO 30	13	17	9	24	44	M12
T118.893.R	ISO 40	19	23	14	26	54	M16



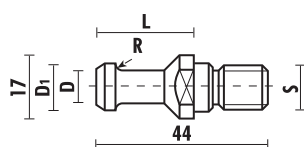
For: **Alberti, Vitap, Masterwood** (motor G. Colombo)

Item		D1	D	L	S
T118.792.R	ISO 30	12,8	9	24	M12



For: **Esseteam**

Item		D1	D	L	S
T118.793.R	ISO 30	12	8	24	M12

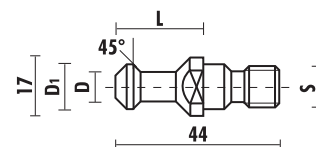


For: **CMS**

Item		D1	D	L	R	S
T118.794.R	ISO 30	12,8	9	24	2,4	M12

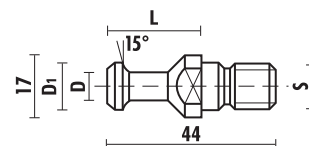
RETAINING PAWLS FOR CONCENTRIC CHUCK

ART. T118



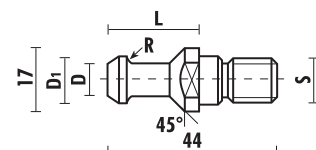
For: **Belotti**

Item		D1	D	L	S
T118.795.R	ISO 30	13	9	23	M12



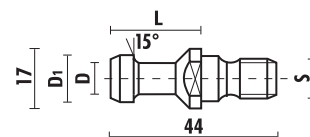
For: **Biesse** (until 9/9/92)

Item		D1	D	L	S
T118.890.R	ISO 30	13	9	24	M12



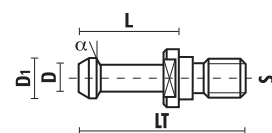
For: **Biesse** (after 9/9/92), **Masterwood** (motor H.S.D.), **Bulleri** and **Thermwood**

Item		D1	D	L	R	S
T118.891.R	ISO 30	12	8	24	3,2	M12



For: **Komo**

Item		D1	D	L	S
T118.894.R	BT 30	13	9	24	M12



For: BT 30 - BT 40 **Shoda**, BT 35 **Heian**

Item		D1	D	L	LT	α	S
T118.895.R	BT 30	11	7	23,5	43	30°	M12
T118.896.R	BT 35	13	8,5	28	48	45°	M12
T118.897.R	BT 40	15	10	35	60	45°	M16

MACHINES AND TOOLS MAINTENANCE:

Coupling seats in the electrospindles, in the collet chucks or in the spring collets should be always clean and spotless in order to avoid a wrong position of the tool causing bad finishing results or even tool breakage.

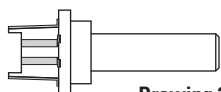
By using regularly the tapers **Klein** these risks are reduced and the tool life span is highly increased.

CONE WIPERS

ART. T137



Drawing 1



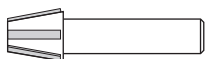
Drawing 2

- To maintain the inside of the cone clean
- To avoid wrong positioning of the cone and ensure best contact between tool and tool holder
- Suitable for all tool holder types

Item	Concentric chuck	Drawing
T137.002.N	Cono Morse 2 (MK2)	1
T137.003.N	Cono Morse 3 (MK3)	1
T137.030.N	ISO 30/BT 30	1
T137.040.N	ISO 40/BT 40	1
T137.163.N	HSK 63 A-C-E	2
T137.263.N	HSK 63 B-D-F	2

COLLET WIPERS

ART. T137



- To maintain the inside of the collet clean
- To avoid wrong positioning of the collet due to resin
- For all collet types

Item	Collet type
T137.525.N	ER 25-ETS 25-DIN6499
T137.532.N	ER 32-ETS 32-DIN6499
T137.540.N	ER 40-ETS 40-DIN6499
T137.662.N	EOC 25-DIN 6388

BRUSHES FOR COLLET BORE

ART. T137



- To clean the collet bore
- To avoid wrong tool positioning caused by resin

Item	Collet bore
T137.906.N	3÷6
T137.911.N	6,4÷11
T137.918.N	12÷18
T137.925.N	19÷25
X137.004.N	Collet brush set 3÷25



WIPE OFF KIT

ART. X137

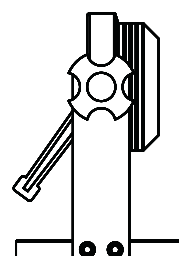
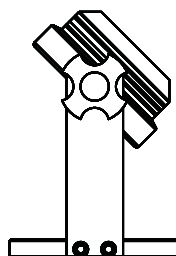
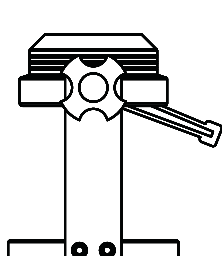
- For boring machines and CNC router machines
- Carton box



Item	Description
X137.000.N	HSK63F/ER32 T137.263.N + T137.532.N + X137.004.N
X137.001.N	ISO30/ER32 T137.030.N + T137.532.N + X137.004.N
X137.002.N	HSK63F/DIN6388 T137.263.N + T137.662.N + X137.004.N
X137.005.N	HSK63F/ER40 T137.263.N + T137.540.N + X137.004.N
X137.006.N	ISO30/ER40 T137.030.N + T137.540.N + X137.004.N

ADJUSTABLE DEMOUNT DEVICES

ART. T139

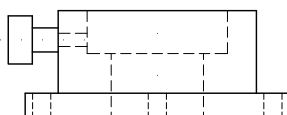


- Tool holder to be blocked on the flange diameter
- It is adjustable from 0° to 90°

Item	Machine
T139.150.N	For ISO 30 tool holder Ø 50 mm
T139.158.N	For ISO 30 tool holder Ø 58 (Motor ELTE/ESSETEAM)
T139.163.N	For HSK63 tool holder Ø 63
T139.164.N NEW	For ISO 40 tool holder Ø 63,5

DEMOUNT DEVICES FOR FLANGE Ø80 - Ø85

ART. T139

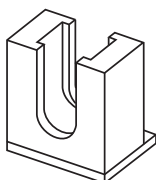


Tool holder to be blocked on the flange diameter

Item	Machine
T139.180.N NEW	For tool holder Ø 80 mm
T139.185.N	For tool holder Ø 85 mm (Weinig, SCM)

DEMOUNT DEVICES

ART. T139

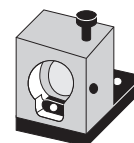


Suitable for toolholders with key seat 41 mm

Item	Machine
T139.000.N selling out	For HSK 63 F tool holder Ø 63
T139.003.N selling out	For ISO 40 tool holder Ø 63,5

ISO 30 DEMOUNT DEVICES

ART. T139

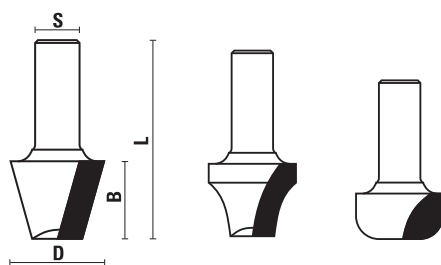


- For ISO30 special
- Horizontal and vertical type

Item	Machine
T139.001.N selling out	Morbidelli - SCM

PROFILE CUTTERS, GROUP 1

ART. T130



- HW and HS
- Z=2
- RH rotation

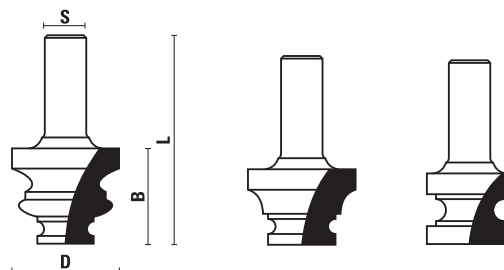
D	B
11÷20	20
11÷20	30
11÷20	40
11÷20	50
21÷30	20
21÷30	30
21÷30	40
21÷30	50
21÷30	60
31÷40	20
31÷40	30
31÷40	40
31÷40	50
31÷40	60
41÷50	20
41÷50	30
41÷50	40
41÷50	50
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51÷60	30
51÷60	40
51÷60	50
51÷60	60
61÷70	30
61÷70	40
61÷70	50
71÷80	30
71÷80	40
81÷90	30
81÷90	40
91÷100	30
91÷100	40
101÷120	30

Price depends on the diameter and length of the cutters.
For a specific quote a detailed drawing or a sample are required.

Insert router bits see page 9.09

PROFILE CUTTERS, GROUP 2

ART. T130



- HW and HS
- Z=2
- RH rotation

D	B
11÷20	20
11÷20	30
11÷20	40
11÷20	50
21÷30	20
21÷30	30
21÷30	40
21÷30	50
21÷30	60
31÷40	20
31÷40	30
31÷40	40
31÷40	50
31÷40	60
41÷50	20
41÷50	30
41÷50	40
41÷50	50
41÷50	60
51÷60	30
51÷60	40
51÷60	50
51÷60	60
61÷70	30
61÷70	40
61÷70	50
71÷80	30
71÷80	40
81÷90	30
81÷90	40
91÷100	30
91÷100	40
101÷120	30

Price depends on the diameter and length of the cutters.
For a specific quote a detailed drawing or a sample are required.

Insert router bits see page 9.09

SOLID CARBIDE ROUTER BITS:

Useful information:

Klein offers a very wide range of solid carbide router bits which can satisfy almost all exigencies by using a CNC machine.

TECHNICAL DATA:

- Tungsten-carbide (Widia): is the most suitable material to use on CNC machines assuring the best performances.

FLUTE GEOMETRY:

- Up Cut style, **for a better finish on the bottom of the material**

Good finish on bottom side



- Down Cut Style, **for a better finish on the top surface**

Good finish on panel top side



- Compression Style, **for a good finish on either top and bottom surface, particularly on laminated materials**

Excellent finish on both upper and lower side



- NUMBER OF TEETH: **Z=1:** allow heavy duties on soft materials and an excellent chip evacuation
Z=2: allow a better finish on hard materials and a good chip evacuation
Z=3: allow an excellent finish on all types of materials
Z=2/Z=3: with chipbreaker, ideal for heavy duties

N.B.: Increasing the number of teeth should increase also the feed speed in order to preserve the tool from burning or early wearing out.

Minimum clamping tool length	
Shank diameter S (mm)	Minimum length K (mm)
S ≤ 10	K ≥ 20
10 < S < 25	K = S x 2
S ≥ 25	K = S x 1,8



N.B.:

All **Klein** spiral router bits have technical data, dimensions and type of material marked on the shank. Moreover the sign **K** indicates the minimum clamping length according to the standard EN847-2

The following reference tables are provided just as a guide, while various other conditions must be always taken in consideration, such as the characteristics of the wood piece (humidity, veins, etc.), the machine and tooling conditions, etc.

HOW TO CHOSE THE RIGHT SOLID CARBIDE SPIRAL BIT FOR ROUTING ON A CNC MACHINE

Router Bits Klein \ Woods	Softwood (Cider, Poplar, Pine, etc.)	Hardwood (Ash, Walnut, Beech, Oak, Teak, etc.)	Pressed Wood (Plywood, Blockboard)	Laminated Wood (Veneered, melamine coated panels, HPL, etc.)
T141/T151 - Z=1 - Page 7.38/7.42	XXX	XXX	X	-
T142/T152 - Z=2 - Page 7.39/7.43	XXX	XXX	X	XX
T143/T153 - Z=3 - Page 7.40/7.43	XX	XX	XXX	XXX
T144/T154 - Z=3 With chipbreaker Page 7.41/7.44	XXX	XXX	XXX	XX
T155 - Z=1+1 - Page 7.44	XX	XX	X	X
T156 - Z=2+2 - Page 7.45	X	XX	XXX	XXX
T170/T171 - Z=2 With chipbreaker Page 7.47	X	X	XX	XX

X = Satisfactory

XX = Good

XXX = Excellent

- = not suggested

Technical data and images are just an indication. **SISTEMI** srl reserves the right to modify the above information at any time and without notice

REFERENCE TABLE FOR CALCULATING FEEDING RATES IN THE WOODWORKING

Reference table for calculating feeding rates (mt/min ⁻¹)					
DIAMETER	ITEM	SOFTWOOD	HARDWOOD	MDF	LAMINATED WOOD
Ø 3	T141	2,40	2,40	2,40	-
	T142	3,20	2,60	3,00	-
	T143	-	-	-	-
	T144	-	-	-	-
	T156	-	-	-	-
Ø 6	T141	3,70	3,60	3,40	-
	T142	4,00	3,70	3,90	-
	T143	-	-	-	-
	T144	-	-	-	-
	T156	-	-	-	-
Ø 8	T141	4,30	4,00	3,80	-
	T142	5,00	4,30	4,90	-
	T143	6,00	4,60	5,20	5,80
	T144	8,20	6,60	6,80	-
	T156	6,60	5,20	5,70	6,50
Ø 10	T141	4,90	4,90	3,80	-
	T142	6,20	4,60	5,40	-
	T143	7,30	5,00	6,10	6,80
	T144	9,10	6,60	7,40	-
	T156	6,70	5,10	6,00	6,60
Ø 12	T141	5,10	4,90	4,20	-
	T142	6,50	5,20	5,40	-
	T143	7,90	6,30	6,80	7,40
	T144	10,20	8,10	8,30	-
	T156	6,90	5,10	6,00	6,70
Ø 16	T141	-	-	-	-
	T142	7,70	6,10	6,90	-
	T143	9,50	7,90	8,10	9,10
	T144	11,80	9,00	9,50	-
	T156	7,30	6,00	6,30	6,80
Ø 20	T141	-	-	-	-
	T142	8,60	7,30	7,90	-
	T143	10,80	8,50	8,90	10,00
	T144	15,00	11,00	11,90	-
	T156	8,00	6,90	7,20	7,00

Technical data and images are just an indication. **SISTEMI** srl reserves the right to modify the above information at any time and without notice.

THE RECOMMENDED FEED RATES WERE CALCULATED TAKING IN CONSIDERATION THE FOLLOWING PARAMETERS:

- **efficient machinery** in excellent conditions;
- **wood piece** perfectly clamped;
- **working solid material** (if not, parameters can be increased)
- **wood piece dry**;
- RPM 18.000 (working at a different rotation speed the feed rate should change accordingly)
- cutting depth two times the router bit diameter (the feed rate increases by 25% when the cutting depth is like the tool diameter – the feed rate decreases by 25% when the cutting depth is three times the tool diameter)
- router bits up cut style
- better use down cut router bits if the vacuum clamping is not strong enough
- using down cut style bits we suggest a maximum cutting depth like the half of the tool diameter, otherwise there is not enough chip flow

SISTEMI suggest:

for working softwood

	Good	Excellent
Single pass	T155+T141/T151	T142/T152
Roughing	T144/T154	T144/T154
Finishing	T142/T152	T143/T153

for working hardwood

	Good	Excellent
Single pass	T142/T152	T142/T152
Roughing	T144/T154	T144/T154
Finishing	T142/T152	T143/T153

for working MDF

	Good	Excellent
Single pass	T142	T145
Roughing	T170	T144
Finishing	T145	T143

for working laminated and veneered chipboard

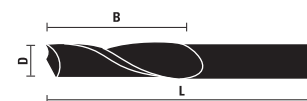
	Good	Excellent
Single pass	T156	T156

for working hard plastic (nylon, corian®, acrylic)

	Good	Excellent
Single pass	T141	T142
Roughing	T170	T144
Finishing	T156/T142	T156/T142

SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=1

ART. T141



- Right-hand rotation with "UP CUT SPIRAL"

- To be used on machining centres, CNC routers and point to point machines

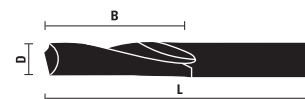
RH rotation	D	B	L	Z
T141.030.R	3	12	50	1
T141.040.R	4	12	50	1
T141.050.R	5	17	50	1
T141.060.R	6	17	60	1
T141.061.R	6	27	60	1
T141.064.R	6,4	28	60	1
T141.080.R	8	22	80	1
T141.081.R	8	32	80	1
T141.100.R	10	32	80	1
T141.101.R	10	42	100	1
T141.120.R	12	32	80	1
T141.121.R	12	42	100	1

Router bits with diameter from 12 mm, are produced with shank for Seeger retaining rings



SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=1

ART. T141



- Left-hand rotation with "DOWN CUT SPIRAL"

- To be used on machining centres, CNC routers and point to point machines

LH rotation	D	B	L	Z
T141.061.L	6	27	60	1
T141.080.L	8	22	80	1
T141.081.L	8	32	80	1
T141.100.L	10	32	100	1

SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=2

ART. T142



Good finish
on bottom side



- Right-hand rotation with "UP CUT SPIRAL"

- To be used on machining centres, CNC routers and point to point machines

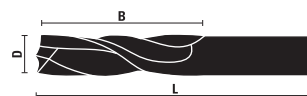
RH rotation	D	B	L	Z
T142.030.R	3	12	50	2
T142.040.R	4	12	50	2
T142.050.R	5	17	50	2
T142.060.R	6	17	60	2
T142.061.R	6	27	60	2
T142.080.R	8	22	80	2
T142.081.R	8	35	80	2
T142.100.R	10	35	80	2
T142.101.R	10	45	100	2
T142.110.R	11	35	80	2
T142.111.R	11	45	100	2
T142.120.R	12	35	80	2
T142.121.R	12	45	100	2
T142.122.R	12	55	100	2
T142.140.R	14	45	100	2
T142.141.R	14	55	100	2
T142.142.R	14	80	140	2
T142.160.R	16	45	100	2
T142.161.R	16	55	100	2
T142.162.R	16	72	120	2
T142.180.R	18	55	100	2
T142.181.R	18	72	120	2
T142.182.R	18	102	150	2
T142.200.R	20	55	100	2
T142.201.R	20	72	120	2
T142.202.R	20	102	150	2

Router bits with diameter from 12 mm to 20 mm,
are produced with shank for Seeger retaining rings



SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=2

ART. T142



Good finish
on panel top side



- Left-hand rotation with "DOWN CUT SPIRAL"

- To be used on machining centres, CNC routers and point to point machines

LH rotation	D	B	L	Z
T142.030.L	3	12	50	2
T142.040.L	4	12	50	2
T142.060.L	6	17	60	2
T142.081.L	8	35	80	2
T142.100.L	10	35	80	2
T142.120.L	12	35	90	2
T142.140.L	14	45	100	2
T142.160.L	16	45	100	2
T142.161.L	16	55	100	2
T142.180.L	18	55	115	2
T142.182.L	18	102	165	2
T142.200.L	20	55	120	2

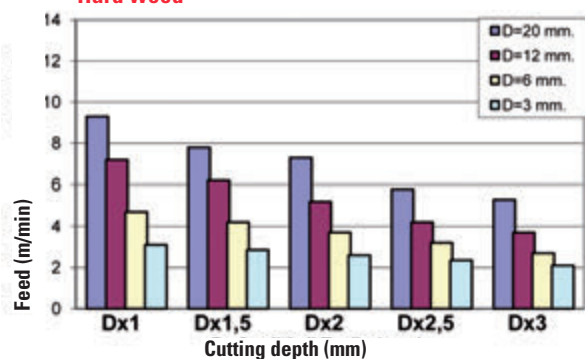
Router bits with diameter from 12 mm to 20 mm,
are produced with shank for Seeger retaining rings



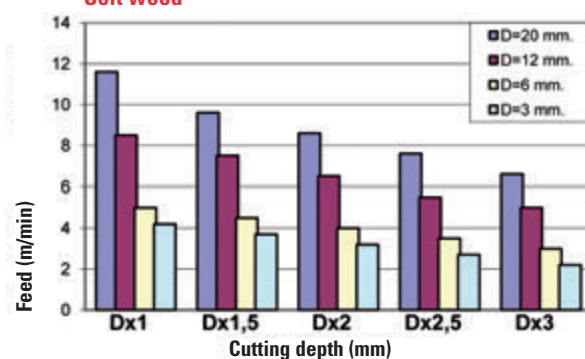
HOW TO DETERMINE THE FEEDING SPEED RELATING TO THE DIAMETER:

- Referring to item T142 with right hand rotation (UP CUT STYLE), Z=2
- RPM 18.000

Hard wood



Soft wood



SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=3

ART. T143



Good finish
on bottom side



- Right-hand rotation with "UP CUT SPIRAL"

- To be used on machining centres, CNC routers and point to point machines

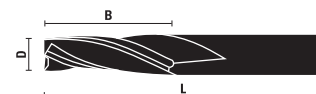
RH rotation	D	B	L	Z
T143.080.R	8	22	80	3
T143.081.R	8	35	80	3
T143.100.R	10	35	80	3
T143.101.R	10	45	100	3
T143.120.R	12	35	80	3
T143.121.R	12	45	100	3
T143.122.R	12	55	100	3
T143.140.R	14	45	100	3
T143.141.R	14	55	100	3
T143.160.R	16	45	100	3
T143.161.R	16	55	100	3
T143.162.R	16	72	120	3
T143.180.R	18	55	100	3
T143.181.R	18	72	120	3
T143.182.R	18	102	150	3
T143.200.R	20	55	100	3
T143.201.R	20	72	120	3
T143.202.R	20	102	150	3
T143.250.R	25	102	150	3

Router bits with diameter from 12 mm to 25 mm,
are produced with shank for Seeger retaining rings



SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=3

ART. T143



Good finish
on panel top side



- Left-hand rotation with "DOWN CUT SPIRAL"

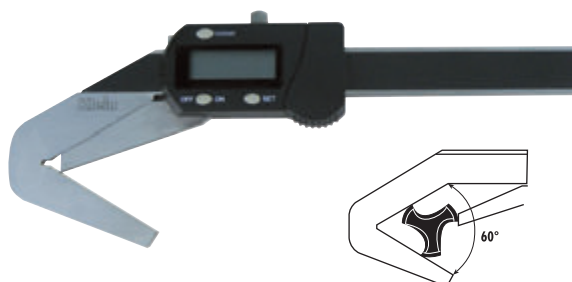
- To be used on machining centres, CNC routers and point to point machines

LH rotation	D	B	L	Z
T143.081.L	8	35	80	3
T143.101.L	10	45	100	3
T143.120.L	12	35	85	3
T143.160.L	16	45	100	3
T143.180.L	18	55	115	3
T143.200.L	20	55	115	3
T143.201.L	20	72	130	3

Router bits with diameter from 12 mm to 20 mm,
are produced with shank for Seeger retaining rings



THREE POINT DIGITAL CALIPER

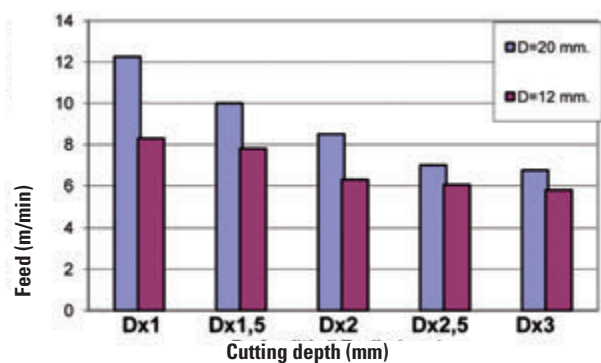


See page 15.03 for further information

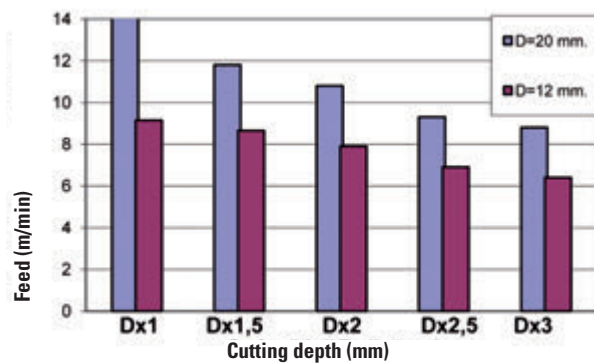
HOW TO DETERMINE THE FEEDING SPEED RELATING TO THE DIAMETER:

- Referring to item T143 with right hand rotation (UP CUT STYLE), Z=3
- RPM 18.000

Hard wood

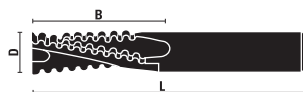


Soft wood



SOLID CARBIDE SPIRAL CUTTERS, ROUGHING STYLE Z=3

ART. T144

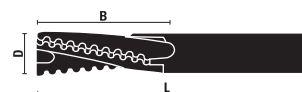


- Right-hand rotation with "UP-CUT STYLE"
- Chip-breaker execution
- To be used on machining centres, CNC routers and point to point machines
- Suitable for roughing, they guarantee a high feed rate

RH rotation	D	B	L	Z
T144.080.R	8	22	80	3
T144.081.R	8	35	80	3
T144.100.R	10	35	80	3
T144.101.R	10	45	100	3
T144.120.R	12	35	80	3
T144.121.R	12	45	100	3
T144.122.R	12	55	100	3
T144.123.R	12	42	90	3
T144.140.R	14	45	100	3
T144.141.R	14	55	100	3
T144.142.R	14	58	110	3
T144.160.R	16	45	100	3
T144.161.R	16	55	100	3
T144.162.R	16	72	120	3
T144.163.R	16	62	110	3
T144.180.R	18	55	100	3
T144.181.R	18	72	120	3
T144.182.R	18	102	150	3
T144.200.R	20	55	100	3
T144.201.R	20	72	120	3
T144.202.R	20	102	150	3
T144.250.R	25	102	150	3

SOLID CARBIDE SPIRAL CUTTERS, ROUGHING STYLE Z=3

ART. T144



- Left-hand rotation with "DOWN-CUT STYLE"
- Chip-breaker execution
- To be used on machining centres, CNC routers and point to point machines
- Suitable for roughing, they guarantee a high feed rate

LH rotation	D	B	L	Z
T144.081.L	8	35	80	3
T144.100.L	10	35	80	3
T144.121.L	12	45	100	3
T144.122.L	12	55	105	3
T144.141.L	14	55	110	3
T144.160.L	16	45	100	3
T144.161.L	16	55	110	3
T144.162.L	16	72	125	3
T144.180.L	18	55	115	3
T144.200.L	20	55	115	3

Router bits with diameter from 12 mm to 20 mm,
are produced with shank for Seeger retaining rings

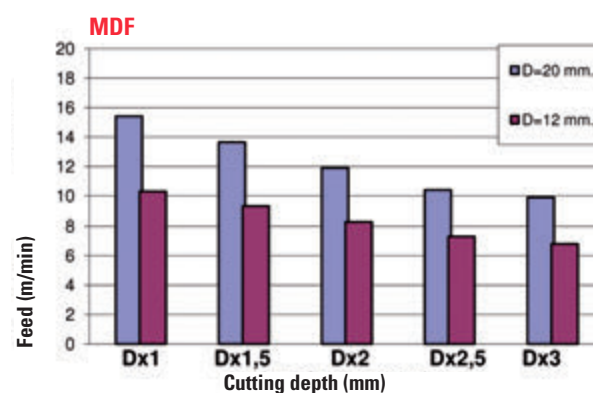
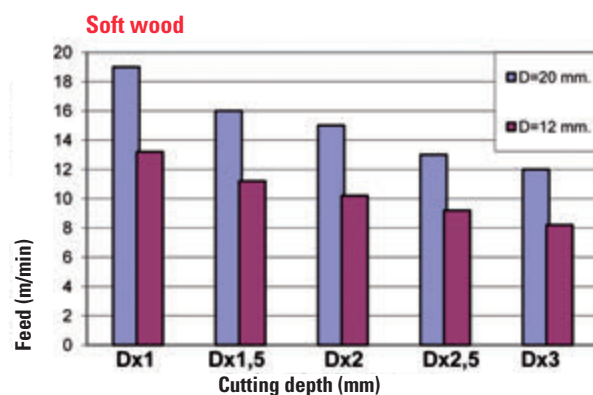
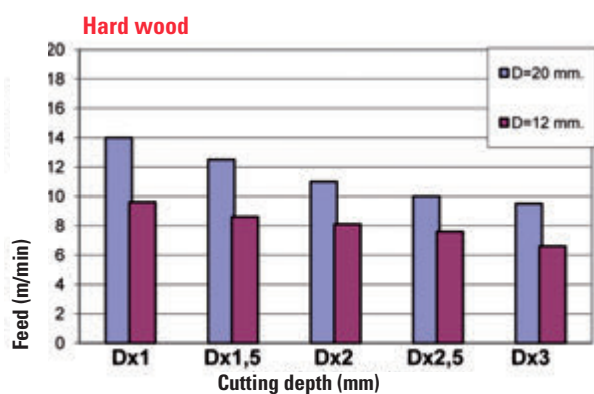


Router bits with diameter from 12 mm to 25 mm,
are produced with shank for Seeger retaining rings



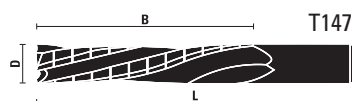
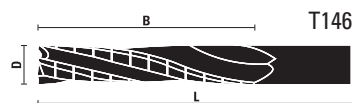
HOW TO DETERMINE THE FEEDING SPEED RELATING TO THE DIAMETER:

- Referring to item T144 with right hand rotation (UP CUT STYLE), Z=3
- RPM 18.000



SOLID CARBIDE SPIRAL CUTTERS Z=3

ART. T146 - T147



- Right-hand rotation with "UP CUT SPIRAL" (art. T146)
- Left-hand rotation with "UP CUT SPIRAL" (art. T147)
- Discontinuous cutting edge
- To be used on machining centres, CNC routers and point to point machines

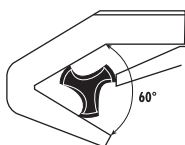
RH rotation	D	B	L	Z
T146.250.R NEW	25	140	200	3

LH rotation	D	B	L	Z
T147.250.L NEW	25	140	200	3

Router bits with diameter from 25 mm, are produced with shank for Seeger retaining rings



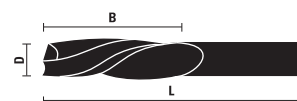
THREE POINT DIGITAL CALIPER



See page 15.03 for further information

SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=1

ART. T151



- Right-hand rotation with "DOWN CUT SPIRAL"
- To be used on machining centres, CNC routers and point to point machines

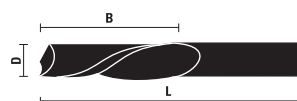
RH rotation	D	B	L	Z
T151.030.R	3	12	50	1
T151.040.R	4	12	50	1
T151.050.R	5	17	50	1
T151.060.R	6	17	70	1
T151.061.R	6	27	70	1
T151.080.R	8	22	80	1
T151.081.R	8	32	80	1
T151.100.R	10	32	80	1
T151.101.R	10	42	100	1
T151.120.R	12	32	90	1
T151.121.R	12	42	100	1
T151.122.R	12	52	110	1

Router bits with diameter from 12 mm to 20 mm, are produced with shank for Seeger retaining rings



SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=1

ART. T151



- Left-hand rotation with "UP CUT SPIRAL"
- To be used on machining centres, CNC routers and point to point machines

LH rotation	D	B	L	Z
T151.040.L	4	12	50	1
T151.061.L	6	27	60	1

SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=2

ART. T152



Good finish
on panel top side



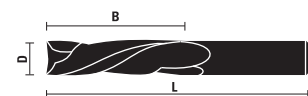
- Right-hand rotation with "DOWN CUT SPIRAL"

- To be used on machining centres, CNC routers and point to point machines

RH rotation	D	B	L	Z
T152.030.R	3	12	50	2
T152.040.R	4	12	50	2
T152.050.R	5	17	50	2
T152.060.R	6	17	70	2
T152.061.R	6	27	70	2
T152.080.R	8	22	80	2
T152.081.R	8	35	80	2
T152.100.R	10	35	80	2
T152.101.R	10	45	100	2
T152.110.R	11	35	80	2
T152.111.R	11	45	100	2
T152.120.R	12	35	90	2
T152.121.R	12	45	100	2
T152.122.R	12	55	110	2
T152.141.R	14	55	110	2
T152.160.R	16	45	100	2
T152.161.R	16	55	110	2
T152.180.R	18	55	115	2
T152.181.R	18	72	130	2
T152.200.R	20	55	115	2
T152.201.R	20	72	130	2

SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=2

ART. T152



Good finish
on bottom side



- Left-hand rotation with "UP CUT SPIRAL"

- To be used on machining centres, CNC routers and point to point machines

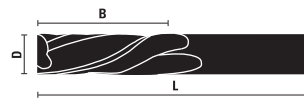
LH rotation	D	B	L	Z
T152.040.L	4	12	50	2
T152.060.L	6	17	60	2
T152.061.L	6	27	60	2
T152.080.L	8	22	80	2
T152.100.L	10	35	80	2
T152.120.L	12	35	80	2
T152.121.L	12	45	100	2
T152.141.L	14	55	110	2
T152.161.L	16	55	110	2
T152.181.L	18	72	120	2
T152.200.L	20	55	100	2
T152.201.L	20	72	120	2

Router bits with diameter from 12 mm to 20 mm,
are produced with shank for Seeger retaining rings



SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=3

ART. T153



Good finish
on panel top side



- Right-hand rotation with "DOWN CUT SPIRAL"

- To be used on machining centres, CNC routers and point to point machines

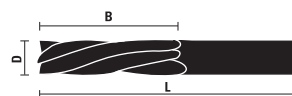
RH rotation	D	B	L	Z
T153.081.R	8	35	80	3
T153.100.R	10	35	80	3
T153.101.R	10	45	100	3
T153.120.R	12	35	85	3
T153.122.R	12	55	105	3
T153.140.R	14	45	100	3
T153.160.R	16	45	100	3
T153.161.R	16	55	110	3
T153.162.R	16	72	125	3
T153.180.R	18	55	115	3
T153.181.R	18	72	130	3
T153.200.R	20	55	115	3
T153.201.R	20	72	130	3

Router bits with diameter from 12 mm to 20 mm,
are produced with shank for Seeger retaining rings



SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE Z=3

ART. T153



Good finish
on bottom side



- Left-hand rotation with "UP CUT SPIRAL"

- To be used on machining centres, CNC routers and point to point machines

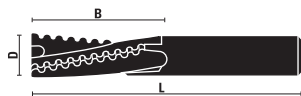
LH rotation	D	B	L	Z
T153.081.L	8	35	80	3
T153.100.L	10	35	80	3
T153.101.L	10	45	100	3
T153.120.L	12	35	80	3
T153.122.L	12	55	100	3
T153.140.L	14	45	100	3
T153.160.L	16	45	100	3
T153.161.L	16	55	100	3
T153.200.L	20	55	100	3
T153.201.L	20	72	120	3

Router bits with diameter from 12 mm to 20 mm,
are produced with shank for Seeger retaining rings



SOLID CARBIDE SPIRAL CUTTERS, ROUGHING STYLE Z=3

ART. T154



- Right-hand rotation with "DOWN CUT SPIRAL"
- Chip-breaker execution
- To be used on machining centres, CNC routers and point to point machines
- Suitable for roughing, they guarantee a high feed rate

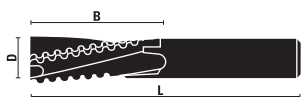
RH rotation	D	B	L	Z
T154.080.R	8	22	80	3
T154.081.R	8	35	80	3
T154.100.R	10	35	80	3
T154.101.R	10	45	100	3
T154.120.R	12	35	83	3
T154.121.R	12	45	100	3
T154.122.R	12	55	105	3
T154.140.R	14	45	100	3
T154.160.R	16	45	100	3
T154.161.R	16	55	110	3
T154.162.R	16	72	125	3
T154.180.R	18	55	115	3
T154.181.R	18	72	130	3
T154.200.R	20	55	115	3
T154.201.R	20	72	130	3
T154.202.R	20	102	160	3

Router bits with diameter from 12 mm to 20 mm, are produced with shank for Seeger retaining rings



SOLID CARBIDE SPIRAL CUTTERS, ROUGHING STYLE Z=3

ART. T154



- Left-hand rotation with "UP CUT SPIRAL"
- Chip-breaker execution
- To be used on machining centres, CNC routers and point to point machines
- Suitable for roughing, they guarantee a high feed rate

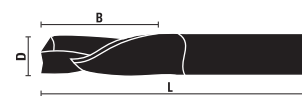
LH rotation	D	B	L	Z
T154.081.L	8	35	80	3
T154.100.L	10	35	80	3
T154.120.L	12	35	80	3
T154.122.L	12	55	100	3
T154.140.L	14	45	100	3
T154.160.L	16	45	100	3
T154.161.L	16	55	100	3
T154.180.L	18	55	100	3
T154.200.L	20	55	100	3
T154.201.L	20	72	120	3
T154.250.L NEW	25	155	220	3

Router bits with diameter from 12 mm to 25 mm, are produced with shank for Seeger retaining rings

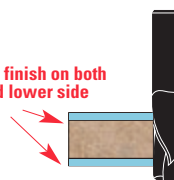


SOLID CARBIDE COMPRESSION CUTTERS Z=1+1

ART. T155



Excellent finish on both upper and lower side



- Right-hand rotation with double flute, compression spiral
- To be used on machining centres, CNC routers and point to point machines

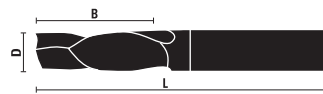
RH rotation	D	B	L	Z
T155.061.R	6	27	60	1+1
T155.080.R	8	22	80	1+1
T155.081.R	8	32	80	1+1
T155.100.R	10	32	80	1+1
T155.101.R	10	42	100	1+1
T155.120.R	12	42	100	1+1
T155.121.R	12	52	100	1+1
T155.127.R	12,7	32	78	1+1
T155.161.R	16	52	100	1+1

Router bits with diameter from 12 mm to 16 mm, are produced with shank for Seeger retaining rings

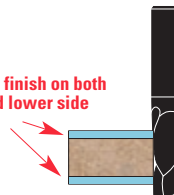


SOLID CARBIDE COMPRESSION CUTTERS Z=1+1

ART. T155



Excellent finish on both upper and lower side



- Right-hand rotation with double flute, compression spiral
- To be used on machining centres, CNC routers and point to point machines

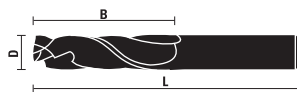
LH rotation	D	B	L	Z
T155.061.L	6	27	60	1+1
T155.081.L	8	32	80	1+1
T155.100.L	10	32	80	1+1
T155.120.L	12	42	100	1+1

Router bits with diameter from 12 mm, are produced with shank for Seeger retaining rings

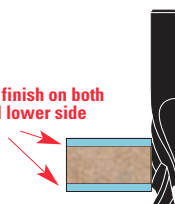


SOLID CARBIDE COMPRESSION CUTTERS Z=2+2

ART. T156



Excellent finish on both upper and lower side



- Left-hand rotation with double flute, compression spiral

- To be used on machining centres, CNC routers and point to point machines

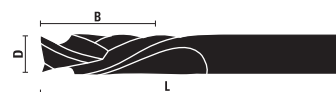
RH rotation	D	B	L	Z
T156.080.L	8	22	80	2+2
T156.081.L	8	32	80	2+2
T156.101.L	10	42	100	2+2
T156.120.L	12	42	100	2+2
T156.121.L	12	52	105	2+2
T156.161.L	16	52	110	2+2
T156.180.L	18	52	115	2+2
T156.200.L	20	52	115	2+2
T156.201.L	20	72	135	2+2

Router bits with diameter from 12 mm to 20 mm, are produced with shank for Seeger retaining rings

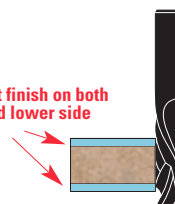


SOLID CARBIDE COMPRESSION CUTTERS Z=2+2

ART. T156



Excellent finish on both upper and lower side



- Right-hand rotation with double flute, compression spiral

- To be used on machining centres, CNC routers and point to point machines

RH rotation	D	B	L	Z
T156.080.R	8	22	80	2+2
T156.081.R	8	32	80	2+2
T156.100.R	10	32	80	2+2
T156.101.R	10	42	100	2+2
T156.120.R	12	42	100	2+2
T156.121.R	12	52	110	2+2
T156.127.R	12,7	32	78	2+2
T156.140.R	14	42	100	2+2
T156.141.R	14	52	110	2+2
T156.160.R	16	42	100	2+2
T156.161.R	16	52	110	2+2
T156.162.R	16	72	130	2+2
T156.180.R	18	52	115	2+2
T156.181.R	18	72	135	2+2
T156.182.R	18	102	165	2+2
T156.200.R	20	52	115	2+2
T156.201.R	20	72	135	2+2

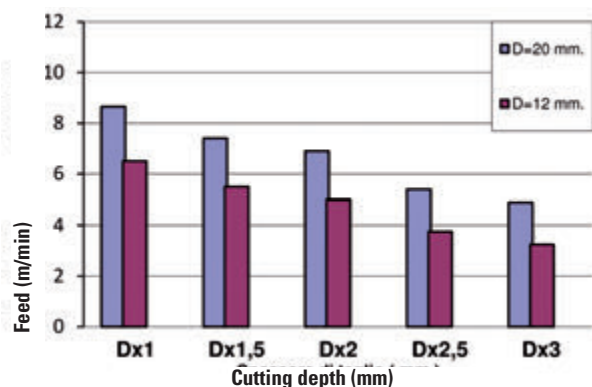
Router bits with diameter from 12 mm to 20 mm, are produced with shank for Seeger retaining rings



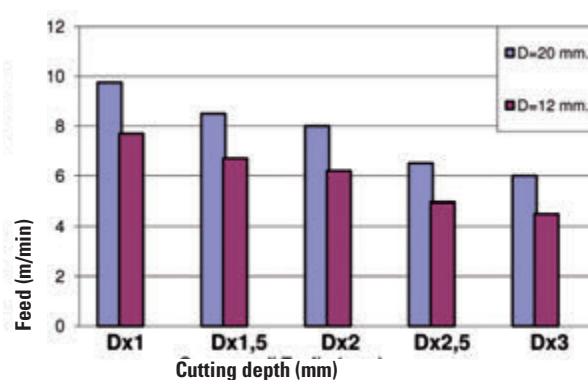
HOW TO DETERMINE THE FEEDING SPEED RELATING TO THE DIAMETER:

- Referring to item T156 with double flute, compression spiral, Z=2+2.
- RPM 18.000

Hard wood

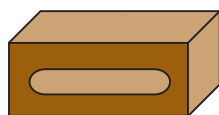
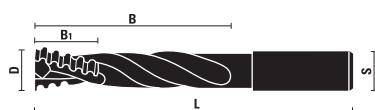


Soft wood



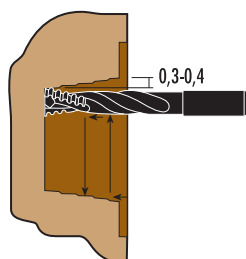
SOLID CARBIDE SPIRAL CUTTERS Z=2 - Z=3

ART. T157



- Right-hand rotation with "UP CUT SPIRAL"
- Chip-breaker execution
- For locks and slot mortising

RH rotation	D	B1	B	L	S	Z
T157.140.R	14	20	95	155	14x45	2
T157.141.R	14	45	95	150	14x45	3
T157.160.R	16	25	115	175	16x45	2
T157.161.R	16	45	95	140	16x45	2
T157.162.R	16	50	100	150	16x45	3
T157.180.R	18	25	115	175	18x45	2
T157.181.R	18	50	100	150	18x45	3



USE EXAMPLE

- Z=2/Z=3
- D= 14÷18 mm: RPM 12.000-20.000
- Stepwise processing 0,3-0,4 mm
- Can work deeply and have excellent chip evacuation

Router bits with diameter from 14 mm to 18 mm, are produced with shank for Seeger retaining rings



SOLID CARBIDE SPIRAL CUTTERS Z=3 FOR LOCKS

ART. T177 - T178



- Without chip-breaker
- For locks and slot mortising
- T177.160.R right rotation and right hand twist (positive/up cut style)
- T177.160.L left rotation and left hand twist (positive/up cut style)
- T178.160.R right rotation and left hand twist (negative/down cut style)

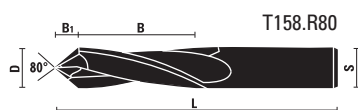
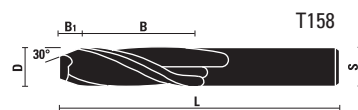
RH rotation	LH rotation	D	B1	B	L	S	Z
T177.160.R	T177.160.L	16	50	100	150	16x45	3
T178.160.R		16	50	100	150	16x45	3

Router bits with diameter from 16 mm, are produced with shank for Seeger retaining rings



SOLID CARBIDE SPIRAL CUTTERS Z=2

ART. T158



- Right-hand rotation with "UP CUT SPIRAL"
- For spy holes
- For boring and routing

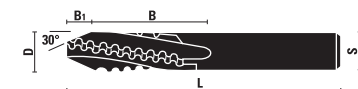
RH rotation	D	B1	B	L	S	Z
T158.140.R	14	8	42	100	14	2
T158.160.R	16	9	52	120	16	2
T158.180.R	18	10	52	120	18	2
T158.200.R	20	11	52	120	20	2
T158.080.R80 NEW	8	4,8	38	80	8	2
T158.100.R80 NEW	10	6	46	100	10	2
T158.120.R80 NEW	12	7,2	50	110	12	2
T158.160.R80 NEW	16	9,6	52	120	16	2

Router bits with diameter from 12 mm to 20 mm, are produced with shank for Seeger retaining rings



SOLID CARBIDE SPIRAL CUTTERS Z=2

ART. T159



- Right-hand rotation with "UP CUT SPIRAL"
- Chip-breaker execution
- For spyholes on doors
- Through holes cutting

RH rotation	D	B1	B	L	S	Z
T159.160.R	16	9	52	120	16	2
T159.200.R	20	11	52	120	20	2

Router bits with diameter from 16 mm to 20 mm, are produced with shank for Seeger retaining rings

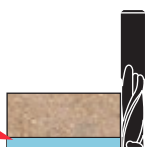


SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE S=6 Z=2

ART. T160



Good finish
on bottom side



- Can also be used on portable routers
- Right-hand rotation with "UP CUT SPIRAL"

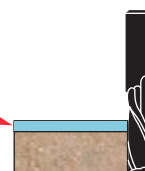
RH rotation	D	B	L	S	Z
T160.030.R	3	12	60	6	2
T160.035.R	3,5	14	60	6	2
T160.040.R	4	14	60	6	2
T160.045.R	4,5	16	60	6	2
T160.050.R	5	17	60	6	2

SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE S=6 Z=2

ART. T161



Good finish on
panel top side



- Can also be used on portable routers
- Right-hand rotation with "DOWN CUT SPIRAL"

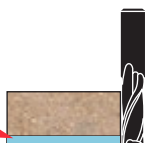
RH rotation	D	B	L	S	Z
T161.030.R	3	12	60	6	2
T161.035.R	3,5	14	60	6	2
T161.040.R	4	14	60	6	2
T161.045.R	4,5	16	60	6	2
T161.050.R	5	17	60	6	2

SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE S=8 Z=2

ART. T162



Good finish
on bottom side

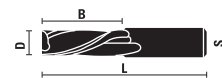


- Can also be used on portable routers
- Right-hand rotation with "UP CUT SPIRAL"

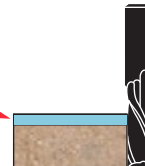
RH rotation	D	B	L	S	Z
T162.030.R	3	12	60	8	2
T162.040.R	4	14	60	8	2
T162.050.R	5	17	60	8	2
T162.060.R	6	22	70	8	2
T162.070.R	7	32	80	8	2

SOLID CARBIDE SPIRAL CUTTERS, FINISH STYLE S=8 Z=2

ART. T163



Good finish on
panel top side



- Can also be used on portable routers
- Right-hand rotation with "DOWN CUT SPIRAL"

RH rotation	D	B	L	S	Z
T163.030.R	3	12	60	8	2
T163.040.R	4	14	60	8	2
T163.050.R	5	17	60	8	2
T163.060.R	6	22	70	8	2
T163.070.R	7	32	80	8	2

SOLID CARBIDE SPIRAL CUTTERS, ROUGHING STYLE Z=2

ART. T170



- Right-hand rotation with "UP CUT SPIRAL"
- Chip-breaker execution
- Z=2 for the best chip removal

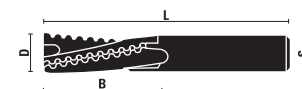
RH rotation	D	B	L	S	Z
T170.080.R	8	35	80	8	2
T170.100.R	10	35	80	10	2
T170.120.R	12	35	80	12	2
T170.121.R	12	45	90	12	2

Router bits with diameter from 12 mm, are produced with shank for Seeger retaining rings



SOLID CARBIDE SPIRAL CUTTERS, ROUGHING STYLE Z=2

ART. T171



- Right-hand rotation with "DOWN CUT SPIRAL"
- Chip-breaker execution
- Z=2 for the best chip removal

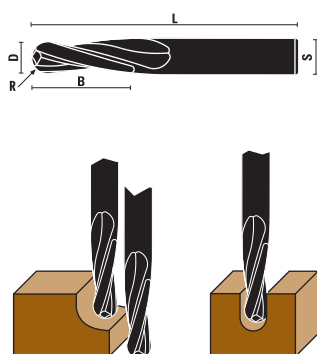
RH rotation	D	B	L	S	Z
T171.080.R	8	35	80	8	2
T171.100.R	10	35	80	10	2
T171.120.R	12	35	80	12	2

Router bits with diameter from 12 mm, are produced with shank for Seeger retaining rings



SOLID CARBIDE SPIRAL CUTTERS RADIUS STYLE Z=2

ART. T175



- Suitable for working plastic materials
- Right-hand rotation with "UP CUT SPIRAL"

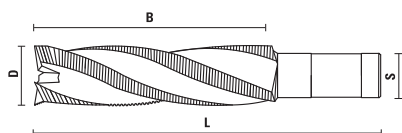
RH rotation	D	R	B	L	Z
T175.030.R NEW	3	1,5	12	50	2
T175.040.R NEW	4	2	12	50	2
T175.060.R NEW	6	3	22	60	2
T175.080.R NEW	8	4	22	80	2
T175.100.R NEW	10	5	35	80	2
T175.120.R NEW	12	6	35	80	2
T175.160.R NEW	16	8	55	100	2
T175.180.R NEW	18	9	55	100	2
T175.200.R NEW	20	10	55	100	2

Router bits with diameter from 12 mm, are produced with shank for Seeger retaining rings



HS ROUTER BITS FOR "HUNDEGGER" MACHINES

ART. T244

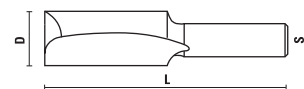


- Chip-breaker execution
- For machining lamellar beams

RH rotation	D	B	L	S	Z
T244.400.R	40	165	235	30	3
T244.500.R	50	215	295	30	3

HS CARVING BITS, PLANE STYLE

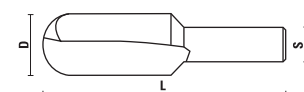
ART. T213 - T214



RH rotation	LH rotation	D	L	S	Z
T213.020.R	T213.020.L	2	90	11x50	1
T213.040.R	T213.040.L	4	90	11x50	1
T213.060.R	T213.060.L	6	90	11x50	1
T213.080.R	T213.080.L	8	90	11x50	1
T213.100.R	T213.100.L	10	90	11x50	1
T213.120.R	T213.120.L	12	90	11x50	1
T213.140.R	T213.140.L	14	90	11x50	1
T213.160.R	T213.160.L	16	90	11x50	1
T214.100.R	T214.100.L	10	90	11x50	2
T214.120.R	T214.120.L	12	90	11x50	2
T214.140.R	T214.140.L	14	90	11x50	2
T214.160.R	T214.160.L	16	90	11x50	2
T214.180.R	T214.180.L	18	90	11x50	2
T214.200.R	T214.200.L	20	90	11x50	2
T214.220.R	T214.220.L	22	90	11x50	2
T214.240.R	T214.240.L	24	90	11x50	2

HS CARVING BITS, ROUND STYLE

ART. T215 - T216



RH rotation	LH rotation	D	L	S	Z
T215.020.R	T215.020.L	2	90	11x50	1
T215.040.R	T215.040.L	4	90	11x50	1
T215.060.R	T215.060.L	6	90	11x50	1
T215.080.R	T215.080.L	8	90	11x50	1
T215.100.R	T215.100.L	10	90	11x50	1
T215.120.R	T215.120.L	12	90	11x50	1
T215.140.R	T215.140.L	14	90	11x50	1
T215.160.R	T215.160.L	16	90	11x50	1
T216.100.R	T216.100.L	10	90	11x50	2
T216.120.R	T216.120.L	12	90	11x50	2
T216.140.R	T216.140.L	14	90	11x50	2
T216.160.R	T216.160.L	16	90	11x50	2
T216.180.R	T216.180.L	18	90	11x50	2
T216.200.R	T216.200.L	20	90	11x50	2
T216.220.R	T216.220.L	22	90	11x50	2
T216.240.R	T216.240.L	24	90	11x50	2

KleinDIA

A surface treatment developed for large-scale production

KleinDIA is a DLC (**Diamond-like Carbon**) anti-friction coating which allows to solve problems of tool abrasion, chip evacuation and chemical attack.

A layer of approx. 1 micron is laid on the tool surface at low temperature, thus not altering the properties of the router bit or knife.

Its high hardness is granted by both Sp2 (**Graphite**) and Sp3 (**Diamond**) carbon hybridisation.

Our several tests confirmed remarkable results on both panel working and solid wood processing.

Working plastic and aluminium without coolant is also possible thanks to a very low friction coefficient.

TECHNICAL FEATURES:

- **High hardness** Hv0,025: 2500-3100
- **Higher wear resistance** (longer working time)
- **Low frictional coefficient** (lowered working temperature)
- **Very low sticking coefficient** (Better chips evacuation)
- **Thickness:** approx. 1 micron
- **Colour:** bright black



KleinDIA is the most advantageous coating, ensuring:

- **Production increase**
- **Better finishing**
- **Less maintenance**

The surface coating **KleinDIA** can be applied on many other products giving extraordinary results depending on the type of material processed. Excellent results can be achieved processing solid wood, plywood, Plexiglas, plastic and graphitic materials.

HERE ARE SOME OF THE ITEMS WHICH ARE SUITABLE TO BE COATED WITH **KleinDIA**:

Solid carbide straight router bits
ART. A101/2/3 - C101/2/3 - C190 - D101/2



Page 1.07, 1.23, 2.05

Solid carbide spiral router bits
ART. T141/2/3 - T151/2/3 - T157/8/9



Page from 7.36 to 7.46

Solid carbide dowel drills
ART. L116 - L117



Pag. 5.11

Solid carbide through-hole boring bits
ART. L134 - L135



Pag. 5.12

HW reversible knives
ART. ZB



Pag. 11.10

HS planer knives
ART. ZC 30 - ZC 35



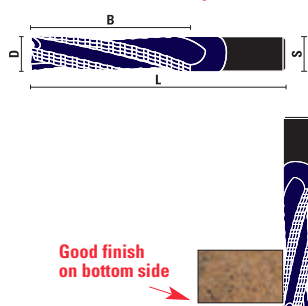
Pag. 11.11, 11.12, 11.13



SOLID CARBIDE SPIRAL ROUTER BITS FINISH/ROUGHING STYLE

ART. T344

KleinDIA coating for excellent performance



- Right-hand rotation with "UP CUT SPIRAL"
- To be used on machining centres, CNC routers and point to point machines
- For **softwood and hardwood, chipboard, MDF, HF**, plywood, plastic coated, mineral materials (**CORIAN®** ecc.)

RH rotation	D	B	L	Z
T344.080.RKD NEW	8	30	80	2
T344.100.RKD NEW	10	35	80	2
T344.120.RKD NEW	12	35	80	3
T344.121.RKD NEW	12	45	90	3
T344.140.RKD NEW	14	55	110	3
T344.160.RKD NEW	16	55	110	3
T344.161.RKD NEW	16	75	130	3
T344.200.RKD NEW	20	55	110	3
T344.201.RKD NEW	20	75	130	3

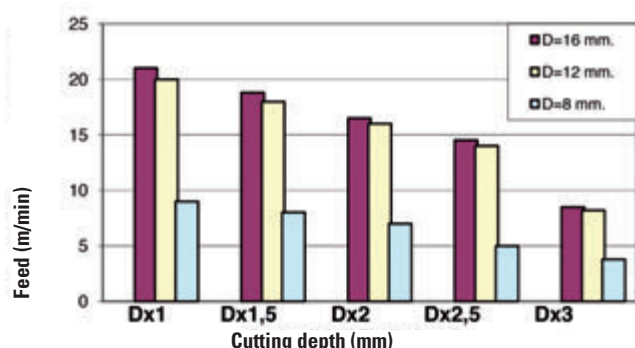
Router bits with diameter from 12 mm, are produced with shank for Seeger retaining rings



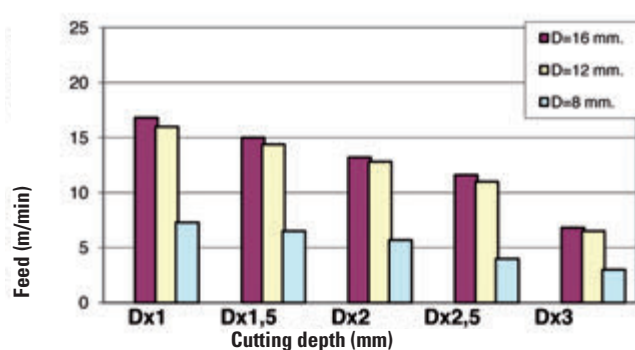
HOW TO DETERMINE THE FEEDING SPEED RELATING TO THE DIAMETER:

- Referring to item T344RKD with right hand rotation (UP CUT STYLE), Z=2/3
- Referring to item T354RKD with right hand rotation (DOWN CUT STYLE), Z=2/3
- Referring to item T354LKD with left hand rotation (UP CUT STYLE), Z=2/3
- RPM 18.000

Soft wood



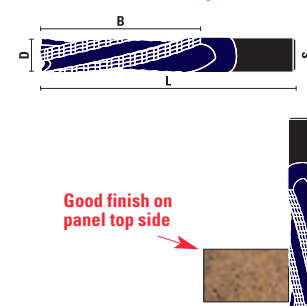
Hard wood



SOLID CARBIDE SPIRAL ROUTER BITS FINISH/ROUGHING STYLE

ART. T354

KleinDIA coating for excellent performance



- Right-hand rotation with "DOWN CUT SPIRAL"
- To be used on machining centres, CNC routers and point to point machines
- For **softwood and hardwood, chipboard, MDF, HF**, plywood, plastic coated, mineral materials (**CORIAN®** ecc.)

RH rotation	D	B	L	Z
T354.100.RKD NEW	10	35	80	2
T354.120.RKD NEW	12	35	80	3
T354.160.RKD NEW	16	55	110	3
T354.161.RKD NEW	16	75	130	3
T354.200.RKD NEW	20	55	110	3

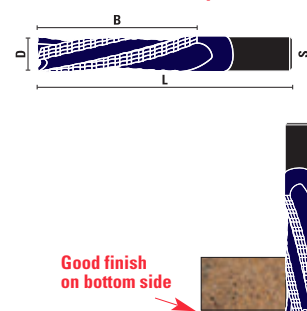
Router bits with diameter from 12 mm, are produced with shank for Seeger retaining rings



SOLID CARBIDE SPIRAL ROUTER BITS FINISH/ROUGHING STYLE

ART. T354

KleinDIA coating for excellent performance



- Left-hand rotation with "UP CUT SPIRAL"
- To be used on machining centres, CNC routers and point to point machines
- For **softwood and hardwood, chipboard, MDF, HF**, plywood, plastic coated, mineral materials (**CORIAN®** ecc.)

LH rotation	D	B	L	Z
T354.100.LKD NEW	10	35	80	2
T354.120.LKD NEW	12	35	80	3
T354.160.LKD NEW	16	55	110	3
T354.161.LKD NEW	16	75	130	3
T354.200.LKD NEW	20	55	110	3

Router bits with diameter from 12 mm, are produced with shank for Seeger retaining rings



MODULAR DRAWER UNIT

Drawer unit

"Elegant, sturdy **Klein** drawer unit with an innovative, modern design and great modularity, where you can keep all your **Klein** tools in a clean, secure, well-organized place. Say good-bye to messiness and damaged tools. Now, with the new **Klein** drawer unit, you can put your storeroom in order in a convenient, functional way.

SMALL OUTSIDE BUT LARGE INSIDE
the **Klein** drawer unit takes up little space but can contain countless articles in its 10 drawers and 80 containers (8 containers per drawer).

- **STURDY**
since each drawer can hold around 8 kg.
- **LIGHT**
since it's made of a high-strength polypropylene co-polymer.
- **SECURE**
since each drawer has its own key.
- **PRACTICAL**
since it can be equipped with 4 casters for convenient movement or with slip-resistant feet.
- **CONVENIENT**
since it features a wooden top which acts as a practical surface for taking notes or keeping tools.
- **VERSATILE**
since the tubs in the drawers can be removed easily as desired.

Whether it's placed next to a CNC router, or close to a point-to-point boring machine, along the panel production line or in any carpentry shop, the new **Klein** drawer unit can be a real help in keeping the tools you use every day in perfect order and in good condition.



The new **Klein** drawer unit can hold a wide range of tools.
Ask our customer service how to receive it.

Modular drawer unit "CNC"

Ideal to store collet chucks, spring collets and spiral router bits beside your CNC machine



1st Drawer

Spring collets ER32

Art. T119.060.N
T119.080.N
T119.100.N
T119.120.N
T119.140.N
T119.160.N
T119.180.N
T119.200.N

2nd Drawer

Spring collets ER40

Art. T123.080.N
T123.100.N
T123.120.N
T123.140.N
T123.160.N
T123.180.N
T123.200.N
T123.250.N

3rd Drawer

Collet chucks and spring collets ER25

Art. T118.700.R
T118.800.R
T118.976.R
T118.980.R
T125.060.N
T125.080.N
T125.100.N
T125.120.N

4th Drawer

Spiral router bits Z=2

Art. T142.040.R
T142.050.R
T142.061.R
T142.080.R
T142.081.R
T142.100.R
T142.101.R
T142.121.R

5th Drawer

Spiral router bits Z=3

Art. T143.081.R
T143.100.R
T143.101.R
T143.121.R
T143.161.R
T143.180.R
T143.200.R
T143.201.R

6th Drawer

Spiral router bits Z=3 + chipbreaker

Art. T144.081.R
T144.100.R
T144.101.R
T144.121.R
T144.161.R
T144.180.R
T144.200.R
T144.201.R

7th Drawer

Spiral router bits Z=1

Art. T141.030.R
T141.040.R
T141.050.R
T141.061.R
T141.081.R
T141.100.R
T151.061.R
T151.081.R

8th Drawer

Spiral router bits Z=2 down-cut

Art. T152.030.R
T152.040.R
T152.050.R
T152.061.R
T152.080.R
T152.081.R
T152.101.R
T152.121.R

9th Drawer

Spiral router bits for locks

Art. T153.100.R
T153.120.R
T153.160.R
T154.081.R
T154.120.R
T154.160.R
T157.140.R
T157.162.R

10th Drawer

Straight cut router bits

Art. D101.080.R
D101.100.R
D102.100.R
D103.121.R
D103.141.R
D103.161.R
D103.181.R
D103.201.R