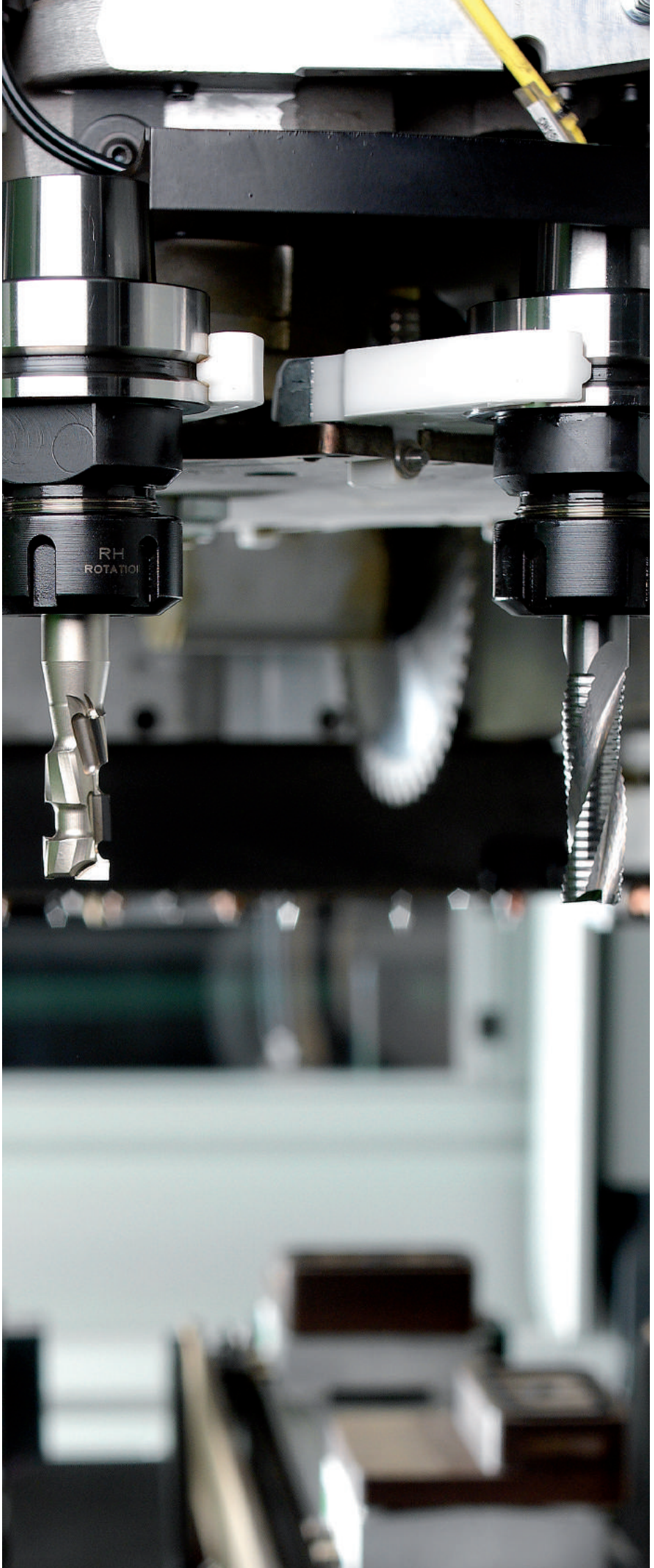


CNC Router Cutters & Chucks

What work parameters are best when routing?

Answering the following questions will provide you with the answer!

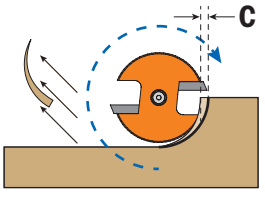
- **What equipment are you using?** Using brand new equipment of high quality is not the same as using outdated machinery! It is important to understand that vibration is the direct result of wear and tear, which can lead to a poor quality finish. Feed rate should be chosen in order to dampen vibration, and quite often, higher feed rates are associated with better finishing results.
- **What factors influence the performance of the bit I am using?** Many factors affect performance and the ultimate finish of the workpiece: the power of the collet chuck, the rigidity and eccentricity of the couplings, conditions and quality of the collets, reverse locking system, sharpened tool edge, the dust-collection system in use and even the relative humidity of the workplace environment.
- **What bit should I use?** The number of cutting edges as well as the cutting diameter significantly affect work parameters. In general, the more cutting edges and the wider the blade diameter, the higher the feed rate.
- **What is the cutting depth I hope to carry out?** In order to increase cutting depth, it is necessary to reduce the feed rate and vice versa for shallower cuts.
- **At what speed does my machine run?** By increasing the spindle speed (rpm), the quality of the finished edge improves. However, at the same time friction also increases between the tool and the workpiece. As a result, tool longevity is compromised. Ideally, the objective is to select the slowest rotation speed possible compatible with the quality of finishing you hope to achieve.
- **What edge finish am I looking to achieve?** Coarse routing and fine routing are definitely not the same thing! You need to figure out what is more important: quality or quantity. In order to prolong the life of your cutting tool, its best to choose the highest feed rate possible best suited to achieve the finish you want.
- **Above all....what materials am I working with?** Wood is a good example of natural fiber composite. It is made up of a natural fibrous material, both elastic and flexible (cellulose: long molecular polymer chains), bound together by a very rigid substance (lignin: cross-linked polymer) as well as a compatibilizer (hemicellulose: a polysaccharide). It is an anisotropic material, that is, directionally dependent, changing with direction along the object. How many types of wood and wood derivatives are you familiar with? Remember, no two pieces of wood are the same! In fact, the same work parameters carried out on two different pieces of wood will provide two very different results.

Feed rate is dependent of several factors, like the ones mentioned above - and these are just a few examples. It is important to weigh all factors in order to select an optimum feed rate suitable for the tools and work objectives involved. CMT is synonymous with quality and to produce high quality cuts you just can't randomly shoot off a bunch of numbers. Be wary of those who provide you with random numbers.

I get it....but where do I start? *The best way to go forward is step-by-step using reliable test data.* To quickly achieve the results best suited for your specific work expectations, you can always turn to theory!
One rule of thumb, which may prove advantageous, is to use a simple gauge to measure chipload wherever possible. On the one hand, it should be noted that when chips that are too thick, breakage will occur, resulting in a poor, rough finish. On the other hand, when chips are too thin, it will negatively affect tool longevity and cause rapid wear and tear of the cutting edge because the teeth of the tool are rubbing more than removing material.
The next time you experiment, you need to properly assess the specific demands of the work involved, assess chipload measurements and try to orient yourself towards a different thickness by taking into account the aforementioned factors. Then, with the aid of the formulas listed below, proceed to establish the appropriate feed rate for your next test. This will help you to achieve better results faster and you will have the essential information you will need for the next work project.

PARAMETERS:
V = feed rate (m/min)
Z = cutting edges
C = Chipload (mm)

FORMULAS:
V = (RPM x Z x C)/1000
RPM = V x 1000 /(Z x C)



EXAMPLE:
with caliper take measurement of a good result chipload (C=0,2mm).

Z=2
RPM=18000

V = (RPM x Z x C)/1000 = (18000x2x0,2)/1000 = 7,2m/min

PROBLEM SOLVING

PROBLEM	SOLUTIONS	INCREASE
Bad finishing	• Cutting depth • Vibrations	• Rotation speed • Dust extraction • Number of cutting edges • Clamping cutter/chuck
Cutting edge wear	• Rotation speed • Vibrations	• Feed speed
Cutting edge burns	• Rotation speed • Number of cutting-edges	• Feed speed
Cutting edge debris	• Cutting depth	• Rotation speed • Feed speed • Dust extraction
Vibrations	• Rotation speed • Cutting depth	• Machine firmness • Workpiece firmness
Cutter breakage	• Feed speed • Cutting depth • Vibrations	• Shank diameter • Collet clamping • Change tool material (solid carbide or Densimet®)

DECREASE

KINETIC DUST EXTRACTOR

992 Removes MDF & Chipboard dust from the workpiece

RH

	Description	D mm	Pack Qty.	Order No.
new	Kinetic Dust Extractor for chucks with ER20	80	1	**992.081.ER20**
new	Kinetic Dust Extractor for chucks with ER25	80	1	**992.081.ER25**
	Kinetic Dust Extractor for chucks with DIN6388/EOC25 collets	100	1	**992.101.EOC25**
	Kinetic Dust Extractor for chucks with ER32 collets	100	1	**992.101.ER32**
	Kinetic Dust Extractor for chucks with ER40 collets	100	1	**992.101.ER40**

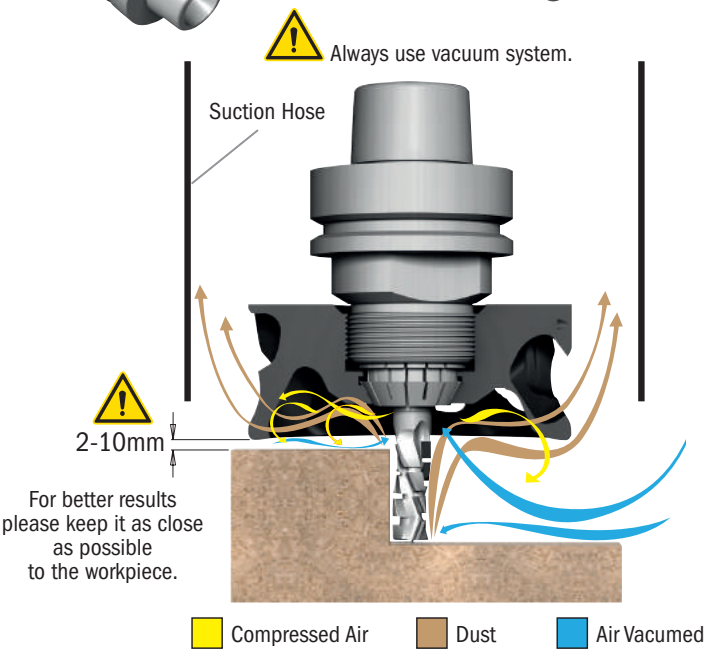
Spare parts **991.285.00** C-Spanner 80-90mm (ER20/ER25)
991.284.00 C-Spanner 95-100mm (EOC25/ER32/ER40)

Optional
(required for installation, not included)

Easy to use!

Install & remove as a clamping nut

- Health & Safety
- Tool Performance & Cut Quality
- Tool Life & Labor Costs
- Recommended for Nesting and Routing operations
- No wasted time during work process
- Replaces the standard clamping nut
- Suitable for any collet chucks with standard router bits
- Available for ER32 - ER40 - EOC25 (DIN6388) collets
- The thick ceramic coat gives to KDE an anti-corrosion, anti-friction and anti-static surface.
- Tool body in light alloy
- Better air quality
- Good performances even at low rpm: from 6,000 up to 20,000 rpm
- Material: chipboard, coated chipboard, MDF, Corian®, plasterboard, OSB, HPL.



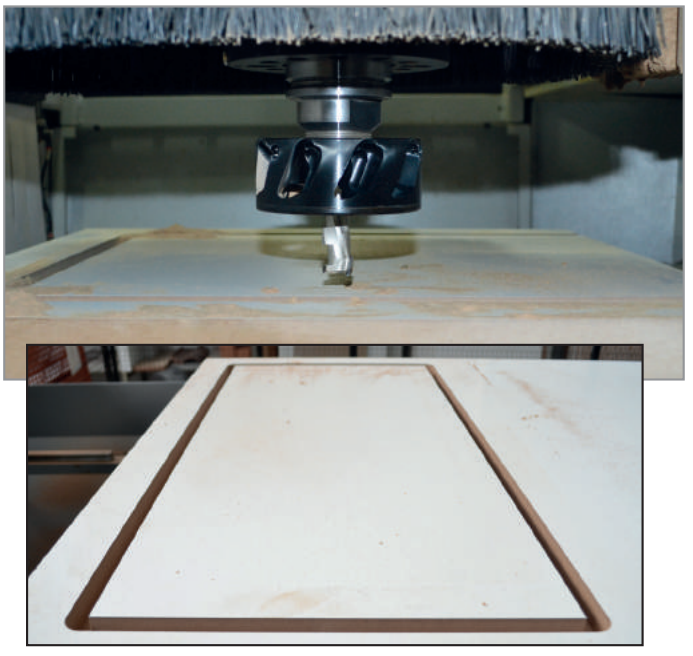
Download Instruction

Watch the video on YouTube

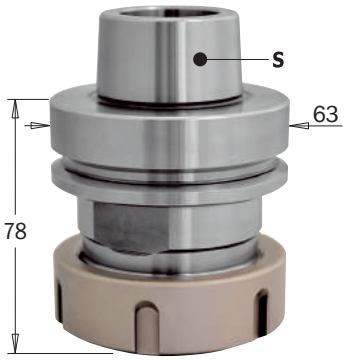
Watch Video

Working WITHOUT Kinetic Dust Extractor

Working WITH Kinetic Dust Extractor



HSK Chucks for “ER40” Precision Collets



183.310

RH LH

S	Description	To be used with collet	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
HSK-F63	Clamping nut without bearing	ER40	1	**183.310.01**	**183.310.02**
HSK-F63	Clamping nut with bearing	ER40	1	**183.310.11***	

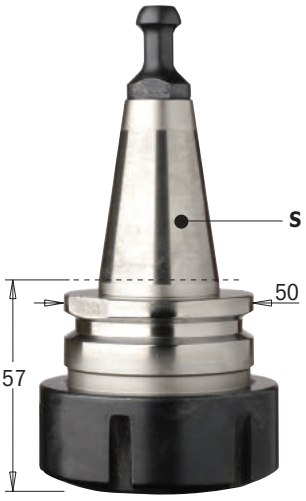
*** Suitable for right-hand and left-hand rotation.**

For Homag, Eima, IMA from 9/94, Dubus, Weeke, Biesse, SCM, Morbidelli and Masterwood machines.

ORANGE CHROME® S

Non-Stick Orange Chrome® Shield Coating
- prevents overheating
- protects against corrosion and rust
- reduces resin build-up
- longer life and greater tool performance

ISO30 Chucks for “ER40” Precision Collets



995.200

183.201

RH

S	To be used with collet	Retaining stud mm	Pack Qty.	ORDER NO. Right-hand rotation	
ISO30	ER40	Ø12-8	1	**183.201.01**	

For Biesse machines

995.201

183.211

RH

S	To be used with collet	Retaining stud mm	Pack Qty.	ORDER NO. Right-hand rotation	
ISO30	ER40	Ø13-9	1	**183.211.01**	

For Biesse machines with Omlat engine, Bulleri, Busellato, CMS and IMA machines.

995.202

183.221

RH

S	To be used with collet	Retaining stud mm	Pack Qty.	ORDER NO. Right-hand rotation	
ISO30	ER40	Ø12,8-9	1	**183.221.01**	

For Alberti and Masterwood machines.

Clamping Nuts for Chucks with “ER40” Precision Collets

992.383

RH LH

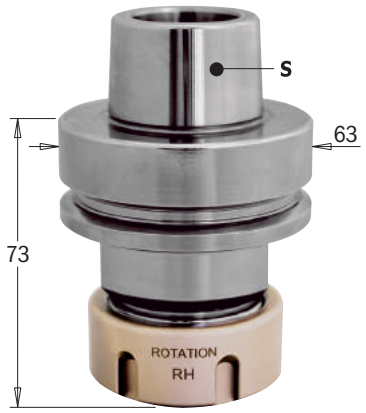
Description	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
Clamping nut without bearing			
For 183.201/211/221/310 chucks	1	**992.383.01**	**992.383.02**
Clamping nut with bearing			
For 183.201/211/221/310 chucks	1	**992.383.11**	

C-spanner for “ER40” Precision Collets

991.184

Description	Pack Qty.	ORDER NO.
C-Spanner for “ER40” precision collet	1	**991.184.00**

HSK Chuck for “ER32” Precision Collets



183.300

RH LH

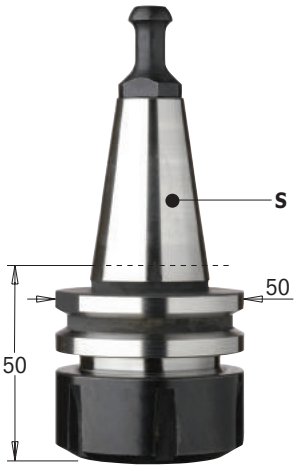
S	Description	To be used with collet	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
HSK-F63	Clamping nut without bearing	ER32	1	**183.300.01**	**183.300.02**
HSK-F63	Clamping nut with bearing	ER32	1	**183.300.11***	

*** Suitable for right-hand and left-hand rotation.**

For Homag, Eima from 9/94, Dubus, Weeke, Biesse, SCM, Morbidelli and Masterwood machines.

Non-Stick Orange Chrome® Shield Coating
- prevents overheating
- protects against corrosion and rust
- reduces resin build-up
- longer life and greater tool performance

ISO30 Chucks for “ER32” Precision Collets



995.200

183.200

RH LH

S	To be used with collet	Retaining stud mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
ISO 30	ER32	Ø12-8	1	**183.200.01**	**183.200.02**

For Biesse machines.

995.201

183.210

RH LH

S	To be used with collet	Retaining stud mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
ISO 30	ER32	Ø13-9	1	**183.210.01**	**183.210.02**

For Biesse machines with Omlat engine, Bulleri, Busellato, CMS and IMA machines.

995.202

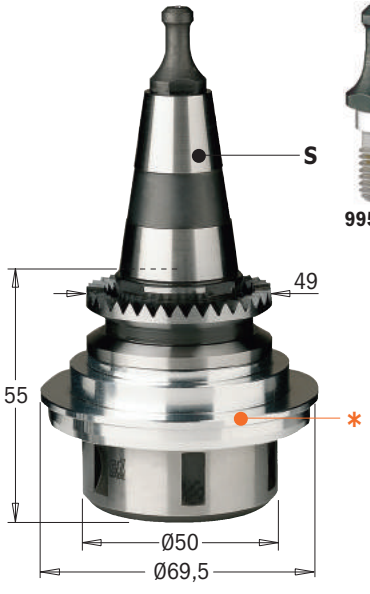
183.220

RH LH

S	To be used with collet	Retaining stud mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
ISO 30	ER32	Ø12,8-9	1	**183.220.01**	**183.220.02**

For Alberti and Masterwood machines.

ISO30 Chucks for “ER32” Precision Collets



995.250

183.250 without aluminium flange

RH LH

S	To be used with collet	Retaining stud mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
ISO 30	ER32	Ø8,5	1	**183.250.01**	**183.250.02**

For Morbidelli and SCM machines.

183.251 with Ø69,5mm aluminium flange fully assembled (*).

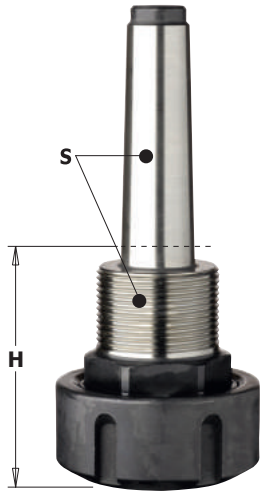
RH LH

S	To be used with collet	Retaining stud mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
ISO 30	ER32	Ø8,5	1	**183.251.01**	**183.251.02**

Spare parts **992.501.00** Ø69,5mm aluminium flange*

For Morbidelli and SCM machines.

Chucks for “ER32” Precision Collets



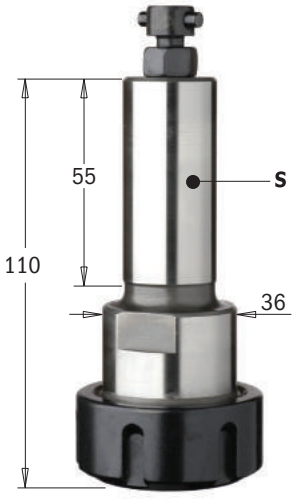
183.000/100

RH LH

S mm	To be used with collet	H mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
MK2/M30x1,5	ER32	62	1	**183.000.01**	**183.000.02**
MK3/M30x1,5	ER32	70	1	**183.100.01**	

MK2/MK3 tapered shank

Chucks for “ER32” Precision Collets



995.400

183.400

RH

S mm	To be used with collet	Retaining stud	Pack Qty.	ORDER NO. Right-hand rotation	
Ø25x55	ER32	PS LEUCO	1	**183.400.01**	

For machines with PS Leuco system.

Clamping Nuts for Chucks with “ER32” Collets

992.183

RH LH

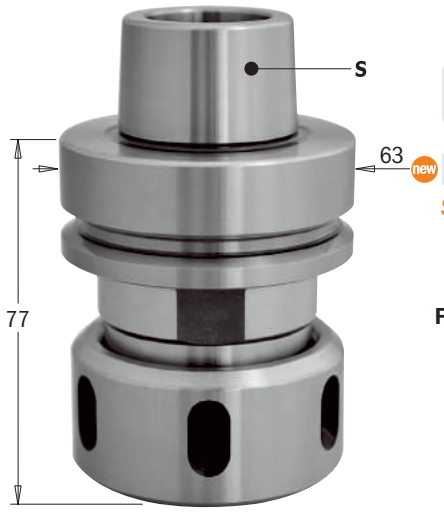
Description	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
Clamping nut without bearing			
For 183.000/100/200/250/300/400 chucks	1	**992.183.01**	**992.183.02**
Clamping nut with bearing			
For 183.000/100/200/250/300/400 chucks	1	**992.183.11**	**992.183.12**

C-Spanner for “ER32” Precision Collets

991.183

Description	Pack Qty.	ORDER NO.
C-Spanner for “ER32” precision collets	1	**991.183.00**

HSK Chuck for “DIN6388” - EOC25 Precision Collet



183.320

RH

S	Description	To be used with collet	Pack Qty.	Order no. Right-hand rotation
HSK-F63	HSK chuck with bearing nut	EOC-25	1	**183.320.01***
new HSK-F63	HSK chuck without bearing nut	EOC-25	1	**183.320.03**

Spare parts
992.283.11 Clamping nut with bearing
992.283.01 Clamping nut without bearing

*** Suitable for left-hand rotation too.**

For Homag, Eima from 9/94, Dubus, Weeke, Biesse, SCM, Morbidelli & Masterwood machines.

Clamping Nuts

992.283

RH

Description	Pack Qty.	Order no. Right-hand rotation
Clamping nut without bearing	1	**992.283.01**
Clamping nut with bearing	1	**992.283.11**

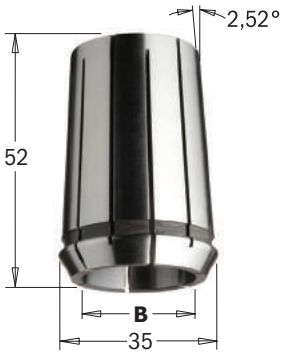
For chuck 183.320.

C-Spanner for “DIN6388” & “ER40”

991.283

Description	Pack Qty.	Order no.
C-Spanner for USAG 58-62-65	1	**991.283.00**

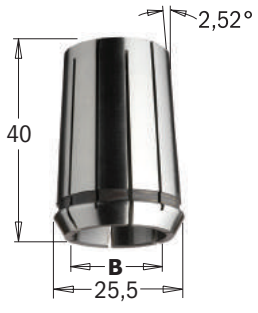
Precision Collets “DIN6388”



185 - EOC-25

B mm	B inches	Pack Qty.	Order no.	B mm	B inches	Pack Qty.	Order no.
3		10	**185.030.00**	12		10	**185.120.00**
4		10	**185.040.00**	12,7	1/2	10	**185.127.00**
5		10	**185.050.00**	14		10	**185.140.00**
6		10	**185.060.00**	16	5/8	10	**185.160.00**
new 6,35	1/4	10	**185.064.00**	18		10	**185.180.00**
8	5/16	10	**185.080.00**	19,05	3/4	10	**185.191.00** new
new 9,5	3/8	10	**185.095.00**	20		10	**185.200.00**
10		10	**185.100.00**	25		10	**185.250.00**

Remark: *special dimensions available on request.*

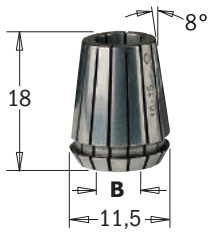


185 - EOC-16

B mm	B inches	Pack Qty.	Order no.	B mm	B inches	Pack Qty.	Order no.
6		10	**185.060.16**	12		10	**185.120.16**
8	5/16	10	**185.080.16**	14		10	**185.140.16**
10		10	**185.100.16**	16	5/8	10	**185.160.16**

Remark: *special dimensions available on request.*

184 - ER11

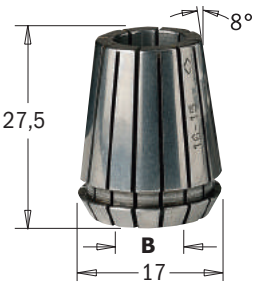


B mm	Pack Qty.	ORDER NO.
2	10	184.020.11
3	10	184.030.11
4	10	184.040.11
5	10	184.050.11
6	10	184.060.11

Technical details:
- replaceable Std “**ER11**” collets (from 1 to 7mm)
- fit most tapered spindle noses
- +0-0,7mm wide clamping tolerance
- suitable for most conical chucks.

Remark: *special dimensions available on request.*

184 - ER16

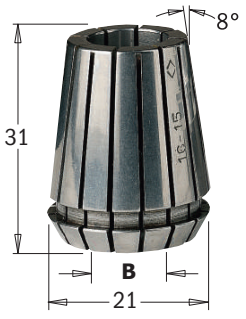


B mm	Pack Qty.	ORDER NO.
2	10	184.020.16
3	10	184.030.16
4	10	184.040.16
5	10	184.050.16
6	10	184.060.16
7	10	184.070.16
8	10	184.080.16
9	10	184.090.16
10	10	184.100.16

Technical details:
- replaceable Std “**ER16**” collets (from 1 to 10mm)
- fit most tapered spindle noses
- +0-0,7mm wide clamping tolerance
- suitable for most conical chucks.

Remark: *special dimensions available on request.*

184 - ER20

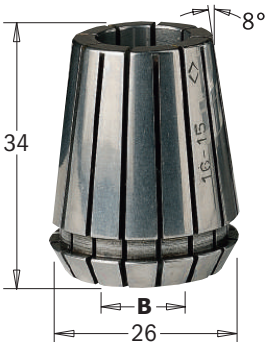


B mm	Pack Qty.	ORDER NO.
2	10	184.020.20
3	10	184.030.20
4	10	184.040.20
5	10	184.050.20
6	10	184.060.20
6,35	10	184.064.20
7	10	184.070.20
8	10	184.080.20
9	10	184.090.20
10	10	184.100.20
11	10	184.110.20
12	10	184.120.20
12,7	10	184.127.20

Technical details:
- replaceable Std “**ER20**” collets (from 1 to 13mm)
- fit most tapered spindle noses
- +0-0,7mm wide clamping tolerance
- suitable for most conical chucks.

Remark: *special dimensions available on request.*

184 - ER25

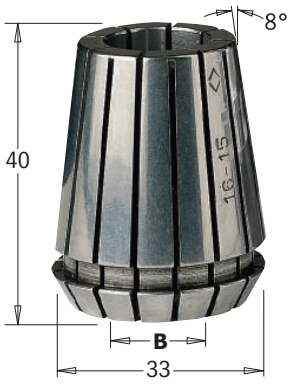


B mm	Pack Qty.	ORDER NO.
3	10	184.030.25
4	10	184.040.25
5	10	184.050.25
6	10	184.060.25
new 6,35	10	184.064.25
8	10	184.080.25
9	10	184.090.25
10	10	184.100.25
12	10	184.120.25
12,7	10	184.127.25
14	10	184.140.25
16	10	184.160.25

Technical details:
- replaceable Std “**ER25**” collets (from 1 to 16mm)
- fit most tapered spindle noses
- +0-0,7mm wide clamping tolerance
- suitable for most conical chucks.

Remark: *special dimensions available on request.*

184 - ER32



B mm	Pack Qty.	ORDER NO.
3	10	184.030.00
4	10	184.040.00
5	10	184.050.00
6	10	184.060.00
6,35	10	184.065.00
7	10	184.070.00
8	10	184.080.00
9	10	184.090.00
9,52	10	184.095.00
10	10	184.100.00
11	10	184.110.00
12	10	184.120.00
12,7	10	184.127.00
14	10	184.140.00
15	10	184.150.00
16	10	184.160.00
17	10	184.170.00
18	10	184.180.00
19	10	184.190.00
20	10	184.200.00

For chucks
183.000/100/200/250/300/400

Technical details:
- replaceable Std ”**ER32**” collets (from 3 to 20mm)
- fit most tapered spindle noses
- +0-0,7mm wide clamping tolerance
- suitable for most conical chucks.

Remark: *special dimensions available on request.*

184 - ER40

B mm	Pack Qty.	ORDER NO.
3	10	184.032.00
4	10	184.042.00
5	10	184.052.00
6	10	184.062.00
6,35	10	184.064.00
7	10	184.072.00
8	10	184.082.00
9,52	10	184.096.00
10	10	184.102.00
12	10	184.122.00
12,7	10	184.128.00
14	10	184.142.00
16	10	184.162.00
18	10	184.182.00
19	10	184.192.00
20	10	184.202.00
25	10	184.252.00

For chucks
183.201/211/221/310

Technical details:
- replaceable Std ”**ER40**” collets (from 3 to 25mm)
- fit most tapered spindle noses
- +0-0,7mm wide clamping tolerance
- suitable for most conical chucks.

Remark: *special dimensions available on request.*

Cap Nuts for CNC Machines

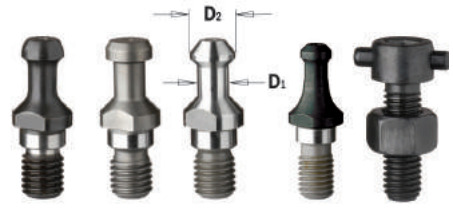
993.0

RH LH

Internal thread			Pack Qty.	Order no. Right-hand rotation	Order no. Left-hand rotation
Ø20x14Fx1"			1	**993.020.01**	**993.020.02**
M30x1,5			1	**993.030.01**	**993.030.02**

For machines with M33x3 threaded spindle nose.

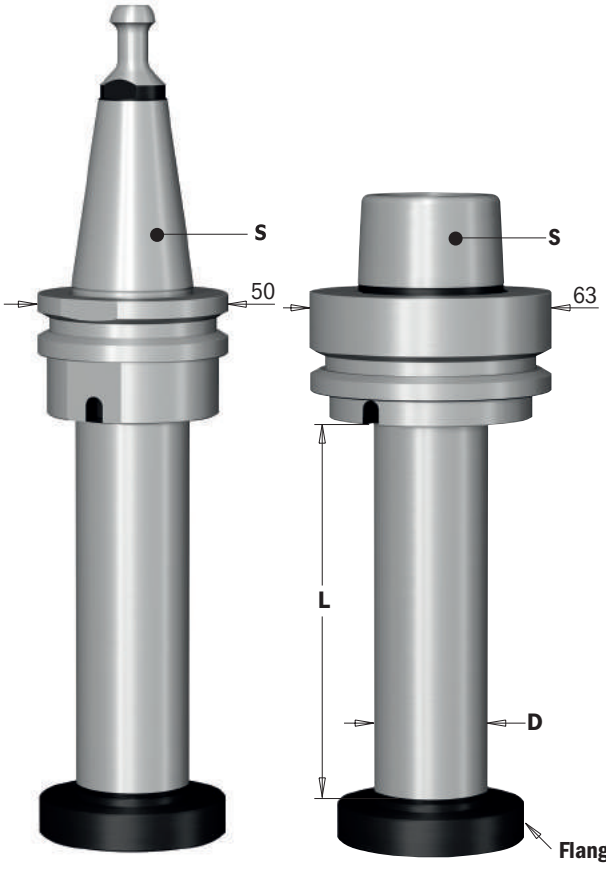
ISO30 Retaining Studs



995.200 **995.201** **995.202** **995.250** **995.400**

Description	D1 mm	D2 mm	Order no.
Retaining stud for 183.200/201 "Biesse" chucks	8	12	**995.200.00**
Retaining stud for 183.210/211 "Biesse, Omlat, Bulleri, Busellato, Weeke and IMA" chucks	9	13	**995.201.00**
Retaining stud for 183.220/221 "Alberti-Masterwood" chucks	9	12,8	**995.202.00**
Retaining stud for 183.250/251 "SCM - Morbidelli" chucks	6,5	8,5	**995.250.00**
Retaining stud for "PS and Leuco" 183.400 chucks	M8		**995.400.00**

Cutter Arbor with HSK Tapered Shank



183.260

RH LH

S	Description	D x L mm	Pack Qty.	Order no.
ISO30	Cutter arbor with ISO30 tapered shank	30x100	1	**183.260.00**

For Biesse machines.

Remark: *special dimensions available on request.*

183.360

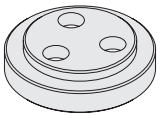
RH LH

S	Description	D x L mm	Pack Qty.	Order no.
HSK-F63	Cutter arbor with HSK tapered shank	30x100	1	**183.360.00**
HSK-F63	Cutter arbor with HSK tapered shank	30x150	1	**183.360.10**
HSK-F63	Cutter arbor with HSK tapered shank	35x100	1	**183.361.00**
HSK-F63	Cutter arbor with HSK tapered shank	40x100	1	**183.362.00**

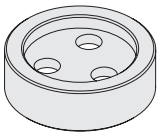
For Homag, Eima from 9/94, Dubus, Weeke, Biesse, SCM, Morbidelli and Masterwood machine.

Spare Parts for Chucks

Standard



Optional



Description	Order no.	Description	Order no.
M6x25 TCEI screw	**990.098.00**	***Optional***	
Steel flange for with Ø30mm arbors - Male	**992.560.30M**	Steel flange for with Ø30mm arbors - Female	**992.560.30F**
Steel flange for with Ø35mm arbors - Male	**992.560.35M**	Steel flange for with Ø35mm arbors - Female	**992.560.35F**
Steel flange for with Ø40mm arbors - Male	**992.560.40M**	Steel flange for with Ø40mm arbors - Female	**992.560.40F**

Universal Assembly Supports for Chucks

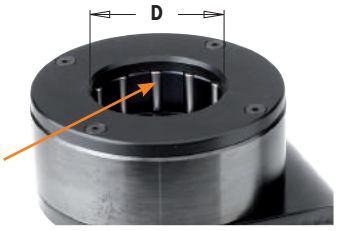
183

Description	D mm	Pack Qty.	Order No.
Universal assembly supports for chucks HSK-F63	63	1	**183-HSK**
Universal assembly supports for chucks ISO30	50	1	**183-ISO**

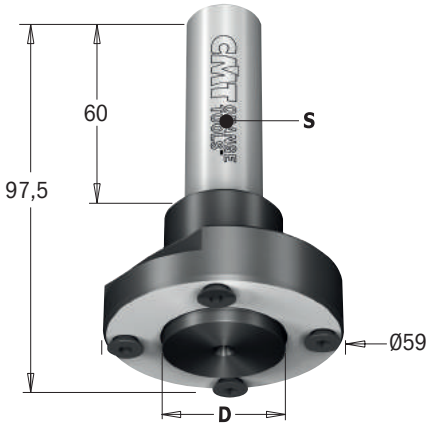
For HSK-F63 and ISO30 chucks

CMT now offers new universal assembly supports for HSK-F63 and ISO30 chucks. Thanks to the bi-directional roller bearings, which clamp the Left-hand rotation to the flange, the system offers the highest protection to the tool taper and clamps are no longer needed.

The special bidirectional roller bearing clamps the tooLeft-hand rotationolder to the flange, offering the highest protection to the tool taper.



Saw Blade Arbor with Parallel Shank



183.410

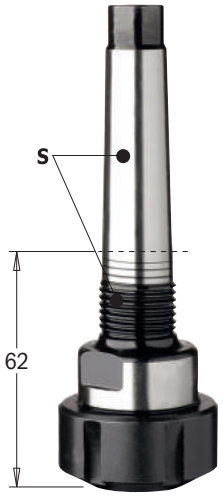
RH LH

S mm	D mm	Pin Hole	L mm	Pack Qty.	Order No.
20	30	4/M6/48	97,5	1	**183.410.30**

Spare parts

990.083.00	M6x10mm TSPEI screw
991.067.00	3mm allen key
991.064.00	4mm allen key

Collet Chucks Clamp with MK2 Tapered Shank



123

RH LH

S		Pack Qty.	Order No. Right-hand rotation	Order No. Left-hand rotation
MK2/Ø20x14Fx1"		1	**123.000.01**	**123.000.02**

Spare parts

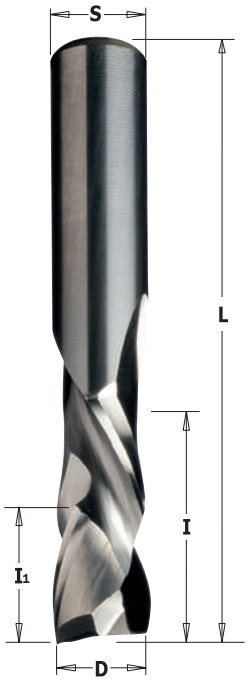
992.123.01	Clamping nut RH
992.123.02	Clamping nut LH
991.123.00	Type 45-50 c-spanner

Collets for 123 Chucks

124

D_3 mm	Pack Qty.	Order No.	D_3 mm	Pack Qty.	Order No.
6	1	**124.060.00**	10	1	**124.100.00**
6,35	1	**124.064.00**	12	1	**124.120.00**
8	1	**124.080.00**	12,7	1	**124.127.00**
9,5	1	**124.095.00**	14	1	**124.140.00**

Solid Carbide Up & Downcut Spiral Bits



190

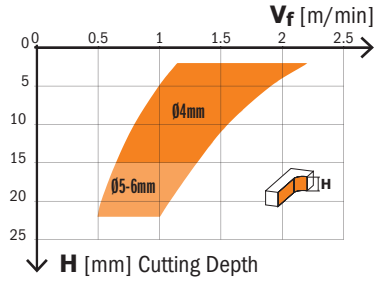
HWM | Z1+1 | Z2+2 | Z3+3 | RH

D mm	I mm	I1 mm	L mm	S mm	Z	Pack Qty.	ORDER NO. Right-hand rotation
4	15	7	50	4	1+1	10	**190.040.11**
5	22	8	60	5	1+1	10	**190.050.11**
6	22	8	60	6	1+1	10	**190.060.11**
8	32	7	80	8	2+2	10	**190.080.11**
9,52	28,6	7	76,2	9,52	2+2	10	**190.504.11**
10	32	7	80	10	2+2	10	**190.100.11**
10	42	7	90	10	2+2	10	**190.101.11**
12	42	7	90	12	2+2	10	**190.120.11**
12	52	7	100	12	2+2	10	**190.121.11**
12,7	25,4	16	76,2	12,7	2+2	10	**190.505.11**
12,7	28,6	16	76,2	12,7	2+2	10	**190.506.11**
12,7	34,9	16	88,9	12,7	2+2	10	**190.507.11**
12,7	41,3	16	101,6	12,7	2+2	10	**190.508.11**
16	55	24	110	16	2+2	10	**190.160.11**
18	55	30	110	18	2+2	10	**190.180.11**
...up & downcut mortising bits							
9,52	22,2	4,8	76,2	9,52	2+2	10	**190.513.11**
9,52	25,4	5,2	76,2	9,52	3+3	10	**190.813.11**
12	25	5,2	83	12	3+3	10	**190.320.11**
12,7	22,2	5,2	76,2	12,7	2+2	10	**190.515.11**
12,7	34,9	5,2	88,9	12,7	2+2	10	**190.517.11**

TECHNICAL DETAILS:
- Premium quality HWM.
- 2+2 spiral cutting edges [Z2+2].
- 3+3 spiral cutting edges [Z3+3].
- Provide an excellent finish on both the upper and the lower side of the workpiece.

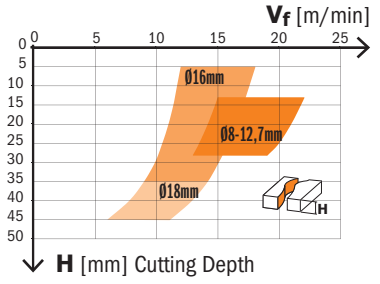
APPLICATION:
used for cutting, copying, panel sizing and any routing application on solid wood, wood composites, plastic materials and laminates. Use a high feed speed on well-clamped workpieces. Can be used on machining centres, point-to-point boring machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Ø4-6mm CHIPBOARD



24000 RPM
Correction factor for Vf: MDF=0.8

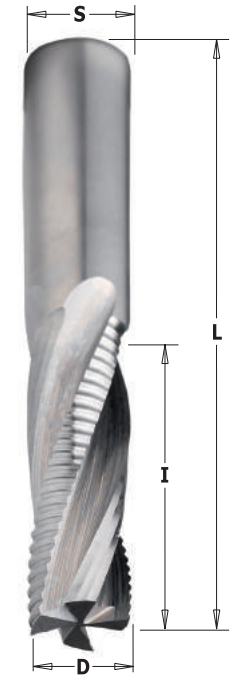
Ø8-18mm CHIPBOARD



18000 RPM
Correction factor for Vf: MDF=0.8

Results shown in this diagram are purely empirical, based merely on informative and hypothetical calculation.
Each application may require different parameters in consideration of materials in use and machining conditions.
CMT is not responsable for direct, indirect, incidental or consequential damages resulting from any defect, error or failure due to this diagram.

Solid Carbide Upcut Spiral Bits



197

HWM | Z4 | RH

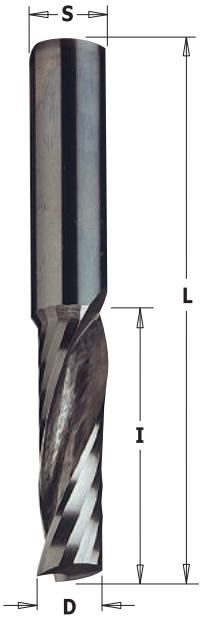
D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
12	42	90	12	10	**197.121.11**
14	50	110	14	1	**197.140.11**
16	55	110	16	1	**197.160.11**
16	35	90	16	1	**197.161.11**
18	55	110	18	1	**197.180.11**
20	60	120	20	1	**197.200.11**
20	70	120	20	1	**197.201.11**

TECHNICAL DETAILS:
- Premium quality HWM.
- 4 spiral cutting edges (2 with chip-breaker) [Z2+2R].
- Max 0.1mm tooth depth.
- Provide excellent finish on the lower side of the workpiece.
- **Upward chip ejection.**

APPLICATION:
used for ripping, template routing, panel sizing and any routing application on solid wood and wood composites. Can be used on machining centres, point-to-point boring machines, CNC routers and hand-held routers equipped with chucks or adaptors.

The special 4 flute design (Z2 finishing + Z2R with chipbreaker) allows high speed with excellent finish on the workpiece.

Solid Carbide Upcut Spiral Bits



198

HWM Z1 RH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
3	12	50	3	10	**198.030.11**
3,18	12,7	50,8	6,35	10	**198.001.11**
4	15	50	4	10	**198.040.11**
4,76	15,87	50,8	6,35	10	**198.005.11**
5	17	50	5	10	**198.050.11**
6	22	60	6	10	**198.060.11**
6,35	19,05	50,8	6,35	10	**198.007.11**
6,35	25,4	63,5	6,35	10	**198.008.11**
8	22	70	8	10	**198.080.11**
8	32	80	8	10	**198.081.11**
9,52	28,57	76,2	9,52	10	**198.504.11**
10	32	70	10	10	**198.100.11**
10	42	80	10	10	**198.101.11**
10	52	90	10	10	**198.102.11**
12	32	83	12	10	**198.120.11**

Technical details:
- Premium quality HWM.
- 1 spiral cutting edge [Z1].
- Provide an excellent finish on the lower side of the workpiece.
- **Upward chip ejection.**

Application:
used for cutting, copying, panel sizing and any routing applications on solid wood, wood composites, plastic materials and laminates. Use a high feed speed on well-clamped workpieces. Can be used on machining centres, point to point machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Solid Carbide Downcut Spiral Bits

new

198

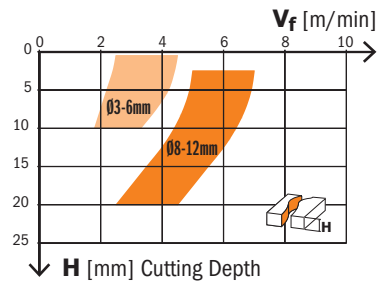
HWM Z1 RH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
6	27	60	6	10	**198.660.11**

Technical details:
- Premium quality HWM.
- 1 spiral cutting edge [Z1].
- Provide an excellent finish on the top side of the workpiece.
- **Upward chip ejection.**

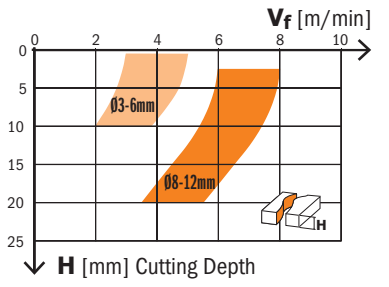
Application:
used for cutting, copying, panel sizing and any routing applications on solid wood, wood composites, plastic materials and laminates. Use a high feed speed on well-clamped workpieces. Can be used on machining centres, point to point machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Ø3-12mm Plastics, laminated



16000~18000 RPM

Ø3-12mm Softwood

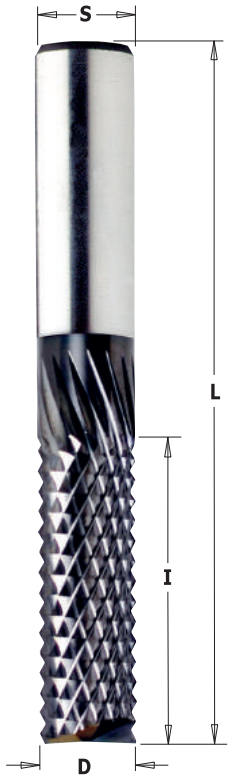


18000~24000 RPM
Correction factor for Vf:
Hardwood=0.9
Machining across grain=0.7
Chipboard=1.1

Solid surface and fiberglass bit

new

CMT ORANGE TOOLS®



151

XTREME PERFORMANCE — HWM — Z4 — RH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
6	19	50	6	10	**151.060.19E**
6,35	25,4	63,5	6,35	10	**151.064.25E**
8	25	63	8	10	**151.080.25E**
12	25	75	12	10	**151.120.25E**
12,7	38	89	12,7	10	**151.127.38E**

Technical details:
- Premium quality HWM
- Special positively ground cutting edge sharpening for excellent finish
- AlTiN coated

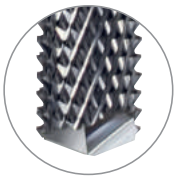
Application: for drilling, sizing and jointing fiberglass, phenolic and solid surfaces. Can be used on machining centres, point to point machines, CNC routers and hand held routers equipped with chucks or adaptors.

XTREME PERFORMANCE AlTiN COATING

AlTiN coating:
- Superb wear resistance
- Better chip clearance
- Superior cutting quality
- Less overheating
- More productivity

Solid surface and fiberglass bit

new



Sharpening 135°

151

XTREME PERFORMANCE — HWM — Z4 — RH

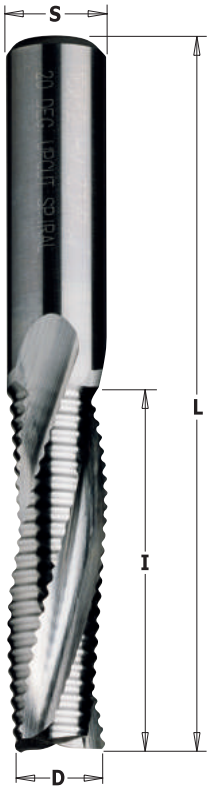
D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
6	19	50	6	10	**151.060.19D**
6,35	25,4	63,5	6,35	10	**151.064.25D**
8	25	63	8	10	**151.080.25D**
12	25	75	12	10	**151.120.25D**
12,7	38	89	12,7	10	**151.127.38D**

Technical details:
- Premium quality HWM
- Special positively ground cutting edge sharpening for excellent finish
- AlTiN coated

Application: for drilling, sizing and jointing fiberglass, phenolic and solid surfaces. The 135° tooth geometry allows vertical feeding minimizing the bending of the workpiece. Can be used on machining centres, point to point machines, CNC routers and hand held routers equipped with chucks or adaptors.

XTREME PERFORMANCE AlTiN COATING

AlTiN coating:
- Superb wear resistance
- Better chip clearance
- Superior cutting quality
- Less overheating
- More productivity



195

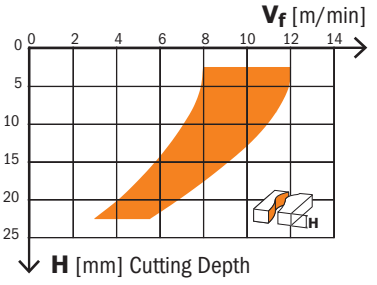
HWM | Z3R | RH | LH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
8	32	80	8	10	**195.081.11**	**195.081.12**
8	42	90	8	10	**195.082.11**	
10	32	80	10	10	**195.100.11**	**195.100.12**
10	42	90	10	10	**195.101.11**	
12	35	83	12	10	**195.120.11**	**195.120.12**
12	42	90	12	10	**195.121.11**	
12	52	100	12	10	**195.122.11**	
12,7	38,1	88,9	12,7	10	**195.506.11**	
14	58	110	14	1	**195.140.11**	
16	55	110	16	1	**195.160.11**	**195.160.12**
16	35	90	16	1	**195.161.11**	
16	72	120	16	1	**195.165.11**	
18	55	110	18	1	**195.180.11**	
20	60	120	20	1	**195.200.11**	**195.200.12**
20	72	120	20	1	**195.201.11**	
20	102	165	20	1	**195.202.11**	

Technical details:
- Premium quality HWM.
- 3 spiral cutting edges [Z3R].
- Chip breaker teeth.
- Max 0.3mm tooth depth.
- Provide an excellent finish on the lower side of the workpiece.
- **Upward chip ejection.**

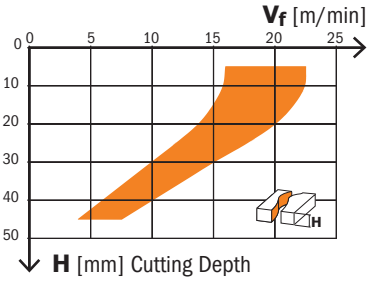
Application:
used for ripping, template routing, panel sizing and any routing application on solid wood, or wood composites. Can be used at a high feed speed on well-clamped workpieces.
Can be used on machining centres, point-to-point boring machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Ø8-10mm Softwood



18000 RPM
Correction factor for Vf:
Hardwood=0.8
Chipboard without coating=1.3

Ø12-20mm Softwood



18000 RPM
Correction factor for Vf:
Hardwood=0.8
Chipboard without coating=1.3

196

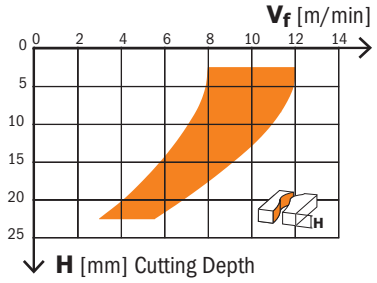
HWM | Z3R | RH | LH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
8	32	80	8	10	**196.081.11**	
10	42	90	10	10	**196.101.11**	
12	35	83	12	10	**196.120.11**	**196.120.12**
12	42	90	12	10	**196.121.11**	
12	52	100	12	10	**196.122.11**	
12,7	38,1	88,9	12,7	10	**196.506.11**	
14	50	110	14	1	**196.140.11**	
16	55	110	16	1	**196.160.11**	**196.160.12**
18	55	110	18	1	**196.180.11**	
20	60	120	20	1	**196.200.11**	**196.200.12**
20	72	120	20	1	**196.201.11**	

Technical details:
- Premium quality HWM.
- 3 spiral cutting edges [Z3R].
- Chip breaker teeth.
- Max 0.3mm tooth depth.
- Provide excellent finish on the upper side of the workpiece.
- **Downward chip ejection.**

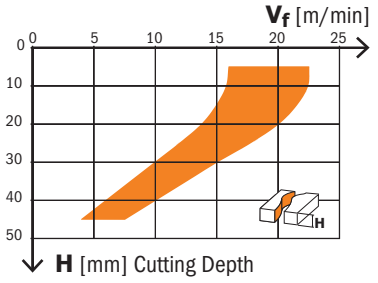
Application:
used for ripping, template routing, panel sizing and any routing application on solid wood and wood composites.
Can be used on machining centres, point-to-point boring machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Ø8-10mm Softwood

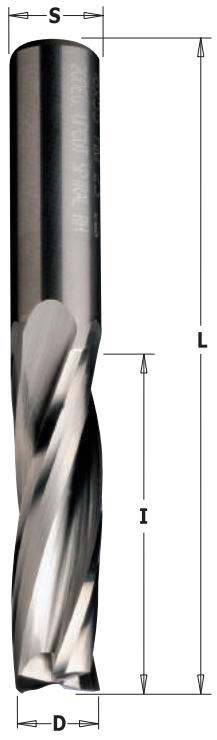


18000 RPM
Correction factor for Vf:
Hardwood=0.8
Chipboard without coating=1.3

Ø12-20mm Softwood



18000 RPM
Correction factor for Vf:
Hardwood=0.8
Chipboard without coating=1.3



193

HWM | Z3 | RH | LH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
8	32	80	8	10	**193.081.11**	**193.081.12**
10	32	80	10	10	**193.100.11**	**193.100.12**
10	42	90	10	10	**193.101.11**	
12	35	83	12	10	**193.120.11**	**193.120.12**
12	42	90	12	10	**193.121.11**	
12	52	100	12	10	**193.122.11**	
14	58	110	14	1	**193.140.11**	
16	55	110	16	1	**193.160.11**	**193.160.12**
16	35	90	16	1	**193.161.11**	
16	72	120	16	1	**193.165.11**	
18	55	110	18	1	**193.180.11**	
20	60	120	20	1	**193.200.11**	**193.200.12**
20	70	120	20	1	**193.201.11**	

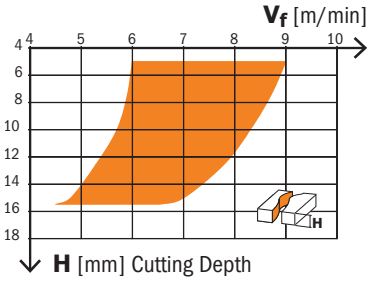
Technical details:

- Premium quality HWM.
- 3 spiral cutting edges [Z3].
- Provide an excellent finish on the lower side of the workpiece.
- **Upward chip ejection.**

Application:

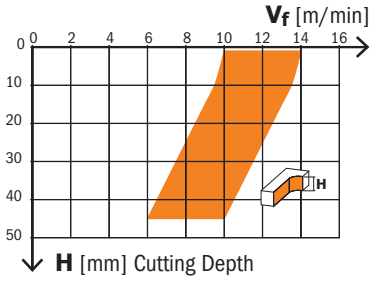
used for ripping, template routing, panel sizing and any routing application on solid wood, or wood composites. Can be used at a high feed speed on well-clamped workpieces.
Can be used on machining centres, point-to-point boring machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Ø12-14mm Plastics, laminated

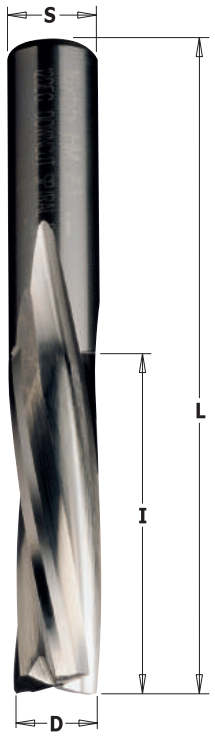


14000-18000 RPM

Ø12-20mm Softwood



18000 RPM
Jointing Cutting thickness 0.5-2mm
Correction factor for Vf:
Hardwood=0.9
Machining across grain=0.7



194

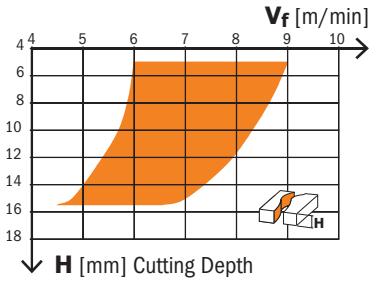
HWM | Z3 | RH | LH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
10	32	80	10	10	**194.100.11**	
10	42	90	10	10	**194.101.11**	
12	35	83	12	10	**194.120.11**	**194.120.12**
12	42	90	12	10	**194.121.11**	
14	50	110	14	1	**194.140.11**	
16	55	110	16	1	**194.160.11**	**194.160.12**
16	35	90	16	1	**194.161.11**	
18	55	110	18	1	**194.180.11**	
20	60	120	20	1	**194.200.11**	**194.200.12**
20	72	120	20	1	**194.201.11**	
20	102	165	20	1	**194.202.11**	

Technical details:
- Premium quality HWM.
- 3 spiral cutting edges [Z3].
- Provide an excellent finish on the upper side of the workpiece.
- **Downward chip ejection.**

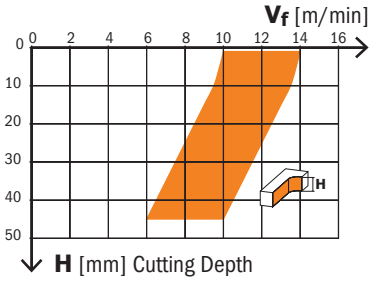
Application:
used for ripping, template routing, panel sizing and any routing application on solid wood, wood composites, plastic materials and laminates. Can be used at a high feed speed on small, difficult to clamp workpieces.
Can be used on machining centres, point-to-point boring machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Ø12-14mm Plastics, laminated

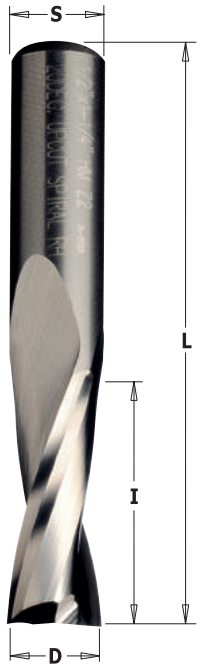


14000-18000 RPM

Ø12-20mm Softwood



18000 RPM
Jointing Cutting thickness 0.5-2mm
Correction factor for Vf:
Hardwood=0.9
Machining across grain=0.7

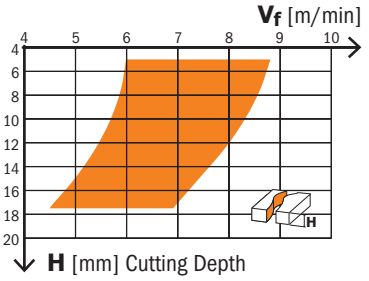


191

HWM Z2 RH

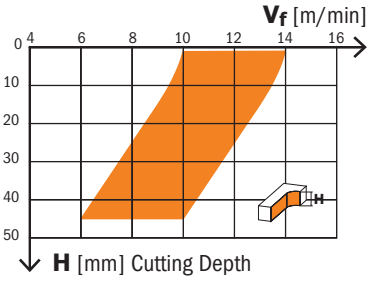
D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
3	12	50	3	10	**191.030.11**
3	12	60	6	10	**191.630.11**
3	12	60	8	10	**191.830.11**
3,18	12,7	50,8	6,35	10	**191.001.11**
3,5	12	60	6	10	**191.635.11**
3,97	12,7	50,8	6,35	10	**191.003.11**
4	15	50	4	10	**191.040.11**
4	15	60	6	10	**191.640.11**
4	15	60	8	10	**191.840.11**
4,76	19,05	50,8	6,35	10	**191.005.11**
5	17	50	5	10	**191.050.11**
5	17	60	6	10	**191.650.11**
5	17	60	8	10	**191.850.11**
6	27	70	6	10	**191.060.11**
6	27	70	8	10	**191.860.11**
6,35	19,05	50,8	6,35	10	**191.007.11**
6,35	25,4	63,5	6,35	10	**191.008.11**
7	32	80	8	10	**191.870.11**
7,94	25,4	76,2	12,7	10	**191.501.11**
8	22	70	8	10	**191.080.11**
8	32	80	8	10	**191.081.11**
8	42	90	8	10	**191.082.11**
9	32	83	12	10	**191.890.11**
9,52	31,75	76,2	12,7	10	**191.503.11**
10	32	80	8	10	**191.800.11**
10	32	80	10	10	**191.100.11**
10	32	83	12	10	**191.900.11**
10	42	90	10	10	**191.101.11**
10	42	90	12	10	**191.901.11**
12	35	83	8	10	**191.820.11**
12	35	83	12	10	**191.120.11**
12	42	90	12	10	**191.121.11**
12	52	100	12	10	**191.122.11**
12,7	31,75	76,2	12,7	10	**191.505.11**
12,7	38,1	88,9	12,7	10	**191.506.11**
12,7	50,8	101,6	12,7	10	**191.507.11**
14	50	110	14	1	**191.140.11**
16	55	110	16	1	**191.160.11**
16	35	90	16	1	**191.161.11**
16	72	120	16	1	**191.165.11**
20	72	120	20	1	**191.200.11**

Ø12-14mm Plastics,Laminated



14000~18000 RPM

Ø12-20mm Softwood



18000 RPM
Jointing Cutting thickness 0.5-2mm
Correction factor for Vf:
Hardwood=0.9
Machining across grain=0.7

Technical details:
- Premium quality HWM.
- 2 spiral cutting edges [Z2].
- Provide an excellent finish on the lower side of the workpiece.
- **Upward chip ejection.**

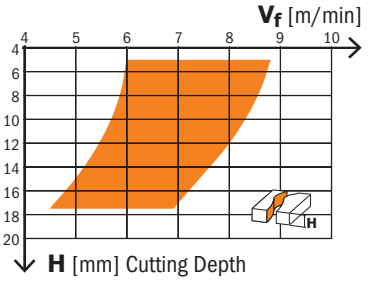
Application:
used for ripping, template routing, panel sizing and any routing application on solid wood, wood composites, plastic materials and laminates.
Can be used at a high feed speed on well-clamped workpieces.
Can be used on machining centres, point-to-point boring machines, CNC routers and hand-held routers equipped with chucks or adaptors.

192

HWM | Z2 | RH

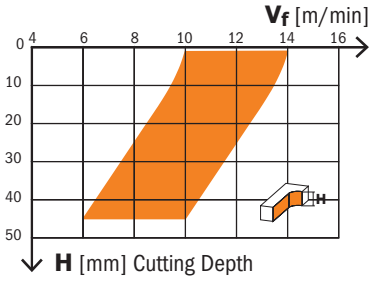
D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
3	12	50	3	10	**192.030.11**
3	12	60	6	10	**192.630.11**
3	12	60	8	10	**192.830.11**
3,18	12,7	50,8	6,35	10	**192.001.11**
3,97	12,7	50,8	6,35	10	**192.003.11**
4	15	50	4	10	**192.040.11**
4	15	60	6	10	**192.640.11**
4	15	60	8	10	**192.840.11**
4,76	19,05	50,8	6,35	10	**192.005.11**
5	17	50	5	10	**192.050.11**
5	17	60	6	10	**192.650.11**
5	17	60	8	10	**192.850.11**
6	27	70	6	10	**192.060.11**
6	27	70	8	10	**192.860.11**
6,35	19,05	50,8	6,35	10	**192.007.11**
6,35	25,4	63,5	6,35	10	**192.008.11**
7,94	25,4	76,2	12,7	10	**192.501.11**
8	22	70	8	10	**192.080.11**
8	32	80	8	10	**192.081.11**
8	42	90	8	10	**192.082.11**
9,52	31,75	76,2	12,7	10	**192.503.11**
10	32	80	8	10	**192.800.11**
10	32	80	10	10	**192.100.11**
10	42	90	10	10	**192.101.11**
10	32	83	12	10	**192.900.11**
12	35	83	8	10	**192.820.11**
12	35	83	12	10	**192.120.11**
12,7	31,75	76,2	12,7	10	**192.505.11**
12,7	38,1	88,9	12,7	10	**192.506.11**
12,7	50,8	101,6	12,7	10	**192.507.11**
14	52	110	14	1	**192.140.11**
16	55	110	16	1	**192.160.11**

Ø12-14mm Plastics, Laminated



14000-18000 RPM

Ø12-20mm Softwood

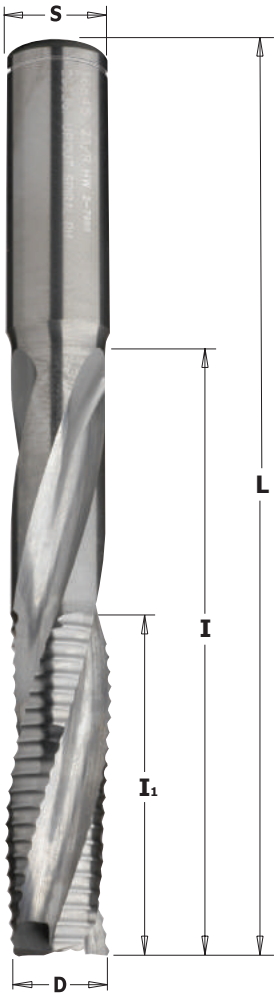


18000 RPM
Jointing Cutting thickness 0.5-2mm
Correction factor for Vf:
Hardwood=0.9
Machining across grain=0.7

Technical details:
- Premium quality HWM.
- 2 spiral edges [Z2].
- Provide an excellent finish on the upper side of the workpiece.
- **Downward chip ejection.**

Application:
used for ripping, template routing, panel sizing and any routing application on solid wood, wood composites, plastic materials and laminates.
Can be used at a high feed speed on small, difficult to clamp work pieces.
Can be used on machining centres, point-to-point boring machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Solid Carbide Upcut Spiral Bits for Locksets



195

HWM Z3R Z3 RH

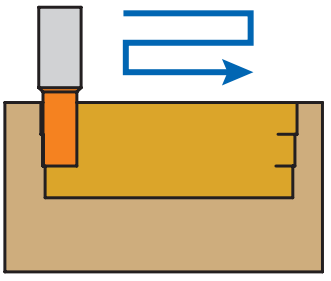
D mm	I mm	I1 mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
With Chip-Breaker						
14	95*	45	150	14	1	**195.142.11**
14	125*	45	170	14	1	**195.144.11**
16	95*	45	150	16	1	**195.162.11**
16	120*	50	170	16	1	**195.164.11**
18	95*	45	150	18	1	**195.182.11**
Without Chip-Breaker						
16	95*	45	150	16	1	**193.162.11**

*** The maximum cutting length is achieved in 2-3 passes.**

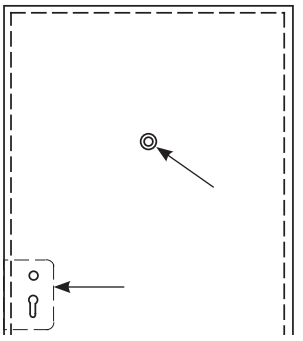
Technical details:
- Premium quality HWM.
- 3 spiral cutting edges [Z3] and [Z3R].
- Max 0.3mm tooth depth.
- Provide an excellent finish on the lower side of the workpiece.
- Seat for seeger ring *(not included)*.
- **Upward chip ejection.**

Application:
used for ripping, template routing, panel sizing and any routing application on solid wood, or wood composites. Can be used at a high feed speed on well-clamped workpieces. Can be used on machining centres, point-to-point boring machines, CNC routers and hand-held routers equipped with chucks or adaptors.

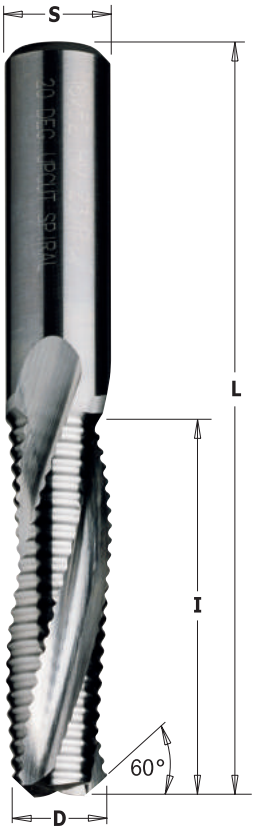
Machining Deep Slots Guide



Reducing the slot cutting width by approx 0.1mm per stroke reduces the risk of breakage as the tool does not touch the side of the slot with the full length of the tool.



Solid Carbide Upcut with Spiral Bits Chip-Breaker for 60° V-Point Locksets



195.143/163

HWM Z3R RH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
14	58	110	14	1	**195.143.11**
16	55	110	16	1	**195.163.11**

Solid Carbide Upcut Spiral Bits without Chip-Breaker for 60° V-Point Locksets

191.143/163

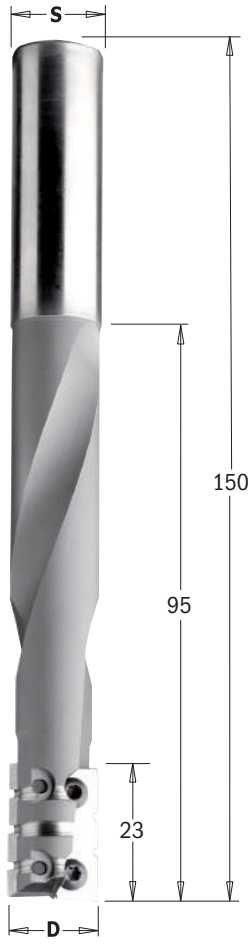
HWM Z3 RH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
14	50	110	14	1	**191.143.11**
16	55	110	16	1	**191.163.11**

Technical details:
- Premium quality HWM.
- 3 spiral cutting edges [Z3].
- Provide an excellent finish on the lower side of the workpiece.
- **Upward chip ejection.**

Application:
used for ripping, template routing, panel sizing and any routing application on solid wood, or wood composites. Can be used at a high feed speed on well-clamped workpieces.
Can be used on machining centres, point-to-point boring machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Spiral Bits with Insert Knives & Chip-Breaker for Locksets



662

INSERT CARBIDE | Z2R | RH | 2X LONGER LIFE

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
16	23/95*	150	16	1	**662.160.11**

Spare parts

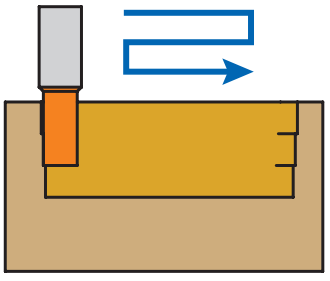
790.230.2R	23x7x1.5mm 2-RT HWM knives (Minimum 10 pieces or multiple)
790.230.2R-X2	23x7x1.5mm 2-RT HWM knives (2-piece pack)
790.230.3R	23x7x1.5mm 3-RT HWM knives (Minimum 10 pieces or multiple)
790.230.3R-X2	23x7x1.5mm 3-RT HWM knives (2-piece pack)
990.082.00	M3x4x5.7mm T8 Torx TCPTI screw
991.063.00	T8 Torx key

*** The 95mm length is achieved in 4-5 passes.**

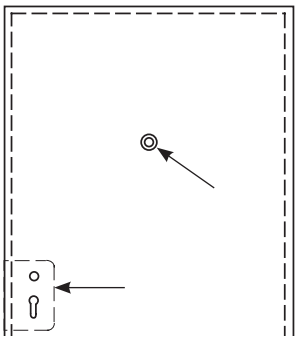
Technical details:
- Densimet® tungsten heavy metal alloys for low-vibration.
- 2 cutting edges [Z2R].
- Chip-breaker teeth.

Application:
used for ripping, template routing, panel sizing and any routing application on solid wood, or wood composites. Can be used at a high feed speed on well-clamped workpieces.
Can be used on machining centres, point-to-point boring machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Machining Deep Slots Guide



Reducing the slot cutting width by approx 0.1mm per stroke reduces the risk of breakage as the tool does not touch the side of the slot with the full length of the tool.



Upcut Spiral Bits with Chipbreaker for Glue-Laminated Wooden Beams

195

HSS | Z3R | RH

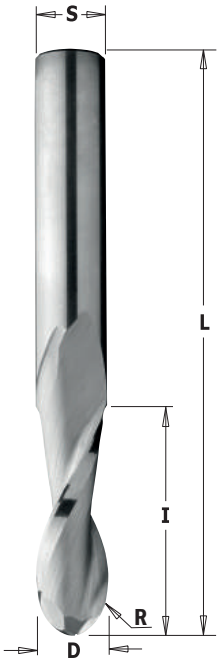
D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
□ 30	170	235	30	1	**Y195.300.51**
40	165	235	30	1	**195.400.51**
50	215	295	30	1	**195.500.51**

□ **On request**
We manufacture bits without chipbreaker, with left-hand rotation and also in custom dimensions.

Technical details:
- High speed cobalt steel.
- 3 upcut spiral cutting edges with chipbreaker [Z3R].
- Resharpenable cutters.
- Max 6000~10000 RPM.
- Maximum feed speed 2m/minute.
- **Upward chip ejection.**

Application:
used for cutting, copying, and routing on glue-laminated wooden beams.
For use on Hundegger machines.

Round Nose Solid Carbide Upcut Spiral Bits



199

HWM | Z2 | RH

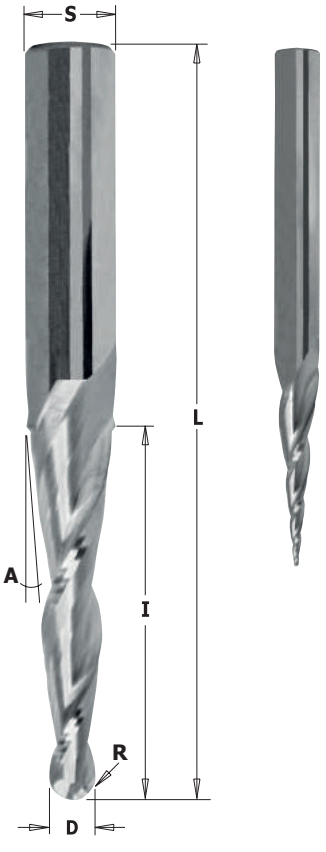
D mm	R mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
3,18	1,6	12,7	50,8	6,35	10	**199.001.11**
6	3	27	70	6	10	**199.060.11**
6,35	3,18	25,4	63,5	6,35	10	**199.008.11**
8	4	32	80	8	10	**199.081.11**
9,52	4,76	28,57	76,2	9,52	10	**199.504.11**
10	5	32	80	10	10	**199.100.11**
12	6	35	80	12	10	**199.120.11**
12,7	6,35	31,75	76,2	12,7	10	**199.505.11**
15,88	7,94	57,15	109,5	15,88	1	**199.509.11**
16	8	55	110	16	1	**199.160.11**
19,05	9,52	57,15	109,5	19,05	1	**199.511.11**

Technical details:
- Premium quality HWM.
- 2 upcut spiral cutting edges [Z2].
- Excellent finish on the lower side of the work piece.
- **Upward chip ejection.**

Application:
used for ripping, template routing, panel sizing and any routing application on solid wood, wood composites, plastic materials and laminates. Can be used at a high feed speed on well-clamped workpieces. For use on machining centers, point-to-point boring machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Solid Carbide Upcut 2D/3D Carving Tapered Ball Nose Spiral Bits

new



152

HWM | Z2 | Z3 | RH

D mm	R mm	A	I mm	L mm	S mm	Z	Pack Qty.	ORDER NO. Right-hand rotation
0,8	0,4	5,5°	25	70	6	3	10	**152.060.082**
0,8	0,4	6,2°	25,4	76,2	6,35	3	10	**152.064.082**
1,6	0,8	4,5°	25	70	6	3	10	**152.060.162**
1,6	0,8	5,4°	25,4	76,2	6,35	3	10	**152.064.162**
1,6	0,8	5,5°	30	80	8	3	10	**152.080.163**
2	1	3°	80	120	12	2	10	**152.120.208**
3,2	1,6	2,5°	30	70	6	3	10	**152.060.323**
3,2	1,6	3,6°	25,4	76,2	6,35	3	10	**152.064.322**
3,2	1,6	2,5°	50	90	8	3	10	**152.080.325**
6	3	3°	50	100	12	2	10	**152.120.605**
6,4	3,2	3°	50,8	101,6	12,7	2	10	**152.127.635**

Technical details:
- Premium quality HWM.
- Upcut spiral cutting edges [Z2/Z3].
- **Excellent finish on the lower side of the work piece.**
- Upward chip ejection.

Application: specially designed for 2D and 3D CNC profiling and carving in plastic, aluminum & wood for several uses like:
- A perfect bit for 3D carving
- Precision 2D and 3D large scale carving
- Great for deep profiling
- Dimensional signage
- 3D millwork
- 2D and 3D contouring, profiling, modeling and pattern making for cabinetry, sign making, furniture making and jewelry mold making
- Perfect for model-makers on large 3D milling profiles in abrasive EPS foam and other materials.
- **Ideal on aluminum, plastic and wood-based materials.**

Excellent for cutting:
- Acrylonitrile-Butadiene-Styrene (ABS)
- Acrylic
- Acrylic Stone
- Aluminum
- Brass
- Bronze
- Composite
- Copper
- Corian®
- Coroplast®
- Dibond®
- Ethafoam®
- Ethylene-vinyl Acetate Foam (EVA)
- Expanded Polypropylene (EPP)
- Expanded Polystyrene Foam (EPS)
- Extruded Polystyrene Foam (XPS)
- Fiberglass
- Fiberglass PCB Board
- Foam Board
- Graphite
- HDPE
- HDU
- 20lbs High Density Urethane
- Lexan®
- MDF/HDF
- PALFOAM™
- Phenolics
- Phenolic Composites
- Plastics
- Poly (methyl methacrylate) (PMMA)
- Polyethylene Foam
- Polylam®
- Polyurethane Foam
- PVC
- PVC Foam Board
- Sign Board
- Sign Foam
- Titanium
- Tooling Board
- Wood
- XPE (Cross Linked Polyethylene) Foam

Tips for Milling Plastics
- pay attention to heat input
- pay attention to chip-loads when using small diameters
- use air-blast to keep chip away and cooling the tool

DP Router Cutters with Shear Angle for Nesting (Densimet® Tungsten Heavy Metal Alloys)

143

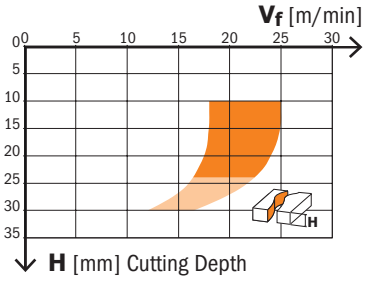
DP | Z3 | RH | 40X LONGER LIFE THAN CARBIDE

D mm	I mm	L mm	S mm	Z	Pack Qty.	ORDER NO. Right-hand rotation
12	25	70	12x40	3 (9 DP)	1	**143.120.61**
12	31	80	12x40	3 (12 DP)	1	**143.121.61**

Technical details:
- Densimet® tungsten heavy metal alloys for low-vibration.
- DP cutting edge (H2,5).
- Resharpenable cutter (max 6 times).

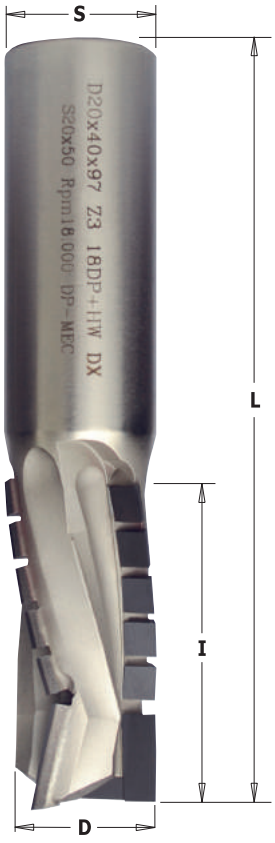
Application:
to be used on all CNC routers for jointing, rabbeting, grooving, copying and dividing cuts of raw material, melamine and laminates, MDF, HPL and veneered panels.
High performance on pre-and finish-routing.

Ø12mm Plastic Coated Chipboard



24000 RPM
Correction factor for Vf: MDF=0.8
Pre-trimming MDF=1.2
Uncoated Chipboard=1.1
Veneer across grain=0.7

DP Spiral Router Cutters with Shear Angle



143

DP | Z3 | RH | 40X LONGER LIFE THAN CARBIDE

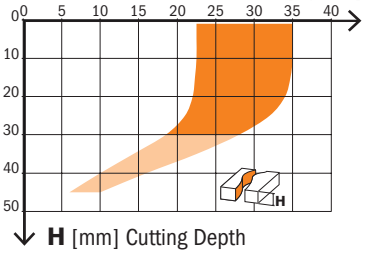
D mm	I mm	L mm	S mm	Z	Pack Qty.	ORDER NO. Right-hand rotation
18	25	82	20x50	3 (10 DP+1 HW)	1	**143.180.61**
18	30	87	20x50	3 (13 DP+1 HW)	1	**143.181.61**
18	35	92	20x50	3 (15 DP+1 HW)	1	**143.182.61**
20	25	82	20x50	3 (10 DP+1 HW)	1	**143.200.61**
20	30	85	20x50	3 (13 DP+1 HW)	1	**143.201.61**
20	35	92,5	20x50	3 (15 DP+1 HW)	1	**143.202.61**
20	40	97	20x50	3 (18 DP+1 HW)	1	**143.203.61**
20	45	102	20x50	3 (21 DP+1 HW)	1	**143.204.61**
20	50	106,5	20x50	3 (24 DP+1 HW)	1	**143.205.61**
20	55	111	20x50	3 (27 DP+1 HW)	1	**143.206.61**
20	60	116,5	20x50	3 (30 DP+1 HW)	1	**143.207.61**
20	65	121,5	20x50	3 (31 DP+1 HW)	1	**143.208.61**
22	30	92	25x50	3 (13 DP+1 HW)	1	**143.220.61**
☐ 22	35	97	25x50	3 (15 DP+1 HW)	1	**143.221.61**
22	40	102	25x50	3 (18 DP+1 HW)	1	**143.222.61**
☐ 22	45	107	25x50	3 (21 DP+1 HW)	1	**143.223.61**
22	50	112	25x50	3 (24 DP+1 HW)	1	**143.224.61**
☐ 22	55	117	25x50	3 (27 DP+1 HW)	1	**143.225.61**
22	60	122	25x50	3 (30 DP+1 HW)	1	**143.226.61**
☐ 22	65	127	25x50	3 (31 DP+1 HW)	1	**143.227.61**
☐ 22	70	132	25x50	3 (36 DP+1 HW)	1	**143.228.61**

☐ **On request**

Technical details:
- Super strength steel.
- DP cutting edge (H4).
- HW plunging tip for diagonal plunge-cutting (Z-axis tool entrance).
- Resharpenable cutter (max 10/12 times).

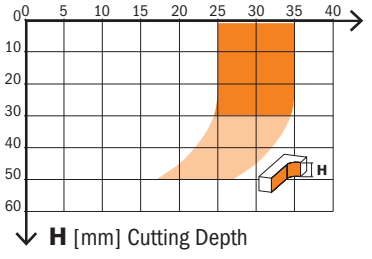
Application:
to be used on all CNC routers for jointing, rabbeting, grooving, copying and dividing cuts of raw material, melamine and laminates, MDF, HPL and veneered panels. High performance on pre-and finish-routing.

Ø18-20mm Plastic Coated Chipboard



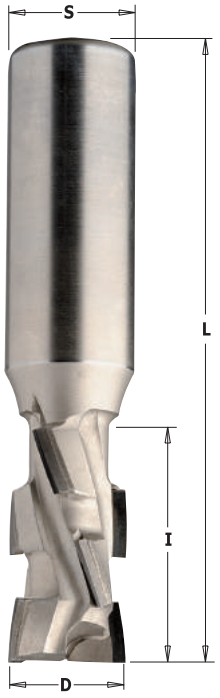
24000 RPM
Correction factor for Vf: MDF=0.8
Paper coated=0.8

Ø20-22mm Plastic Coated Chipboard



24000 RPM
Jointing Cutting thickness=0.5-6mm
Correction factor for Vf: MDF=0.9
Paper coated=0.8
Veneer across grain=0.8

DP Router Cutters with Shear Angle



142

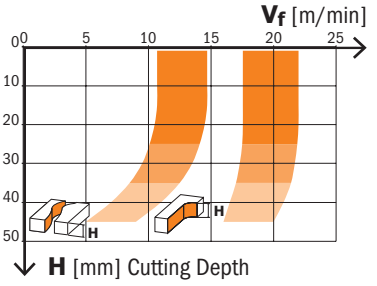
DP | Z2+2 | RH | 40X LONGER LIFE THAN CARBIDE

D mm	I mm	L mm	S mm	Z	Pack Qty.	ORDER NO. Right-hand rotation
20	27	85	20x50	2+2 (6 DP+1 HW)	1	**142.200.61**
20	36	95	20x50	2+2 (8 DP+1 HW)	1	**142.201.61**
20	45	105	20x50	2+2 (10 DP+1 HW)	1	**142.202.61**
20	55	115	20x50	2+2 (12 DP+1 HW)	1	**142.203.61**
25	27	90	25x55	2+2 (6 DP+1 HW)	1	**142.250.61**
25	36	100	25x55	2+2 (8 DP+1 HW)	1	**142.251.61**
25	45	110	25x55	2+2 (10 DP+1 HW)	1	**142.252.61**
25	55	120	25x55	2+2 (12 DP+1 HW)	1	**142.253.61**

Technical details:
- Super strength steel.
- DP cutting edge (H2,5).
- HW plunging tip for diagonal plunge-cutting (Z-axis tool entrance).
- Resharpenable cutter (max 3 times).

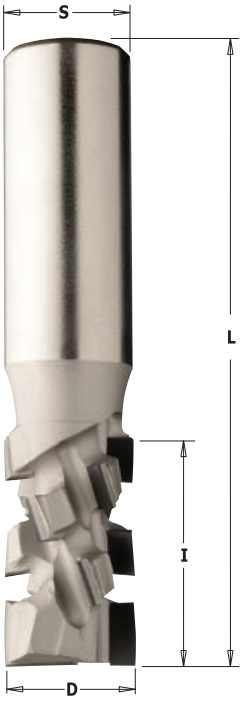
Application:
to be used on all CNC routers for jointing, rabbeting, grooving, copying and dividing cuts of raw material, melamine and laminates, MDF, HPL and veneered panels.

Ø20-25mm Plastic Coated Chipboard



18000 RPM
Jointing Cutting thickness=0.5-2mm
Correction factor for Vf: MDF=0.6
Veneer acreoss grain=0.7

DP Router Cutters with 20° Shear Angle



142

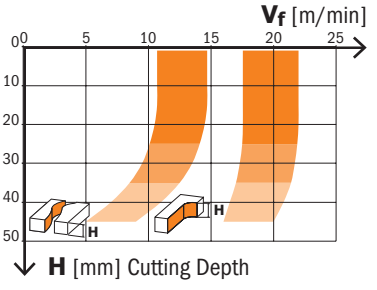
DP | Z2+2 | RH | 40X LONGER LIFE THAN CARBIDE

D mm	I mm	L mm	S mm	Z	Pack Qty.	ORDER NO. Right-hand rotation
20	25	85	20x45	2+2 (8 DP+1 HW)	1	**142.720.61**
20	30	90	20x45	2+2 (10 DP+1 HW)	1	**142.721.61**
20	35	95	20x45	2+2 (12 DP+1 HW)	1	**142.722.61**
20	40	100	20x45	2+2 (14 DP+1 HW)	1	**142.723.61**
20	45	105	20x45	2+2 (16 DP+1 HW)	1	**142.724.61**
20	50	110	20x45	2+2 (18 DP+1 HW)	1	**142.725.61**
20	55	115	20x45	2+2 (20 DP+1 HW)	1	**142.726.61**

Technical details:
- Super strength steel.
- Diamond cutting edgesf featuring 20° shear angle (H4).
- HW plunging tip for diagonal plunge-cutting (Z-axis tool entrance).
- Resharpenable cutters (max 8-10 times).

Application:
used on all CNC routers for jointing, rabbeting, grooving, copying and dividing raw material, melamine, laminated, MDF, HPL and veneered panels.

Ø20-25mm Plastic Coated Chipboard



18000 RPM
Jointing Cutting thickness 0.5-2mm
Correction factor for Vf: MDF=0.6
Veneer acreoss grain = 0.7

DP Router Cutters with Shear Angle

140

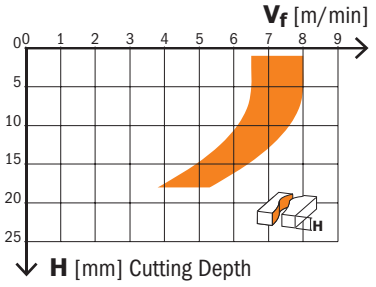
DP | Z1+1 | RH | 40X LONGER LIFE THAN CARBIDE

D mm	I mm	L mm	S mm	Z	Pack Qty.	ORDER NO. Right-hand rotation
10	25	72	12x40	1+1 (3 DP+1 HW)	1	**140.03956**
12	27	75	12x40	1+1 (3 DP+1 HW)	1	**140.120.61**
12	35	85	12x40	1+1 (4 DP+1 HW)	1	**140.121.61**
12,7	27	75	12,7x40	1+1 (3 DP+1 HW)	1	**140.127.61**
12,7	35	85	12,7x40	1+1 (4 DP+1 HW)	1	**140.128.61**
15,87	27	85	15,87x50	1+1 (3 DP+1 HW)	1	**140.158.61**
15,87	45	103	15,87x50	1+1 (5 DP+1 HW)	1	**140.159.61**
16	27	85	16x50	1+1 (3 DP+1 HW)	1	**140.160.61**
16	35	93	16x50	1+1 (4 DP+1 HW)	1	**140.161.61**
18	27	85	20x50	1+1 (3 DP+1 HW)	1	**140.180.61**
18	35	95	20x50	1+1 (4 DP+1 HW)	1	**140.181.61**
18	45	105	20x50	1+1 (5 DP+1 HW)	1	**140.182.61**
19,05	27	85	19,05x50	1+1 (3 DP+1 HW)	1	**140.190.61**
19,05	45	105	19,05x50	1+1 (5 DP+1 HW)	1	**140.192.61**
20	27	85	20x50	1+1 (3 DP+1 HW)	1	**140.200.61**
20	35	95	20x50	1+1 (4 DP+1 HW)	1	**140.201.61**
20	45	105	20x50	1+1 (5 DP+1 HW)	1	**140.202.61**
20	55	115	20x50	1+1 (6 DP+1 HW)	1	**140.203.61**

Technical details:
- Super strength steel.
- DP cutting edge (H2,5).
- HW plunging tip for diagonal plunge-cutting (Z-axis tool entrance).
- Resharpenable cutter (max 3 times).

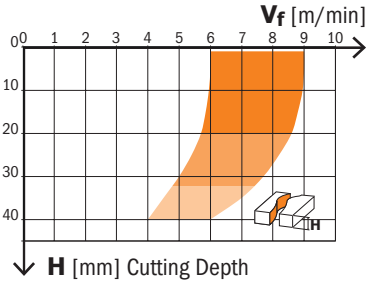
Application:
to be used on all CNC routers for jointing, rabbeting, grooving and copying of raw material, melamine and laminates, MDF, HPL and veneered panels.

Ø10-12,7mm Plastic Coated Chipboard



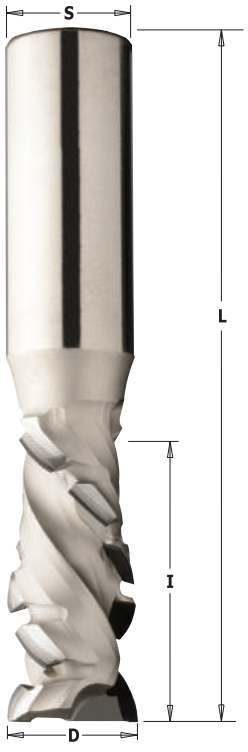
24000 RPM
Correction factor for Vf: MDF=0.8
Veneer acreoss grain=0.7
Chipboard without coating=1.1

Ø15,87-20mm Plastic Coated Chipboard



18000 RPM
Correction factor for Vf: MDF=0.8
Veneer acreoss grain=0.7
Chipboard without coating=1.1

DP Router Cutters with 45° Shear Angle



140

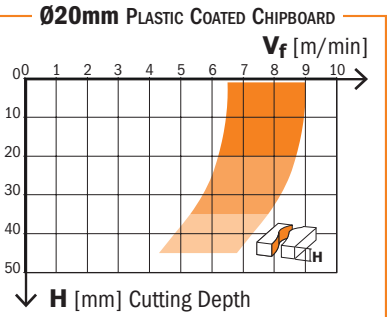
DP | Z1+1 | RH | 40X LONGER LIFE THAN CARBIDE

D mm	I mm	L mm	S mm	Z	Pack Qty.	ORDER NO. Right-hand rotation
20	25	85	20x50	1+1 (6 DP+1 HW)	1	**140.720.61**
20	35	95	20x50	1+1 (8 DP+1 HW)	1	**140.721.61**
20	45	105	20x50	1+1 (9 DP+1 HW)	1	**140.722.61**

Technical details:
- Super strength steel.
- Diamond cutting edgesf featuring 45° shear angle (H4).
- HW plunging tip for plunge cutting.
- Resharpenable cutters (max 8-9 times).

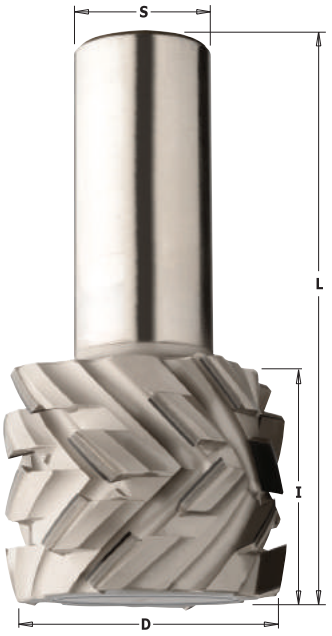
Application:
to be used on all CNC routers for jointing, rabbeting, grooving and copying of raw material, melamine and laminates, MDF, HPL and veneered panels.

Ø20mm Plastic Coated Chipboard



18000 RPM
Correction factor for Vf: MDF=0.8
Veneer acreoss grain=0.7
Chipboard without coating=1.1

DP Router Cutters with 40° Shear Angle



145

DP | Z3+3 | Z4+4 | RH | 40X LONGER LIFE THAN CARBIDE

D mm	I mm	L mm	S mm	Z	Pack Qty.	ORDER NO. Right-hand rotation
☐ 50	23	80	25x55	3+3 (9 DP)	1	**145.501.61**
☐ 50	23	80	25x55	4+4 (12 DP)	1	**145.511.61**
☐ 50	28	85	25x55	3+3 (12 DP)	1	**145.502.61**
☐ 50	28	85	25x55	4+4 (16 DP)	1	**145.512.61**
☐ 50	38	95	25x55	3+3 (18 DP)	1	**145.503.61**
☐ 50	38	95	25x55	4+4 (24 DP)	1	**145.513.61**

☐ **On request**

Technical details:
- Super strength steel.
-"H4" diamond cutting edgesf featuring 40° shear angle.
- Resharpenable cutters (max 8-10 times).
- Maximum feed speed 30m/minute.

Application:
used on all CNC routers for jointing, rabbeting, grooving, copying and dividing raw material, melamine, laminated, MDF, HPL and veneered panels. High performance routing.

DP Router Cutters with Negative Shear Angle

141 (HWM tool body)

DP | Z1 | RH | 40X LONGER LIFE THAN CARBIDE

D mm	I mm	L mm	S mm	Z	Pack Qty.	ORDER NO. Right-hand rotation
6	10	60	6	1 neg.	1	**141.260.61**
8	15	65	8	1 neg.	1	**141.280.61**
10	15	65	10	1 neg.	1	**141.300.61**
12	20	70	12	1 neg.	1	**141.320.61**

Negative Cutting Edge

Technical details:
- Special super-micrograin carbide formulation
- Straight cutting edge.
- DP (H3).
- Resharpenable cutter (max 3 times).
- Feed speed on MDF 3-4 m/min for cutter Ø6 and Ø8mm and 4-5m/minute for Ø10and Ø12mm

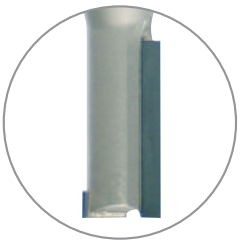
Application:
to be used on all CNC routers for jointing and sizing of solid wood and wood-based panels.

DP Router Cutters

141

DP | Z1+1 | Z1 | RH | 40X LONGER LIFE THAN CARBIDE

D mm	I mm	L mm	S mm	Z	Pack Qty.	ORDER NO. Right-hand rotation
6	8	65	12x40	1	1	**141.060.61**
8	12	65	12x40	1	1	**141.080.61**
*10	22	75	12x40	1+1	1	**141.101.61**



*** Construction Z1+1 for 141.101.61 item**

Technical details:
- Super strength steel.
- DP cutting edge (H2,5).
- HW plunging tip for diagonal plunge-cutting.
- Resharpenable cutter (max 3 times).
- Max feed speed 4 m/min.

Application:
to be used on all CNC routers for jointing and sizing of solid wood and wood-based panels.

Solid Carbide Router Cutters

174

HWM | Z2+1 | RH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
3	10	55	8	10	**174.030.11**
4	10	55	8	10	**174.040.11**
5	12	55	8	10	**174.050.11**
6	14	55	8	10	**174.060.11**
7	20	55	8	10	**174.070.11**

Technical details:
- Premium quality HWM.
- 2 radial relief cutting edges [Z2].

Router Cutters

174

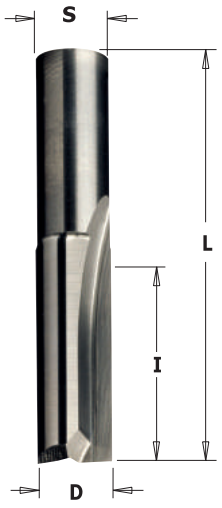
HW | Z2+1 | RH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
8	20	55	8	10	**174.080.11**
8	30	70	8	10	**174.081.11**
8	40	90	8	10	**174.082.11**
9	20	55	8	10	**174.090.11**
10	20	60	8	10	**174.100.11**
10	30	70	8	10	**174.102.11**
10	40	90	8	10	**174.101.11**
11	20	60	8	10	**174.110.11**
12	20	60	8	10	**174.120.11**
12	30	70	8	10	**174.122.11**
12	40	90	8	10	**174.121.11**
13	20	60	8	10	**174.130.11**
14	20	60	8	10	**174.140.11**
14	30	70	8	10	**174.142.11**
14	40	90	8	10	**174.141.11**
15	20	60	8	10	**174.150.11**
16	20	70	8	10	**174.160.11**
16	30	70	8	10	**174.162.11**
16	40	90	8	10	**174.161.11**
18	20	70	8	10	**174.180.11**
18	30	70	8	10	**174.181.11**
18	40	80	8	10	**174.182.11**
19	20	70	8	10	**174.190.11**
20	20	70	8	10	**174.200.11**
20	30	70	8	10	**174.201.11**
20	40	90	8	10	**174.202.11**
22	20	70	8	10	**174.220.11**
22	30	70	8	10	**174.221.11**
22	40	90	8	10	**174.222.11**
new 23,5	20	70	8	10	**174.235.11**
24	20	70	8	10	**174.240.11**
24	30	70	8	10	**174.241.11**
24	40	90	8	10	**174.242.11**
25	20	70	8	10	**174.250.11**
26	20	70	8	10	**174.260.11**
26	30	70	8	10	**174.261.11**
28	20	70	8	10	**174.280.11**
28	30	70	8	10	**174.281.11**
29	20	70	8	10	**174.290.11**
30	20	70	8	10	**174.300.11**

HW plunge centre tip

Technical details:
- Super strength steel.
- 2 precision ground HW cutting edges and 1 HW plunge centre tip [Z2+1].

Application:
used for drilling, grooving or jointing on solid wood and wood composites.
Can be used on machining centres, CNC routers and hand-held routers equipped with chucks or adaptors.



HW plunge centre tip

112

HW HWM Z2+1 RH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
3	10	48	9,5	50	**112.030.11**
4	10	48	9,5	50	**112.040.11**
5	12	39	9,5	50	**112.050.11**
6	14	41	9,5	50	**112.060.11**
7	16	43	9,5	50	**112.070.11**
8	18	48	9,5	50	**112.080.11**
8	30	60	9,5	50	**112.081.11**
9	20	52	9,5	50	**112.090.11**
10*	22	52	9,5	50	**112.100.11**
10*	35	65	9,5	50	**112.101.11**
11*	26	52	9,5	10	**112.110.11**
12*	26	52	9,5	10	**112.120.11**

*** Super strength steel**
2 precision ground HW cutting edges [Z2+1]

Technical details:
- Premium quality HWM.
- 2 radial relief cutting edges [Z2+1].

Router Cutters

HW plunge centre tip

113

HW Z2+1 RH

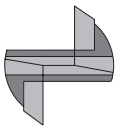
D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
12	26	52	12	10	**113.120.11**
12	40	70	12	10	**113.121.11**
13	26	52	12	10	**113.130.11**
14	28	56	12	10	**113.140.11**
14	40	72	12	10	**113.141.11**
15	32	60	12	10	**113.150.11**
16	32	60	12	10	**113.160.11**
16	40	72	12	10	**113.161.11**
17	35	64	12	10	**113.170.11**
18	35	64	12	10	**113.180.11**
19	38	68	12	1	**113.190.11**
20	38	68	12	1	**113.200.11**
22	40	72	12	1	**113.220.11**
24	40	72	12	1	**113.240.11**
25	40	72	12	1	**113.250.11**
26	42	74	12	1	**113.260.11**
28	42	74	12	1	**113.280.11**
30	42	74	12	1	**113.300.11**

Technical details:
- Super strength steel.
- 2 precision ground HW cutting edges and 1 HW plunge centre tip [Z2+1].

Application:
used for grooving, jointing and routing on solid wood, wood composites, plastic materials and laminates.

CMT ORANGE TOOLS®

HW plunge centre tip



175

HW | HWM | Z2+1 | RH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
• 4	10	65	10	50	**175.040.11**
• 5	12	65	10	50	**175.050.11**
• 6	14	65	10	50	**175.060.11**
• 7	17	65	10	50	**175.070.11**
8	20	65	10	50	**175.080.11**
10	25	70	10	50	**175.100.11**
12	25	70	10	10	**175.120.11**
14	25	70	10	10	**175.140.11**
15	25	70	10	10	**175.150.11**
16	25	70	10	10	**175.160.11**
18	25	70	10	10	**175.180.11**
20	25	70	10	10	**175.200.11**
22	25	70	10	10	**175.220.11**
24	25	70	10	10	**175.240.11**
25	25	70	10	10	**175.250.11**
26	25	70	10	10	**175.260.11**
30	25	70	10	10	**175.300.11**
35	25	70	10	10	**175.350.11**

• **HWM**

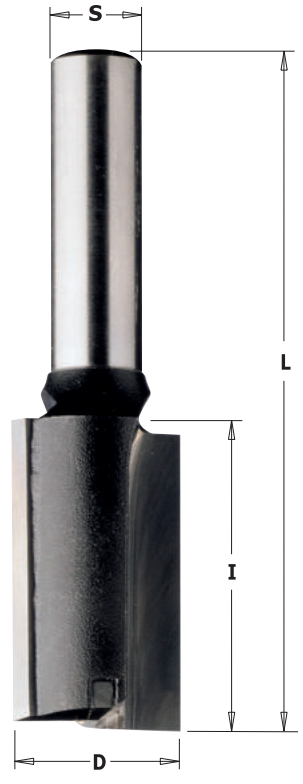
176

HW | Z2+1 | RH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
10	40	87	10	10	**176.100.11**
12	40	87	10	10	**176.120.11**
14	40	87	10	10	**176.140.11**
15	40	87	10	10	**176.150.11**
16	40	87	10	10	**176.160.11**
18	40	87	10	10	**176.180.11**
20	40	87	10	10	**176.200.11**

Technical details:
- Premium quality HWM.
- 2 radial relief cutting edges [Z2].
- 1 HW [Z1] plunge centre tip.

Application:
for grooving, jointing and routing on solid wood, wood composites, plastic materials and laminates.



177

HW | Z2+1 | RH

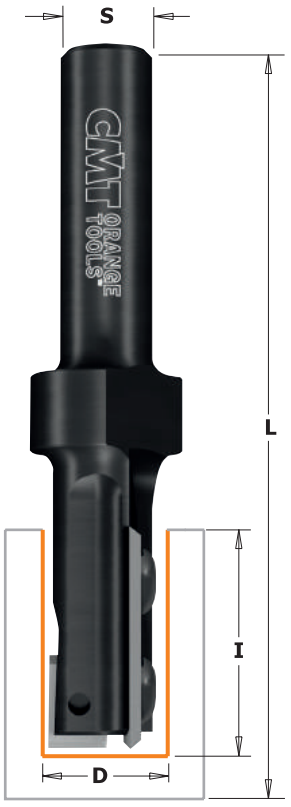
D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
10	35	90	12	10	**177.100.11**
12	35	90	12	10	**177.120.11**
12	50	100	12	10	**177.121.11**
14	35	90	12	10	**177.140.11**
16	35	90	12	10	**177.160.11**
16	60	110	12	10	**177.161.11**
18	35	90	12	10	**177.180.11**
18	60	110	12	10	**177.181.11**
20	35	90	12	10	**177.200.11**
22	35	90	12	10	**177.220.11**
24	35	90	12	10	**177.240.11**
25	35	90	12	10	**177.250.11**
26	35	90	12	10	**177.260.11**
28	35	90	12	10	**177.280.11**
30	35	90	12	10	**177.300.11**
35	35	90	12	10	**177.350.11**

Technical details:
- Super strength steel.
- 2 precision ground HW cutting edges and 1 HW plunge centre tip [Z2+1].

Application:
used for grooving, jointing and general routing operation on solid wood, wood composites, plastics and laminates. Can be used on machining centres, CNC routers and hand-held routers.

HW plunge centre tip

Straight Router Cutters with Insert Knives



653

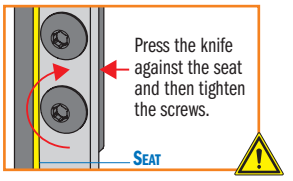
INSERT CARBIDE · MEC · Z1+1 · RH · 2X LONGER LIFE

D mm	I mm	L mm	S mm	Spare Knives side	Spare Knives top	Pack Qty.	ORDER NO. Right-hand rotation
16	28,3	92	20	790.283.12	790.075.00	10	**653.661.11**
16	48,3	111,5	20	790.483.12	790.075.00	10	**653.662.11**
18	48,3	111,5	20	790.483.12	790.075.00	10	**653.681.11**
20	48,3	111,5	20	790.483.12	790.096.00	10	**653.701.11**

Spare parts

790.075.00	7,5x12x1,5mm knife (In 10-piece pack or multiple)
790.096.00	9,6x12x1,5mm knife (In 10-piece pack or multiple)
790.283.12	28,3x12x1,5mm knife (In 10-piece pack or multiple)
790.483.12	48,3x12x1,5mm knife (In 10-piece pack or multiple)
990.072.00	M3,5x3,5mm Torx screw
990.074.00	M4x3,5mm Torx screw
990.075.00	M4x6mm Torx screw
991.061.00	T15 Torx key

CORRECT KNIFE POSITIONING



TECHNICAL DETAILS:
- Super strength steel.
- 2 cutting edges [Z1+1].

APPLICATION:
straight router bit with one replaceable plunging knife and one-sided knife fixed by special Torx screws. The body is precision balanced. For finishing and routing, plunge cutting and grooving in board materials (laminated chipboards, MDF) and hardwood.
For use on CNC machining centres.

Spoilboard Surfacing Router Cutters with Insert Knives

663

INSERT CARBIDE · MEC · Z3 · RH · 4X LONGER LIFE

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation	Spare parts	
60	12	80	12x50	1	**663.004.11**	790.120.03	990.075.00
80	12	90	20x60	1	**663.003.11**	790.120.03	990.075.00

Spare parts

991.061.00	T15 Torx key
990.036.00	M8x25mm TE screw (only for 663.003.11)
990.020.00	Hex nut for threaded arbors M8 (only for 663.003.11)
790.120.03	Are supplied in 10-piece pack or multiple

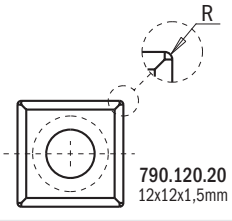
The screw 990.036.00 and the nut 990.020.00 (on the shank) only fit item 663.003.11

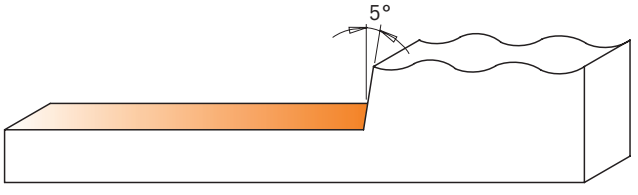
TECHNICAL DETAILS:
- Super strength steel.
- 3 cutting edges [Z3].

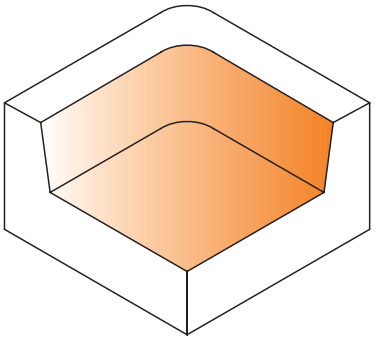
APPLICATION:
the new router bit for CNC routers is ideal for fast removal of material over a large surface area leaving an improved finish at the bottom of the cut. Used on soft and hardwood, particle board and MDF.
The cutter uses 4-sided inserts in super micrograin carbide.

A cost effective solution compared to brazed router bits and solid carbide spiral bits.

Optional







Mini Spoilboard Surfacing Cutters with Insert Knives

663

INSERT CARBIDE · MEC · Z3 · RH · 4X LONGER LIFE

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation	Spare parts	
38	12	60	12x35	1	**663.005.11**	790.120.03	990.075.00

Spare parts **991.061.00** T15 Torx key

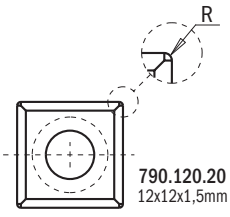
790.120.03 are supplied in 10-piece pack or multiple

Technical details:
- Super strength steel.
- 3 cutting edges [Z3].

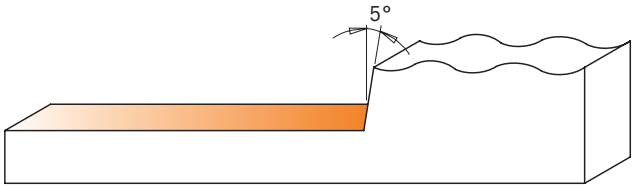
Application:
the new router bit for CNC routers is ideal for fast removal of material over a large surface area leaving an improved finish at the bottom of the cut. Used on soft and hardwood, particle board and MDF. The cutter uses 4-sided inserts in super micrograin carbide.

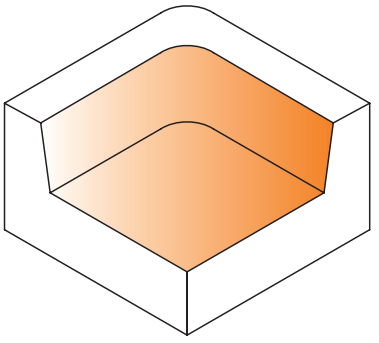
A cost effective solution compared to brazed router bits and solid carbide spiral bits.

Optional



790.120.20
12x12x1,5mm





Universal Profile Cutter for CNC Machines

663.301

SP · MEC · Z2 · RH

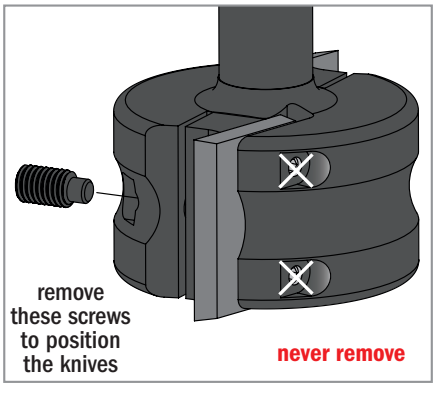
D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
65	40-50	93	20	1	**663.301.11**

Spare parts
692.999.01 38x15x16mm wedge for cutter
990.068.00 M5x5mm TCEI screw
991.064.00 Hex key 4mm

Technical details:
- Super Strength steel.
- 2 cutting edges [Z2] for knives 40x4mm and 50x4mm.

Application:
for universal profiling of solid wood on CNC router machines. For cutting width 40mm and 50mm (serie 690). Profile knives may only be ordered and used in pairs. For router machines with mechanical feed.

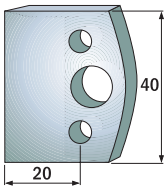
useful tips: for enhanced safety, when using 50mm knives, it is recommended to carry out the cut in several passes.



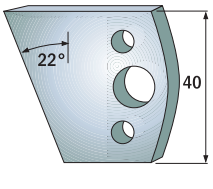
Knives not included in cutter package.

To be used with SP knives series 690 (see page 116~129)

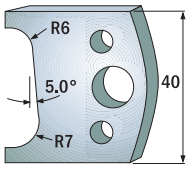
690.000



690.001

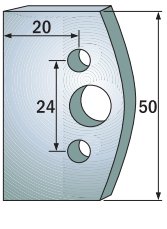


690.002

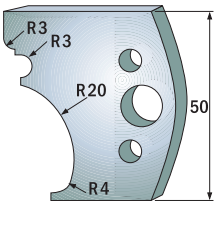


Profile knives cutting length=40mm (serie 690)

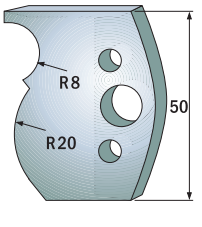
690.500



690.501

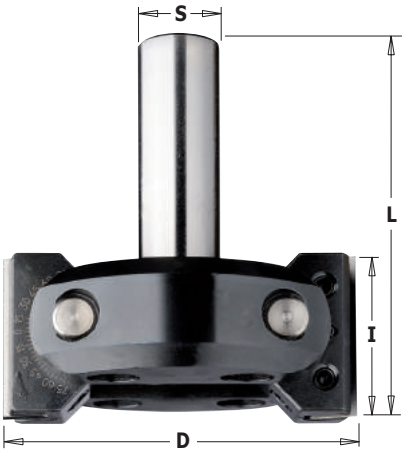


690.502



Profile knives cutting length=50mm (serie 690.5)

Adjustable Chamfering CNC Cutter



663.201

INSERT CARBIDE · MEC · Z2 · RH · 2X LONGER LIFE

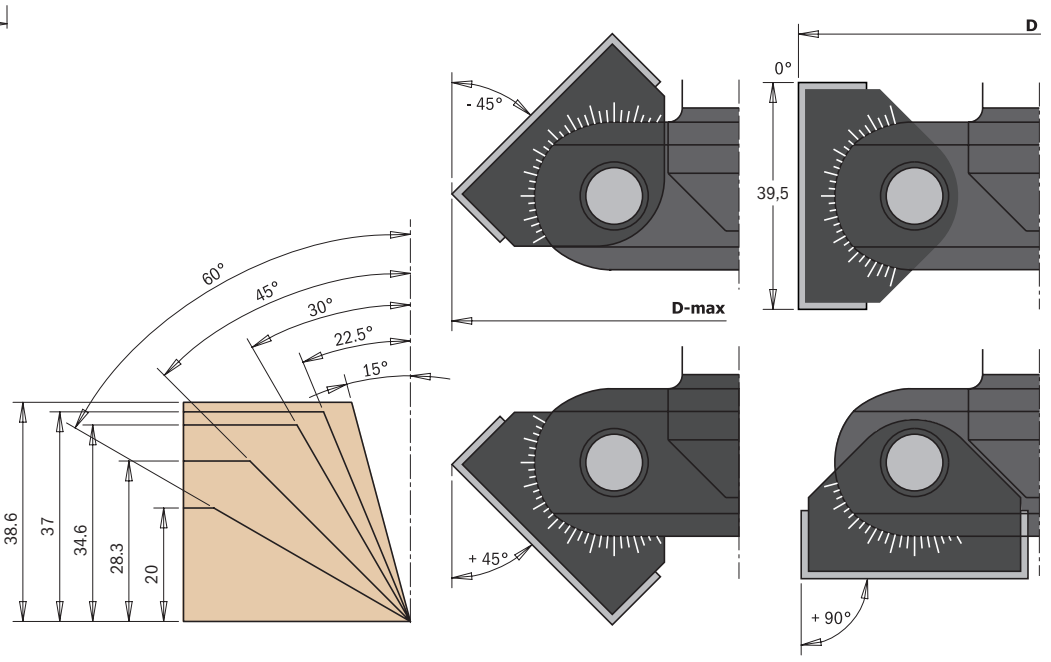
D mm	D_Max 45° mm	I mm	A	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
85	102	39,5	0°-45° - 0°+90°	92	20	1	**663.201.11**

Spare parts

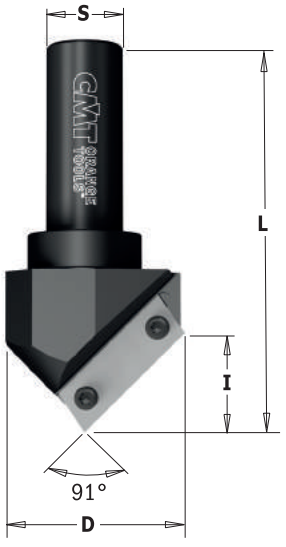
790.395.12	39,5x12x1,5mm knife (In 10-piece pack or multiple)
663.999.01	38x6x12mm wedge
990.087.00	M6x8mm STEI screw (4x2mm threaded pin)
991.067.00	3mm hex key
663.999.02	Kit with 2 wedges and 1 screw for blocking rotation
990.099.00	M8x25mm TCEI screw
990.023.00	M8 (4mm) nut
991.081.00	4mm "T" hex key

TECHNICAL DETAILS: tool body in steel, two TC reversible knives in swiveling blade carriers. Cutting on periphery and both sides. Swiveling range towards top 0-45°, toward bottom 0-90°, infinitely variable adjustment according to precise scale. With positive stops at 7,5° through adjustment aide. No displacement of adjusted beveling angle when replacing blades.
Right-hand rotation.

APPLICATION:
for jointing, rebating and chamfering of solid wood and wooden boards. Suitable for CNC router machines and stationary router machine with manual or mechanical feed.



V-Groove - Folding - Signmaking CNC Router Cutters with Insert Knives



663.101

INSERT CARBIDE · MEC · Z1 · RH · 2X LONGER LIFE

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
52	25	100	20	1	**663.101.11**

Spare parts

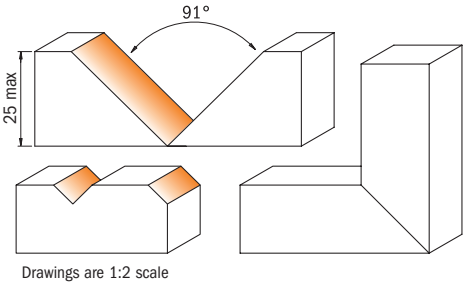
790.360.01	36x12x1,5mm knife (In 10-piece pack or multiple)
990.073.00	M3,5x5x7,2mm Torx T15 screw
991.061.00	T15 Torx key
990.036.00	M8x25mm TE screw
990.020.00	Hex nut for threaded arbors M8

Optional

S790.360.03	36x12x1,5mm HW-SMG replaceable knife (4 cutting edges 35°)

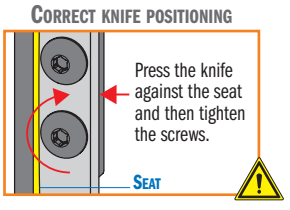
TECHNICAL DETAILS:
- Super Strength steel.
- 1 cutting edges [Z1].

APPLICATION:
this innovative CNC router bit offers you an endless range of possibilities for V-Groove, miter folds, signmaking, lettering and chamfer edges. The tool mounts a high grade HWM reversible knife ideal for general purpose, chipboard and plywood, but a higher quality is available for laminated and MDF material.



Drawings are 1:2 scale

CORRECT KNIFE POSITIONING

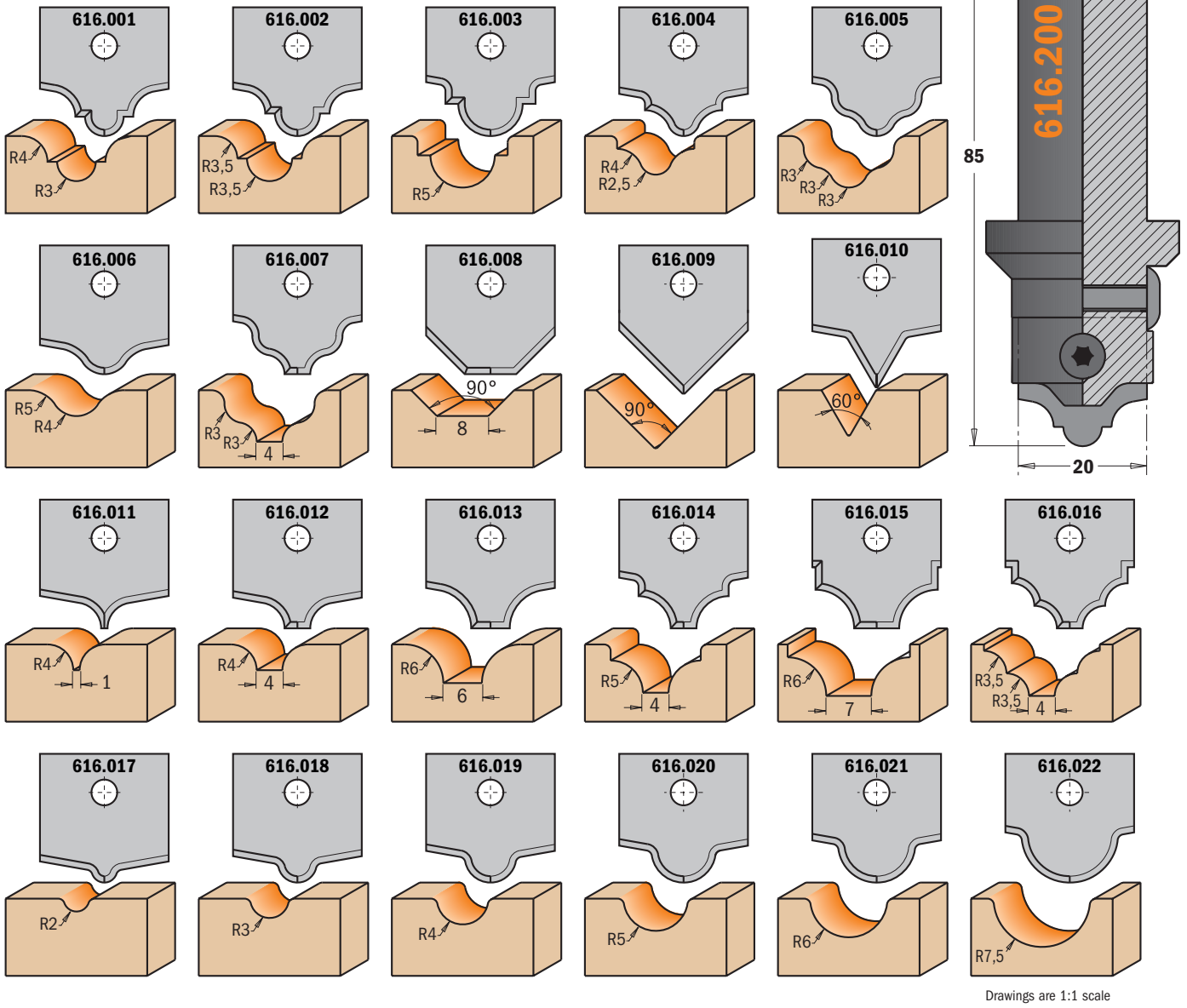


616.000.01

INSERT CARBIDE · MEC · Z2 · RH

This unique system includes a tool body with 22 profile knives designed for multiple applications on your CNC routers. Ideal for MDF, laminates, veneers, plastic, wood and solid surface materials.

TECHNICAL DETAILS:
Knives 20x20x2mm.
We recommend re-sharpening the knives on profile cutting edge.



Drawings are 1:1 scale

DESCRIPTION	S mm	PACK QTY.	ORDER NO. Right-hand rotation	Spare parts		
Complete Set for Decorating on MDF	20	10	**616.000.01**	616.200	990.077.00	991.061.00
Router cutter body with shank Ø20mm (insert knives not included)	20	10	**616.200**		990.077.00	991.061.00
Router cutter body with shank Ø12mm (insert knives not included)	12	10	**616.120**		990.077.00	991.061.00

REMARK: tool body and insert knives can be sold individually.

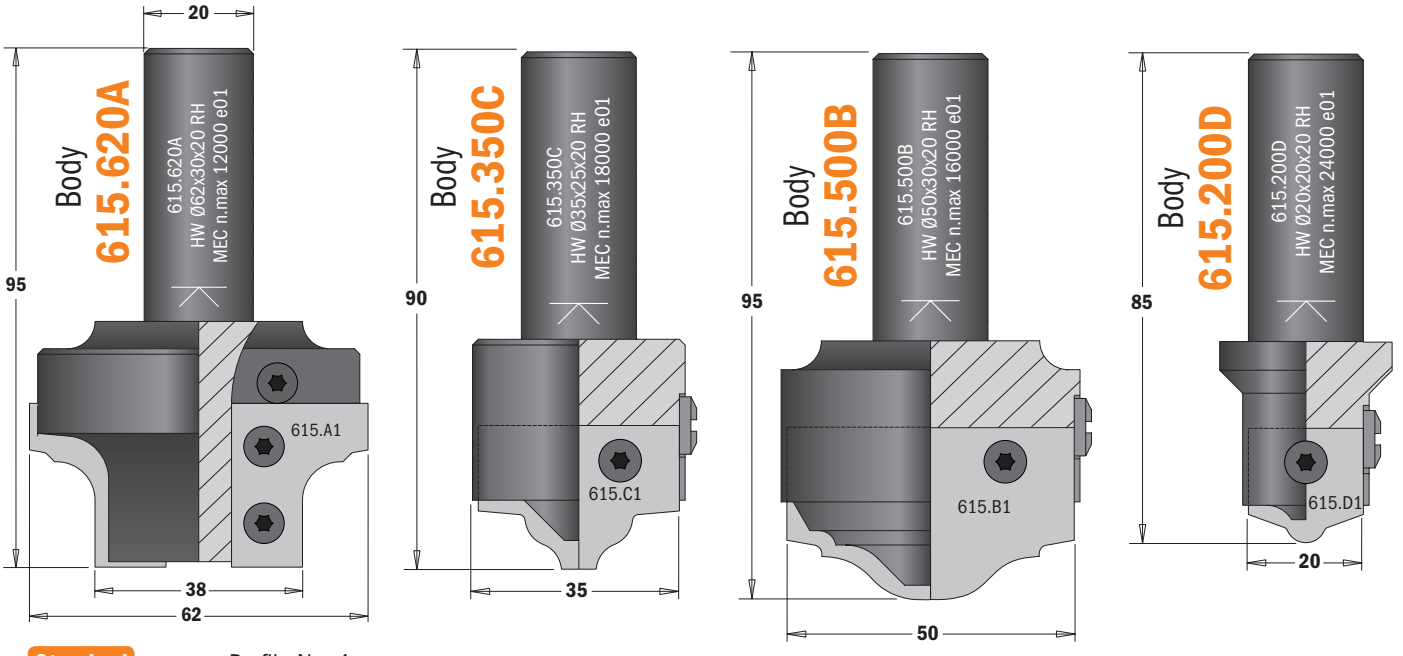
615.004.01

INSERT CARBIDE · MEC · Z2 · RH

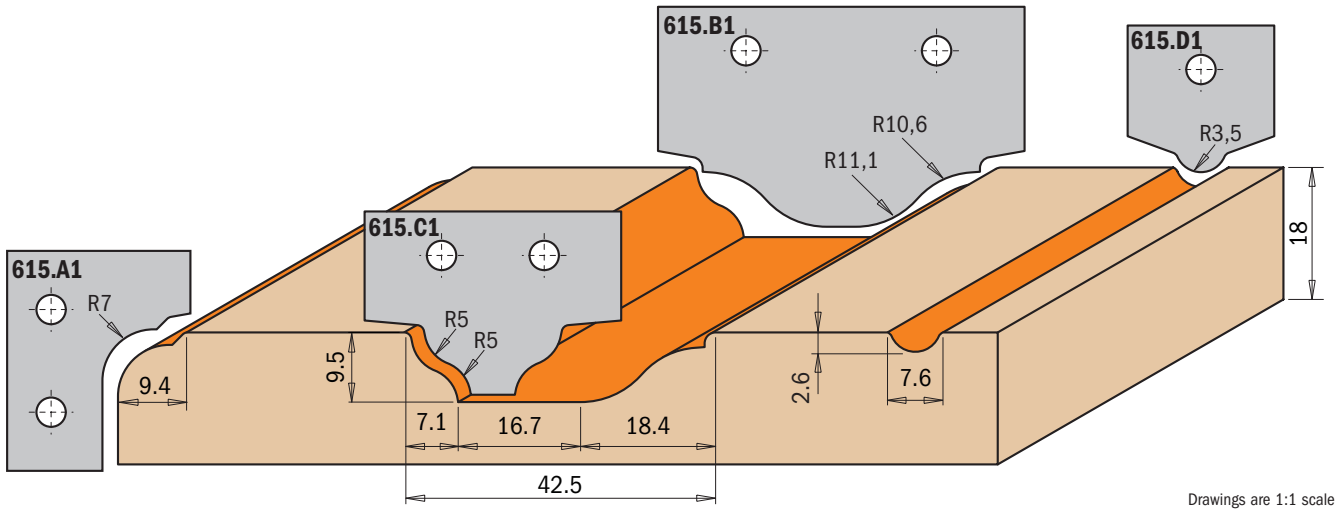
Open some new doors with CMT. Our 4-piece set includes the most popolar profile to make MDF panel doors for kitchens and bathrooms. Each bit is made from bar stock steel and is equipped with 5 differents profile knives allowing enormous possibilities for easy and economical construction. The highest materials, the lowest tolerance in balancing and the precision in the sharpening of the knives let you obtain a smooth finish on your CNC machine.

Spare parts

991.061.00	T15 Tork key
990.073.00	M3,5x5mm Torx screw
990.075.00	M4x6mm Torx screw
990.077.00	M3,5x7mm Torx screw



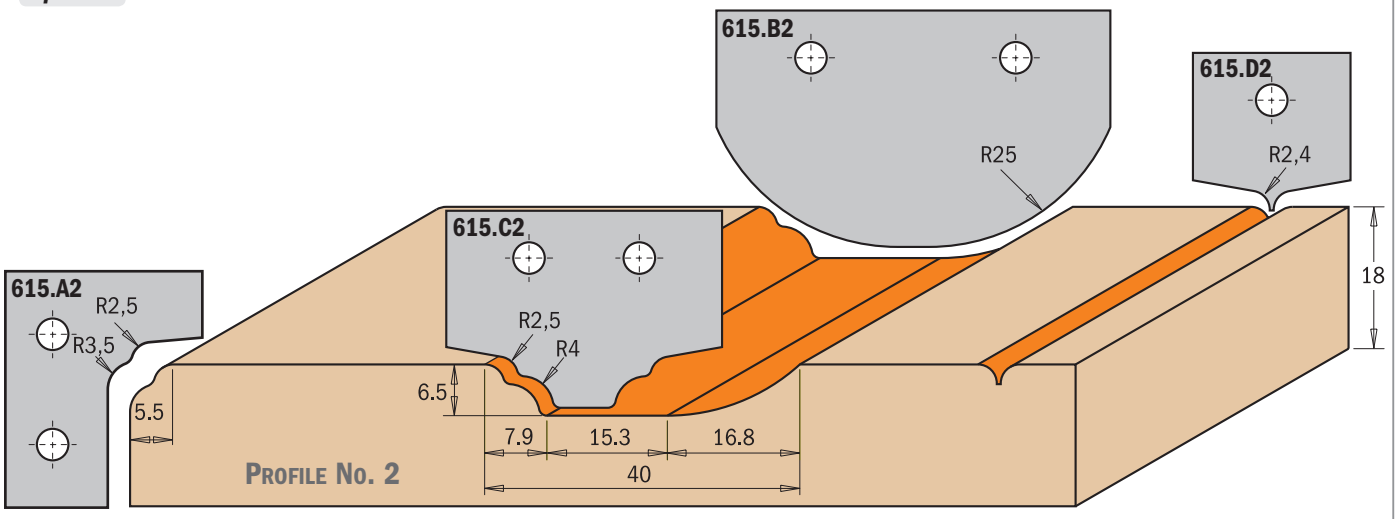
Standard Profile No. 1

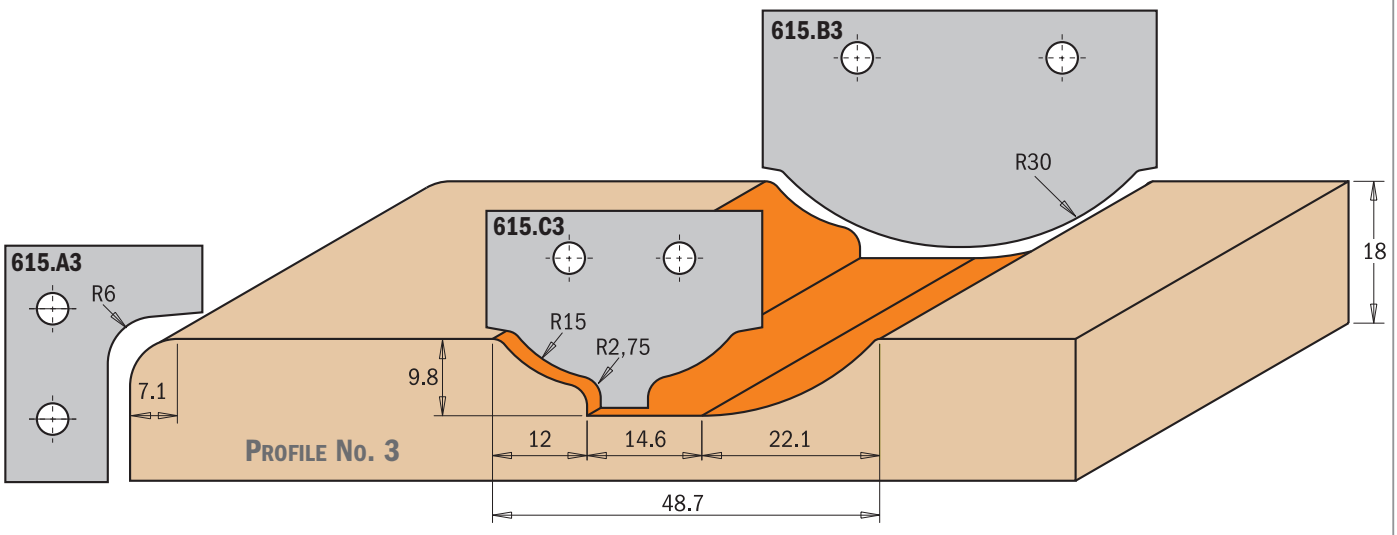


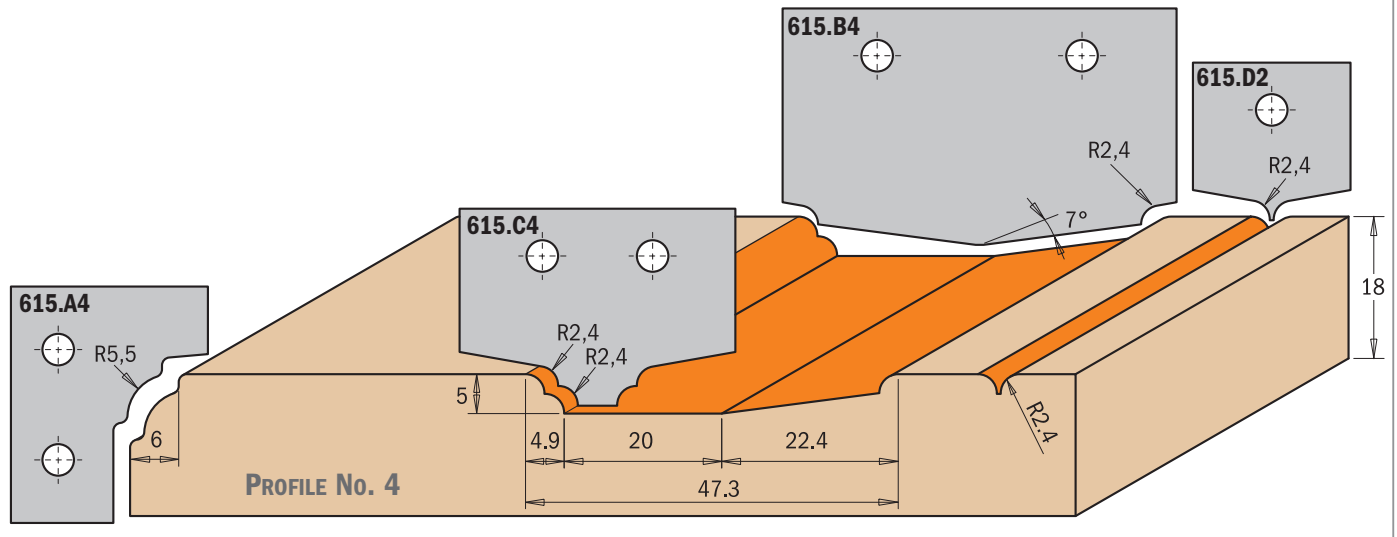
Drawings are 1:1 scale

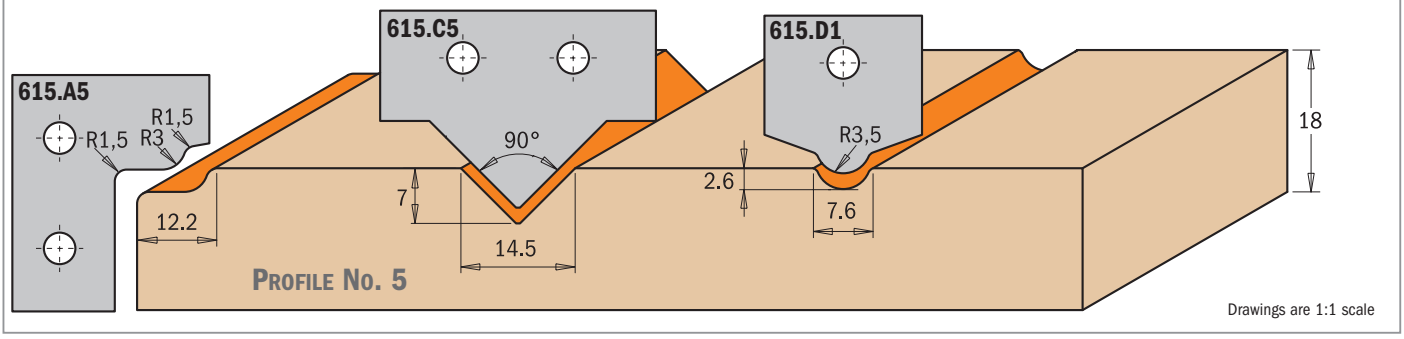
Description		S mm	Pack Qty.	Order No. Right-hand rotation
Complete Set for MDF Doors	(Profile no. 1)	20	1	**615.004.01**

Optional









Drawings are 1:1 scale

102

HL Z2R RH LH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
6	50	105	16	10	**102.060.31**	**102.060.32**
7	55	110	16	10	**102.070.31**	**102.070.32**
8	60	115	16	10	**102.080.31**	**102.080.32**
9	65	120	16	10	**102.090.31**	**102.090.32**
10	70	125	16	10	**102.100.31**	**102.100.32**
11	75	130	16	10	**102.110.31**	**102.110.32**
12	80	135	16	10	**102.120.31**	**102.120.32**
13	85	140	16	10	**102.130.31**	**102.130.32**
14	90	145	16	10	**102.140.31**	**102.140.32**
15	95	150	16	10	**102.150.31**	**102.150.32**
16	100	155	16	10	**102.160.31**	**102.160.32**
17	105	160	16	10	**102.170.31**	**102.170.32**
18	110	165	16	10	**102.180.31**	**102.180.32**
19	115	170	16	10	**102.190.31**	**102.190.32**
20	120	175	16	10	**102.200.31**	**102.200.32**
22	125	180	16	10	**102.220.31**	**102.220.32**
24	125	180	16	10	**102.240.31**	**102.240.32**

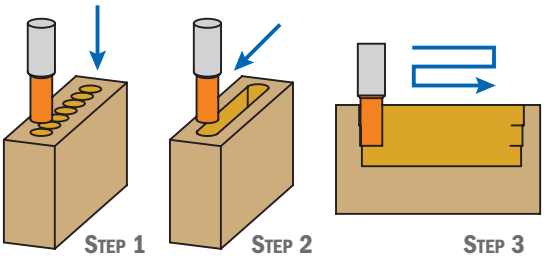
172

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
6	50	105	13	10	**172.060.31**	**172.060.32**
7	55	110	13	10	**172.070.31**	**172.070.32**
8	60	115	13	10	**172.080.31**	**172.080.32**
9	65	120	13	10	**172.090.31**	**172.090.32**
10	70	125	13	10	**172.100.31**	**172.100.32**
11	75	130	13	10	**172.110.31**	**172.110.32**
12	80	135	13	10	**172.120.31**	**172.120.32**
13	85	140	13	10	**172.130.31**	**172.130.32**
14	90	145	13	10	**172.140.31**	**172.140.32**
15	95	150	13	10	**172.150.31**	**172.150.32**
16	100	155	13	10	**172.160.31**	**172.160.32**
18	110	165	13	10	**172.180.31**	**172.180.32**
20	120	175	13	10	**172.200.31**	**172.200.32**

Technical details:
- Long-lasting cutting performance.
- 2 HL precision ground straight cutting edges with chip-breaker teeth [Z2R].

Application:
for cutting mortise slots in soft and hardwood. Used on machining centres equipped with chucks.

Machining Deep Slots Guide



6-Piece Mortising Bit Sets

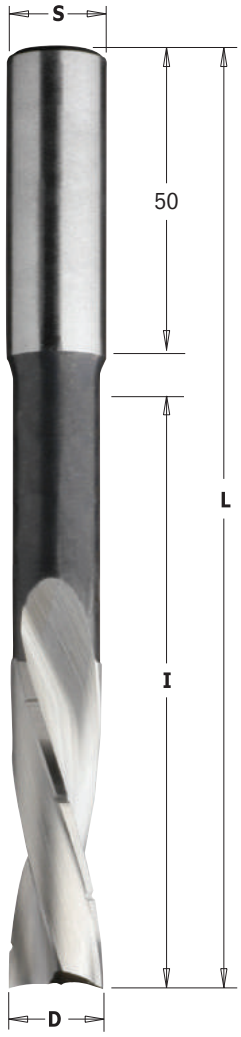
102-172

HL Z2R RH LH

Ideal for heavy mortise jobs.
Made of super strength high speed steel and available in left-hand or right-hand rotation.
Safely packaged in a hardwood and glass box for protection, these sets are economical and a perfect addition to any workshop.

S mm	D mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
16	6-8-10-12-14-16	1	**102.001.00**	**102.001.10**
13	6-8-10-12-14-16	1	**172.001.00**	**172.001.10**

Twisted Slot Mortising Bits with Chip-Breaker



161

HSS Z2R RH LH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
6	60	120	16	10	**161.060.31**	**161.060.32**
8	70	130	16	10	**161.080.31**	**161.080.32**
10	80	140	16	10	**161.100.31**	**161.100.32**
12	90	150	16	10	**161.120.31**	**161.120.32**
14	100	160	16	10	**161.140.31**	**161.140.32**
16	110	170	16	10	**161.160.31**	**161.160.32**

160

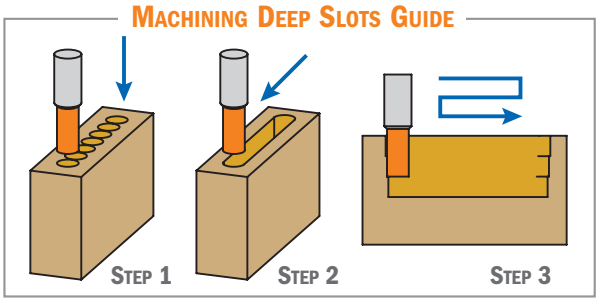
HSS Z2R RH LH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
6	60	120	13	10	**160.060.31**	**160.060.32**
8	70	130	13	10	**160.080.31**	**160.080.32**
10	80	140	13	10	**160.100.31**	**160.100.32**
12	90	150	13	10	**160.120.31**	**160.120.32**
14	100	160	13	10	**160.140.31**	**160.140.32**
16	110	170	13	10	**160.160.31**	**160.160.32**

Technical details:
- Long-lasting cutting performance.
- 2 HSS precision ground twisted cutting edges with chip-breaker teeth [Z2R].

Application:
for cutting mortise slots in soft and hardwood.
Used on machining centres equipped with chucks.
RPM 3000~5000

Machining Deep Slots Guide



6-Piece Mortising Bit Sets

160-161

HSS Z2R RH LH

Ideal for heavy mortise jobs.
Made of super strength high speed steel and available in left-hand or right-hand rotation.
Safely packaged in a hardwood and glass box for protection, these sets are economical and a perfect addition to any workshop.

S mm	D mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
16	6-8-10-12-14-16	10	**161.001.00**	**161.001.10**
13	6-8-10-12-14-16	10	**160.001.00**	**160.001.10**

164

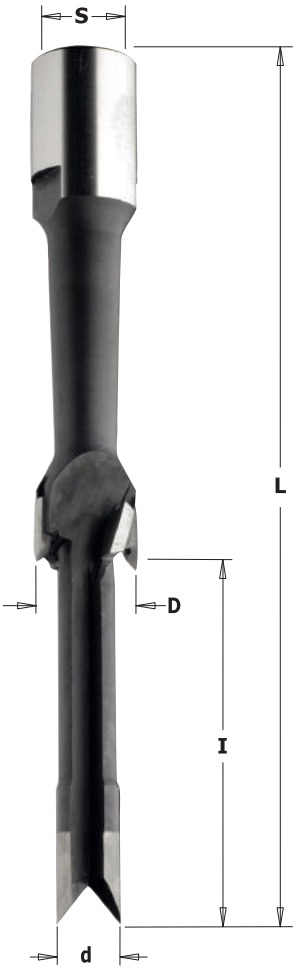
HW Z2 V2 RH

D mm	L mm	S mm		Pack Qty.	ORDER NO. Right-hand rotation	
18	100	M12x1		1	**164.180.11**	
20	100	M12x1		1	**164.200.11**	
22	100	M12x1		1	**164.220.11**	

Technical details:
- Super strength steel.
- HW cutting head with precision balanced centre point.
- 2 HW precision ground cutting edges [Z2].
- 2 negatively ground spurs [V2].

Application:
used for drilling blind holes in solid wood, wood composites, plastic and laminated materials. Used on slot and mortise machines equipped with chucks.

Slot & Mortise Boring Bits



166-167

HW Z2 V2 RH

d mm	D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation
11	22	62	155	M12x1	1	**166.220.11**
12	19	62	155	M12x1	1	**167.190.11**

Technical details:
- Super strength steel.
- 2 HW precision ground cutting edges [Z2].
- 2 negatively ground spurs [V2].

Application:
used for drilling and cutting mortise slots in solid wood, wood composites, plastic and laminated materials.

163

HW Z2 RH

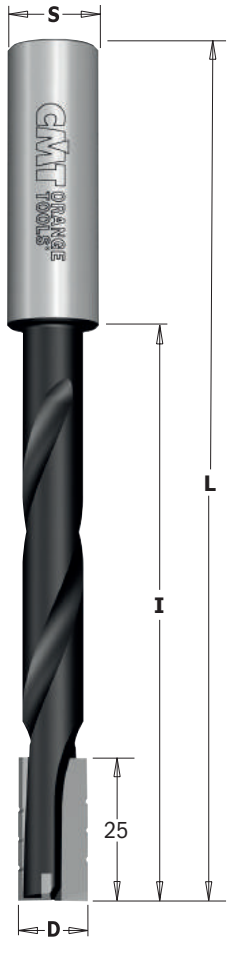
D mm	L mm	S mm		Pack Qty.	ORDER NO. Right-hand rotation	
12	100	M12x1		1	**163.120.11**	
14	100	M12x1		1	**163.140.11**	
16	100	M12x1		1	**163.160.11**	

Technical details:
- Super strength steel.
- 2 HW precision ground cutting edges [Z2].

Application:
used for cutting mortises and slots in solid wood and wood composites. Assembled in chucks.

Carbide Spiral Slot Mortising Bits with Chip-Breaker

new



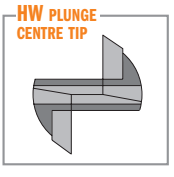
161

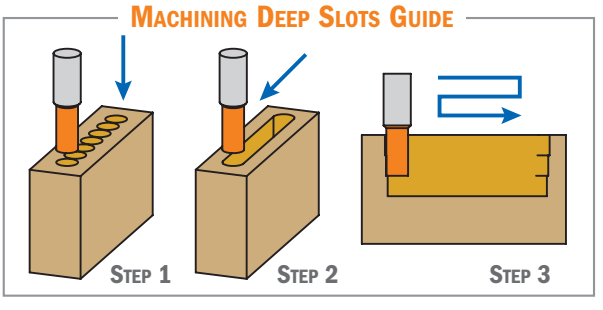
HW Z2R RH LH

D mm	l_1 mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
12	25	75	150	16x50	10	**161.120.11**	**161.120.12**
16	25	95	170	16x50	10	**161.160.11**	**161.160.12**

Technical details:
- Long-lasting cutting performance.
- Super strength steel.
- 2 precision ground HW cutting edges with chip-breaker teeth and 1 HW plunge centre tip [Z2+1].

Application:
for cutting mortise slots in soft and hardwood. Used on machining centres equipped with chucks. RPM 3000~5000





Reciprocating Slot Mortising Bits

103

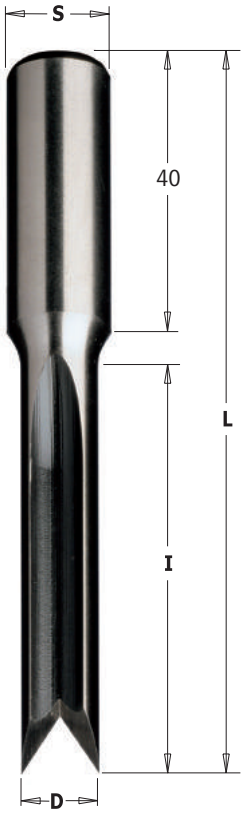
HL Z2 LH RH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand & Left-hand rotation
6	45	100	16	1	**103.060.30**
7	45	100	16	1	**103.070.30**
8	45	100	16	1	**103.080.30**
9	45	100	16	1	**103.090.30**
10	55	110	16	1	**103.100.30**
11	55	110	16	1	**103.110.30**
12	55	110	16	1	**103.120.30**
13	55	110	16	1	**103.130.30**
14	55	110	16	1	**103.140.30**
15	55	110	16	1	**103.150.30**
16	55	110	16	1	**103.160.30**

Technical details:
- Long-lasting cutter performance.
- 2 HL precision ground cutting edges [Z2].

Application:
used for cutting mortise slots in soft and hardwood.
Used on machining centres equipped with chucks.

Reciprocating Slot Mortising Bits



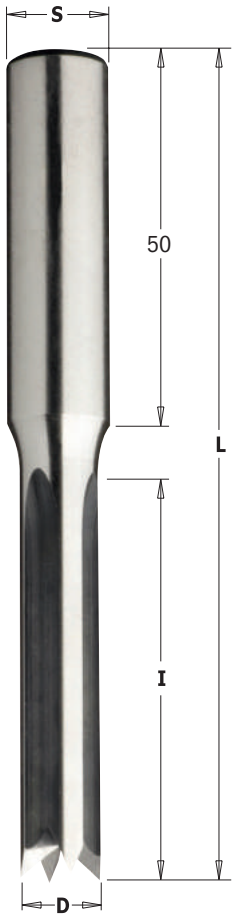
179

HSS Z2 LH RH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand & Left-hand rotation
6	45	90	13	1	**179.060.50**
7	50	95	13	1	**179.070.50**
8	50	95	13	1	**179.080.50**
9	55	100	13	1	**179.090.50**
10	60	105	13	1	**179.100.50**
11	65	110	13	1	**179.110.50**
12	70	115	13	1	**179.120.50**
13	75	120	13	1	**179.130.50**

Technical details:
- Long-lasting cutter performance.
- 2 HSS precision ground cutting edges [Z2].

Application:
used for cutting mortise slots in soft and hardwood.
Used on machining centres equipped with chucks.



104

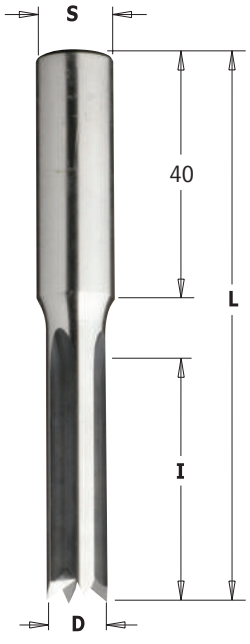
HL Z4 RH LH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand & Left-hand rotation
6	45	100	13	1	**104.060.30**
7	45	100	13	1	**104.070.30**
8	45	100	13	1	**104.080.30**
9	45	100	13	1	**104.090.30**
10	55	110	13	1	**104.100.30**
11	55	110	13	1	**104.110.30**
12	55	110	13	1	**104.120.30**
13	55	110	13	1	**104.130.30**
14	55	110	13	1	**104.140.30**
15	55	110	13	1	**104.150.30**
16	55	110	13	1	**104.160.30**

Technical details:
- Long-lasting cutting performance.
- 4 HL precision ground cutting edges [Z4].

Application:
used for cutting mortise slots in soft and hardwood.
Used on machining centres equipped with chucks.

Reciprocating Slot Mortising Bits



105

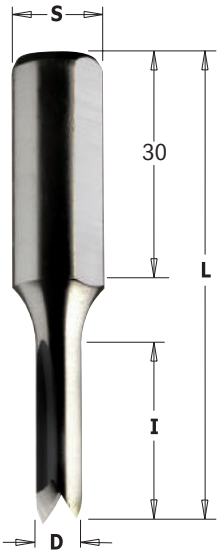
HL Z4 RH LH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand & Left-hand rotation
6	28	73	10	1	**105.060.30**
7	28	73	10	1	**105.070.30**
8	28	73	10	1	**105.080.30**
9	28	73	10	1	**105.090.30**
10	28	73	10	1	**105.100.30**
11	28	73	10	1	**105.110.30**
12	28	73	10	1	**105.120.30**
13	28	73	10	1	**105.130.30**
14	28	73	10	1	**105.140.30**
15	28	73	10	1	**105.150.30**
16	28	73	10	1	**105.160.30**

Technical details:
- Long-lasting cutting performance.
- 4 HL precision ground cutting edges [Z4].

Application:
used for cutting mortise slots in soft and hardwood.
Used on machining centres equipped with chucks.

Reciprocating Slot Mortising Bits



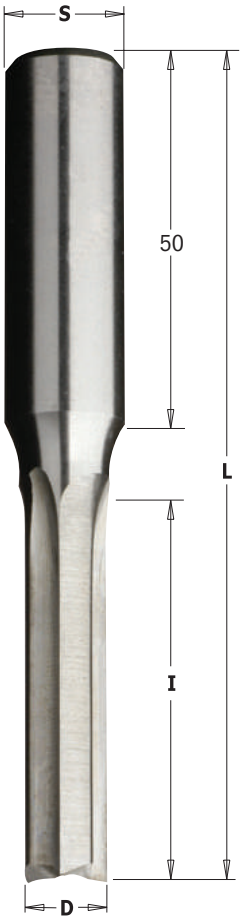
106

HL | Z2 | Z4 | LH RH

D mm	I mm	L mm	S mm	Z	Pack Qty.	ORDER NO. Right-hand & Left-hand rotation
6	25	60	12	2	1	**106.060.30**
7	25	60	12	2	1	**106.070.30**
8	25	60	12	2	1	**106.080.30**
9	25	60	12	2	1	**106.090.30**
10	25	60	12	4	1	**106.100.30**
11	25	60	12	4	1	**106.110.30**
12	25	60	12	4	1	**106.120.30**
13	25	60	12	4	1	**106.130.30**
14	25	60	12	4	1	**106.140.30**
15	25	60	12	4	1	**106.150.30**

Technical details:
- Long-lasting cutter performance.
- 2 or 4 HL precision ground cutting edges [Z2-Z4].
- **Parallel shank with driving flat.**

Slot Mortising Bits



107

HL | Z3 | RH | LH

D mm	I mm	L mm	S mm	Pack Qty.	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
6	55	110	16	1	**107.060.31**	**107.060.32**
8	55	110	16	1	**107.080.31**	**107.080.32**
10	55	110	16	1	**107.100.31**	**107.100.32**
12	55	110	16	1	**107.120.31**	**107.120.32**
14	60	115	16	1	**107.140.31**	**107.140.32**
16	60	115	16	1	**107.160.31**	**107.160.32**
18	60	115	16	1	**107.180.31**	**107.180.32**
20	60	115	16	1	**107.200.31**	**107.200.32**

Technical details:
- Long-lasting cutter performance.
- 3 HL precision ground cutting edges [Z3].

Application:
used for cutting mortise slots in soft and hardwood.
Used in maching centres equipped with chucks.