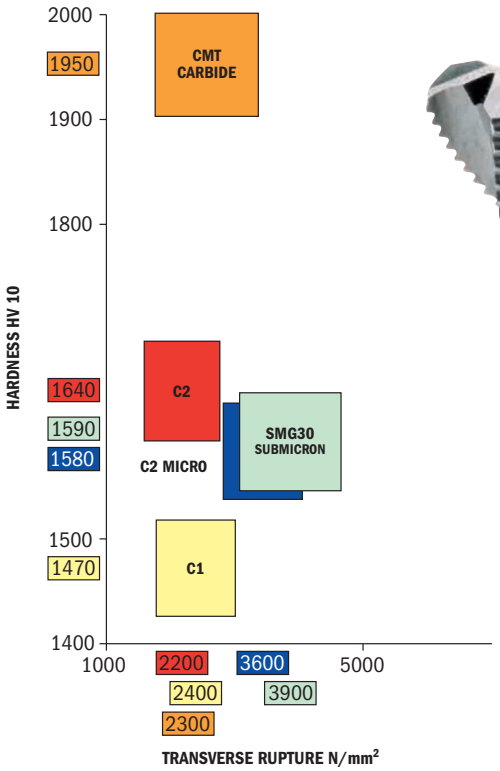
Sharp technology with a new twist

CMT ORANGE TOOLS®

A special super-micrograin carbide formulation was created to produce and hold a keen cutting edge.

The new low-angle spiral is designed specifically to shear wood cleanly and provide efficient chip ejection.
The tools run cooler and the edges last longer.

Increased feed rate and improved cutting quality for enhanced productivity with CMT!



Solid carbide upcut spiral bits

198

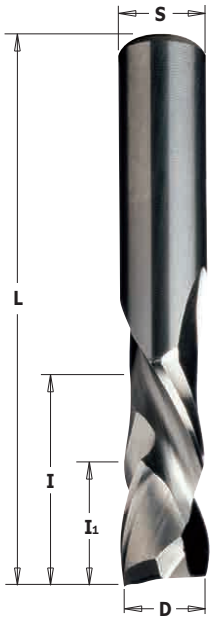
HWM Z1 RH

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



190

HWM Z2+2 Z3+3 RH

D mm	I mm	I1 mm	L mm	S mm	Z	ORDER NO. Right-hand rotation
8	32	7	80	8	2+2	**190.080.11**
9,52	28,6	7	76,2	9,52	2+2	**190.504.11**
10	32	7	80	10	2+2	**190.100.11**
12	42	7	90	12	2+2	**190.120.11**
12,7	25,4	16	76,2	12,7	2+2	**190.505.11**
12,7	28,6	16	76,2	12,7	2+2	**190.506.11**
12,7	34,9	16	88,9	12,7	2+2	**190.507.11**
12,7	41,3	16	101,6	12,7	2+2	**190.508.11**
16	55	24	110	16	2+2	**190.160.11**
18	55	30	110	18	2+2	**190.180.11**

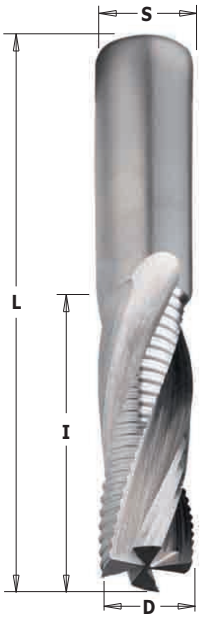
...up & downcut mortising bits

	9,52	22,2	4,8	76,2	9,52	2+2	**190.513.11**
new	9,52	25,4	5,2	76,2	9,52	3+3	**190.813.11**
new	12	25	5,2	76	12	3+3	**190.320.11**
	12,7	22,2	5,2	76,2	12,7	2+2	**190.515.11**
	12,7	34,9	5,2	88,9	12,7	2+2	**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 machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Solid carbide upcut spiral bits



197

HWM Z4 RH

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

195

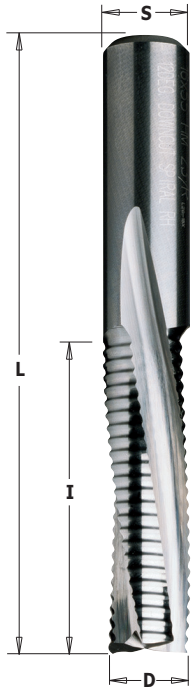
HWM Z3R RH LH

D mm	I mm	L mm	S mm	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
8	32	80	8	**195.081.11**	**195.081.12**
8	42	90	8	**195.082.11**	
10	32	80	10	**195.100.11**	**195.100.12**
10	42	90	10	**195.101.11**	
12	35	80	12	**195.120.11**	**195.120.12**
12	42	90	12	**195.121.11**	
12	52	100	12	**195.122.11**	
12,7	38,1	88,9	12,7	**195.506.11**	
14	58	110	14	**195.140.11**	
15,88	54	109,5	15,88	**195.509.11**	
16	55	110	16	**195.160.11**	**195.160.12**
16	35	90	16	**195.161.11**	
18	55	110	18	**195.180.11**	
19,05	54	109,5	19,05	**195.511.11**	
20	60	120	20	**195.200.11**	**195.200.12**
20	72	120	20	**195.201.11**	

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 machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Solid carbide downcut spiral bits with chip-breaker



196

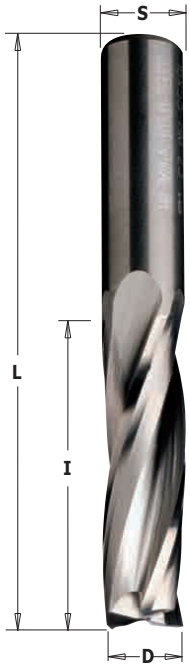
HWM Z3R RH LH

D mm	I mm	L mm	S mm	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
8	32	80	8	**196.081.11**	
10	42	90	10	**196.101.11**	
12	35	80	12	**196.120.11**	**196.120.12**
12,7	38,1	88,9	12,7	**196.506.11**	
14	50	110	14	**196.140.11**	
15,88	54	109,5	15,88	**196.509.11**	
16	55	110	16	**196.160.11**	**196.160.12**
18	55	110	18	**196.180.11**	
19,05	54	109,5	19,05	**196.511.11**	
20	60	120	20	**196.200.11**	**196.200.12**

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 machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Solid carbide upcut spiral bits with chip-breaker



193

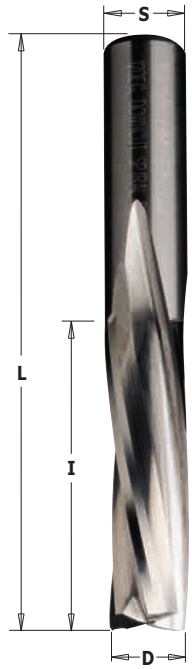
HWM Z3 RH LH

D mm	I mm	L mm	S mm	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
8	32	80	8	**193.081.11**	**193.081.12**
10	32	80	10	**193.100.11**	**193.100.12**
10	42	90	10	**193.101.11**	
12	35	80	12	**193.120.11**	**193.120.12**
12	42	90	12	**193.121.11**	
14	58	110	14	**193.140.11**	
16	55	110	16	**193.160.11**	**193.160.12**
16	35	90	16	**193.161.11**	
18	55	110	18	**193.180.11**	
20	60	120	20	**193.200.11**	**193.200.12**
20	70	120	20	**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 machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Solid carbide spiral bits downcut with chip-breaker



194

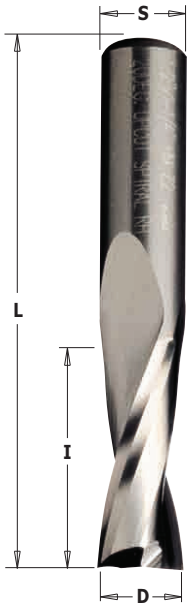
HWM Z3 RH LH

D mm	I mm	L mm	S mm	ORDER NO. Right-hand rotation	ORDER NO. Left-hand rotation
10	32	80	10	**194.100.11**	
12	35	80	12	**194.120.11**	**194.120.12**
14	50	110	14	**194.140.11**	
16	55	110	16	**194.160.11**	**194.160.12**
16	35	90	16	**194.161.11**	
18	55	110	18	**194.180.11**	
20	60	120	20	**194.200.11**	**194.200.12**

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 machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Solid carbide upcut spiral bits



191

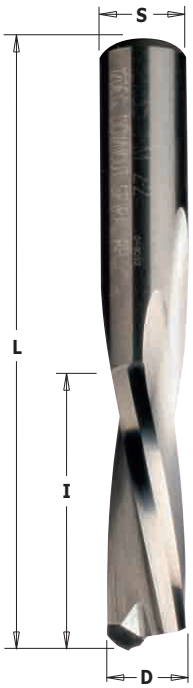
HWM Z2 RH

D mm	I mm	L mm	S mm	ORDER NO. Right-hand rotation	
3	12	50	3	**191.030.11**	
3	12	60	6	**191.630.11**	
3	12	60	8	**191.830.11**	
3,18	12,7	50,8	6,35	**191.001.11**	
3,5	12	60	6	**191.635.11**	
3,97	12,7	50,8	6,35	**191.003.11**	
4	15	50	4	**191.040.11**	
4	15	60	6	**191.640.11**	
4	15	60	8	**191.840.11**	
4,76	19,05	50,8	6,35	**191.005.11**	
5	17	50	5	**191.050.11**	
5	17	60	6	**191.650.11**	
5	17	60	8	**191.850.11**	
6	27	70	6	**191.060.11**	
6	27	70	8	**191.860.11**	
6,35	19,05	50,8	6,35	**191.007.11**	
6,35	25,4	63,5	6,35	**191.008.11**	
7	32	80	8	**191.870.11**	
7,94	25,4	76,2	12,7	**191.501.11**	
8	22	70	8	**191.080.11**	
8	32	80	8	**191.081.11**	
8	42	90	8	**191.082.11**	
9	32	80	12	**191.890.11**	
9,52	31,75	76,2	12,7	**191.503.11**	
10	32	80	8	**191.800.11**	
10	32	80	10	**191.100.11**	
10	32	80	12	**191.900.11**	
10	42	90	10	**191.101.11**	
10	42	90	12	**191.901.11**	
12	35	80	8	**191.820.11**	
12	35	80	12	**191.120.11**	
12	42	90	12	**191.121.11**	
12	52	100	12	**191.122.11**	
12,7	31,75	76,2	12,7	**191.505.11**	
12,7	38,1	88,9	12,7	**191.506.11**	
12,7	50,8	101,6	12,7	**191.507.11**	
14	50	110	14	**191.140.11**	
15,88	55	109,5	15,88	**191.509.11**	
16	55	110	16	**191.160.11**	
16	35	90	16	**191.161.11**	
19,05	55	109,5	19,05	**191.511.11**	
20	60	120	20	**191.200.11**	

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 machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Solid carbide downcut spiral bits



192

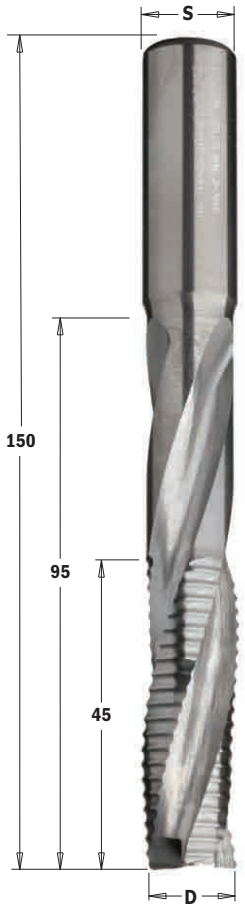
HWM Z2 RH

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

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 machines, CNC routers and hand-held routers equipped with chucks or adaptors.

Solid carbide upcut spiral bits with chip-breaker for locksets

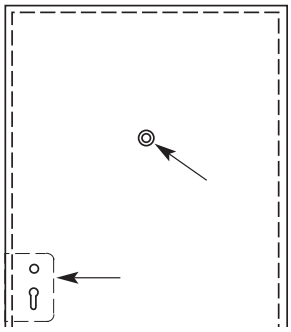


195

HWM Z3R RH

D mm	I mm	L mm	S mm	ORDER NO. Right-hand rotation	
14	95*	150	14	**195.142.11**	
16	95*	150	16	**195.162.11**	
18	95*	150	18	**195.182.11**	

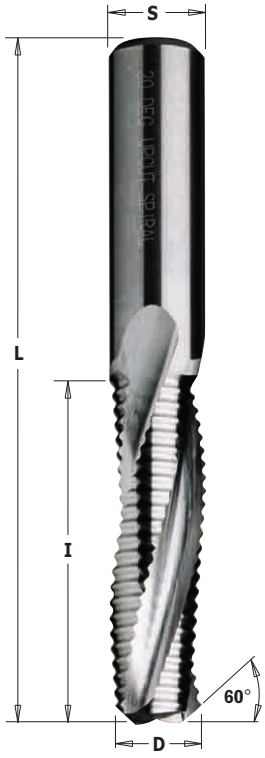
* The 95mm length is achieved in 2-3 passes.



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 machines, CNC routers and hand-held routers equipped with chucks or adaptors.

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	ORDER NO. Right-hand rotation	
14	58	110	14	**195.143.11**	
16	55	110	16	**195.163.11**	

Solid carbide upcut spiral bits without chip-breaker for 60° V-point locksets

191.143/163

HWM Z3 RH

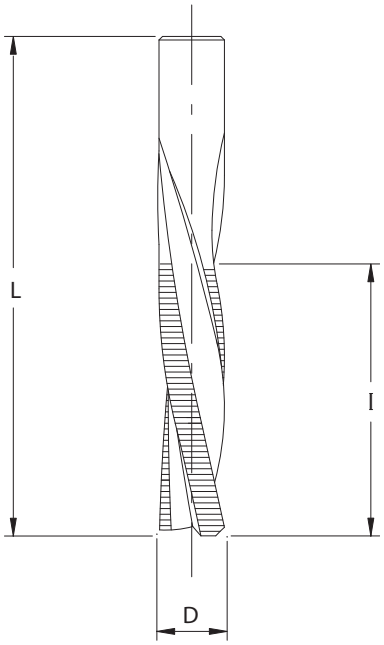
D mm	I mm	L mm	S mm	ORDER NO. Right-hand rotation	
14	50	110	14	**191.143.11**	
16	55	110	16	**191.163.11**	

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 machines, CNC routers and hand-held routers equipped with chucks or adaptors.

4200 - 4201

FRESE ELICOIDALI HW INTEGRALE Z=3 (sgrossatura)
HW SPIRAL ROUTER CUTTERS Z=3 (rough cut)



ELICA SPINGENTE / DOWN-CUT SPIRAL

APPLICAZIONE/*APPLICATION*:
Forare e contornare su legno massiccio e suoi derivati (truciolare - MDF -HDF).
For boring and sizing on solid wood, chipboard and fibre materials (MDF - HDF).

MACCHINA/*MACHINE*:
Pantografo CNC/*CNC router.*

INFORMAZIONI TECNICHE/*TECHNICAL INFORMATION*:
Esecuzione in HW integrale micrograno. Si costruiscono con 3 taglienti ad elica spingente. Finitura migliore sul lato superiore del pannello.
Scarico del truciolo verso il basso.
Manufactured with micrograin solid carbide. With 3 negative spiral cutting edges for face side up workpieces. Chip evacuation towards the bottom.

Dx/*Rh* - Z = 3

Codice *Code*	**D** *D*	**I** *I*	**L** *L*	**Codice Prezzo** *Price Code*
4200.080.022	8	22	63	G08
4200.080.032	8	32	72	G09
4200.100.032	10	32	72	M11
4200.100.042	10	42	100	M13
4200.120.032	12	32	72	E14
4200.120.042	12	42	100	E15
4200.120.052	12	52	100	B16
4200.140.042	14	42	100	L17
4200.140.052	14	52	100	D18
4200.160.042	16	42	100	E19
4200.160.052	16	52	100	L19
4200.160.062	16	62	106	B20
4200.180.052	18	52	100	H20
4200.180.072	18	75	125	B22
4200.200.052	20	52	100	F22
4200.200.072	20	75	125	A24
4200.200.102	20	102	160	C26

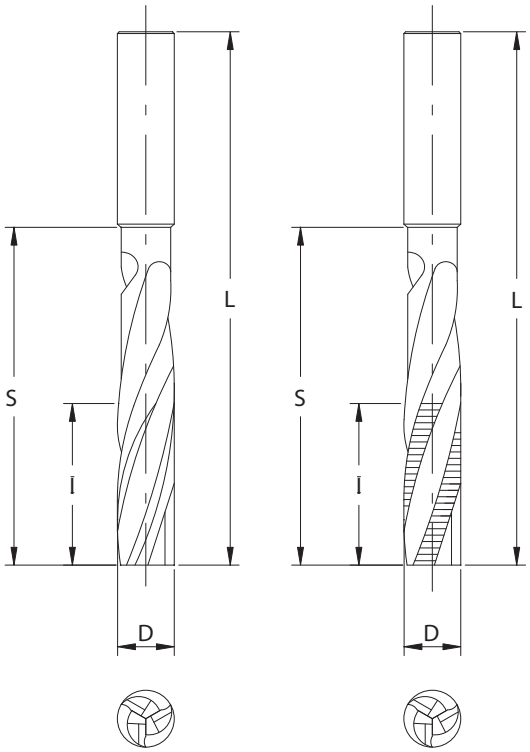
Sx/*Lh* - Z = 3

Codice *Code*	**D** *D*	**I** *I*	**L** *L*	**Codice Prezzo** *Price Code*
4201.080.022	8	22	63	C09
4201.080.032	8	32	72	D10
4201.100.032	10	32	72	H12
4201.100.042	10	42	100	D14
4201.120.032	12	32	72	L14
4201.120.042	12	42	100	L15
4201.120.052	12	52	100	G16
4201.140.042	14	42	100	E18
4201.140.052	14	52	100	A19
4201.160.042	16	42	100	M19
4201.160.052	16	52	100	D20
4201.160.062	16	62	106	G20
4201.180.052	18	52	100	C21
4201.180.072	18	75	125	H22
4201.200.052	20	52	100	C23
4201.200.072	20	75	125	G24

4204 - 4205

FRESE ELICOIDALI HW INTEGRALE Z=3 PER SERRATURE
SOLID HW SPIRAL ROUTER CUTTERS Z=3 FOR LOCK-CASE

ART. 4204 ART. 4205

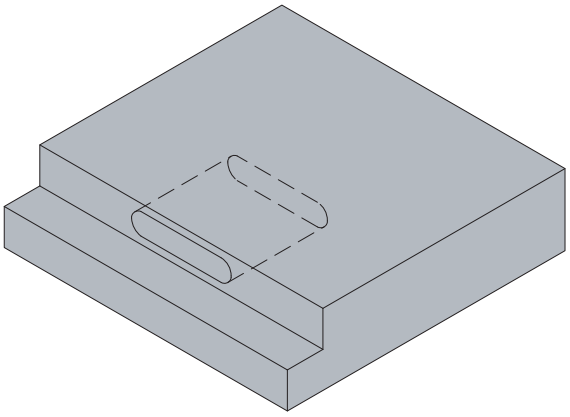


ELICA TRAENTE / UP-CUT SPIRAL

APPLICAZIONE/*APPLICATION*:
Realizzazione asole per incasso serrature porte.
For cutting of lock-cases and face-plates in doors.

MACCHINA/*MACHINE*:
Pantografo CNC/*CNC router.*

INFORMAZIONI TECNICHE/*TECHNICAL INFORMATION*:
Esecuzione in HW integrale micrograno. Si costruiscono con 3 taglienti ad elica traente con o senza rompitruciolo. Scarico del truciolo verso l`alto.
Manufactured with micrograin solid carbide . With 3 positive spiral cutting edges with or without chip-breaker. Upward chip evacuation.



Art. 4204 - **Dx/***Rh* - **Z = 3**

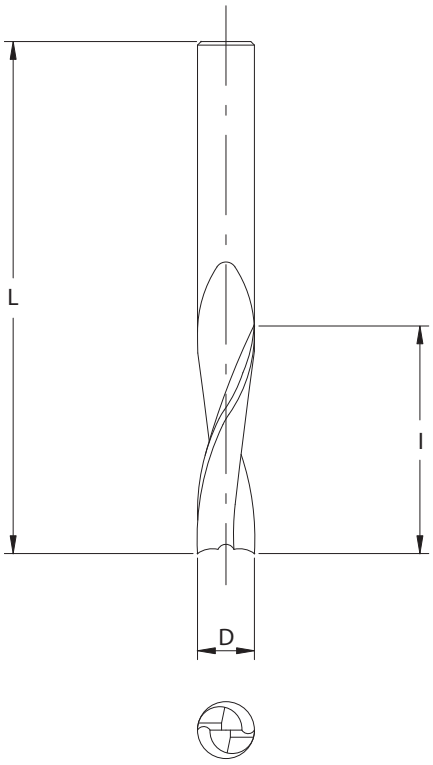
Codice *Code*	**D** *D*	**I** *I*	**S** *S*	**L** *L*	**Codice Prezzo** *Price Code*
4204.140.100	14	45	95	150	G20
4204.160.100	16	45	95	150	E21
4204.180.100	18	45	95	150	F23
4204.200.100	20	45	95	150	D24

Art. 4205 - **Dx/***Rh* - **Z = 3**

Codice *Code*	**D** *D*	**I** *I*	**S** *S*	**L** *L*	**Codice Prezzo** *Price Code*
4205.140.100	14	45	95	150	L21
4205.160.100	16	45	95	150	E22
4205.180.100	18	45	95	150	H23
4205.200.100	20	45	95	150	G24

4175 - 4176

FRESE ELICOIDALI HW INTEGRALE Z=2 (finitura)
SOLID HW SPIRAL ROUTER CUTTERS Z=2 (finish cut)



ELICA TRAENTE / UP-CUT SPIRAL

APPLICAZIONE/*APPLICATION*:
Forare e contornare su legno massiccio e suoi derivati (truciolare - MDF -HDF).
For boring and sizing on solid wood, chipboard and fibre materials (MDF - HDF).

MACCHINA/*MACHINE*:
Pantografo CNC/*CNC router.*

INFORMAZIONI TECNICHE/*TECHNICAL INFORMATION*:
Esecuzione in HW integrale micrograno. Si costruiscono con 2 taglienti ad elica traente per ottima finitura sul lato inferiore del pannello. Scarico del truciolo verso l`alto.
Manufactured with micrograin solid carbide. With 2 positive spiral cutting edges for an excellent finishing on the bottom of the workpiece. Upward chip evacuation.

Dx/*Rh* - Z = 2

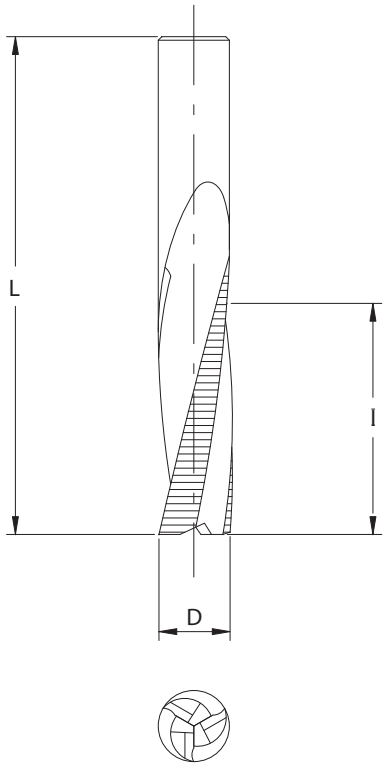
Codice *Code*	**D** *D*	**I** *I*	**L** *L*	**Codice Prezzo** *Price Code*
4175.030.012	3	12	40	L03
4175.040.012	4	15	40	D04
4175.050.017	5	16	50	L04
4175.060.017	6	17	50	L05
4175.060.027	6	25	60	D06
4175.080.022	8	22	63	F07
4175.080.032	8	32	72	E08
4175.100.032	10	32	72	D10
4175.100.042	10	42	100	D12
4175.120.032	12	32	73	D13
4175.120.042	12	42	100	F14
4175.120.052	12	52	100	B15
4175.140.042	14	42	100	H16
4175.140.052	14	52	100	L16
4175.160.042	16	42	100	F17
4175.160.052	16	52	100	L17
4175.160.062	16	62	106	D18
4175.180.052	18	52	100	B19
4175.180.072	18	75	125	F20
4175.200.052	20	52	100	A21
4175.200.072	20	75	125	F22

Sx/*Lh* - Z = 2

Codice *Code*	**D** *D*	**I** *I*	**L** *L*	**Codice Prezzo** *Price Code*
4176.030.012	3	12	40	B04
4176.040.012	4	15	40	G04
4176.050.017	5	16	50	B05
4176.060.017	6	17	50	C06
4176.060.027	6	25	60	H06
4176.080.022	8	22	63	A08
4176.080.032	8	32	72	A09
4176.100.032	10	32	72	M10
4176.100.042	10	42	100	B13
4176.120.032	12	32	73	A14
4176.120.042	12	42	100	M14
4176.120.052	12	52	100	F15
4176.140.042	14	42	100	C17
4176.140.052	14	52	100	D17
4176.160.042	16	42	100	B18
4176.160.052	16	52	100	E18
4176.160.062	16	62	106	A19
4176.180.052	18	52	100	H19
4176.180.072	18	75	125	A21
4176.200.052	20	52	100	G21
4176.200.072	20	75	125	C23

4195 - 4196

FRESE ELICOIDALI HW INTEGRALE Z=3 (sgrossatura)
HW SPIRAL ROUTER CUTTERS Z=3 (rough cut)



ELICA TRAENTE / UP-CUT SPIRAL

APPLICAZIONE/*APPLICATION*:
Forare e contornare su legno massiccio e suoi derivati (truciolare - MDF -HDF).
For boring and sizing on solid wood, chipboard and fibre materials (MDF - HDF).

MACCHINA/*MACHINE*:
Pantografo CNC/*CNC router.*

INFORMAZIONI TECNICHE/*TECHNICAL INFORMATION*:
Esecuzione in HW integrale micrograno. Si costruiscono con 3 taglienti ad elica traente. Finitura migliore sul lato inferiore del pannello. Scarico del truciolo verso l`alto.
Manufactured with micrograin solid carbide. With 3 positive spiral cutting edges for face side down workpieces. Upward chip evacuation.

Dx/*Rh* - Z = 3

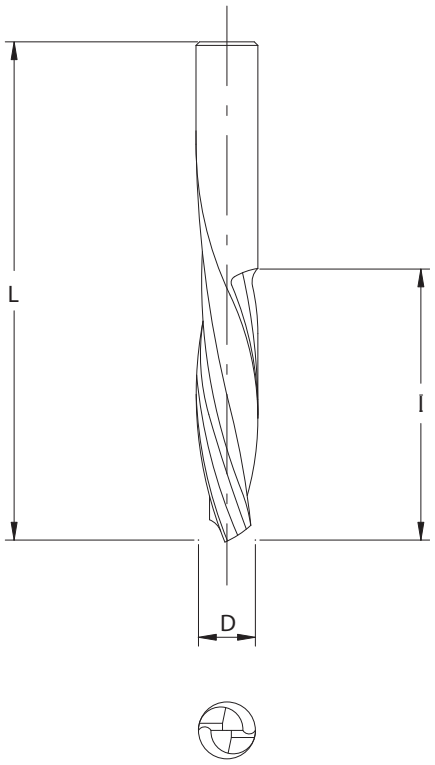
Codice *Code*	**D** *D*	**I** *I*	**L** *L*	**Codice Prezzo** *Price Code*
4195.080.022	8	22	63	G08
4195.080.032	8	32	72	G09
4195.100.032	10	32	72	M11
4195.100.042	10	42	100	M13
4195.120.032	12	32	72	E14
4195.120.042	12	42	100	E15
4195.120.052	12	52	100	B16
4195.140.042	14	42	100	L17
4195.140.052	14	52	100	D18
4195.160.042	16	42	100	E19
4195.160.052	16	52	100	L19
4195.160.062	16	62	106	B20
4195.180.052	18	52	100	H20
4195.180.072	18	75	125	B22
4195.200.052	20	52	100	F22
4195.200.072	20	75	125	A24
4195.200.102	20	102	160	C26
4195.250.052	25	52	100	H29
4195.250.102	25	102	160	M30

Sx/*Lh* - Z = 3

Codice *Code*	**D** *D*	**I** *I*	**L** *L*	**Codice Prezzo** *Price Code*
4196.080.022	8	22	63	C09
4196.080.032	8	32	72	D10
4196.100.032	10	32	72	H12
4196.100.042	10	42	100	D14
4196.120.032	12	32	72	L14
4196.120.042	12	42	100	L15
4196.120.052	12	52	100	G16
4196.140.042	14	42	100	E18
4196.140.052	14	52	100	A19
4196.160.042	16	42	100	M19
4196.160.052	16	52	100	D20
4196.160.062	16	62	106	G20
4196.180.052	18	52	100	C21
4196.180.072	18	75	125	H22
4196.200.052	20	52	100	C23
4196.200.072	20	75	125	G24

4180 - 4181

FRESE ELICOIDALI HW INTEGRALE Z=2 (finitura)
SOLID HW SPIRAL CUTTERS Z=2 (finish cut)



APPLICAZIONE/*APPLICATION*:
Forare e contornare su legno massiccio e suoi derivati (truciolare - MDF -HDF).
For boring and sizing on solid wood, chipboard and fibre materials (MDF - HDF).

MACCHINA/*MACHINE*:
Pantografo CNC/*CNC router.*

INFORMAZIONI TECNICHE/*TECHNICAL INFORMATION*:
Esecuzione in HW integrale micrograno. Si costruiscono con 2 taglienti ad elica negativa per ottima finitura sul lato superiore del pannello. Scarico del truciolo verso il basso.
Manufactured with micrograin solid carbide. With 2 negative spiral cutting edges for an excellent finishing on the top of the workpiece. Chip evacuation towards the bottom.

ELICA SPINGENTE / DOWN-CUT SPIRAL

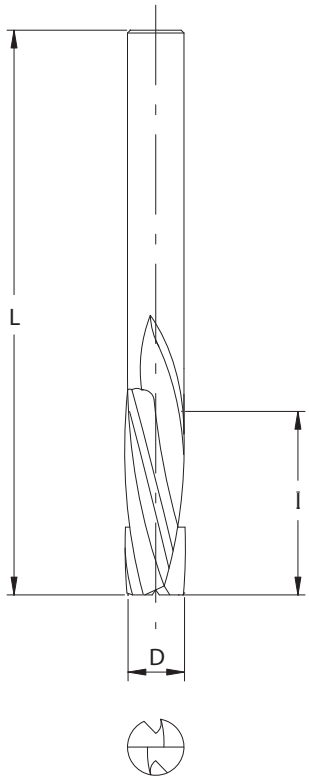
Dx/*Rh* - Z = 2

Codice *Code*	**D** *D*	**I** *I*	**L** *L*	**Codice Prezzo** *Price Code*
4180.030.012	3	12	40	L03
4180.040.012	4	15	40	D04
4180.050.017	5	16	50	L04
4180.060.017	6	17	50	L05
4180.060.027	6	25	60	D06
4180.080.022	8	22	63	F07
4180.080.032	8	32	72	E08
4180.100.032	10	32	72	D10
4180.100.042	10	42	100	D12
4180.120.032	12	32	73	D13
4180.120.042	12	42	100	F14
4180.120.052	12	52	100	B15
4180.140.042	14	42	100	H16
4180.140.052	14	52	100	L16
4180.160.042	16	42	100	F17
4180.160.052	16	52	100	L17
4180.160.062	16	62	106	D18
4180.180.052	18	52	100	B19
4180.180.072	18	75	125	F20
4180.200.052	20	52	100	A21
4180.200.072	20	75	125	F22

Sx/*Lh* - Z = 2

Codice *Code*	**D** *D*	**I** *I*	**L** *L*	**Codice Prezzo** *Price Code*
4181.030.012	3	12	40	B04
4181.040.012	4	15	40	G04
4181.050.017	5	16	50	B05
4181.060.017	6	17	50	C06
4181.060.027	6	25	60	H06
4181.080.022	8	22	63	A08
4181.080.032	8	32	72	A09
4181.100.032	10	32	72	M10
4181.100.042	10	42	100	B13
4181.120.032	12	32	73	A14
4181.120.042	12	42	100	M14
4181.120.052	12	52	100	F15
4181.140.042	14	42	100	C17
4181.140.052	14	52	100	D17
4181.160.042	16	42	100	B18
4181.160.052	16	52	100	E18
4181.160.062	16	62	106	A19
4181.180.052	18	52	100	H19
4181.180.072	18	75	125	A21
4181.200.052	20	52	100	G21
4181.200.072	20	75	125	C23

FRESE ELICOIDALI HW INTEGRALE Z=2+2 A DOPPIA ELICA
SOLID HW SPIRAL ROUTER CUTTERS Z=2+2 UP DOWN SPIRAL



ELICHE CONTRAPPOSTE / UP-DOWN SPIRAL

APPLICAZIONE/*APPLICATION*:
Contornatura di pannelli in truciolare, MDF - HDF nobilitati e laminati.
Sizing of paper, plastic coated, veneered chipboard or MDF-HDF panels.

MACCHINA/*MACHINE*:
Pantografo CNC/*CNC router.*

INFORMAZIONI TECNICHE/*TECHNICAL INFORMATION*:
Esecuzione in HW integrale micrograno. Si costruiscono con 2+2 taglienti ad eliche contrapposte per ottima finitura su entrambi i lati del pannello.
Manufactured with micrograin solid carbide. With 2+2 up-down spiral cutting edges for excellent finishing on top and bottom workpiece faces.

Dx/*Rh* - Z = 2+2

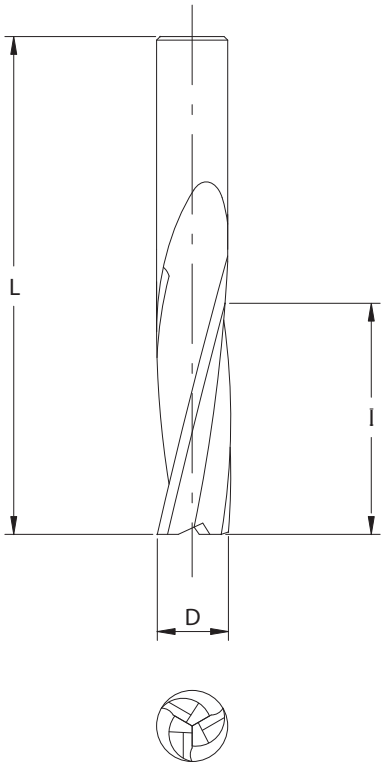
Codice *Code*	**D** *D*	**I** *I*	**L** *L*	**Codice Prezzo** *Price Code*
4210.080.032	8	32(16+16)	72	D15
4210.100.032	10	32(16+16)	72	H15
4210.100.042	10	42(15+27)	100	A16
4210.120.042	12	42(15+27)	100	G18
4210.120.052	12	52(15+37)	100	L18
4210.140.042	14	42(15+27)	100	D20
4210.140.052	14	52(15+37)	100	F20
4210.160.042	16	42(15+27)	100	F21
4210.160.052	16	52(15+37)	100	L21
4210.160.072	16	75(27+48)	125	B23
4210.180.052	18	52(15+37)	100	H22
4210.200.052	20	52(15+37)	100	A25
4210.200.072	20	72(12+63)	120	C25

Sx/*Lh* - Z = 2+2

Codice *Code*	**D** *D*	**I** *I*	**L** *L*	**Codice Prezzo** *Price Code*
4211.080.032	8	32(16+16)	72	M15
4211.100.032	10	32(16+16)	72	C16
4211.100.042	10	42(15+27)	100	H16
4211.120.042	12	42(15+27)	100	F19
4211.120.052	12	52(15+37)	100	H19
4211.140.042	14	42(15+27)	100	A21
4211.140.052	14	52(15+37)	100	C21
4211.160.042	16	42(15+27)	100	D22
4211.160.052	16	52(15+37)	100	H22
4211.160.072	16	75(27+48)	125	A24
4211.180.052	18	52(15+37)	100	G23
4211.200.052	20	52(15+37)	100	M25
4211.200.072	20	72(12+63)	120	B26

4185 - 4186

FRESE ELICOIDALI HW INTEGRALE Z=3 (finitura)
SOLID HW SPIRAL ROUTER CUTTERS Z=3 (finish cut)



ELICA TRAENTE / UP-CUT SPIRAL

APPLICAZIONE/*APPLICATION*:
Forare e contornare su legno massiccio e suoi derivati (truciolare - MDF -HDF).
For boring and sizing on solid wood, chipboard and fibre materials (MDF - HDF).

MACCHINA/*MACHINE*:
Pantografo CNC/*CNC router.*

INFORMAZIONI TECNICHE/*TECHNICAL INFORMATION*:
Esecuzione in HW integrale micrograno. Si costruiscono con 3 taglienti ad elica traente per ottima finitura sul lato inferiore del pannello. Scarico del truciolo verso l`alto.
Manufactured with micrograin solid carbide. With 3 positive spiral cutting edges for an excellent finishing on the bottom of the workpiece. Upward chip evacuation.

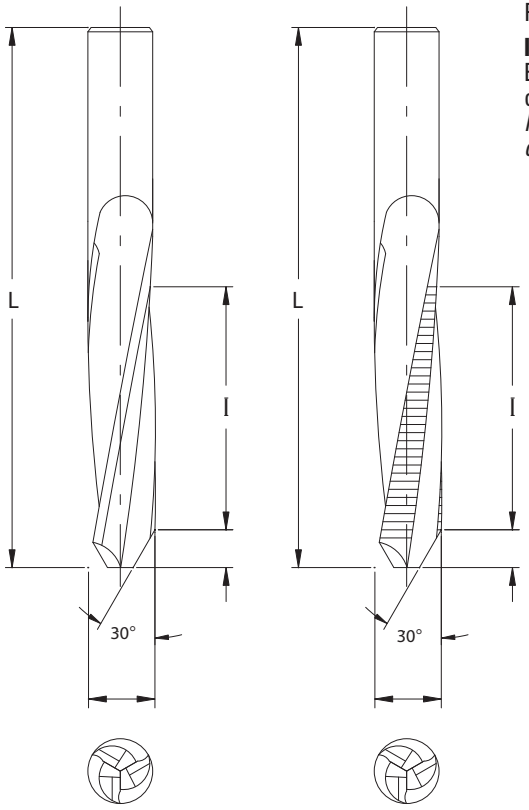
Dx/*Rh* - Z = 3

Codice *Code*	**D** *D*	**I** *I*	**L** *L*	**Codice Prezzo** *Price Code*
4185.080.022	8	22	63	M07
4185.080.032	8	32	72	L08
4185.100.032	10	32	72	L10
4185.100.042	10	42	100	H12
4185.120.032	12	32	73	M13
4185.120.042	12	42	100	L14
4185.120.052	12	52	100	D15
4185.140.042	14	42	100	A17
4185.140.052	14	52	100	B17
4185.160.042	16	42	100	M17
4185.160.052	16	52	100	C18
4185.160.062	16	62	106	H18
4185.180.052	18	52	100	G19
4185.180.072	18	75	125	L20
4185.200.052	20	52	100	E21
4185.200.072	20	75	125	A23
4185.200.102	20	102	160	F25

Sx/*Lh* - Z = 3

Codice *Code*	**D** *D*	**I** *I*	**L** *L*	**Codice Prezzo** *Price Code*
4186.080.022	8	22	63	E08
4186.080.032	8	32	72	E09
4186.100.032	10	32	72	E11
4186.100.042	10	42	100	G13
4186.120.032	12	32	73	C14
4186.120.042	12	42	100	B15
4186.120.052	12	52	100	L15
4186.140.042	14	42	100	G17
4186.140.052	14	52	100	H17
4186.160.042	16	42	100	F18
4186.160.052	16	52	100	M18
4186.160.062	16	62	106	F19
4186.180.052	18	52	100	B20
4186.180.072	18	75	125	D21
4186.200.052	20	52	100	A22
4186.200.072	20	72	125	H23

ART. 4206 ART. 4207

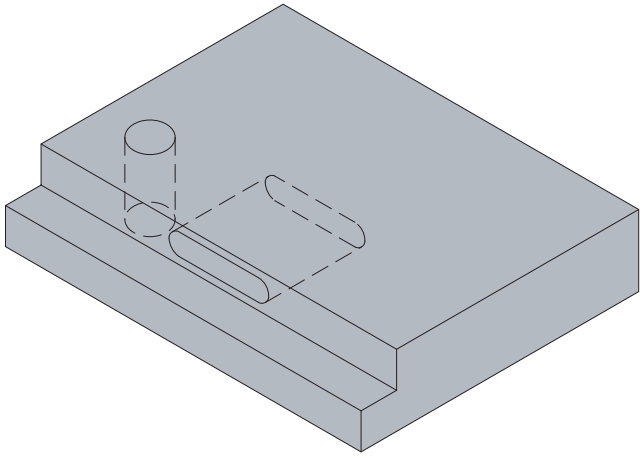


ELICA TRAENTE / UP-CUT SPIRAL

APPLICAZIONE/*APPLICATION*:
Realizzazione del foro chiave e maniglia per porte.
For plunge-cutting of latcholes and keyholes on door manufacturing.

MACCHINA/*MACHINE*:
Pantografo CNC/*CNC router.*

INFORMAZIONI TECNICHE/*TECHNICAL INFORMATION*:
Esecuzione in HW integrale micrograno. Si costruiscono con 3 taglienti ad elica traente con o senza rompitruciolo. Scarico del truciolo verso l`alto.
Manufactured with micrograin solid carbide. With 3 positive spiral cutting edges with or without chip-breaker. Upward chip evacuation.



Art. 4206 - **Dx/***Rh* - **Z = 3**

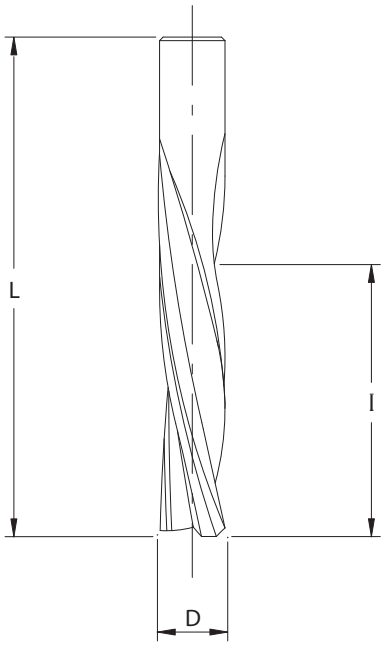
Codice *Code*	**D** *D*	**l** *l*	**B** *B*	**L** *L*	**Codice Prezzo** *Price Code*
4206.120.000	12	45	7	100	B17
4206.140.000	14	44	8	100	D19
4206.160.000	16	53	9	106	L20
4206.180.000	18	65	10	125	A23
4206.200.000	20	64	11	125	C25

Art. 4207 - **Dx/***Rh* - **Z = 3**

Codice *Code*	**D** *D*	**l** *l*	**B** *B*	**L** *L*	**Codice Prezzo** *Price Code*
4207.120.000	12	45	7	100	B18
4207.140.000	14	44	8	100	F20
4207.160.000	16	53	9	106	B22
4207.180.000	18	65	10	125	E24
4207.200.000	20	64	11	125	D26

4190 - 4191

FRESE ELICOIDALI HW INTEGRALE Z=3 (finitura)
SOLID HW SPIRAL CUTTERS Z=3 (finish cut)



ELICA SPINGENTE / DOWN-CUT SPIRAL

APPLICAZIONE/*APPLICATION*:
Forare e contornare su legno massiccio e suoi derivati (truciolare - MDF -HDF).
For boring and sizing on solid wood, chipboard and fibre materials (MDF - HDF).

MACCHINA/*MACHINE*:
Pantografo CNC/*CNC router.*

INFORMAZIONI TECNICHE/*TECHNICAL INFORMATION*:
Esecuzione in HW integrale micrograno. Si costruiscono con 3 taglienti ad elica negativa per ottima finitura sul lato superiore del pannello. Scarico del truciolo verso il basso.
Manufactured with micrograin solid carbide. With 3 negative spiral cutting edges for an excellent finishing on the top of the workpiece. Chip evacuation towards the bottom.

Dx/*Rh* - Z = 3

Codice *Code*	**D** *D*	**I** *I*	**L** *L*	**Codice Prezzo** *Price Code*
4190.080.022	8	22	63	M07
4190.080.032	8	32	72	L08
4190.100.032	10	32	72	L10
4190.100.042	10	42	100	H12
4190.120.032	12	32	73	M13
4190.120.042	12	42	100	L14
4190.120.052	12	52	100	D15
4190.140.042	14	42	100	A17
4190.140.052	14	52	100	B17
4190.160.042	16	42	100	M17
4190.160.052	16	52	100	C18
4190.160.062	16	62	106	H18
4190.180.052	18	52	100	G19
4190.180.072	18	75	125	L20
4190.200.052	20	52	100	E21
4190.200.072	20	75	125	A23

Sx/*Lh* - Z = 3

Codice *Code*	**D** *D*	**I** *I*	**L** *L*	**Codice Prezzo** *Price Code*
4191.080.022	8	22	63	E08
4191.080.032	8	32	72	E09
4191.100.032	10	32	72	E11
4191.100.042	10	42	100	G13
4191.120.032	12	32	73	C14
4191.120.042	12	42	100	B15
4191.120.052	12	52	100	L15
4191.140.042	14	42	100	G17
4191.140.052	14	52	100	H17
4191.160.042	16	42	100	F18
4191.160.052	16	52	100	M18
4191.160.062	16	62	106	F19
4191.180.052	18	52	100	B20
4191.180.072	18	75	125	D21
4191.200.052	20	52	100	A22
4191.200.072	20	72	125	H23