

Ручные развертки и концевые фрезы

Технические характеристики

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Сургут (3462)77-98-35
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Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
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ALESATORI A MACCHINA HSS-CO A CODOLO CILINDRICO

HSS-CO machine reamers / Alésoirs machine HSS-CO

Escariadores a maquina HSS-CO / Maschinenreibahlen HSS-CO

HSS-CO

29020

29021



10°



DIN 212/2B

45°



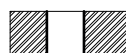
DIN 212/2C

Per centri
a controllo
numerico
CNC

Confezione / Packaging



Applicazioni / Applications



H7

- Per operazioni di finitura di fori passanti in tolleranza H7 di materiali ferrosi e non ferrosi.
- Suitable for finishing operations, inside through holes with H7 tolerance.

Art. 29020

Ø g6	d h9	l mm	L mm	pcs 	z	cod.
3	3,0	15	61	1	6	290200300
4	4,0	19	75	1	6	290200400
5	5,0	23	86	1	6	290200500
6	6,0	26	93	1	6	290200600
7	7,0	30	109	1	6	290200700
8	8,0	32	117	1	6	290200800
9	9,0	36	125	1	6	290200900
10	10,0	38	133	1	6	290201000
10,5	10,0	38	133	1	6	290201050
11	10,0	41	142	1	8	290201100
12	10,0	44	151	1	8	290201200
13	10,0	44	151	1	8	290201300
14	12,5	47	160	1	8	290201400
15	12,5	50	162	1	8	290201500
16	12,5	52	170	1	8	290201600
17	14,0	54	175	1	8	290201700
18	14,0	56	182	1	8	290201800
19	16,0	58	189	1	10	290201900
20	16,0	60	195	1	10	290202000

Art. 29021

z	cod.
3	290210300
3	290210400
3	290210500
3	290210600
3	290210700
3	290210800
3	290210900
3	290211000
3	-
3	290211100
3	290211200
3	290211300
3	290211400
3	-
3	290211600
3	-
3	290211800
3	-
3	290212000

Art. 29020: decimali e centesimali su richiesta

Decimal reamers and centesimal ones on demand

Art. 29021: Il numero dispari di taglienti genera fori con minori errori di circolarità ed evita imperfezioni dovute a vibrazioni.

The odd number of cutting edges generates holes with less circular errors and prevents imperfections due to vibrations.

Consigli d'uso / Use tips

Per evitare un'usura precoce dell'utensile, è buona norma fare ruotare l'alesatore sempre e solo nel verso corretto di rotazione e lavorare con uno spessore corretto di sovrametallo da asportare.

Di seguito si riporta lo spessore di sovrametallo consigliato:

Please always rotate the reamer according to the correct sense of rotation to prevent early tool wear. Please refer to the previous table to learn the right removable stock thickness to be used.

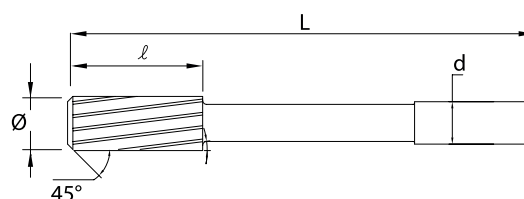
Diametro foro (mm) Hole diameter	Spessore consigliato di sovrametallo (mm) Removable stock thickness
$\phi \leq 4$	0,1
$4 < \phi \leq 11$	0,2
$11 < \phi \leq 38$	0,3
$40 < \phi \leq 50$	0,4

Lo spessore di sovrametallo non deve essere troppo limitato, perché in tal modo l'alesatore comprime il materiale invece di tagliarlo. D'altro canto lo spessore non deve essere troppo elevato, perché l'utensile rischia di incollarsi e/o il foro generato risulta sottodimensionato.

Fiori sottodimensionati si ottengono anche con velocità e avanzamenti troppo bassi o con apporti troppo limitati di lubrificante, mentre fori sovradimensionati si ottengono con parametri di taglio troppo elevati. Parametri di lavoro scorretti generano tra l'altro anche fori con una cattiva finitura.

If the removable stock thickness is too little, the reamer compresses the work-piece material instead of cutting it; on the other hand, if the removable stock thickness is too high, the tool tries to stick and/or the hole you produce is too little.

You'll produce little holes also with low cutting parameters (low cutting speed, low feed, low lubricant content), whereas you'll drill bigger holes than expected if you use high cutting parameters. Please use the recommended cutting parameters to avoid any bad finishing.



ALESATORI A MACCHINA A CODOLO CONICO MORSE

Morse taper shank machine reamers / Alésoirs machine queue conique

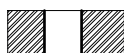
Escariadores a maquina mango conico Morse / Morsekegelmaschinenreibahlen

HSS-CO DIN 208 B

29026



10°

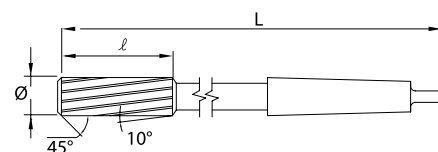


H7

- Per operazioni di finitura di fori passanti in tolleranza H7 di materiali ferrosi e non ferrosi.
- Suitable for finishing operations, inside through holes with H7 tolerance.

Ø g6	M.K. / mm	L mm	z	pcs 	cod.
5	1	23	133	6 1	290260500
6	1	26	138	6 1	290260600
7	1	31	150	6 1	290260700
8	1	33	156	6 1	290260800
9	1	36	162	6 1	290260900
10	1	38	168	6 1	290261000
11	1	41	175	8 1	290261100
12	1	44	182	8 1	290261200
13	1	44	182	8 1	290261300
14	1	47	189	8 1	290261400
15	2	50	204	8 1	290261500
16	2	52	210	8 1	290261600
17	2	54	214	8 1	290261700
18	2	56	219	8 1	290261800
19	2	58	223	10 1	290261900
20	2	60	228	10 1	290262000
21	2	62	232	10 1	290262100

Ø g6	M.K.	/ mm	L mm	z	pcs 	cod.
22	2	64	237	10	1	290262200
23	2	66	241	10	1	290262300
24	3	68	268	10	1	290262400
25	3	68	268	10	1	290262500
26	3	70	273	10	1	290262600
27	3	71	277	10	1	290262700
28	3	71	277	10	1	290262800
30	3	73	281	10	1	290263000
31	3	75	285	12	1	290263100
32	4	77	317	12	1	290263200
34	4	78	321	12	1	290263400
35	4	78	321	12	1	290263500
36	4	79	325	12	1	290263600
38	4	81	329	12	1	290263800
40	4	81	329	12	1	290264000
45	4	83	336	12	1	290264500
50	4	86	344	12	1	290265000



HSS DIN 311

29039



25°



- Per alesare fori disallineati che devono essere rivettati o imbullonati insieme
- Suitable for finishing operations, through misaligned holes

Ø g6	M.K.	/ mm	L mm	z	pcs 	cod.
10	1	95	171	4	1	290391000
11	1	100	176	4	1	290391100
12	2	105	199	5	1	290391200
13	2	105	199	5	1	290391300
14	2	115	209	5	1	290391400
15	2	125	209	5	1	290391500
16	2	135	219	5	1	290391600
17	3	135	229	5	1	290391700
18	3	145	251	5	1	290391800
19	3	145	261	5	1	290391900
20	3	155	261	5	1	290392000
21	3	155	271	5	1	290392100
22	3	165	271	5	1	290392200
23	3	165	281	5	1	290392300
24	3	180	281	5	1	290392400
25	3	180	296	5	1	290392500
26	3	180	296	5	1	290392600
27	3	195	311	5	1	290392700
28	3	195	311	5	1	290392800
30	3	195	311	5	1	290393000
31	3	210	326	5	1	290393100
32	4	210	354	5	1	290393200
34	4	220	364	5	1	290393400
36	4	220	364	5	1	290393600

ALESATORI A MANICOTTO IN HSS CON TAGLIENTI ELICOIDALI E FORO CONICO 1:30

HSS shell reamers with taper bore 1:30 / Alésoirs creux à alevage conique 1:30

Escariadores huecos a maquina HSS conicidad 1:30 / Aufsteckreibahlen mit kegelförmiger Bohrung 1:30

HSS DIN 219 B

29040



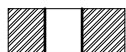
Confezione / Packaging



Applicazioni / Applications



Ø g6	Ø foro/hole mm	l mm	L mm	z	pcs	cod.
30	13,0	32	45	10	1	290403000
32	16,0	36	50	12	1	290403200
34	16,0	36	50	12	1	290403400
35	16,0	36	50	12	1	290403500
36	19,0	40	56	12	1	290403600
38	19,0	40	56	12	1	290403800
40	19,0	40	56	12	1	290404000
42	19,0	40	56	12	1	290404200
45	22,0	45	63	12	1	290404500
46	22,0	45	63	12	1	290404600
48	22,0	45	63	12	1	290404800
50	22,0	45	63	12	1	290405000
52	27,0	50	71	12	1	290405200
55	27,0	50	71	12	1	290405500
58	27,0	50	71	12	1	290405800
60	27,0	50	71	12	1	290406000



H7

- Per operazioni di finitura di fori passanti in tolleranza H7 di materiali ferrosi e non ferrosi. Da utilizzare con apposito mandrino porta alesatore.
- Suitable for finishing operations, inside through holes with H7 tolerance. Use with proper drill chuck.

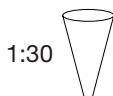
MANDRINO PORTA ALESATORE A MANICOTTO CON ESTRATTORE

Drill chuck for shell reamers with ejecting tool / Mandrin porte-alésoir creux avec extracteur

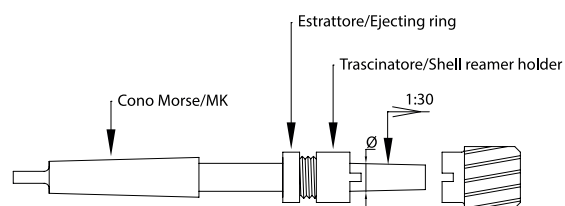
Mandrino para corona de escariador a maquina / Bohrfutter für Aufsteckreibahlen mit Abzieher

DIN 217

29041



M.K.	Ø foro/hole mm	L mm	cod.
3	13	250	290410313
3	16	261	290410316
4	19	298	290410419
4	22	312	290410422
5	27	359	290410527



ALESATORI A MANO IN HSS A CODOLO CILINDRICO

HSS hand reamers / Alésoirs à main HSS

Escariadores a mano HSS / Handreibahlen HSS

HSS DIN 206 B

29001



Confezione / Packaging



Applicazioni / Applications

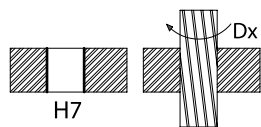


Ø g6	d e9	q mm	l mm	L mm	z	pcs 	cod.
4	4	3,0	38	76	6	1	290010400
5	5	3,8	44	87	6	1	290010500
6	6	4,9	47	93	6	1	290010600
7	7	5,5	54	107	6	1	290010700
8	8	6,2	58	115	6	1	290010800
9	9	7,0	62	124	6	1	290010900
10	10	8,0	66	133	6	1	290011000
11	11	9,0	71	142	8	1	290011100
12	12	9,0	76	152	8	1	290011200
13	13	10,0	76	152	8	1	290011300
14	14	11,0	81	163	8	1	290011400
15	15	12,0	81	163	8	1	290011500
16	16	12,0	87	175	8	1	290011600
17	17	13,0	87	175	8	1	290011700
18	18	14,5	93	188	8	1	290011800
19	19	14,5	93	188	10	1	290011900
20	20	16,0	100	201	10	1	290012000
21	21	16,0	100	201	10	1	290012100
22	22	18,0	107	215	10	1	290012200
23	23	18,0	107	215	10	1	290012300
24	24	18,0	115	231	10	1	290012400
25	25	20,0	115	231	10	1	290012500
26	26	20,0	115	231	10	1	290012600
27	27	22,0	124	247	10	1	290012700
28	28	22,0	124	247	10	1	290012800
30	30	24,0	124	247	10	1	290013000
32	32	24,0	133	265	12	1	290013200
34	34	26,0	142	284	12	1	290013400
35	35	29,0	142	284	12	1	290013500
36	36	29,0	142	284	12	1	290013600
38	38	29,0	152	305	12	1	290013800
40	40	32,0	152	305	12	1	290014000

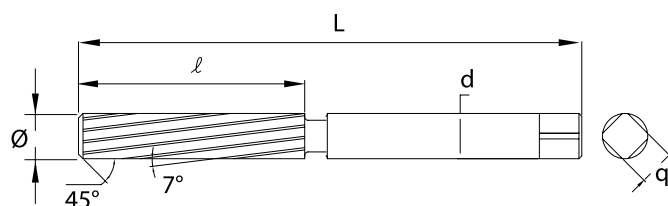
Sovrametallo consigliato

Recommended removable stock

Diametro foro (mm) Hole diameter	Spessore consigliato di sovrmetal (mm) Removable stock thickness
Ø≤11	0,2
11<Ø≤38	0,3
Ø=40	0,4



- Per operazioni di calibratura, lavori di manutenzione o riparazione di fori passanti in tolleranza H7.
- Suitable for gauging operations, maintenance and recovery of through holes with H7 tolerance.



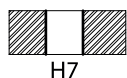
ALESATORI REGOLABILI A MANO A ESPANSIONE IN HSS A CODOLO CILINDRICO

HSS adjustable hand reamers / Alésoirs à main réglables HSS

Escariadores extensibles en HSS con guía / Handreibahnen mit verschiebbaren Messen

HSS DIN 859/B

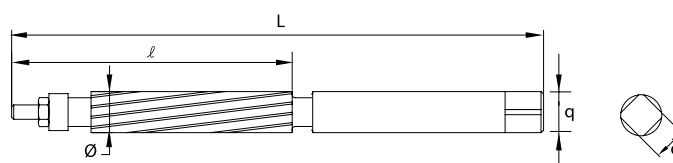
29006



H7

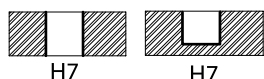
Piccola espansione 1/100 del diametro nominale Adjustable hand reamer 1/100 nominal diameter

Ø mm	d e9	q mm	l mm	L mm	z	pcs 	cod.
4	4	3,0	24	76	6	1	29006001
5	5	3,8	30	87	6	1	29006002
6	6	4,9	33	93	6	1	29006003
7	7	5,5	38	107	9	1	29006004
8	8	6,2	42	115	9	1	29006005
9	9	7,0	46	124	9	1	29006006
10	10	8,0	50	133	9	1	29006007
11	11	9,0	51	142	9	1	29006008
12	12	9,0	56	152	9	1	29006009
13	13	10,0	56	152	9	1	29006010
14	14	11,0	61	163	9	1	29006011
15	15	12,0	61	163	9	1	29006012
16	16	12,0	67	175	9	1	29006013
19	19	14,5	68	188	9	1	29006014
20	20	16,0	75	201	9	1	29006015
22	22	18,0	82	215	12	1	29006016
24	24	18,0	85	231	12	1	29006017
25	25	20,0	85	231	12	1	29006018
30	30	24,0	94	247	12	1	29006019
33	33	26,0	99	265	12	1	29006020
38	38	29,0	111	305	12	1	29006021



HSS

29005



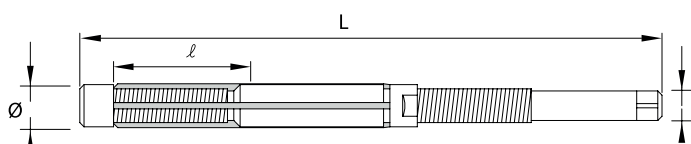
H7

H7

- Per eseguire riparazioni e lavorazioni leggere in fori ciechi e/o passanti in tolleranza H7.
- Suitable for recovery and light works inside blind and/or through holes with H7 tolerance.

Grande espansione, lame corte Expanding hand reamer short type

Ø capacità range	q mm	l mm	L mm	z	pcs 	cod.
6,4-7,2	3,0	32	110	4	1	29005001
7,2-8	3,4	32	110	4	1	29005002
8-9	3,8	34	115	5	1	29005003
9-10	4,3	34	115	5	1	29005004
10-11	4,9	34	115	5	1	29005005
11-12	4,9	35	125	5	1	29005006
12-13,5	6,2	41	135	5	1	29005007
13,5-15,5	7,0	50	146	5	1	29005008
15,5-18	8,0	60	166	5	1	29005009
18-21	9,0	65	178	5	1	29005010
21-24	11,0	76	195	5	1	29005011
24-27,5	12,0	82	218	5	1	29005012
27,5-31,5	14,5	86	245	5	1	29005013
31,5-37	18,0	98	280	6	1	29005014
37-45	20,0	108	325	6	1	29005015
45-55	26,0	118	370	6	1	29005016
55-65	32,0	125	400	6	1	29005017
67-80	39,0	140	435	8	1	29005018



ALESATORI A MANO IN HSS A CODOLO CILINDRICO, CONICITÀ 1:50, PER FORI DI SPINE CONICHE

Taper pin hand reamers, taper 1:50 / Alésoirs à main pour trous de goupilles

coniques, conicité 1:50 / Escariadores a mano HSS, conicidad 1:50 / Handreibahlen für Kegelstiftbohrungen, Kegel 1:50

HSS DIN 9 B

29010



Ø mm	Ø min mm	Ø max mm	q mm	l mm	L mm	z	pcs 	cod.	
4	3,90	5,25	4,00	68	93	5	1	290100400	
5	4,90	6,36	5,00	73	100	5	1	290100500	
6	5,90	8,00	6,30	105	135	6	1	290100600	
8	7,90	10,80	8,00	145	180	7	1	290100800	
10	9,90	13,40	10,00	175	215	7	1	290101000	
12	11,80	16,00	11,20	210	255	7	1	290101200	
16	15,80	20,40	14,00	230	280	9	1	290101600	
20	19,80	24,80	18,00	250	310	9	1	290102000	

Confezione / Packaging



Applicazioni / Applications



Acciaio
Steel



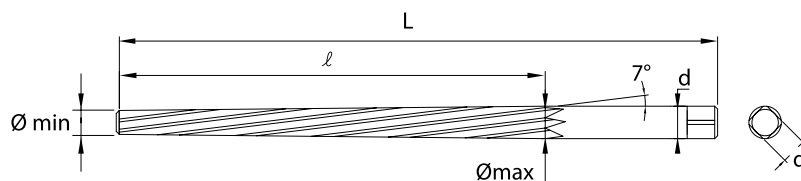
Metals



H7

- Per operazioni di alesatura in fori di spine coniche con tolleranza H7. Scaricare ripetutamente i trucioli durante la lavorazione.

- Suitable for reaming in taper pin holes with H7 tolerance. Please remove the chips while reaming.



FRESE FRONTALI CILINDRICHE A 4 TAGLIENTI IN HSS-CO8% CON ATTACCO WELDON

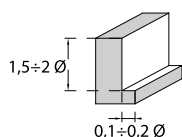
HSS-CO8% four flutes end mills, Weldon shank / Fraises à rainurer HSS-CO8%, quatre dents, queue Weldon

Fresas frontales HSS-CO8%, mango Weldon / Vierschneider Langlochfräser

Universal

DIN 844 K

24013 24015



Finitura
Finishing

Serie corta / Short serie / Série courte
Serie corta / Kurze Ausführung

Ø k10	d mm	L mm	l mm	z	pcs	cod.
3	6	52	8	4	1	240130300
4	6	55	11	4	1	240130400
5	6	57	13	4	1	240130500
6	6	57	13	4	1	240130600
7	10	66	16	4	1	240130700
8	10	69	19	4	1	240130800
9	10	69	19	4	1	240130900
10	10	72	22	4	1	240131000
12	12	83	26	4	1	240131200
14	12	83	26	4	1	240131400
16	16	92	32	4	1	240131600
18	16	92	32	4	1	240131800
20	20	104	38	4	1	240132000
22	20	104	38	6	1	240132200

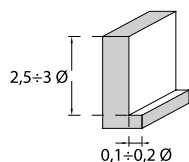
Art. 24013
HSS-Co8%

Art. 24015
HSS-Co8%+TiAlN

Universal

DIN 844 L

24014 24016



Finitura
Finishing

Serie lunga / Long serie / Série longue
Serie larga / Lange Ausführung

Ø k10	d mm	L mm	l mm	z	pcs	cod.
4	6	63	19	4	1	240140400
5	6	68	24	4	1	240140500
6	6	68	24	4	1	240140600
8	10	88	38	4	1	240140800
10	10	95	45	4	1	240141000
12	12	110	53	4	1	240141200
14	12	110	53	4	1	240141400
16	16	123	63	4	1	240141600
18	16	123	63	4	1	240141800
20	20	141	75	4	1	240142000

Art. 24014
HSS-Co8%

Art. 24016
HSS-Co8%+TiAlN

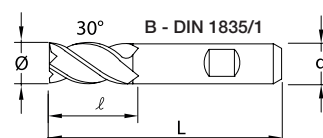
Confezione / Packaging



Applicazioni / Applications



- Acciai e metalli con R<850 N/mm², alluminio con Si 3÷12%, ghisa con durezza HB30<200
- Steel and metals with R<850 N/mm², aluminium with Si 3÷12%, cast iron with HB30<200.

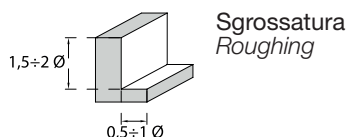


FRESE FRONTALI CILINDRICHE A 4 TAGLIENTI A **SGROSSARE** IN HSS-CO8% CON ATTACCO **WELDON**

HSS-CO8% four flutes end mills, Weldon shank for roughing purpose / Fraises à rainurer HSS-CO8% pour dégrossissage, quatre dents, queue Weldon
Fresas frontales HSS-CO8%, mango Weldon / Vierischneider Langlochfräser

DIN 844 K

24017 24019



Serie corta / Short serie / Série courte
Serie corta / Kurze Ausführung

Ø k12	d mm	L mm	/ mm	z	pcs	cod.
6	6	57	13	4	1	240170600
8	10	69	19	4	1	240170800
10	10	72	22	4	1	240171000
12	12	79	22	4	1	240171200
14	12	83	26	4	1	240171400
16	16	92	32	4	1	240171600
18	16	92	32	4	1	240171800
20	20	104	38	4	1	240172000

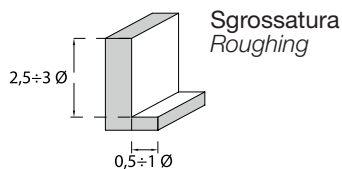
Art. 24017
HSS-Co8%

Art. 24019
HSS-Co8%+TiAlN

cod.
240190600
240190800
240191000
240191200
240191400
240191600
240191800
240192000

DIN 844 L

24018 24020



Serie lunga / Long serie / Série longue
Serie larga / Lange Ausführung

Ø k12	d mm	L mm	/ mm	z	pcs	cod.
6	6	68	24	4	1	240180600
8	10	88	38	4	1	240180800
10	10	95	45	4	1	240181000
12	12	110	53	4	1	240181200
14	12	110	53	4	1	240181400
16	16	123	63	4	1	240181600
18	16	123	63	4	1	240181800
20	20	141	75	4	1	240182000
22	20	141	75	4	1	240182200
25	25	166	90	4	1	240182500
28	25	166	90	4	1	240182800

Art. 24018
HSS-Co8%

Art. 24020
HSS-Co8%+TiAlN

cod.
240200600
240200800
240201000
240201200
240201400
240201600
240201800
240202000
240202200
240202500
240202800

Confezione / Packaging

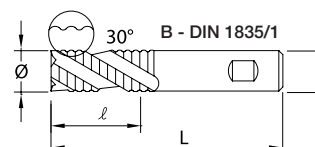


Applicazioni / Applications



- Acciai e metalli con R<850 N/mm², ghisa con durezza HB30<200, acciai molto duri con R<1000 N/mm².
- Steel and metals with R<850 N/mm², cast iron with HB30<200, hard steel with R<1000 N/mm².

Rompitruciolo tipo NR
Chip-breaker NR type



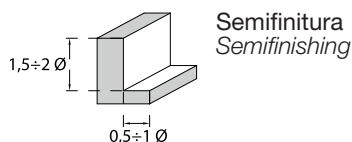
FRESE FRONTALI CIL. A 4 TAGLIENTI PER SEMIFINITURA IN HSS-CO8% CON ATTACCO WELDON

HSS-CO8% four flutes end mills, Weldon shank for finishing purpose / Fraises à rainurer HSS-CO8% pour semi-finissage, quatre dents, queue Weldon

Fresas frontales HSS-CO8%, mango Weldon / Vierschneider Langlochfräser

DIN 844 K

24021 24023



Serie corta / Short serie / Série courte Serie corta / Kurze Ausführung

Ø k12	d mm	L mm	/ mm	z	pcs
6	6	57	13	4	1
8	10	69	19	4	1
10	10	72	22	4	1
12	12	83	26	4	1
14	12	83	26	4	1
16	16	92	32	4	1
18	16	92	32	4	1
20	20	104	38	4	1

Art. 24021 HSS-Co8%

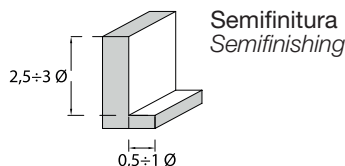
cod.

Art. 24023 HSS-Co8%+TiAlN

cod.

DIN 844 L

24022 24024



Serie lunga / Long serie / Série longue Serie larga / Lange Ausführung

Ø k12	d mm	L mm	/ mm	z	pcs
6	6	68	24	4	1
8	10	88	38	4	1
10	10	95	45	4	1
12	12	110	53	4	1
14	12	110	53	4	1
16	16	123	63	4	1
18	16	123	63	4	1
20	20	141	75	4	1
22	20	141	75	4	1
25	25	166	90	4	1
28	25	166	90	4	1

Art. 24022 HSS-Co8%

cod.

Art. 24024 HSS-Co8%+TiAlN

cod.

Confezione / Packaging

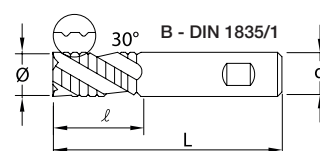


Applicazioni / Applications



- Acciai e metalli con R<850 N/mm², ghisa con durezza HB30<200, acciai molto duri con R<1000 N/mm².
- Steel and metals with R<850 N/mm², cast iron with HB30<200, hard steel with R<1000 N/mm².

Rompitruciolo tipo NF Chip-breaker NF type



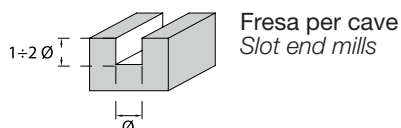
FRESE FRONTALI CILINDRICHE A 3 TAGLIENTI IN HSS-CO8% CON ATTACCO WELDON

HSS-CO8% three flutes end mills, Weldon shank / Fraises à rainurer HSS-CO8%, trois dents, queue Weldon /

Fresas frontales HSS-CO8%, mango Weldon / Dreischneider Langlochfräser

DIN 844 K

24009 24011



Serie corta / Short serie / Série courte Serie corta / Kurze Ausführung

Ø e8	d mm	L mm	/ mm	z	pcs	
3	6	52	13	3	1	
4	6	55	13	3	1	
5	6	57	13	3	1	
6	6	57	13	3	1	
8	10	69	19	3	1	
10	10	72	22	3	1	
12	12	79	22	3	1	
14	12	83	26	3	1	
16	16	92	32	3	1	
18	16	92	32	3	1	
20	20	104	38	3	1	

Art. 24009 HSS-Co8%

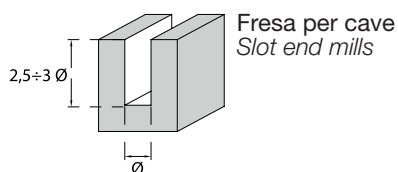
cod.
240090300
240090400
240090500
240090600
240090800
240091000
240091200
240091400
240091600
240091800
240092000

Art. 24011 HSS-Co8%+TiAlN

cod.
240110300
240110400
240110500
240110600
240110800
240111000
240111200
240111400
240111600
240111800
240112000

DIN 844 L

24010 24012



Serie lunga / Long serie / Série longue Serie larga / Lange Ausführung

Ø h10	d mm	L mm	/ mm	z	pcs	
3	6	56	12	3	1	
4	6	63	19	3	1	
5	6	68	24	3	1	
6	6	68	24	3	1	
8	10	88	38	3	1	
10	10	95	45	3	1	
12	12	110	53	3	1	
14	12	110	53	3	1	
16	16	123	63	3	1	
18	16	123	63	3	1	
20	20	141	75	3	1	

Art. 24010 HSS-Co8%

cod.
240100300
240100400
240100500
240100600
240100800
240101000
240101200
240101400
240101600
240101800
240102000

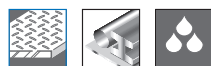
Art. 24012 HSS-Co8%+TiAlN

cod.
240120300
240120400
240120500
240120600
240120800
240121000
240121200
240121400
240121600
240121800
240122000

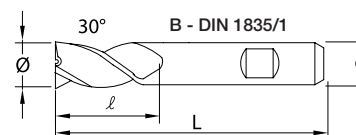
Confezione / Packaging



Applicazioni / Applications



- Acciai e metalli con R<850 N/mm².
- Steel and metals with R<850 N/mm².



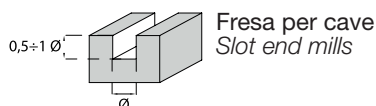
FRESE FRONTALI CILINDRICHE A 2 TAGLIENTI IN HSS-CO8% CON ATTACCO WELDON

HSS-CO8% two flutes end mills, Weldon shank / Fraises à rainurer HSS-CO8%, deux dents, queue Weldon

Fresas frontales HSS-CO8%, mango Weldon /Zweischneider Langlochfräser

DIN 327 D

24001 24003



Fresa per cave
Slot end mills

Serie corta / Short serie / Série courte Serie corta / Kurze Ausführung

Ø	tol.	d mm	L mm	/ mm	z	pcs	
2	e8	6	48	4	2	1	
2,5	e8	6	49	5	2	1	
3	e8	6	49	5	2	1	
3,5	h10	6	51	7	2	1	
4	e8	6	51	7	2	1	
4,5	h10	6	52	8	2	1	
5	e8	6	52	8	2	1	
5,5	h10	6	52	8	2	1	
6	e8	6	52	8	2	1	
6,5	h10	10	60	10	2	1	
7	e8	10	60	10	2	1	
7,5	h10	10	61	11	2	1	
8	e8	10	61	11	2	1	
8,5	h10	10	61	11	2	1	
9	h10	10	61	11	2	1	
9,5	h10	10	63	13	2	1	
10	e8	10	63	13	2	1	
11	h10	12	73	16	2	1	
12	e8	12	73	16	2	1	
13	h10	12	73	16	2	1	
14	e8	12	73	16	2	1	
15	h10	12	79	19	2	1	
16	e8	16	79	19	2	1	
18	e8	16	79	19	2	1	
20	e8	20	88	22	2	1	

Art. 24001 HSS-Co8%

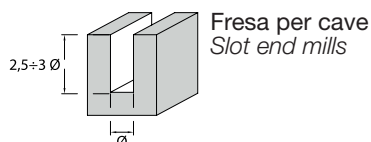
cod.
240010200
240010250
240010300
240010350
240010400
240010450
240010500
240010550
240010600
240010650
240010700
240010750
240010800
240010850
240010900
240010950
240011000
240011100
240011200
240011300
240011400
240011500
240011600
240011800
240012000

Art. 24003 HSS-Co8%+TiAlN

cod.
240030200
240030250
240030300
240030350
240030400
240030450
240030500
240030550
240030600
240030650
240030700
240030750
240030800
240030850
240030900
240030950
240031000
240031100
240031200
240031300
240031400
240031500
240031600
240031800
240032000

DIN 844 L

24002 24004



Fresa per cave
Slot end mills

Serie lunga / Long serie / Série longue Serie larga / Lange Ausführung

Ø h10	d mm	L mm	/ mm	z	pcs	
3	6	56	12	2	1	
4	6	63	19	2	1	
5	6	68	24	2	1	
6	6	68	24	2	1	
8	10	88	38	2	1	
10	10	95	45	2	1	
12	12	110	53	2	1	
14	12	110	53	2	1	
16	16	123	63	2	1	
18	16	123	63	2	1	
20	20	141	75	2	1	

Art. 24002 HSS-Co8%

cod.
240020300
240020400
240020500
240020600
240020800
240021000
240021200
240021400
240021600
240021800
240022000

Art. 24004 HSS-Co8%+TiAlN

cod.
240040300
240040400
240040500
240040600
240040800
240041000
240041200
240041400
240041600
240041800
240042000

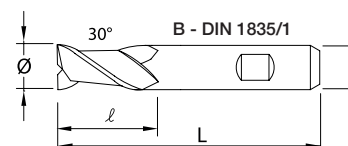
Confezione / Packaging



Applicazioni / Applications



- Acciai e metalli con $R < 850 \text{ N/mm}^2$, ghisa con durezza $HB30 < 200$.
- Steel and metals with $R < 850 \text{ N/mm}^2$, cast iron with $HB30 < 200$.



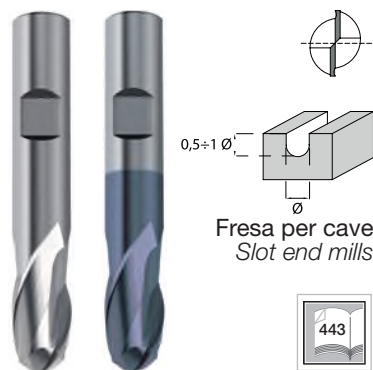
FRESE FRONTALI CILINDRICHE A RAGGIO IN HSS-CO8% CON ATTACCO WELDON

HSS-CO8% round edges end mills, Weldon shank / Fraises à rainurer à bout hémisphérique HSS-CO8%, queue Weldon

Fresas frontales HSS-CO8%, mango Weldon /Zweischneider Langlochfräser

DIN 327 D

24005 24007



0,5÷1 Ø
Fresa per cave
Slot end mills

Serie corta / Short serie / Série courte
Serie corta / Kurze Ausführung

Ø e8/h10	d mm	L mm	/ mm	z	pcs	cod.
2	6	48	4	2	1	240050200
3	6	49	5	2	1	240050300
4	6	51	7	2	1	240050400
5	6	52	8	2	1	240050500
6	6	52	8	2	1	240050600
7	10	60	10	2	1	240050700
8	10	61	11	2	1	240050800
9	10	61	11	2	1	240050900
10	10	63	13	2	1	240051000
12	12	73	16	2	1	240051200
14	12	73	16	2	1	240051400
16	16	79	19	2	1	240051600
18	16	79	19	2	1	240051800
20	20	88	22	2	1	240052000

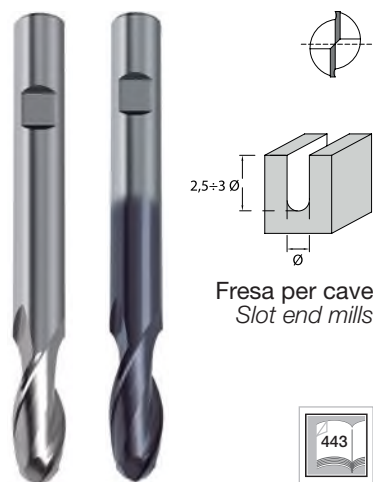
Art. 24005
HSS-Co8%

Art. 24007
HSS-Co8%+TiAlN

cod.
240070200
240070300
240070400
240070500
240070600
240070700
240070800
240070900
240071000
240071200
240071400
240071600
240071800
240072000

Norma Krino

24006 24008



2,5÷3 Ø
Fresa per cave
Slot end mills

Serie lunga / Long serie / Série longue
Serie larga / Lange Ausführung

Ø h10	d mm	L mm	/ mm	z	pcs	cod.
3	6	56	8	2	1	240060300
4	6	63	11	2	1	240060400
5	6	68	13	2	1	240060500
6	6	68	13	2	1	240060600
8	10	88	19	2	1	240060800
10	10	95	22	2	1	240061000
12	12	110	26	2	1	240061200
14	12	110	26	2	1	240061400
16	16	123	32	2	1	240061600
18	16	123	32	2	1	240061800
20	20	141	38	2	1	240062000

Art. 24006
HSS-Co8%

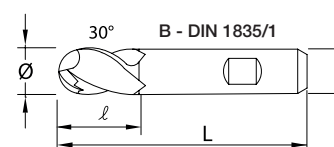
Art. 24008
HSS-Co8%+TiAlN

cod.
240080300
240080400
240080500
240080600
240080800
240081000
240081200
240081400
240081600
240081800
240082000

Applicazioni / Applications



- Acciai e metalli con
R<850 N/mm²,
ghisa con durezza
HB30<200.
- Steel and metals with
R<850 N/mm², cast
iron with HB30<200.



FRESA FRONTALE PER PANTOGRAFI A UN DENTE PER ALLUMINIO

One flute end mills for aluminium

Alu

26100



1 Dente
1 Cutting edge

HSS-G

Ø mm	d mm	L mm	/ mm	z	cod.
3	8	60	12	1	2610003060
4	8	60	12	1	2610004060
4	8	80	16	1	2610004080
5	8	60	12	1	2610005060
5	8	80	16	1	2610005080
6	8	60	14	1	2610006060
6	8	90	16	1	2610006090
8	8	80	15	1	2610008080
8	8	100	28	1	2610008100
10	10	80	15	1	2610010080

Confezione / Packaging



Applicazioni / Applications



FRESE FRONTALI CILINDRICHE A 4 TAGLIENTI IN HSS-CO5% CON ATTACCO CONICO MORSE

HSS-CO5% Morse taper end mills / Fraises à rainurer HSS-CO5%, queue Morse

Fresas frontales HSS-CO5%, mango Morse / Vierschneider Langlochfräser

Art. 24025

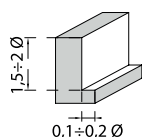
Serie corta / Short serie / Série courte / Serie corta / Kurze Ausführung

HSS-CO5%

24025



DIN 845K



Finitura
Finishing

Ø k10	MK	M	FORM	L mm	/ mm	z	pcs	cod.	
16	2	M10	A	117	32	4	1	240251600	
18	2	M10	A	117	32	4	1	240251800	
20	2	M10	A	123	38	4	1	240252000	
25	3	M12	A	147	45	6	1	240252500	
28	3	M12	A	147	45	6	1	240252800	
30	3	M12	A	147	45	6	1	240253000	
32	4	M16	A	178	53	6	1	240253200	
40	4	M16	A	178	63	6	1	240254000	

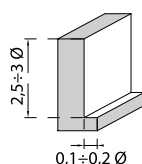
Art. 24026

Serie lunga / Long serie / Série longue / Serie larga / Lange Ausführung

24026



DIN 845L



Finitura
Finishing

Ø k10	MK	M	FORM	L mm	/ mm	z	pcs	cod.	
16	2	M10	A	148	63	4	1	240261600	
20	2	M10	A	160	75	4	1	240262000	
25	3	M12	A	192	90	6	1	240262500	
28	3	M12	A	192	90	6	1	240262800	
32	4	M16	A	231	106	6	1	240263200	
40	4	M16	A	250	125	6	1	240264000	

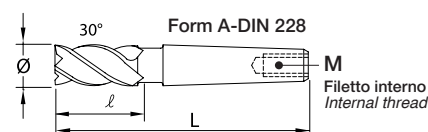
Confezione / Packaging



Applicazioni / Applications



- Acciai e metalli con $R < 850 \text{ N/mm}^2$, ghisa con durezza $HB30 < 200$.
- Steel and metals with $R < 850 \text{ N/mm}^2$, cast iron with $HB30 < 200$.



FRESE FRONTALI CILINDRICHE A 4 TAGLIENTI **A SGROSSARE** IN HSS-CO5% CON ATTACCO CONICO MORSE

HSS-CO5% Morse taper end mills for roughing purpose / Fraises à rainurer HSS-CO5%, queue Morse, pour dégrossissage
Fresas frontales HSS-CO5%, mango Morse / Vierschneider Langlochfräser

Art. 24029

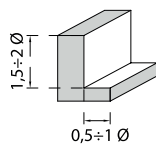
Serie corta / Short serie / Série courte / Serie corta / Kurze Ausführung

HSS-CO5%

24029



DIN 845K



Sgrossatura
Roughing

Ø k12	MK	M	FORM	L mm	/ mm	z	pcs 	cod.	
16	2	M10	A	117	32	4	1	240291600	
18	2	M10	A	117	32	4	1	240291800	
20	2	M10	A	123	38	4	1	240292000	
25	3	M12	A	147	45	6	1	240292500	
28	3	M12	A	147	45	6	1	240292800	
30	3	M12	A	147	45	6	1	240293000	
40	4	M12	A	147	45	6	1	240294000	

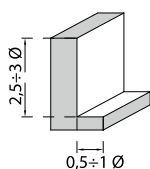
Art. 24030

Serie lunga / Long serie / Série longue / Serie larga / Lange Ausführung

24030



DIN 845L



Sgrossatura
Roughing

Ø k12	MK	M	FORM	L mm	/ mm	z	pcs 	cod.	
16	2	M10	A	148	63	4	1	240301600	
20	2	M10	A	160	75	4	1	240302000	
25	3	M12	A	192	90	6	1	240302500	
28	3	M12	A	192	90	6	1	240302800	

Confezione / Packaging

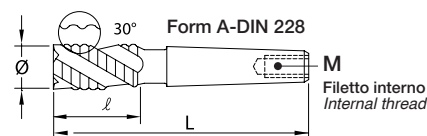


Applicazioni / Applications



- Acciai e metalli con R<850 N/mm², ghisa con durezza HB30<200.
- Steel and metals with R<850 N/mm², cast iron with HB30<200.

Rompitruciolo tipo NR
Chip-breaker NR type



Form A-DIN 228

M
Filetto interno
Internal thread

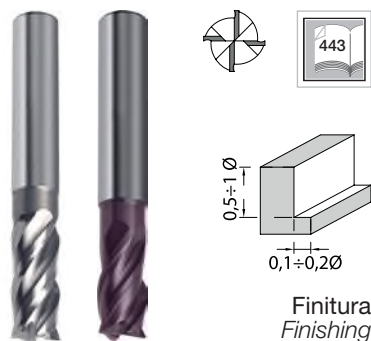
FRESE FRONTALI A 4 TAGLIENTI IN METALLO DURO INTEGRALE

Four flutes **carbide** end mills / Fraise carbure quatre dents

Fresas frontales de metal duro cuatro dientes / Hartmetall Vierschneider Langlochfräser

DIN 6527 K

24165 24167

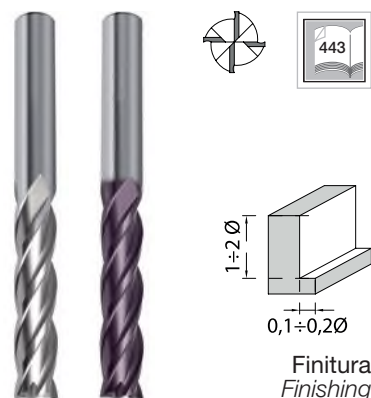


Serie corta / Short serie

Ø h10	d mm	L mm	/ mm	z	pcs	Art. 24165 VHM Carbide	Art. 24167 VHM+TiAlN Carbide + TiAlN
						cod.	cod.
2	6	50	4	4	1	241650200	241670200
3	6	50	5	4	1	241650300	241670300
4	6	54	8	4	1	241650400	241670400
5	6	54	9	4	1	241650500	241670500
6	6	54	10	4	1	241650600	241670600
8	8	58	12	4	1	241650800	241670800
10	10	66	14	4	1	241651000	241671000
12	12	73	16	4	1	241651200	241671200
14	14	75	18	4	1	241651400	241671400
16	16	82	22	4	1	241651600	241671600
18	18	84	24	4	1	241651800	241671800
20	20	92	26	4	1	241652000	241672000

DIN 6527 L

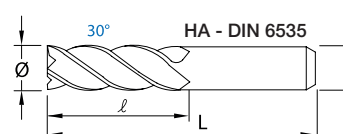
24166 24168



Serie lunga / Long serie

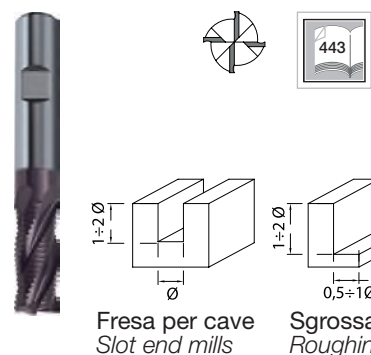
Ø h10	d mm	L mm	/ mm	z	pcs	Art. 24166 VHM Carbide	Art. 24168 VHM+TiAlN Carbide + TiAlN
						cod.	cod.
2	6	57	7	4	1	241660200	241680200
3	6	57	8	4	1	241660300	241680300
4	6	57	11	4	1	241660400	241680400
5	6	57	13	4	1	241660500	241680500
6	6	57	13	4	1	241660600	241680600
8	8	63	19	4	1	241660800	241680800
9	10	72	19	4	1	241660900	241680900
10	10	72	22	4	1	241661000	241681000
12	12	83	26	4	1	241661200	241681200
14	14	83	26	4	1	241661400	241681400
16	16	92	32	4	1	241661600	241681600
18	18	92	32	4	1	241661800	241681800
20	20	104	38	4	1	241662000	241682000

R < 850 N/mm²



DIN 6527 L

24182



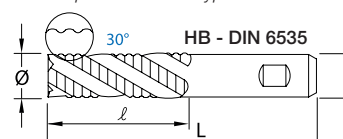
Serie lunga / Long serie

Ø h10	d mm	L mm	/ mm	z	pcs	VHM +TiAlN Carbide + TiAlN
						cod.
6	6	57	13	4	1	241820600
8	8	63	19	4	1	241820800
10	10	72	22	4	1	241821000
12	12	83	26	4	1	241821200
14	14	83	26	4	1	241821400
16	16	92	32	4	1	241821600
18	18	92	32	4	1	241821800
20	20	104	38	4	1	241822000

R < 1200 N/mm²



Rompitruciolo tipo NRF
Chip-breaker NRF type



FRESE FRONTALI A 4 TAGLIENTI AD ELICA VARIABILE IN METALLO DURO INTEGRALE

Four flutes **carbide** end mills with variable helix / Fraise carbure quatre dents avec helice variable

Fresas frontales de metal duro cuatro dientes con helica variable / Hartmetall Vierschneider Langlochfräser

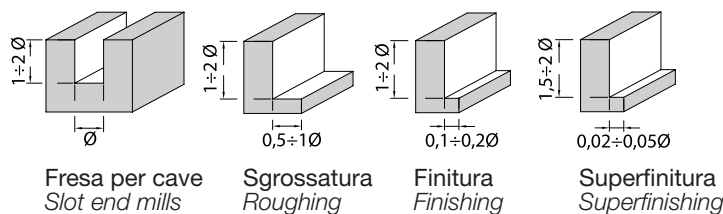
DIN 6527 L

24169 24171



Serie lunga / Long serie

Ø h10	d mm	d ₁ mm	L mm	/ mm	z	pcs	Art. 24169 VHM Carbide cod.	Art. 24171 VHM+TiAlN Carbide + TiAlN cod.
4	6	3,7	57	11	4	1	241690400	241710400
5	6	4,7	57	13	4	1	241690500	241710500
6	6	5,5	57	13	4	1	241690600	241710600
8	8	7,5	63	19	4	1	241690800	241710800
10	10	9,2	72	22	4	1	241691000	241711000
12	12	11,2	83	26	4	1	241691200	241711200
14	14	13,2	83	26	4	1	241691400	241711400
16	16	15,0	92	32	4	1	241691600	241711600
18	18	17,0	92	32	4	1	241691800	241711800
20	20	19,0	104	38	4	1	241692000	241712000



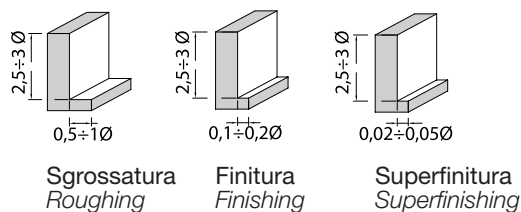
Norma Krino
Krino norm

24170 24172



Serie extra lunga / Extra long serie

Ø mm	d mm	d ₁ mm	L mm	/ mm	z	pcs	Art. 24170 VHM Carbide cod.	Art. 24172 VHM+TiAlN Carbide + TiAlN cod.
10	10	9,2	100	40	4	1	241701000	241721000
12	12	11,2	150	45	4	1	241701200	241721200
14	14	13,2	150	45	4	1	241701400	241721400
16	16	15,0	150	65	4	1	241701600	241721600
18	18	17,0	150	65	4	1	241701800	241721800
20	20	19,0	150	65	4	1	241702000	241722000



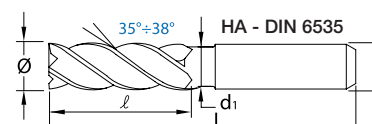
Le eliche variabili garantiscono minori vibrazioni, migliore finitura, maggiore rendimento.

The variable helix ensures less vibration, better finishing, higher efficiency.

R < 1600 N/mm² R > 750 N/mm²



HB30>200



Elliche variabili 35°-38°
Variable helix 35°-38°

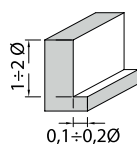
FRESE FRONTALI A 4 E 3 TAGLIANTI IN METALLO DURO INTEGRALE RIV. TIALN

Four and three flutes **carbide** end mills TiAlN coated / Fraise carbure quatre et trois dents TiAlN

Fresas frontales de metal duro cuatro y tres dientes, TiAlN

DIN 6527 L

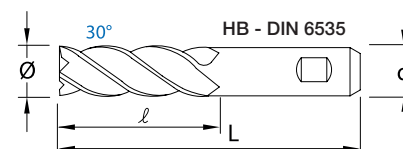
24183



Finitura
Finishing

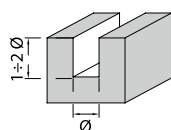
Serie lunga / Long serie

Ø h10	d mm	L mm	l mm	z	pcs 	cod.	
2	2	57	7	4	1	241830200	
3	3	57	8	4	1	241830300	
4	4	57	11	4	1	241830400	
5	5	57	13	4	1	241830500	
6	6	57	13	4	1	241830600	
8	8	63	19	4	1	241830800	
9	9	72	19	4	1	241830900	
10	10	72	22	4	1	241831000	
12	12	83	26	4	1	241831200	
14	14	83	26	4	1	241831400	
16	16	92	32	4	1	241831600	
18	18	92	32	4	1	241831800	
20	20	104	38	4	1	241832000	



DIN 6527 L

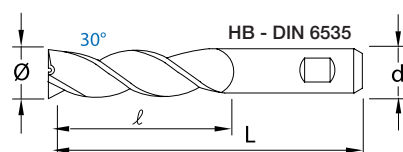
24184



Fresa per cave
Slot end mills

Serie lunga / Long serie

Ø h10	d mm	L mm	l mm	z	pcs 	cod.	
2	6	57	6	3	1	241840200	
3	6	57	7	3	1	241840300	
4	6	57	8	3	1	241840400	
5	6	57	10	3	1	241840500	
6	6	57	10	3	1	241840600	
8	8	63	16	3	1	241840800	
9	10	72	16	3	1	241840900	
10	10	72	19	3	1	241841000	
12	12	83	22	3	1	241841200	
14	14	83	22	3	1	241841400	
16	16	92	26	3	1	241841600	
18	18	92	26	3	1	241841800	
20	20	104	32	3	1	241842000	



R < 850 N/mm²



Si 3±12%



HB30<200



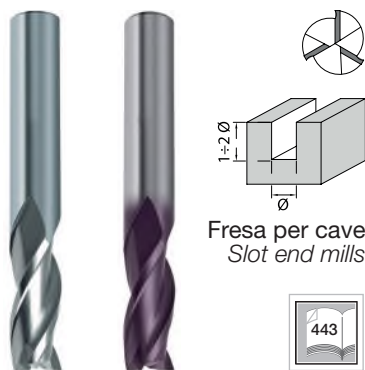
FRESE FRONTALI A 3 TAGLIANTI IN METALLO DURO INTEGRALE

Three flutes **carbide** end mills / Fraise carbure trois dents

Fresas frontales de metal duro tres dientes / Hartmetall Dreischneider Langlochfräser

DIN 6527 L

24161 24163



Fresa per cave
Slot end mills

Serie lunga / Long serie

Ø h10	d mm	L mm	/ mm	z	pcs 	Art. 24161 VHM Carbide cod.	Art. 24163 VHM+TiAlN Carbide + TiAlN cod.
3	6	57	7	3	1	241610300	241630300
4	6	57	8	3	1	241610400	241630400
5	6	57	10	3	1	241610500	241630500
6	6	57	10	3	1	241610600	241630600
8	8	63	16	3	1	241610800	241630800
9	10	72	16	3	1	241610900	241630900
10	10	72	19	3	1	241611000	241631000
12	12	83	22	3	1	241611200	241631200
14	14	83	22	3	1	241611400	241631400
16	16	92	26	3	1	241611600	241631600
18	18	92	26	3	1	241611800	241631800
20	20	104	32	3	1	241612000	241632000

Norma Krino / Krino norm

24162 24164

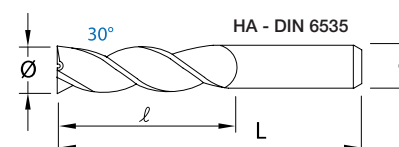


Fresa per cave
Slot end mills

Serie extra lunga / Extra long serie

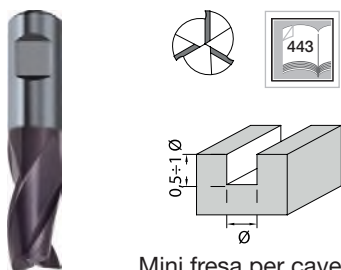
Ø h10	d mm	L mm	/ mm	z	pcs 	Art. 24162 VHM Carbide cod.	Art. 24164 VHM+TiAlN Carbide + TiAlN cod.
3	3	75	20	3	1	241620300	241640300
4	4	75	25	3	1	241620400	241640400
5	5	75	30	3	1	241620500	241640500
6	6	75	30	3	1	241620600	241640600
8	8	100	40	3	1	241620800	241640800
10	10	100	40	3	1	241621000	241641000
12	12	150	45	3	1	241621200	241641200
16	16	150	65	3	1	241621600	241641600
20	20	150	65	3	1	241622000	241642000

R < 850 N/mm²



Norma Krino / Krino norm

24181



Mini fresa per cave
Mini slot end mills

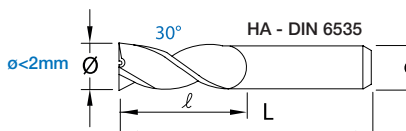
Minifresa / Mini end mills

Ø e8	d mm	L mm	/ mm	z	pcs 	VHM +TiAlN Carbide + TiAlN cod.
0,5	3	38	1,5	3	1	241810050
1	3	38	2	3	1	241810100
1,5	3	38	2	3	1	241810150
2	6	38	4	3	1	241810200
2,5	6	38	5	3	1	241810250
3	6	38	5	3	1	241810300
3,5	6	38	6	3	1	241810350
4	6	38	7	3	1	241810400
4,5	6	38	8	3	1	241810450
5	6	38	8	3	1	241810500
6	6	38	8	3	1	241810600
8	8	43	11	3	1	241810800
10	10	50	13	3	1	241811000
12	12	55	15	3	1	241811200

R < 850 N/mm²



R > 750 N/mm²

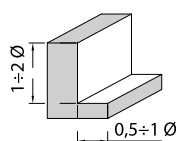


FRESE FRONTALI IN METALLO DURO INTEGRALE PER ALLUMINIO

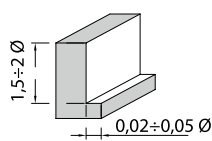
Carbide end mills for aluminium / Fraise carbure pour aluminium / Fresas frontales de metal duro para aluminium / Hartmetall Langlochfräser für Aluminium

~ DIN 6527 L

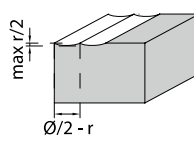
24156



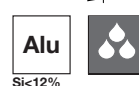
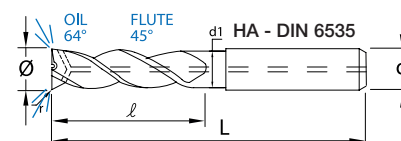
Sgrossatura
Roughing



Superfinitura
Superfinishing

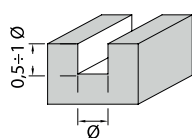


Fresa per copiatori
Ball nose end mills

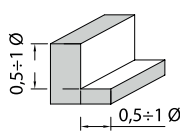


DIN 6527 K

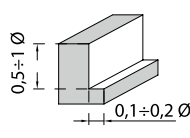
24154



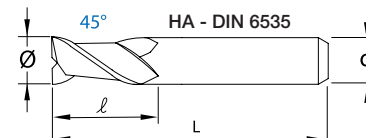
Frese per cave
Slot end mills



Sgrossatura
Roughing

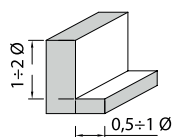


Finitura
Finishing

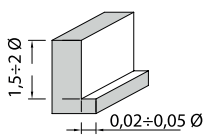


Norma Krino / Krino norm

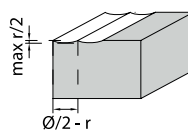
24155



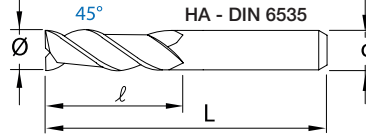
Frese per cave
Slot end mills



Sgrossatura
Roughing



Finitura
Finishing



Serie lunga / Long serie

Ø h10	d mm	d ₁ mm	L mm	l mm	r mm	z	pcs	cod.
6	6	5,7	57	10	1	3	1	241560600
8	8	7,7	63	16	1	3	1	241560800
10	10	9,5	72	19	1,5	3	1	241561000
12	12	11,5	83	22	1,5	3	1	241561200
16	16	15,5	92	26	2	3	1	241561600
20	20	19,5	104	32	2,5	3	1	241562000

Serie corta / Short serie

Ø e8	d mm	L mm	l mm	z	pcs	cod.
3	6	50	4	2	1	241540300
4	6	54	5	2	1	241540400
5	6	54	6	2	1	241540500
6	6	54	7	2	1	241540600
8	8	58	9	2	1	241540800
10	10	66	11	2	1	241541000
12	12	73	12	2	1	241541200
14	14	75	14	2	1	241541400
16	16	82	16	2	1	241541600
18	18	84	18	2	1	241541800
20	20	92	20	2	1	241542000

Serie extra lunga / Extra long serie

Ø h10	d mm	L mm	l mm	z	pcs	cod.
5	5	75	30	2	1	241550500
6	6	75	30	2	1	241550600
8	8	100	40	2	1	241550800
10	10	100	40	2	1	241551000
12	12	150	45	2	1	241551200
16	16	150	65	2	1	241551600

Nella lavorazione di alluminio, superleghe di titanio e quando ci sia pericolo di incollaggio trucioli si consiglia l'uso di fresatura concorde, che è anche indicata nel caso di lavorazioni di spessori sottili, perché le forze di taglio aiutano a tenere saldo il pezzo in lavorazione.
When machining aluminum, titanium superalloys and whenever there is a risk of chip bonding, we recommend the use of concordant milling, which is also suitable for thin-wall machining, because the cutting forces help to keep the workpiece firmly in place.

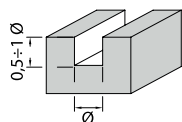
FRESE FRONTALI A 2 TAGLIENTI IN METALLO DURO INTEGRALE

Two-flutes **carbide** end mills / Fraise carbure deux dents

Fresas frontales de metal duro dos dientes / Hartmetall Zweischneider Langlochfräser

DIN 6527 K

24150 24152



Frese per cave
Slot end mills

Serie corta / Short serie

Ø mm	d mm	L mm	/ mm	z	pcs	Art. 24150 VHM Carbide cod.	Art. 24152 VHM +TiAlN Carbide + TiAlN cod.
2	6	50	3	2	1	241500200	241520200
3	6	50	4	2	1	241500300	241520300
4	6	54	5	2	1	241500400	241520400
5	6	54	6	2	1	241500500	241520500
6	6	54	7	2	1	241500600	241520600
8	8	58	9	2	1	241500800	241520800
10	10	66	11	2	1	241501000	241521000
12	12	73	12	2	1	241501200	241521200
14	14	75	14	2	1	241501400	241521400
16	16	82	16	2	1	241501600	241521600
18	18	84	18	2	1	241501800	241521800
20	20	92	20	2	1	241502000	241522000

R < 850 N/mm²



Acciaio
Steel



Alu
Si 3-12%



HB30 < 200

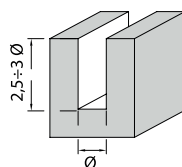
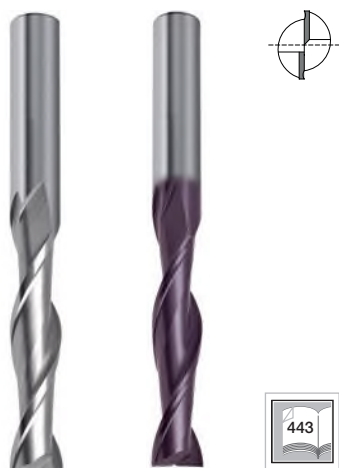


Ghisa
Cast iron



Norma Krino / Krino norm

24151 24153



Frese per cave
Slot end mills

Serie extra lunga / Extra long serie

Ø mm	d mm	L mm	/ mm	z	pcs	Art. 24151 VHM Carbide cod.	Art. 24153 VHM +TiAlN Carbide + TiAlN cod.
3	3	75	20	2	1	241510300	241530300
4	4	75	25	2	1	241510400	241530400
5	5	75	30	2	1	241510500	241530500
6	6	75	30	2	1	241510600	241530600
8	8	100	40	2	1	241510800	241530800
10	10	100	40	2	1	241511000	241531000
12	12	150	45	2	1	241511200	241531200
14	14	150	45	2	1	241511400	241531400
16	16	150	65	2	1	241511600	241531600
18	18	150	65	2	1	241511800	241531800
20	20	150	65	2	1	241512000	241532000

R < 850 N/mm²



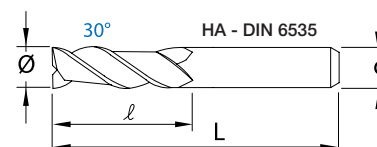
Acciaio
Steel



Metals
Si < 3%



Alu
Si < 3%



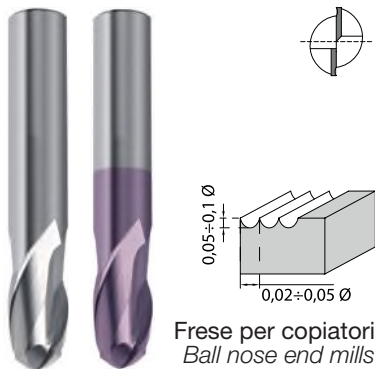
FRESE FRONTALI A RAGGIO IN METALLO DURO INTEGRALE

Carbide end mills with ball end / Fraise carbure à bout hémisphérique

Fresas frontales radiales de metal duro / Hartmetall Langlochfräser

DIN 6527 L

24157 24159



Frese per copiatori
Ball nose end mills

Serie lunga / Long serie

Ø h10	d mm	L mm	/ mm	z	pcs	Art. 24157 VHM Carbide cod.	Art. 24159 VHM +TiAlN Carbide + TiAlN cod.
2	6	57	6	2	1	241570200	241590200
3	6	57	7	2	1	241570300	241590300
4	6	57	8	2	1	241570400	241590400
5	6	57	10	2	1	241570500	241590500
6	6	57	10	2	1	241570600	241590600
8	8	63	16	2	1	241570800	241590800
10	10	72	19	2	1	241571000	241591000
12	12	83	22	2	1	241571200	241591200
14	14	83	22	2	1	241571400	241591400
16	16	92	26	2	1	241571600	241591600
18	18	92	26	2	1	241571800	241591800
20	20	104	32	2	1	241572000	241592000

R < 1200 N/mm²



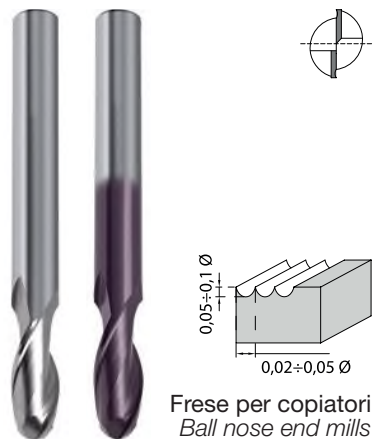
Acciaio
Steel

Metals

Inox

Norma Krino / Krino norm

24158 24160



Frese per copiatori
Ball nose end mills

Serie extra lunga / Extra long serie

Ø h10	d mm	L mm	/ mm	z	pcs	Art. 24158 VHM Carbide cod.	Art. 24160 VHM +TiAlN Carbide + TiAlN cod.
3	3	75	20	2	1	241580300	241600300
4	4	75	25	2	1	241580400	241600400
5	5	75	30	2	1	241580500	241600500
6	6	75	30	2	1	241580600	241600600
8	8	100	40	2	1	241580800	241600800
10	10	100	40	2	1	241581000	241601000
12	12	150	45	2	1	241581200	241601200

R < 850 N/mm²

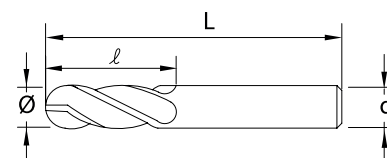


Acciaio
Steel

Metals

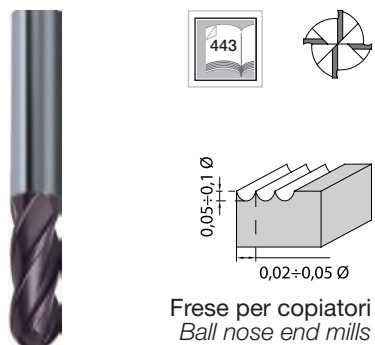
Alu

Si 3÷12%



DIN 6528

24179



Frese per copiatori
Ball nose end mills

Serie lunga / Long serie

Ø h10	d mm	L mm	/ mm	z	pcs	VHM +TiAlN Carbide + TiAlN cod.
4	4	50	11	4	1	241790400
5	5	50	13	4	1	241790500
6	6	57	13	4	1	241790600
8	8	63	19	4	1	241790800
10	10	72	22	4	1	241791000
12	12	83	26	4	1	241791200
14	14	83	26	4	1	241791400
16	16	92	32	4	1	241791600
18	18	92	32	4	1	241791800
20	20	104	38	4	1	241792000

R < 1200 N/mm²



HB30<200



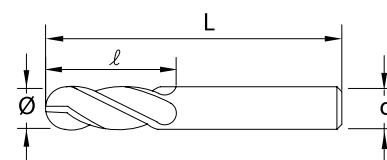
Acciaio
Steel

Metals

Alu

Si 3÷12%

Ghisa
Cast iron



FRESE FRONTALI A 6 E PIÙ TAGLIENTI PER SUPERFINITURA IN METALLO DURO INTEGRALE RIV. TIALN

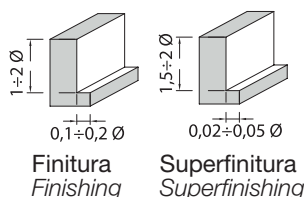
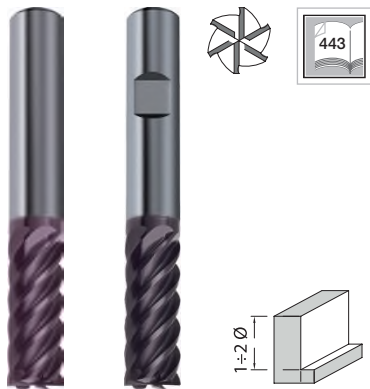
Two-flutes **carbide** end mills / Fraise carbure deux dents

Fresas frontales de metal duro dos dientes / Hartmetall Zweischneider Langlochfräser

Per materiali con HRC < 50
Suitable for materials with HRC < 50

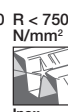
≈DIN 6527 L

24177 24185

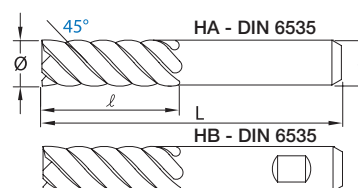
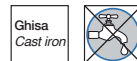


Serie lunga / Long serie

Ø h10	d mm	L mm	/ mm	z	pcs	cod.	cod.
3	6	57	8	6	1	241770300	-
4	6	57	11	6	1	241770400	-
5	6	57	13	6	1	241770500	-
6	6	57	13	6	1	241770600	241850600
8	8	63	19	6	1	241770800	241850800
10	10	72	22	6	1	241771000	241851000
12	12	83	26	6	1	241771200	241851200
14	14	83	26	6	1	241771400	241851400
16	16	92	32	6	1	241771600	241851600
18	18	92	32	8	1	241771800	241851800
20	20	104	38	8	1	241772000	241852000
25	25	121	45	10	1	241772500	241852500

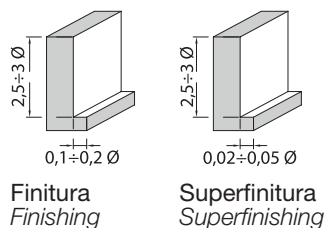
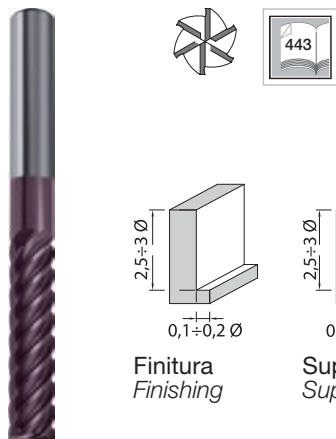


HB30>200



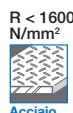
Norma Krino / Krino norm

24178

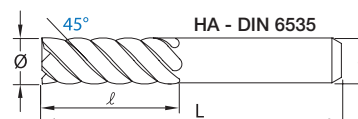
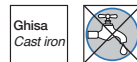


Serie extra lunga / Extra long serie

Ø h10	d mm	L mm	/ mm	z	pcs	cod.
6	6	75	30	6	1	241780600
8	8	100	40	6	1	241780800
10	10	100	40	6	1	241781000
12	12	150	45	6	1	241781200
16	16	150	65	6	1	241781600
20	20	150	65	8	1	241782000
25	25	150	75	10	1	241782500

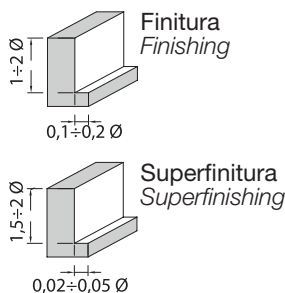
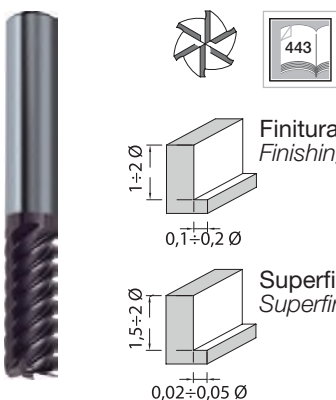


HB30>200



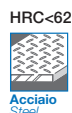
≈DIN 6527 L

24186

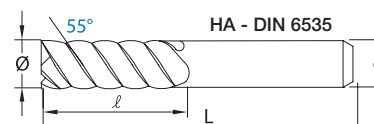


Serie lunga / Long serie

Ø h10	d mm	L mm	/ mm	z	pcs	cod.
3	6	57	8	6	1	241860300
4	6	57	11	6	1	241860400
5	6	57	13	6	1	241860500
6	6	57	13	6	1	241860600
8	8	63	19	6	1	241860800
10	10	72	22	6	1	241861000
12	12	83	26	6	1	241861200
14	14	83	26	6	1	241861400
16	16	92	32	6	1	241861600
18	18	92	32	8	1	241861800
20	20	104	38	8	1	241862000



HRC<62



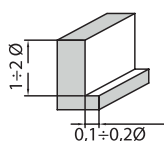
FRESE FRONTALI A ELICA VARIABILE IN METALLO DURO INTEGRALE RIV. TIALN

Carbide end mills with variable helix, TiAlN coated / Fraises carbure avec helice variable

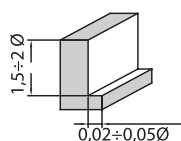
Fresas frontales de metal duro con helica variable

≈DIN 6527 L

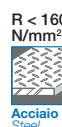
24176



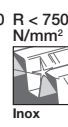
Finitura
Finishing



Superfinitura
Superfinishing



Acciaio
Steel



Inox



Alu



Si 3-12%

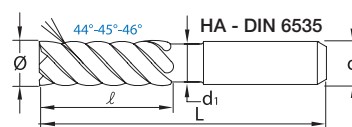
HB30>200



Ghisa
Cast iron



HA - DIN 6535



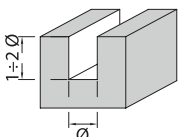
Serie lunga / Long serie

Universale / Universal

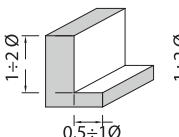
Ø h10	d mm	d ₁ mm	L mm	/ mm	z	pcs	cod.
8	8	7,5	63	19	6	1	241760800
10	10	9,2	72	22	6	1	241761000
12	12	11,2	83	26	6	1	241761200
16	16	15,0	92	32	6	1	241761600
20	20	19,0	104	38	6	1	241762000
25	25	23,5	121	45	6	1	241762500

DIN 6527 L

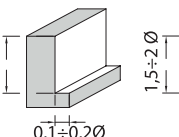
24174 24175



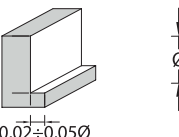
Fresa per cave
Slot end mills



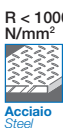
Sgrossatura
Roughing



Finitura
Finishing



Superfinitura
Superfinishing



Acciaio
Steel



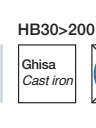
Inox



Alu



Si < 3%



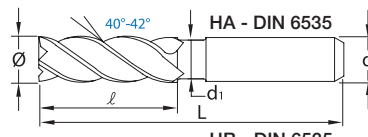
HB30>200



Ghisa
Cast iron



HA - DIN 6535



Serie lunga / Long serie

Speciale inox / Stainless steel

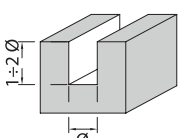
Ø h10	d mm	d ₁ mm	L mm	/ mm	z	pcs	cod.	cod.
4	6	3,7	57	11	4	1	241740400	241750400
5	6	4,7	57	13	4	1	241740500	241750500
6	6	5,5	57	13	4	1	241740600	241750600
8	8	7,5	63	19	4	1	241740800	241750800
10	10	9,2	72	22	4	1	241741000	241751000
12	12	11,2	83	26	4	1	241741200	241751200
16	16	15,0	92	32	4	1	241741600	241751600
20	20	19,0	104	38	4	1	241742000	241752000

Norma Krino / Krino norm

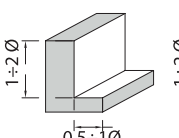
24180



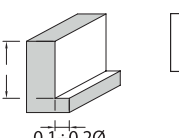
Metallo duro
Carbide



Fresa per cave
Slot end mills



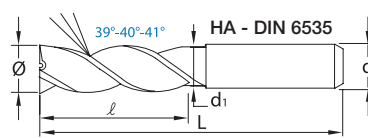
Sgrossatura
Roughing



Finitura
Finishing



Alu



HA - DIN 6535

Serie lunga / Long serie

Speciale alluminio / Aluminium

Ø h10	d mm	d ₁ mm	L mm	/ mm	z	pcs	cod.
3	6	2,7	57	8	3	1	241800300
4	6	3,7	57	11	3	1	241800400
5	6	4,7	57	13	3	1	241800500
6	6	5,5	57	13	3	1	241800600
8	8	7,5	63	16	3	1	241800800
10	10	9,2	72	19	3	1	241801000
12	12	11,2	83	22	3	1	241801200
16	16	11,2	92	32	3	1	241801600
20	20	19,0	104	38	3	1	241802000

Le eliche variabili garantiscono minori vibrazioni, migliore finitura, maggiore rendimento.
The variable helix ensures less vibration, better finishing, higher efficiency.

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Рязань (4912)46-61-64
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Симферополь (3652)67-13-56
Казахстан (7172)727-132

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Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
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