



Punte elicoidali
Drills

Indice Index

Utensili gruppo 3: Punte elicoidali	Tools Group 3: Drills	N° id. Code	Pagina Page
Introduzione	<i>Introduction</i>		230 ÷ 237

Utensile gruppo 3.1:	Tools Group 3.1:	N° id. Code	Pagina Page
Punte da centro - DIN 333 - Forma A - 60°	<i>Center drills - Form A - 60°</i>	171 171F	238
Punte da centro - 90° - 120° - norma interna	<i>90°/120° spotting drills - "N" design - Internal standard</i>	170-90° 170-90°F 170-120° 170-120°F	239

03

Utensile gruppo 3.2: Punte a gradino	Tools Group 3.2:	N° id. Code	Pagina Page
Punte corte a gradino - 90° - per pre-maschiatura	<i>Short solid carbide 90° step drill, for core hole plus countersink for machine tapping</i>	181 181F	240
Punte corte a gradino - 90° - per pre-maschiatura	<i>Short solid carbide 90° step drill, for core hole plus countersink for thread forming</i>	182 182F	241

Utensile gruppo 3.3:	Tools Group 3.2:	N° id. Code	Pagina Page
Utensile combinato per foratura-alesatura - per plastiche rinforzate con fibre - Z=3 "DUO-K"	<i>Combi drilling/reaming tool for reinforced plastic fibres - Internal standard</i> "DUO-K"	117 117D	242
Utensile combinato per foratura-alesatura - per plastiche rinforzate con fibre - Z=4 "DUO-K"	<i>Combi drilling/reaming tool for reinforced plastic fibres - Internal standard Z=4</i> "DUO-K"	217 217D	243
Punte per Kevlar	<i>Drills for KEVLAR</i> - Internal standard	118 118E	244
Punte a taglienti diritti - Z=2 - DIN 6539	<i>2 straight flute drills</i> - DIN 6539	150 150F	245
Punte a taglienti diritti - Z=2 - con 4 punti di appoggio - DIN 6539	<i>Star drills straight flute</i> - DIN 6539	162 162F	246
Punte a 3 eliche - DIN 6539	<i>3 flute twist drills</i> - DIN 6539	163 163F	248
Punte a 2 eliche - DIN 6539	<i>2 flute twist drills</i> - DIN 6539	160 160F	250
Punte a 2 eliche - lunghe - DIN 338	<i>2 flute twist drills</i> - long according to DIN 338	161 161F	252
Punte a 2 eliche per leghe leggere - DIN 6539	<i>Twist drills for cast iron and light alloys</i> - DIN 6539	165 165F	254

Punte a 2 eliche per leghe leggere - lunghe DIN 338	<i>Twist drills for cast iron and light alloys - long according to DIN 338</i>	166 166F	256
Punte a 2 eliche ad elevato avanzamento - DIN 6539	<i>High performance twist drills-self centering - DIN 6539</i>	172 172F	258
Punte a 2 eliche ad elevato avanzamento - norma interna	<i>High performance twist drills-self centering - WN</i>	173 173F	260
Punte a 2 eliche ad elevato avanzamento - con adduzione interna - DIN 6537 K	<i>High performance twist drills with coolant ducts-self centering-short acc. to DIN 6537-K</i>	175 175F	262
Punte a 2 eliche ad elevato avanzamento - con adduzione interna - lunga - DIN 6537 K	<i>High performance twist drills with coolant ducts-self centering-long acc. to DIN 6537-L</i>	176 176F	264



Velocità di taglio V_c (m/min)
Cutting speed V_c (m/min)

	◆	f (mm)	171	170-90°	181	182	117	217	118	150	162	162L	163
			171F	170-90°F 170-120° 170-120°F	181F	182F	117D	217D	118E	150F	162F	162LF	163F
V_c (m/min) - per punte senza rivestimento													
V_c (m/min) - for drills without coating													
Alluminio - Leghe d'alluminio - Rame - Leghe di rame - Magnesio													
Aluminium - Alu-alloys - Copper - Copper alloys - Magnesium													
A 1.1	1	K	130	130	130	130	-	-	-	150	-	-	130
A 1.2	1	K	140	140	140	140	-	-	-	-	-	-	150
A 1.3	1	H	130	130	130	130	-	-	-	150	-	-	-
A 1.4	1	H	100	100	100	100	-	-	-	-	-	-	100
A 1.5	1	K	130	130	130	130	-	-	-	150	-	-	120
A 1.6	1	H	160	160	160	160	-	-	-	-	-	-	120
A 1.7	3	C	50	50	50	50	-	-	-	-	50	42	60
A 2.1	1	G	70	70	70	70	-	-	-	-	-	-	85
A 2.2	1	G	70	70	70	70	-	-	-	85	-	-	85
A 2.3	2	F	70	70	70	70	-	-	-	90	-	-	90
A 2.4	2	E	70	70	70	70	-	-	-	-	-	-	90
A 2.5	1	H	150	150	150	150	-	-	-	180	-	-	200
A 2.6	1	G	100	100	100	100	-	-	-	-	-	-	100
A 2.7	2	F	60	60	60	60	-	-	-	70	-	-	70
A 3.1	1	E	70	70	70	70	-	-	-	-	-	-	70
A 3.2	1	E	70	70	70	70	-	-	-	-	-	-	70
A 4.1	3	G	*150	*150	*150	*150	-	-	-	-	-	-	*180
A 4.2	3	G	*150	*150	*150	*150	-	-	-	*120	-	-	*180
Acciai da costruzione - Leghe d'acciaio - Acciai temprati													
General - Construction steels - Steel alloys - Hardened steels													
C 1.1	1	G	90	90	90	90	-	-	-	-	-	-	100
C 1.2	1	G	90	90	90	90	-	-	-	-	-	-	100
C 1.3	1	G	85	85	85	85	-	-	-	-	-	-	100
C 1.4	1	G	80	80	80	80	-	-	-	90	90	76	90
C 1.5	1	G	90	90	90	90	-	-	-	100	100	85	100
C 1.6	1	G	80	80	80	80	-	-	-	90	90	76	90
C 1.7	1	G	60	60	60	60	-	-	-	70	70	60	70
C 1.8	1	G	80	80	80	80	-	-	-	90	90	76	90
C 2.1	1	E	65	65	65	65	-	-	-	45	45	38	45
C 2.2	1	E	40	40	40	40	-	-	-	45	45	38	45
C 2.3	2	C	40	40	40	40	-	-	-	45	45	38	45
C 2.4	2	B	50	50	50	50	-	-	-	50	60	51	60
C 3.1	1	B	30	30	30	30	-	-	-	-	40	34	40
C 3.2	2	A	25	25	25	25	-	-	-	-	30	25	30
C 3.3	2	A	-	-	-	-	-	-	-	-	25	21	25
C 3.4	2	A	-	-	-	-	-	-	-	-	-	-	25
C 3.5	2	A	-	-	-	-	-	-	-	-	-	-	20
C 4.1	2	C	35	35	35	35	-	-	-	-	40	34	40
C 4.2	2	C	25	25	25	25	-	-	-	-	30	25	30

Refrigerante / Coolant 1 = emulsione / 1= emulsion 2 = olio / 2 = oil 3 = aria (*3 = solo aria senza additivi) / 3 = air (*3 = only air without additives)

◆ Refrigerante
Coolant

Velocità di taglio V_c (m/min)
Cutting speed V_c (m/min)

	◆	f (mm)	164	160	161	165	166	172	Code	174	174L	175	176	177
			164F	160F	161F	165F	166F	172F	f (mm)	174F	174LF	175F	176F	177F
			V_c (m/min) - per punte senza rivestimento V_c (m/min) - for drills without coating											
Alluminio - Leghe d'alluminio - Rame - Leghe di rame - Magnesio														
Aluminium - Alu-alloys - Copper - Copper alloys - Magnesium														
A 1.1	1	K	130	150	130	160	140	130	K	150	127	220	220	220
A 1.2	1	K	140	170	140	200	170	140	K	170	144	220	220	220
A 1.3	1	H	130	150	130	160	140	130	K	150	127	200	200	200
A 1.4	1	H	80	130	100	150	110	80	K	130	110	170	170	170
A 1.5	1	K	140	150	130	160	140	140	K	150	127	200	200	200
A 1.6	1	H	160	180	160	200	170	160	K	180	153	220	220	220
A 1.7	3	C	-	60	50	-	-	-	D	70	59	-	-	-
A 2.1	1	G	80	85	70	90	75	80	G	85	72	100	100	100
A 2.2	1	G	80	85	70	90	75	80	G	85	72	100	100	100
A 2.3	2	F	90	90	70	-	-	90	G	90	76	100	100	100
A 2.4	2	E	90	90	70	100	80	90	F	90	76	100	100	100
A 2.5	1	H	140	180	150	-	-	140	H	180	153	250	250	250
A 2.6	1	G	130	130	100	110	100	130	G	130	110	180	180	180
A 2.7	2	F	60	70	60	80	70	60	F	70	59	100	100	100
A 3.1	1	E	80	85	70	90	80	80	F	85	72	100	100	100
A 3.2	1	E	80	85	70	70	60	80	F	85	72	100	100	100
A 4.1	3	G	*180	*180	*150	*200	*170	*180	H	*180	*153	*220	*220	*220
A 4.2	3	G	*180	*180	*150	*200	*170	*180	H	*180	*153	*220	*220	*220
Acciai da costruzione - Leghe d'acciaio - Acciai temprati														
General - Construction steels - Steel alloys - Hardened steels														
C 1.1	1	G	-	100	90	100	90	-	G	110	93	120	120	120
C 1.2	1	G	-	100	90	100	90	-	G	110	93	120	120	120
C 1.3	1	G	-	100	85	90	75	-	H	100	85	140	140	140
C 1.4	1	G	-	90	80	80	70	-	H	90	76	100	100	100
C 1.5	1	G	-	100	90	90	75	-	G	110	93	120	120	120
C 1.6	1	G	-	90	80	70	60	-	H	100	85	110	110	110
C 1.7	1	G	-	70	60	-	-	-	G	75	63	90	90	90
C 1.8	1	G	-	90	80	-	-	-	H	90	76	100	100	100
C 2.1	1	E	-	45	65	-	-	-	F	80	68	90	90	90
C 2.2	1	E	-	45	40	-	-	-	F	65	55	60	60	60
C 2.3	2	C	-	45	40	-	-	-	D	50	42	55	55	55
C 2.4	2	B	-	60	50	-	-	-	C	65	55	70	70	70
C 3.1	1	B	-	40	30	-	-	-	C	45	38	50	50	50
C 3.2	2	A	-	30	25	-	-	-	B	35	29	40	40	40
C 3.3	2	A	-	-	-	-	-	-	B	30	25	30	30	30
C 3.4	2	A	-	-	-	-	-	-	A	30	25	30	30	30
C 3.5	2	A	-	-	-	-	-	-	A	25	21	25	25	25
C 4.1	2	C	-	40	35	-	-	-	D	50	42	60	60	60
C 4.2	2	C	-	30	25	-	-	-	D	60	51	70	70	70

Refrigerante
Coolant

1 = emulsione
1 = emulsion

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◆ Refrigerante
Coolant

03

Velocità di taglio V_c (m/min)
Cutting speed V_c (m/min)

	◆	f (mm)	171	170-90°	181	182	117	217	118	150	162	162L	163
			171F	170-90°F	181F	182F	117D	217D	118E	150F	162F	162LF	163F
V_c (m/min) - per punte senza rivestimento V_c (m/min) - for drills without coating													
Acciai resistenti alla corrosione e agli acidi - Acciai inossidabili Stainless steels													
D 1.1	2	D	40	40	40	40	-	-	-	-	-	-	45
D 1.2	2	D	25	25	25	25	-	-	-	-	-	-	30
D 1.3	2	C	25	25	25	25	-	-	-	-	-	-	30
D 1.4	2	B	20	20	20	20	-	-	-	20	25	21	25
D 1.5	2	A	18	18	18	18	-	-	-	18	20	17	20
Leghe di nichel/cobalto - Titanio - Leghe di titanio Nickel/Cobalt alloys - Titanium - Titanium alloys													
E 1.1	2	D	30	30	30	30	-	-	-	-	-	-	45
E 1.2	2	C	25	25	25	25	-	-	-	-	-	-	40
E 1.3	2	B	25	25	25	25	-	-	-	-	-	-	35
E 2.1	2	B	25	25	25	25	-	-	-	25	35	30	40
E 2.2	1	B	20	20	20	20	-	-	-	20	20	17	35
E 2.3	2	A	18	18	18	18	-	-	-	-	18	15	25
Ghise Cast irons													
F 1.1	1	H	100	100	100	100	-	-	-	100	100	85	140
F 1.2	1	H	85	85	85	85	-	-	-	85	85	72	110
F 1.3	1	B	20	20	20	20	-	-	-	20	20	17	30
F 1.4	1	G	85	85	85	85	-	-	-	85	85	72	90
F 1.5	1	F	80	80	80	80	-	-	-	80	80	68	70
F 2.1	1	G	85	85	85	85	-	-	-	85	85	72	90
F 2.2	1	G	80	80	80	80	-	-	-	70	80	68	70
F 2.3	1	E	90	90	90	90	-	-	-	-	-	-	70
F 2.4	1	E	70	70	70	70	-	-	-	-	-	-	70
Grafite - Leghe tungsteno/rame Graphite - Tungsten/Copper alloys													
G 1.1	3	D	70	70	70	70	-	-	-	-	-	-	80
G 2.1	1	F	75	75	75	75	-	-	-	-	-	-	80
Plastiche - Plastiche rinforzate con fibre - Materiali non ferrosi Plastics - Reinforced plastic fibres - Non ferrous materials													
B 1.1	1	G	80	80	80	80	-	-	180	-	-	-	-
B 1.2	2	E	70	70	70	70	-	-	150	-	-	-	-
B 1.3	1	E	70	70	70	70	-	-	120	-	-	-	-
B 1.4	1	C	40	40	40	40	300	300	150	-	-	-	60
B 1.5	1	D	50	50	50	50	-	-	120	-	-	-	-
B 2.1	-	C	70	70	70	70	-	-	120	-	-	-	-
B 2.2	1	B	-	-	-	-	-	-	120	-	-	-	-
B 2.3	-	E	80	80	80	80	-	-	120	-	-	-	-
B 2.4	-	E	-	-	-	-	-	-	120	-	-	-	-

Refrigerante
Coolant

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◆ Refrigerante
Coolant

Velocità di taglio V_c (m/min)
Cutting speed V_c (m/min)

	◆	f (mm)	164	160	161	165	166	172	Code	174	174L	175	176	177
			164F	160F	161F	165F	166F	172F	f (mm)	174F	174LF	175F	176F	177F
			V_c (m/min) - per punte senza rivestimento V_c (m/min) - for drills without coating											
Acciai resistenti alla corrosione e agli acidi - Acciai inossidabili Stainless steels														
D 1.1	2	D	35	45	40	30	20	35	E	50	42	55	55	55
D 1.2	2	D	30	30	25	25	20	30	E	40	34	50	50	50
D 1.3	2	C	-	30	25	-	-	-	E	40	34	45	45	45
D 1.4	2	B	-	25	20	20	-	-	D	35	29	40	40	40
D 1.5	2	A	-	20	18	-	-	-	C	30	25	35	35	35
Leghe di nichel/cobalto - Titanio - Leghe di titanio Nickel/Cobalt alloys - Titanium - Titanium alloys														
E 1.1	2	D	-	35	30	30	25	-	D	35	29	40	40	40
E 1.2	2	C	-	30	25	25	20	-	D	30	25	35	35	35
E 1.3	2	B	-	30	25	25	20	-	C	30	25	35	35	35
E 2.1	2	B	-	35	25	-	-	-	B	40	34	45	45	45
E 2.2	1	B	-	30	20	-	-	-	B	35	29	40	40	40
E 2.3	2	A	-	20	18	-	-	-	B	25	21	25	25	25
Ghise Cast irons														
F 1.1	1	H	-	130	100	150	135	-	K	170	144	180	180	180
F 1.2	1	H	-	100	85	100	80	-	K	120	102	130	130	130
F 1.3	1	B	-	25	20	-	-	-	C	30	25	35	35	35
F 1.4	1	G	100	100	85	100	80	100	K	130	110	120	120	120
F 1.5	1	F	80	90	80	80	70	80	H	100	85	110	110	110
F 2.1	1	G	100	100	85	100	80	100	H	130	110	120	120	120
F 2.2	1	G	90	90	80	80	70	90	H	100	85	110	110	110
F 2.3	1	E	80	70	90	80	70	80	F	90	76	100	100	100
F 2.4	1	E	80	70	70	80	70	80	F	90	76	100	100	100
Grafite - Leghe tungsteno/rame Graphite - Tungsten/Copper alloys														
G 1.1	3	D	-	70	70	70	70	-	-	-	-	-	-	-
G 2.1	1	F	-	90	75	100	80	-	G	90	76	120	120	120
Plastiche - Plastiche rinforzate con fibre - Materiali non ferrosi Plastics - Reinforced plastic fibres - Non ferrous materials														
B 1.1	1	G	-	100	80	80	60	-	-	-	-	-	-	-
B 1.2	2	E	-	80	70	80	60	-	-	-	-	-	-	-
B 1.3	1	E	-	80	70	80	60	-	-	-	-	-	-	-
B 1.4	1	C	-	40	40	-	-	-	D	40	34	-	-	-
B 1.5	1	D	-	60	50	60	50	-	-	-	-	-	-	-
B 2.1	-	C	-	70	70	60	50	-	-	-	-	-	-	-
B 2.2	1	B	-	-	-	60	50	-	-	-	-	-	-	-
B 2.3	-	E	-	80	80	80	80	-	-	-	-	-	-	-
B 2.4	-	E	-	-	-	-	-	-	-	-	-	-	-	-

Refrigerante
Coolant

1 = emulsione
1 = emulsion

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◆ Refrigerante
Coolant

Velocità di avanzamento consigliata f mm/giro (valori approssimativi)
Recommended feed rate f (mm) (Reference values)

D_c (mm)	Codice avanzamento / Feed code								
	A	B	C	D	E	F	G	H	K
	f mm/giro - Utensili a forare / f (mm) - drilling tools								
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
1,50	0,012	0,015	0,020	0,025	0,030	0,035	0,045	0,050	0,060
2,00	0,020	0,025	0,032	0,040	0,050	0,060	0,080	0,100	0,120
2,50	0,025	0,032	0,040	0,050	0,060	0,080	0,100	0,120	0,160
3,00	0,030	0,035	0,045	0,060	0,080	0,100	0,125	0,160	0,180
4,00	0,040	0,050	0,060	0,080	0,100	0,120	0,160	0,200	0,220
5,00	0,040	0,050	0,060	0,080	0,100	0,120	0,160	0,200	0,250
6,00	0,050	0,060	0,080	0,100	0,120	0,160	0,200	0,250	0,300
7,00	0,050	0,060	0,080	0,100	0,120	0,160	0,200	0,250	0,320
8,00	0,060	0,080	0,100	0,120	0,160	0,200	0,250	0,300	0,350
9,00	0,060	0,080	0,100	0,120	0,160	0,200	0,250	0,300	0,380
10,00	0,080	0,100	0,120	0,160	0,200	0,250	0,300	0,400	0,400
11,00	0,080	0,100	0,120	0,160	0,200	0,250	0,300	0,400	0,450
12,00	0,080	0,100	0,120	0,160	0,200	0,250	0,300	0,400	0,500
13,00	0,080	0,100	0,120	0,160	0,200	0,250	0,300	0,400	0,500
14,00	0,090	0,120	0,140	0,180	0,220	0,280	0,350	0,450	0,550
15,00	0,090	0,120	0,140	0,180	0,220	0,280	0,350	0,450	0,550
16,00	0,100	0,120	0,160	0,200	0,250	0,300	0,400	0,500	0,600
18,00	0,100	0,120	0,160	0,200	0,250	0,300	0,400	0,500	0,600
20,00	0,120	0,160	0,200	0,250	0,300	0,400	0,500	0,600	0,600

03

Velocità di taglio V_c (m/min) - Numero di giri n (min^{-1})
Cutting speed V_c (m/min) - Revolution speed n (min^{-1})

D_c (mm)	V_c (m/min)														
	12	16	20	25	30	40	50	60	80	100	120	160	180	200	250
	Numero di giri n (min^{-1}) / Revolution speed n (min^{-1})														
1,00	3822	5096	6369	7962	9554	12739	15924	19108	25478	31847	38217	50955	57325	63694	79618
1,50	2548	3397	4246	5308	6369	8493	10616	12739	16985	21231	25478	33970	38217	42463	53079
2,00	1911	2548	3185	3981	4777	6369	7962	9554	12739	15924	19108	25478	28662	31847	39809
2,50	1529	2038	2548	3185	3822	5096	6369	7643	10191	12739	15287	20382	22930	25478	31847
3,00	1274	1699	2123	2654	3185	4246	5308	6369	8493	10616	12739	16985	19108	21231	26539
4,00	955	1274	1592	1990	2389	3185	3981	4777	6369	7962	9554	12739	14331	15924	19904
5,00	764	1019	1274	1592	1911	2548	3185	3822	5096	6369	7643	10191	11465	12739	15924
6,00	637	849	1062	1327	1592	2123	2654	3185	4246	5308	6369	8493	9554	10616	13270
7,00	546	728	910	1137	1365	1820	2275	2730	3640	4550	5460	7279	8189	9099	11374
8,00	478	637	796	995	1194	1592	1990	2389	3185	3981	4777	6369	7166	7962	9952
9,00	425	566	708	885	1062	1415	1769	2123	2831	3539	4246	5662	6369	7077	8846
10,00	382	510	637	796	955	1274	1592	1911	2548	3185	3822	5096	5732	6369	7962
11,00	347	463	579	724	869	1158	1448	1737	2316	2895	3474	4632	5211	5790	7238
12,00	318	425	531	663	796	1062	1327	1592	2123	2654	3185	4246	4777	5308	6635
13,00	294	392	490	612	735	980	1225	1470	1960	2450	2940	3920	4410	4900	6124
14,00	273	364	455	569	682	910	1137	1365	1820	2275	2730	3640	4095	4550	5687
15,00	255	340	425	531	637	849	1062	1274	1699	2123	2548	3397	3822	4246	5308
16,00	239	318	398	498	597	796	995	1194	1592	1990	2389	3185	3583	3981	4976
18,00	212	283	354	442	531	708	885	1062	1415	1769	2123	2831	3185	3539	4423
20,00	191	255	318	398	478	637	796	955	1274	1592	1911	2548	2866	3185	3981

Punte elicoidali - Dati tecnici e denominazioni

Twist drills - Technical data and descriptions

Spigolo di taglio / Corner edge
 Larghezza fase cilindrica / Leading edge width
 Scarico sul diametro / Leading
 Superficie libera principale / Surface clearance
 Tagliante primario / Primary cutting edge
 Tagliante basso / Undercut
 Larghezza scarico / Clearance
 Smusso / Chamfer
 Taglio trasversale / Cross cutting edge
 Diametro di scarico / Dorsal diameter
 Superficie dorsale / Dorsal surface
 Spessore anima / Web thickness
 Spigolo posteriore / Dorsal edge
 Vano scarico / Chip room
 Bohrerdurchmesser / Nominal diameter

Ψ = angolo di penetrazione / penetration angle
 σ = angolo al vertice / point angle

Come punto di riferimento di sceglie la superficie di taglio
 The surface cutting edge has been chosen as reference point

Tagliante primario / Main cutting edge
 Senso di taglio / Infeed direction
 Angolo dello sforzo di taglio / Shearing force direction angle
 Direzione di taglio / Cutting direction
 Avanzamento / Feed/r
 Percorso di taglio al giro / Cutting route/r = d
 Senso di avanzamento / Feed direction

α_x Angolo di spoglia inferiore nominale
 α_{xe} Angolo di spoglia inferiore effettivo
 β_x Angolo di taglio
 Y_x Angolo di spoglia superiore nominale
 Y_{xe} Angolo di spoglia superiore effettivo
 η Angolo della direzione delle forze di taglio
 L'angolo di spoglia inferiore α , l'angolo di spoglia superiore β e l'angolo di taglio Y sono misurati in relazione al piano delimitato dall'angolo.

α_x nominal lower rake angle
 α_{xe} effective lower rake angle
 β_x lower cutting edge
 Y_x nominal upper rake angle
 Y_{xe} effective upper rake angle
 η shearing force direction angle
 α, β, Y are measured in relation to the plane delimited by the angle

03

Esempi di affilatura - in parte secondo DIN 1412

Examples of shape points - Partially according to DIN 1412

Forma A
Tagliante trasversale ridotto
Thinned chisel edge

Forma B
Tagliante trasversale ridotto con spigolo di taglio corretto
Thinned chisel edge with corrected cutting edge

Forma C
Affilatura progressiva a 4 punti di appoggio
Split point

Forma D
Affilatura a croce
Point ground for cast iron

Affilatura con smusso di protezione
Self centering point with double guidance

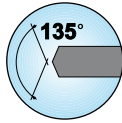
Affilatura progressiva per elevato avanzamento
High performance shape of point for machining centers

SPIEGAZIONE PITTOGRAMMI ICONS DESCRIPTION

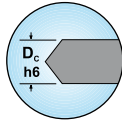
Qualità metallo duro <i>Carbide grade</i>		Canali di raffreddamento a elica <i>Spiral coolant ducts</i>	
Qualità metallo duro <i>Carbide grade</i>		Canali di raffreddamento diritti <i>Straight centric coolant duct</i>	
Norma interna <i>Cutting edge design acc. to internal standard</i>		Canali di raffreddamento diritti <i>Straight coolant ducts</i>	
Dimensioni secondo DIN 333-A <i>Dimensions acc. to DIN 333-A</i>		con emulsione d'olio <i>with oil emulsion</i>	
Dimensioni secondo DIN 338 <i>Dimensions acc. to DIN 338</i>		Lavorazione a secco <i>Dry machining</i>	
Dimensioni sec. DIN 6537-K <i>Dimensions acc. to DIN 6537-K</i>		Lavorazione con aria compressa <i>with compressed air</i>	
Dimensioni sec. DIN 6537-L <i>Dimensions acc. to DIN 6537-L</i>		Angolo dell'elica <i>Helix angle</i>	
Dimensioni sec. DIN 6539 <i>Dimensions acc. to DIN 6539</i>		Angolo dell'elica <i>Helix angle</i>	
Lunghezza utensile <i>Tool length</i>		A tagliente diritto <i>Straight flute</i>	
Lunghezza utensile <i>Tool length</i>		Angolo al vertice <i>Point angle</i>	
Lunghezza utensile <i>Tool length</i>		Angolo al vertice <i>Point angle</i>	
Versione con gambo DIN 6535 HE <i>Shank acc. to DIN 6535 HE</i>		Angolo al vertice <i>Point angle</i>	
Versione con gambo DIN 6535 HEK <i>Shank acc. to DIN 6535 HEK</i>		Angolo al vertice <i>Point angle</i>	

SPIEGAZIONE PITTOGRAMMI
ICONS DESCRIPTION

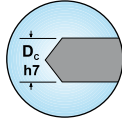
Angolo al vertice
Point angle



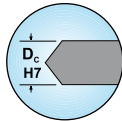
Diametro utensile D_c
Tool diameter D_c



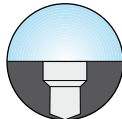
Diametro utensile D_c
Tool diameter D_c



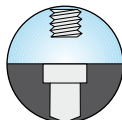
Diametro utensile D_c
Tool diameter D_c



Esempio di lavorazione
Application example

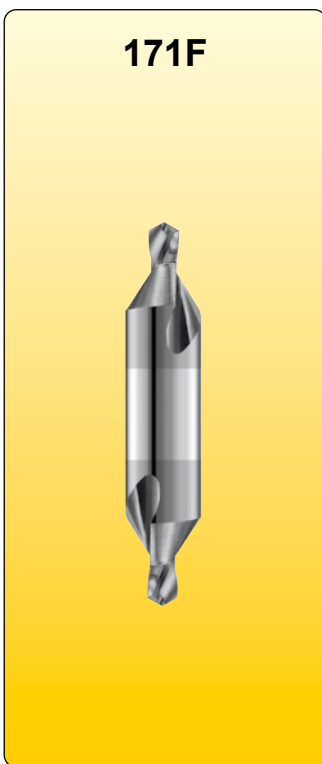
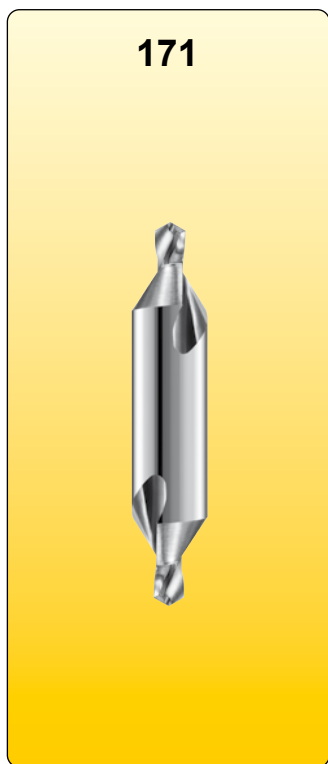


Esempio di lavorazione
Application example



Punte da centro DIN 333 - Forma A - 60°

Center drills - Form A - 60°



Settori d'impiego / Range of application

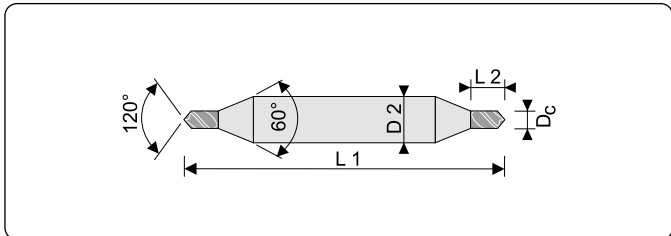
A: Leghe Leggere / Light alloys
A1.1-1.6 A2.1-2.7 A3.1-3.2 A4.1-4.2

C: Acciai / Steels
C1.1-1.8 C2.1-2.4 C3.1 C4.1-4.2

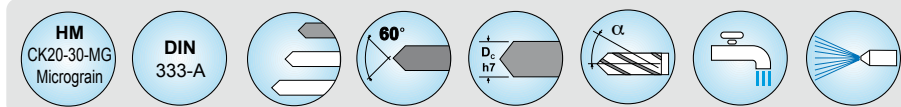
D: Acciai inossidabili / Stainless Steel
D1.1-1.5

E: Titanio / Titanium
E1.1-1.3 E2.1-2.2

F: Ghise / Cast irons
F1.1-1.5 F2.1-2.4

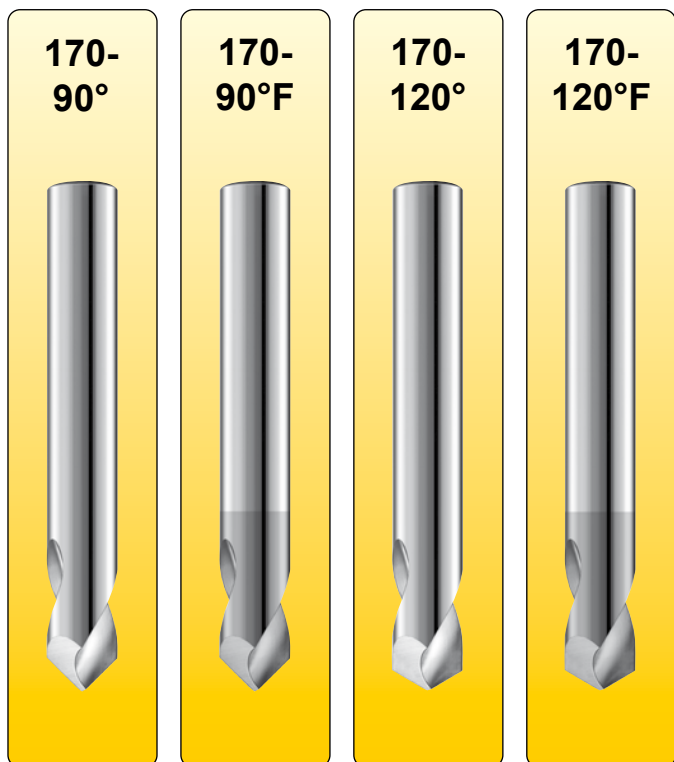


3.01



D _c h7	L2	L1	D2 h6	171	171F
					Rivestite / Coated
2	2,5	40	5	171.020	171.020F
2,5	3,1	45	6,3	171.025	171.025F
3,15	3,9	50	8	171.315	171.315F
4	5	56	10	171.040	171.040F
5	6,3	63	12,5	171.050	171.050F
6,3	8	71	16	171.063	171.063F

Punte da centro - 90° - 120° - norma interna
90°/120° spotting drills - "N" design - Internal standard



Settori d'impiego / Range of application

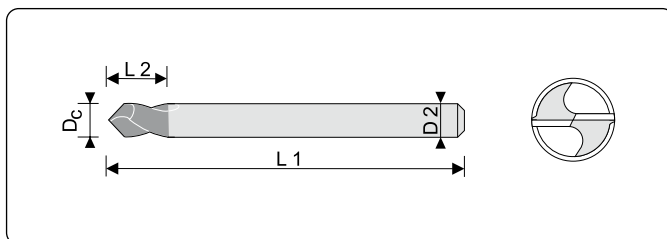
A: Leghe Leggere / Light alloys
 A1.1-1.6 A2.1-2.7 A3.1-3.2 A4.1-4.2

C: Acciai / Steels
 C1.1-1.8 C2.1-2.4 C3.1 C4.1-4.2

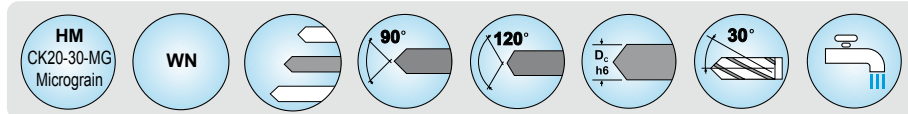
D: Acciai inossidabili / Stainless Steel
 D1.1-1.5

E: Titanio / Titanium
 E1.1-1.3 E2.1-2.2

F: Ghise / Cast irons
 F1.1-1.5 F2.1-2.4

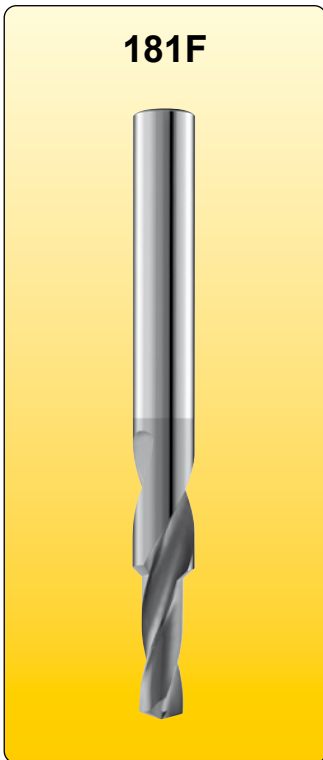
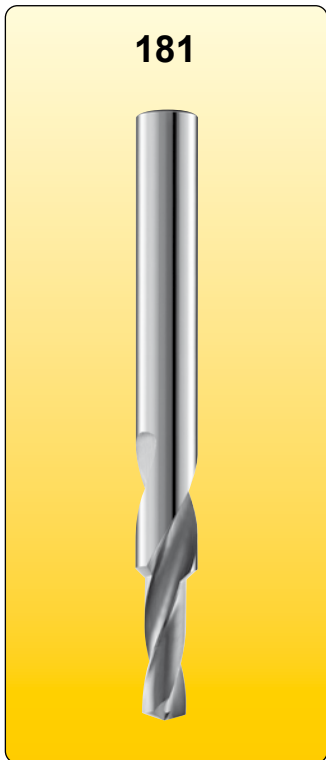


**3.
01**



D _c h6	L2	L1	D2 h6	170-90°	170-90°F	170-120°	170-120°F
					Rivestite / Coated		Rivestite / Coated
3	10	40	3	170.030-90°	170.030-90°F	170.030-120°	170.030-120°F
4	12	40	4	170.040-90°	170.040-90°F	170.040-120°	170.040-120°F
5	15	50	5	170.050-90°	170.050-90°F	170.050-120°	170.050-120°F
6	20	50	6	170.060-90°	170.060-90°F	170.060-120°	170.060-120°F
8	22	63	8	170.080-90°	170.080-90°F	170.080-120°	170.080-120°F
10	23	72	10	170.100-90°	170.100-90°F	170.100-120°	170.100-120°F
12	25	83	12	170.120-90°	170.120-90°F	170.120-120°	170.120-120°F
14	26	83	14	170.140-90°	170.140-90°F	170.140-120°	170.140-120°F
16	28	92	16	170.160-90°	170.160-90°F	170.160-120°	170.160-120°F
20	30	104	20	170.200-90°	170.200-90°F	170.200-120°	170.200-120°F

Punte corte a gradino - 90° - per pre-maschiatura
Short solid carbide 90° step drill, for core hole plus countersink for machine tapping



Settori d'impiego / Range of application

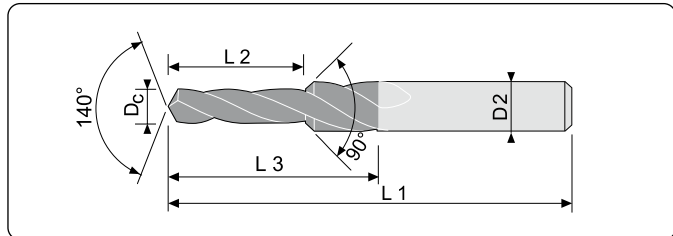
A: Leghe Leggere / Light alloys
 A1.1-1.7 A2.1-2.7 A3.1-3.2 A4.1-4.2

B: Plastiche - Plastiche rinforzate con fibre
 B: *Plastics - Reinforced plastic fibres*
 B1.1-1.5 B2.1-2.4

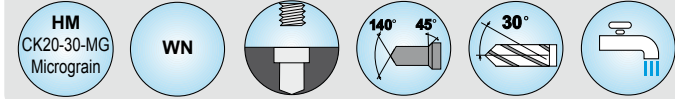
C: Acciai / Steels
 C1.1-1.8 C2.1-2.3 C3.1-3.2 C4.1-4.2

F: Ghise / Cast irons
 F1.1-1.2 F1.4-1.5 F2.1-2.2

G: Grafite / Graphite
 G2.1



3.
02



for für	D _c m7	D ₂ h6	L ₂	L ₁	L ₃	181	181F
							Rivestite / Coated
M 3	2,50	6	8,8	62	20	181.030	181.030F
M 4	3,30	6	11,4	62	24	181.040	181.040F
M 5	4,20	6	13,6	66	28	181.050	181.050F
M 6	5,00	8	16,5	79	34	181.060	181.060F
M 8	6,80	10	21,0	89	47	181.080	181.080F
M 10	8,50	12	25,5	102	55	181.100	181.100F
M 12	10,20	14	30,0	107	60	181.120	181.120F
M 14	12,00	16	34,5	115	65	181.140	181.140F
M 16	14,00	18	38,5	123	73	181.160	181.160F

Punte corte a gradino - 90° - per pre-maschiatura
Short solid carbide 90° step drill, for core hole plus countersink for thread forming

Settori d'impiego / Range of application

A: Leghe Leggere / Light alloys

A1.1-1.7 A2.1-2.7 A3.1-3.2 A4.1-4.2

B: Plastiche - Plastiche rinforzate con fibre

B: *Plastics - Reinforced plastic fibres*

B1.1-1.5 B2.1-2.4

C: Acciai / Steels

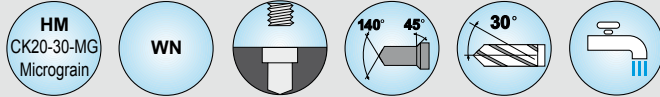
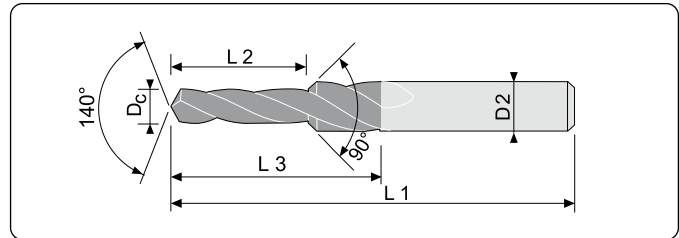
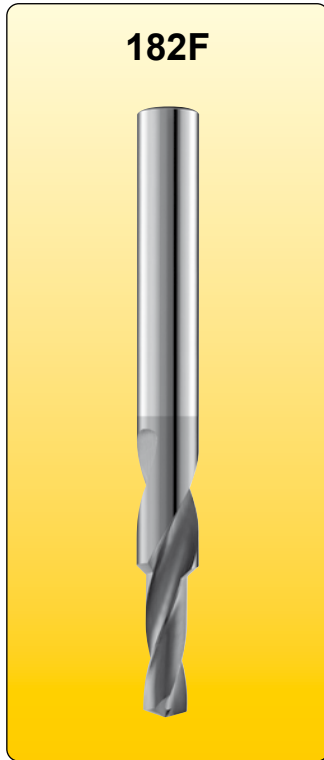
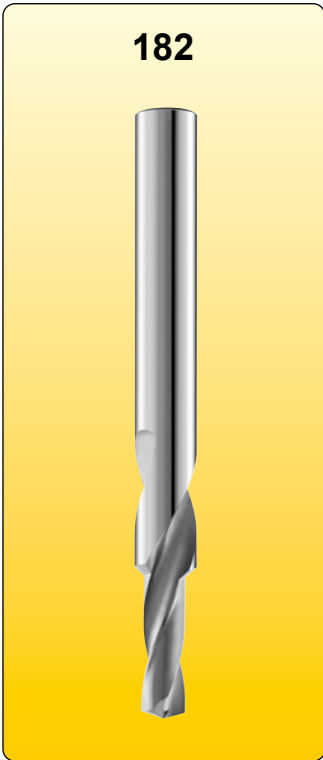
C1.1-1.8 C2.1-2.3 C3.1-3.2 C4.1-4.2

F: Ghise / Cast irons

F1.1-1.2 F1.4-1.5 F2.1-2.2

G: Grafite / Graphite

G2.1

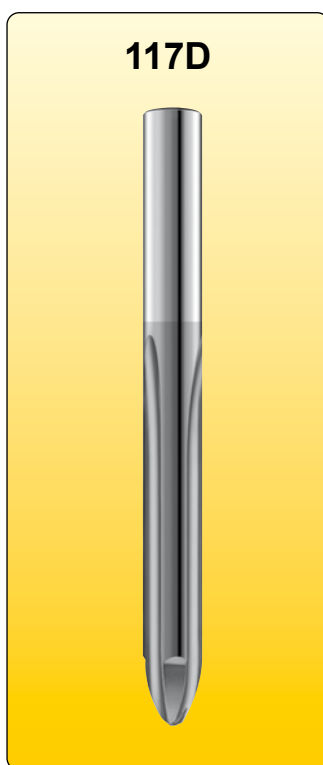
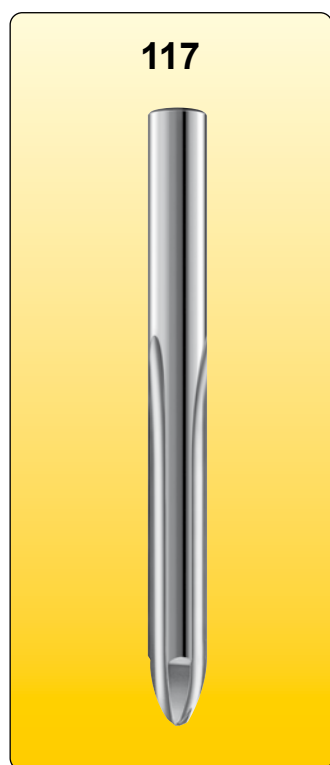


**3.
02**

for für	D _c m7	D2 h6	L2	L1	L3	182	182F
							Rivestite / Coated
M 3	2,80	6	8,8	62	20	182.030	182.030F
M 4	3,70	6	11,4	62	24	182.040	182.040F
M 5	4,65	6	13,6	66	28	182.050	182.050F
M 6	5,55	8	16,5	79	34	182.060	182.060F
M 8	7,40	10	21,0	89	47	182.080	182.080F
M 10	9,30	12	25,5	102	55	182.100	182.100F
M 12	11,20	14	30,0	107	60	182.120	182.120F
M 14	13,00	16	34,5	115	65	182.140	182.140F
M 16	15,00	18	38,5	123	73	182.160	182.160F

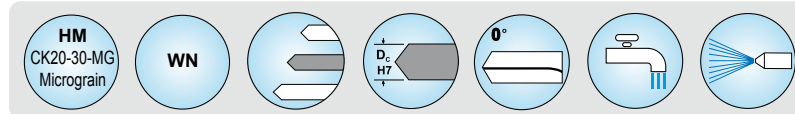
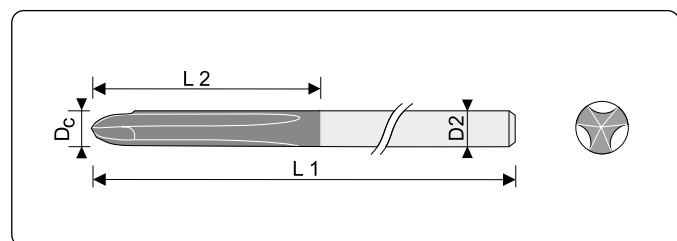
Utensile combinato per foratura-alesatura - per plastiche rinforzate con fibre - Z=3
 "DUO-K"

Combi drilling/reaming tool for reinforced plastic fibres - Internal standard
 "DUO-K"



Settori d'impiego / Range of application

B: Plastiche - Plastiche rinforzate con fibre
 B: Plastics - Reinforced plastic fibres
 B1.4



**3.
03**

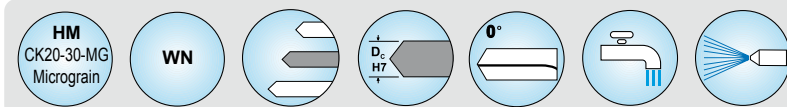
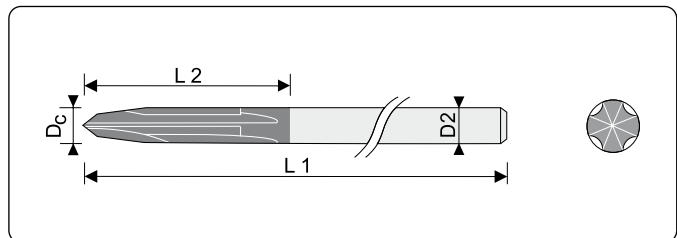
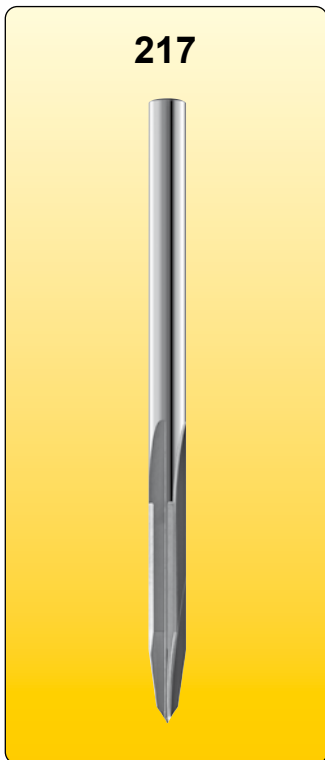
D _c H7	L2	L1	D2 H7	117	117D
					Rivestite / Coated
2	50	100	2	117.020	117.020D
2,48	50	100	2,48	117.0248	117.0248D
3	50	100	3	117.030	117.030D
3,17	50	100	3,17	117.0317	117.0317D
4	50	100	4	117.040	117.040D
4,21	50	100	4,21	117.0421	117.0421D
4,82	50	100	4,82	117.0482	117.0482D
5,05	50	100	5,05	117.0505	117.0505D
5,53	50	100	5,53	117.0553	117.0553D
6	50	100	6	117.060	117.060D
6,35	50	100	6,35	117.0635	117.0635D
7	50	100	7	117.070	117.070D
7,92	50	100	7,92	117.0792	117.0792D
8	50	100	8	117.080	117.080D
8,63	50	100	8,63	117.0863	117.0863D
9	50	100	9	117.090	117.090D
10	50	100	10	117.100	117.100D
12	50	100	12	117.120	117.120D

Utensile combinato per foratura-alesatura - per plastiche rinforzate con fibre - Z=4
 "DUO-K"

Combi drilling/reaming tool for reinforced plastic fibres - Internal standard Z=4
 "DUO-K"

Settori d'impiego / Range of application

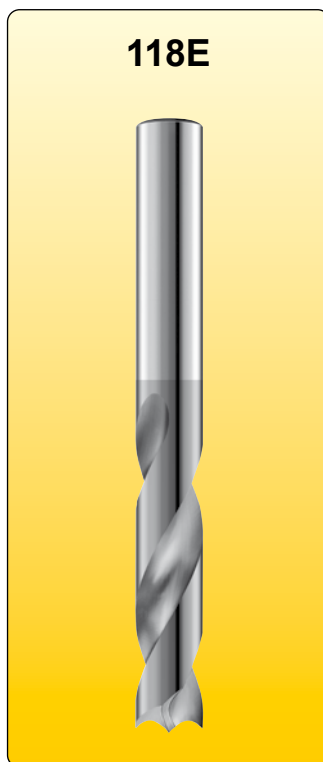
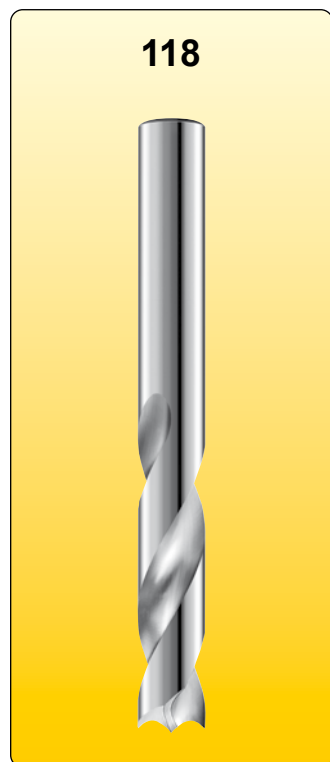
B: Plastiche - Plastiche rinforzate con fibre
 B: Plastics - Reinforced plastic fibres
 B1.4



D _c H7	L2	L1	D2 H7	217	217D
					Rivestite / Coated
2	50	100	2	217.020	217.020D
2,48	50	100	2,48	217.0248	217.0248D
3	50	100	3	217.030	217.030D
3,17	50	100	3,17	217.0317	217.0317D
4	50	100	4	217.040	217.040D
4,21	50	100	4,21	217.0421	217.0421D
4,82	50	100	4,82	217.0482	217.0482D
5,05	50	100	5,05	217.0505	217.0505D
5,53	50	100	5,53	217.0553	217.0553D
6	50	100	6	217.060	217.060D
6,35	50	100	6,35	217.0635	217.0635D
6,60	50	100	6,60	217.660	217.660D
7	50	100	7	217.070	217.070D
7,92	50	100	7,92	217.0792	217.0792D
8	50	100	8	217.080	217.080D
8,63	50	100	8,63	217.0863	217.0863D
9	50	100	9	217.090	217.090D
10	50	100	10	217.100	217.100D
12	50	100	12	217.120	217.120D

3.
03

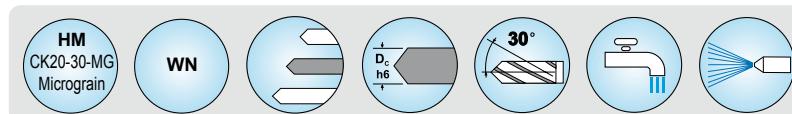
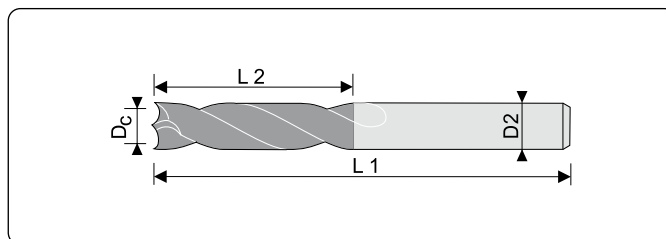
Punte per Kevlar - norma interna
Drills for KEVLAR - Internal standard



Settori d'impiego / Range of application

A: Leghe Leggere / Light alloys
A1.1-1.2-1.6 A2.1-2.3-2.5-2.7

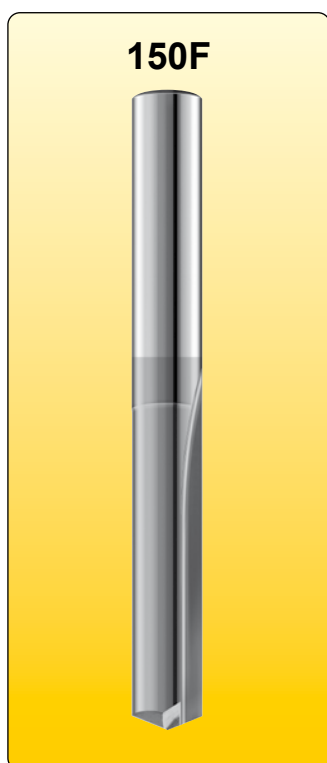
B: Plastiche - Plastiche rinforzate con fibre
B: *Plastics - Reinforced plastic fibres*
B1.1-1.3 B1.5-1.6



**3.
03**

D _c h6	L2	L1	D2 h6	118	118E
					Rivestite / Coated
3	12	40	3	118.030	118.030E
3,17	12	40	3,17	118.0317	118.0317E
4	18	55	4	118.040	118.040E
5	26	62	5	118.050	118.050E
6	28	66	6	118.060	118.060E
6,35	31	70	6,35	118.0635	118.0635E
6,5	31	70	6,5	118.065	118.065E
7	34	74	7	118.070	118.070E
7,93	37	79	7,93	118.0793	118.0793E
8	37	79	8	118.080	118.080E
8,5	37	79	8,5	118.085	118.085E
9	40	84	9	118.090	118.090E
10	48	89	10	118.100	118.100E
12	50	102	12	118.120	118.120E

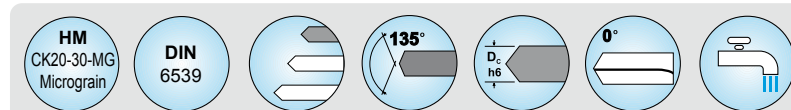
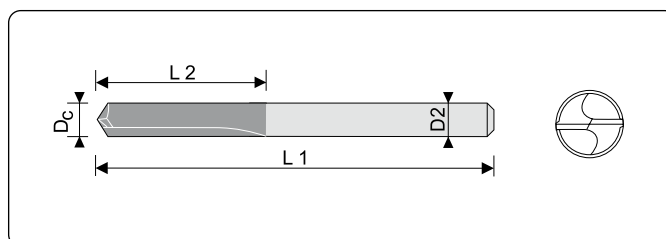
Punte a taglienti diritti - Z=2 - DIN 6539
2 straight flute drills - DIN 6539



Settori d'impiego / Range of application

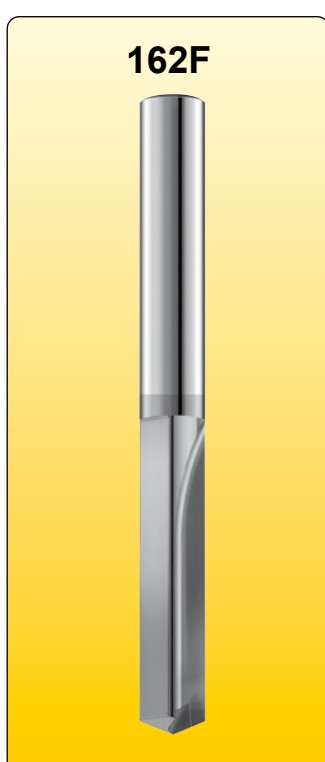
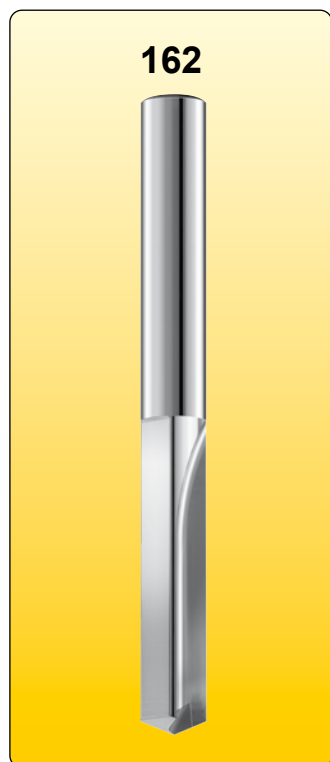
C: Acciai / Steels
 C1.6-1.8 C2.1-2.4 C3.1-3.5 C4.1-4.2

F: Ghise / Cast irons
 F1.1-1.5 F2.1-2.4



D _c h6	L2	L1	D2 h6	150	150F
					Rivestite / Coated
2	12	38	2	150.020	150.020F
2,5	14	43	2,5	150.025	150.025F
3	16	46	3	150.030	150.030F
3,5	20	52	3,5	150.035	150.035F
4	22	55	4	150.040	150.040F
5	26	62	5	150.050	150.050F
6	28	66	6	150.060	150.060F
7	34	74	7	150.070	150.070F
8	37	79	8	150.080	150.080F
9	40	84	9	150.090	150.090F
10	43	89	10	150.100	150.100F
12	51	102	12	150.120	150.120F
14	54	107	14	150.140	150.140F
16	58	115	16	150.160	150.160F

Punte a taglienti diritti - Z=2 - con 4 punti di appoggio - DIN 6539
Star drills straight flute - DIN 6539

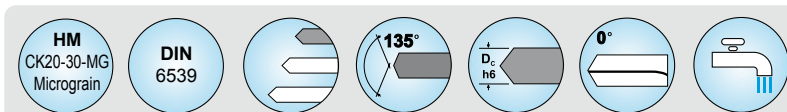
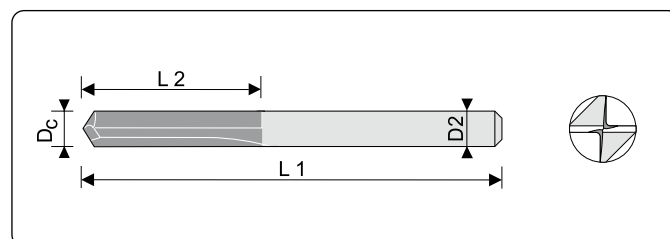


Settori d'impiego / Range of application

A: Leghe Leggere / Light alloys
A1.3-1.8

F: Ghise / Cast irons
F1.1-1.5

E: Titanio / Titanium
E1.1-1.3 E2.1-2.3

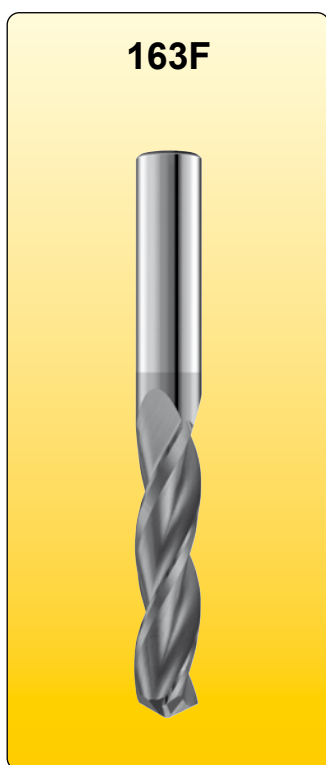


**3.
03**

D _c h6	L2	L1	D2 h6	162	162F
					Rivestite / Coated
2	12	38	2	162.020	162.020F
2,5	14	43	2,5	162.025	162.025F
3	16	46	3	162.030	162.030F
3,5	20	52	3,5	162.035	162.035F
4	22	55	4	162.040	162.040F
4,5	24	58	4,5	162.045	162.045F
5	26	62	5	162.050	162.050F
5,5	28	66	5,5	162.055	162.055F
6	28	66	6	162.060	162.060F
6,5	31	70	6,5	162.065	162.065F
8	37	79	8	162.080	162.080F
8,5	37	79	8,5	162.085	162.085F
9	40	84	9	162.090	162.090F
9,5	40	84	9,5	162.095	162.095F
9,8	43	89	9,8	162.098	162.098F
10	43	89	10	162.100	162.100F
10,5	43	89	10,5	162.105	162.105F
11	47	95	11	162.110	162.110F
11,5	47	95	11,5	162.115	162.115F
12	51	102	12	162.120	162.120F
12,5	51	102	12,5	162.125	162.125F
13	51	102	13	162.130	162.130F
13,5	54	107	13,5	162.135	162.135F

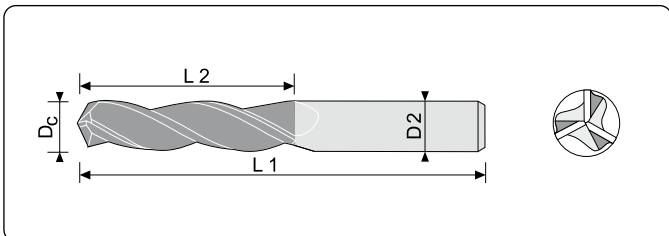
D _c h6	L2	L1	D2 h6	162	162F
					Rivestite / Coated
14	54	107	14	162.140	162.140F
14,5	56	111	14,5	162.145	162.145F
15	56	111	15	162.150	162.150F
15,5	58	115	15,5	162.155	162.155F
16	58	115	16	162.160	162.160F








Punte a 3 eliche - DIN 6539
3 flute twist drills - DIN 6539



Settori d'impiego / Range of application

- A: Leghe Leggere / Light alloys**
A1.1-1.7 A2.1-2.7 A3.1-3.2 A4.1-4.2
- C: Acciai / Steels**
C1.1-1.8 C2.1-2.4 C3.1-3.5 C4.1-4.2
- D: Acciai inossidabil / Stainless Steel**
D1.2 D1.4
- E: Titanio / Titanium**
E1.1-1.3 E2.1-2.3
- F: Ghise / Cast irons**
F1.1-1.5 F2.1-2.4



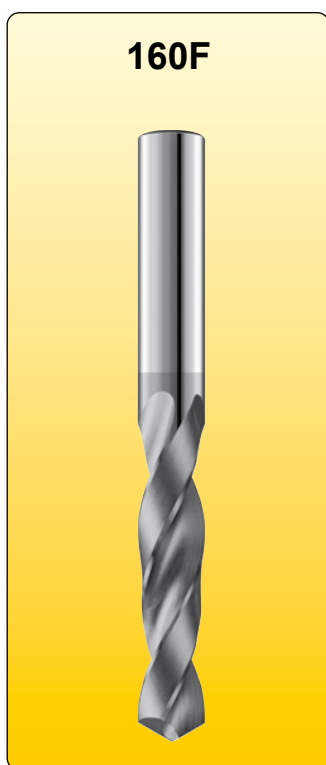
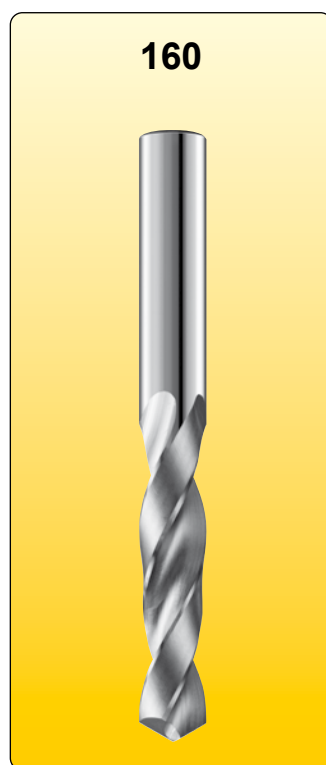








**3.
03**

D _c h6	L2	L1	D2 h6	163	163F
					Rivestite / Coated
3	16	46	3	163.030	163.030F
3,5	20	52	3,5	163.035	163.035F
4	22	55	4	163.040	163.040F
4,5	24	58	4,5	163.045	163.045F
5	26	62	5	163.050	163.050F
5,5	28	66	5,5	163.055	163.055F
6	28	66	6	163.060	163.060F
6,5	31	70	6,5	163.065	163.065F
7	34	74	7	163.070	163.070F
7,5	34	74	7,5	163.075	163.075F
8	37	79	8	163.080	163.080F
8,5	37	79	8,5	163.085	163.085F
9	40	84	9	163.090	163.090F
9,5	40	84	9,5	163.095	163.095F
10	43	89	10	163.100	163.100F
10,5	43	89	10,5	163.105	163.105F
11	47	95	11	163.110	163.110F
11,5	47	95	11,5	163.115	163.115F
12	51	102	12	163.120	163.120F
12,5	51	102	12,5	163.125	163.125F
13	51	102	13	163.130	163.130F
13,5	54	107	13,5	163.135	163.135F

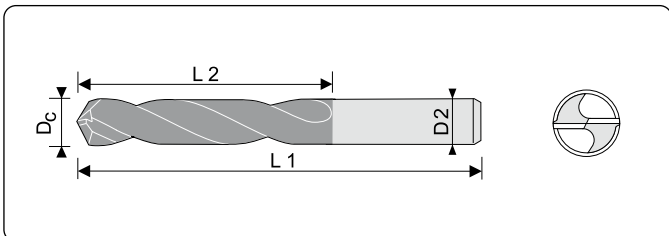
D _c h6	L2	L1	D2 h6	163	163F
					Rivestite / Coated
14	54	107	14	163.140	163.140F
14,5	56	111	14,5	163.145	163.145F
15	56	111	15	163.150	163.150F
15,5	58	115	15,5	163.155	163.155F
16	58	115	16	163.160	163.160F
16,5	60	119	16,5	163.165	163.165F
17	60	119	17	163.170	163.170F
17,5	62	123	17,5	163.175	163.175F
18	62	123	18	163.180	163.180F
18,5	64	127	18,5	163.185	163.185F
19	64	127	19	163.190	163.190F
19,5	66	131	19,5	163.195	163.195F
20	66	131	20	163.200	163.200F








Punte a 2 eliche - DIN 6539
2 flute twist drills - DIN 6539



Settori d'impiego / Range of application

- A: Leghe Leggere / Light alloys**
A1.1-1.7 A2.1-2.7 A3.1-3.2 A4.1-4.2
- B: Plastiche - Plastiche rinforzate con fibre**
B: *Plastics - Reinforced plastic fibres*
B1.1-1.5 B2.1-2.4
- C: Acciai / Steels**
C1.1-1.8 C2.1-2.3 C3.1-3.2 C4.1-4.2
- F: Ghise / Cast irons**
F1.1-1.2 F1.4-1.5 F2.1-2.2
- G: Grafite / Graphite**
G2.1



3.03

D _c h6	L2	L1	D2 h6	160	160F
					Rivestite / Coated
2	12	38	2	160.020	160.020F
2,1	12	38	2,1	160.021	160.021F
2,2	13	40	2,2	160.022	160.022F
2,3	13	40	2,3	160.023	160.023F
2,4	14	43	2,4	160.024	160.024F
2,5	14	43	2,5	160.025	160.025F
2,6	14	43	2,6	160.026	160.026F
2,7	16	46	2,7	160.027	160.027F
2,8	16	46	2,8	160.028	160.028F
2,9	16	46	2,9	160.029	160.029F
3	16	46	3	160.030	160.030F
3,1	18	49	3,1	160.031	160.031F
3,2	18	49	3,2	160.032	160.032F
3,3	18	49	3,3	160.033	160.033F
3,4	20	52	3,4	160.034	160.034F
3,5	20	52	3,5	160.035	160.035F
3,6	20	52	3,6	160.036	160.036F
3,7	20	52	3,7	160.037	160.037F
3,8	22	55	3,8	160.038	160.038F
3,9	22	55	3,9	160.039	160.039F
4	22	55	4	160.040	160.040F
4,1	22	55	4,1	160.041	160.041F
4,2	22	55	4,2	160.042	160.042F
4,3	24	58	4,3	160.043	160.043F
4,4	24	58	4,4	160.044	160.044F

D _c h6	L2	L1	D2 h6	160	160F
					Rivestite / Coated
4,5	24	58	4,5	160.045	160.045F
4,6	24	58	4,6	160.046	160.046F
4,7	24	58	4,7	160.047	160.047F
4,8	26	62	4,8	160.048	160.048F
4,9	26	62	4,9	160.049	160.049F
5	26	62	5	160.050	160.050F
5,1	26	62	5,1	160.051	160.051F
5,2	26	62	5,2	160.052	160.052F
5,3	26	62	5,3	160.053	160.053F
5,4	28	66	5,4	160.054	160.054F
5,5	28	66	5,5	160.055	160.055F
5,6	28	66	5,6	160.056	160.056F
5,7	28	66	5,7	160.057	160.057F
5,8	28	66	5,8	160.058	160.058F
5,9	28	66	5,9	160.059	160.059F
6	28	66	6	160.060	160.060F
6,1	31	70	6,1	160.061	160.061F
6,2	31	70	6,2	160.062	160.062F
6,3	31	70	6,3	160.063	160.063F
6,4	31	70	6,4	160.064	160.064F
6,5	31	70	6,5	160.065	160.065F
6,8	34	74	6,8	160.068	160.068F
7	34	74	7	160.070	160.070F
7,5	34	74	7,5	160.075	160.075F
7,8	37	79	7,8	160.078	160.078F
8	37	79	8	160.080	160.080F
8,5	37	79	8,5	160.085	160.085F
9	40	84	9	160.090	160.090F
9,5	40	84	9,5	160.095	160.095F
9,8	43	89	9,8	160.098	160.098F
10	43	89	10	160.100	160.100F
10,2	43	89	10,2	160.102	160.102F
10,5	43	89	10,5	160.105	160.105F
10,8	47	95	10,8	160.108	160.108F
11	47	95	11	160.110	160.110F
11,2	47	95	11,2	160.112	160.112F
11,5	47	95	11,5	160.115	160.115F
11,8	47	95	11,8	160.118	160.118F
12	51	102	12	160.120	160.120F
12,5	51	102	12,5	160.125	160.125F
13	51	102	13	160.130	160.130F
13,5	54	107	13,5	160.135	160.135F
14	54	107	14	160.140	160.140F
14,5	56	111	14,5	160.145	160.145F
15	56	111	15	160.150	160.150F
15,5	58	115	15,5	160.155	160.155F
16	58	115	16	160.160	160.160F
16,5	60	119	16,5	160.165	160.165F
17	60	119	17	160.170	160.170F
17,5	62	123	17,5	160.175	160.175F
18	62	123	18	160.180	160.180F
18,5	64	127	18,5	160.185	160.185F
19	64	127	19	160.190	160.190F
19,5	66	131	19,5	160.195	160.195F
20	66	131	20	160.200	160.200F

Punte a 2 eliche - lunga - DIN 338
2 flute twist drills - long according to DIN 338



Settori d'impiego / Range of application

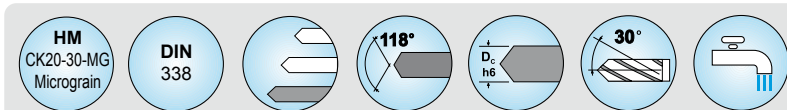
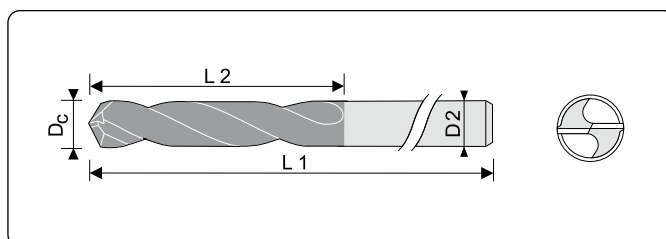
A: Leghe Leggere / Light alloys
 A1.1-1.7 A2.1-2.7 A3.1-3.2 A4.1-4.2

B: Plastiche - Plastiche rinforzate con fibre
 B: *Plastics - Reinforced plastic fibres*
 B1.1-1.5 B2.1-2.4

C: Acciai / Steels
 C1.1-1.8 C2.1-2.3 C3.1-3.2 C4.1-4.2

F: Ghise / Cast irons
 F1.1-1.2 F1.4-1.5 F2.1-2.2

G: Grafite / Graphite
 G2.1

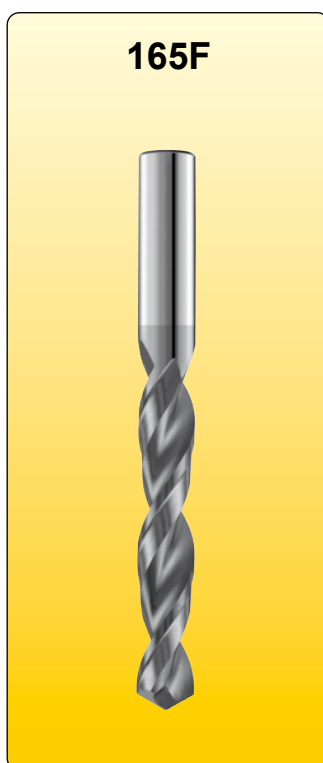


**3.
03**

D _c h6	L2	L1	D2 h6	161	161F
					Rivestite / Coated
2	24	49	2	161.020	161.020F
2,1	24	49	2,1	161.021	161.021F
2,2	27	53	2,2	161.022	161.022F
2,3	27	53	2,3	161.023	161.023F
2,4	30	57	2,4	161.024	161.024F
2,5	30	57	2,5	161.025	161.025F
2,6	30	57	2,6	161.026	161.026F
2,7	33	61	2,7	161.027	161.027F
2,8	33	61	2,8	161.028	161.028F
2,9	33	61	2,9	161.029	161.029F
3	33	61	3	161.030	161.030F
3,1	36	65	3,1	161.031	161.031F
3,2	36	65	3,2	161.032	161.032F
3,3	36	65	3,3	161.033	161.033F
3,4	39	70	3,4	161.034	161.034F
3,5	39	70	3,5	161.035	161.035F
3,6	39	70	3,6	161.036	161.036F
3,7	39	70	3,7	161.037	161.037F
3,8	43	75	3,8	161.038	161.038F
3,9	43	75	3,9	161.039	161.039F
4	43	75	4	161.040	161.040F
4,1	43	75	4,1	161.041	161.041F

D _c h6	L2	L1	D2 h6	161	161F
					Rivestite / Coated
4,2	43	75	4,2	161.042	161.042F
4,3	47	80	4,3	161.043	161.043F
4,4	47	80	4,4	161.044	161.044F
4,5	47	80	4,5	161.045	161.045F
4,6	47	80	4,6	161.046	161.046F
4,7	47	80	4,7	161.047	161.047F
4,8	52	86	4,8	161.048	161.048F
4,9	52	86	4,9	161.049	161.049F
5	52	86	5	161.050	161.050F
5,1	52	86	5,1	161.051	161.051F
5,2	52	86	5,2	161.052	161.052F
5,3	52	86	5,3	161.053	161.053F
5,4	57	93	5,4	161.054	161.054F
5,5	57	93	5,5	161.055	161.055F
5,6	57	93	5,6	161.056	161.056F
5,7	57	93	5,7	161.057	161.057F
5,8	57	93	5,8	161.058	161.058F
5,9	57	93	5,9	161.059	161.059F
6	57	93	6	161.060	161.060F
6,1	63	101	6,1	161.061	161.061F
6,2	63	101	6,2	161.062	161.062F
6,3	63	101	6,3	161.063	161.063F
6,4	63	101	6,4	161.064	161.064F
6,5	63	101	6,5	161.065	161.065F
6,8	69	109	6,8	161.068	161.068F
7	69	109	7	161.070	161.070F
7,5	69	109	7,5	161.075	161.075F
8	75	117	8	161.080	161.080F
8,5	75	117	8,5	161.085	161.085F
9	81	125	9	161.090	161.090F
9,5	81	125	9,5	161.095	161.095F
10	87	133	10	161.100	161.100F
10,5	87	133	10,5	161.105	161.105F
11	94	142	11	161.110	161.110F
11,5	94	142	11,5	161.115	161.115F
12	101	151	12	161.120	161.120F
12,5	101	151	12,5	161.125	161.125F
13	101	151	13	161.130	161.130F
13,5	108	160	13,5	161.135	161.135F
14	108	160	14	161.140	161.140F
14,5	114	169	14,5	161.145	161.145F
15	114	169	15	161.150	161.150F
15,5	120	178	15,5	161.155	161.155F
16	120	178	16	161.160	161.160F

Punte a 2 eliche per leghe leggere - DIN 6539
Twist drills for cast iron and light alloys - DIN 6539



Settori d'impiego / Range of application

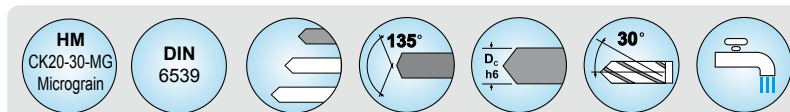
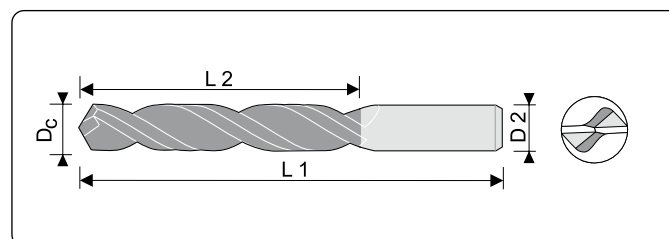
A: Leghe Leggere / Light alloys
 A1.1-1.7 A2.1-2.7 A3.1-3.2 A4.1-4.2

B: Plastiche - Plastiche rinforzate con fibre
 B: *Plastics - Reinforced plastic fibres*
 B1.1-1.3 B1.5 B2.1-2.3

C: Acciai / Steels
 C1.1-1.5

E: Titanio / Titanium
 E1.1-1.2 E2.1-2.2

F: Ghise / Cast irons
 F1.1-1.5 F2.1-2.4

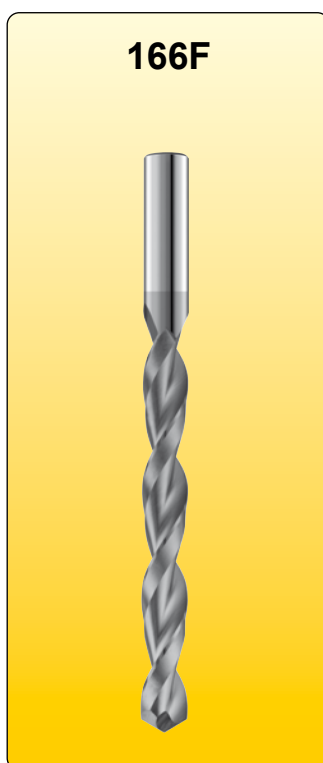
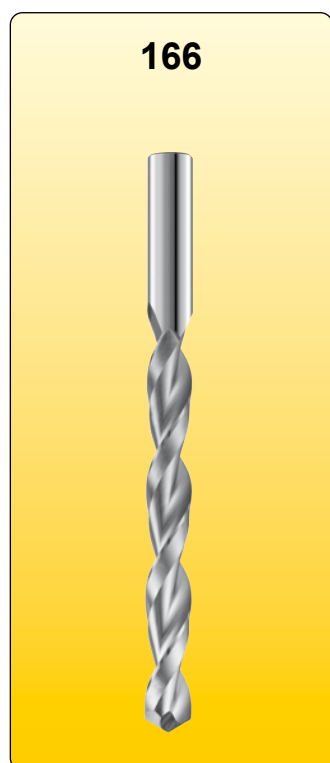


**3.
03**

D _c h6	L2	L1	D2 h6	165	165F
					Rivestite / Coated
2	12	38	2	165.020	165.020F
2,5	14	43	2,5	165.025	165.025F
3	16	46	3	165.030	165.030F
3,5	20	52	3,5	165.035	165.035F
4	22	55	4	165.040	165.040F
4,5	24	58	4,5	165.045	165.045F
5	26	62	5	165.050	165.050F
5,5	28	66	5,5	165.055	165.055F
6	28	66	6	165.060	165.060F
6,5	31	70	6,5	165.065	165.065F
7	34	74	7	165.070	165.070F
7,5	34	74	7,5	165.075	165.075F
8	37	79	8	165.080	165.080F
8,5	37	79	8,5	165.085	165.085F
9	40	84	9	165.090	165.090F
9,5	40	84	9,5	165.095	165.095F
10	43	89	10	165.100	165.100F
10,5	43	89	10,5	165.105	165.105F
11	47	95	11	165.110	165.110F
12	51	102	12	165.120	165.120F
12,5	51	102	12,5	165.125	165.125F
13	51	102	13	165.130	165.130F
13,5	54	107	13,5	165.135	165.135F
14	54	107	14	165.140	165.140F
14,5	56	111	14,5	165.145	165.145F

D _c h6	L2	L1	D2 h6	165	165F
					Rivestite / Coated
15	56	111	15	165.150	165.150F
15,5	58	115	15,5	165.155	165.155F
16	58	115	16	165.160	165.160F
16,5	60	119	16,5	165.165	165.165F
17	60	119	17	165.170	165.170F
17,5	62	123	17,5	165.175	165.175F
18	62	123	18	165.180	165.180F
18,5	64	127	18,5	165.185	165.185F
19	64	127	19	165.190	165.190F
19,5	66	131	19,5	165.195	165.195F
20	66	131	20	165.200	165.200F

Punte a 2 eliche per leghe leggere - lunga - DIN 338
Twist drills for cast iron and light alloys - long according to DIN 338



Settori d'impiego / Range of application

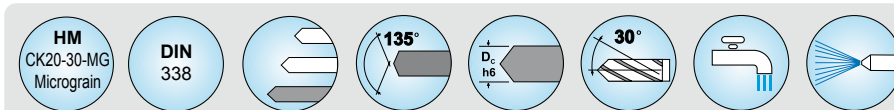
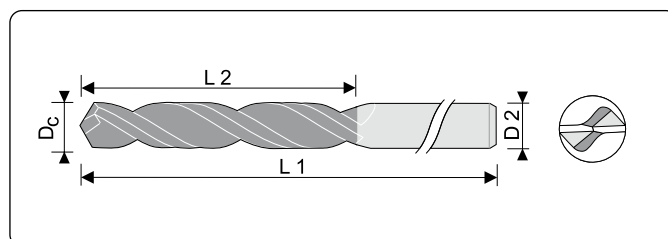
A: Leghe Leggere / Light alloys
 A1.1-1.7 A2.1-2.7 A3.1-3.2 A4.1-4.2

B: lastiche - Plastiche rinforzate con fibre
 B: Plastics - Reinforced plastic fibres
 B1.1-1.3 B1.5 B2.1-2.3

C: Acciai / Steels
 C1.1-1.5

E: Titanio / Titanium
 E1.1-1.2 E2.1-2.2

F: Ghise / Cast irons
 F1.1-1.5 F2.1-2.4

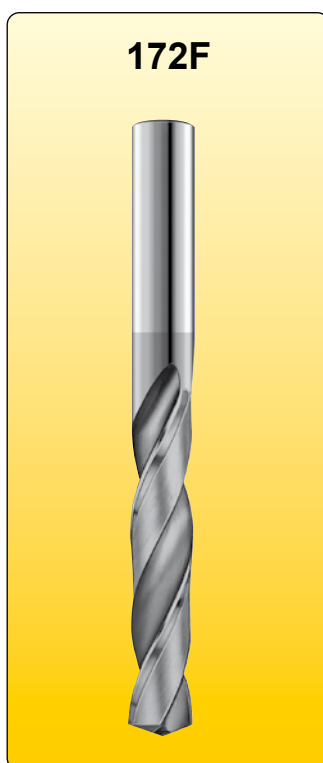
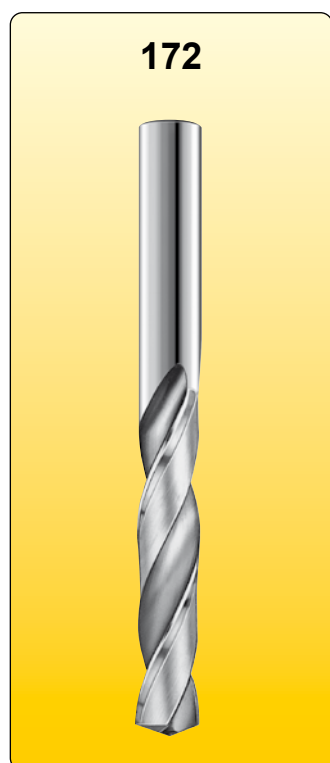


**3.
03**

D _c h6	L2	L1	D2 h6	166	166F
					Rivestite / Coated
2	24	49	2	166.020	166.020F
2,5	30	57	2,5	166.025	166.025F
3	33	61	3	166.030	166.030F
3,5	39	70	3,5	166.035	166.035F
4	43	75	4	166.040	166.040F
4,5	47	80	4,5	166.045	166.045F
5	52	86	5	166.050	166.050F
5,5	57	93	5,5	166.055	166.055F
6	57	93	6	166.060	166.060F
6,5	63	101	6,5	166.065	166.065F
7	69	109	7	166.070	166.070F
7,5	69	109	7,5	166.075	166.075F
8	75	117	8	166.080	166.080F
8,5	75	117	8,5	166.085	166.085F
9	81	125	9	166.090	166.090F
9,5	81	125	9,5	166.095	166.095F
10	87	133	10	166.100	166.100F
10,5	87	133	10,5	166.105	166.105F
11	94	142	11	166.110	166.110F
11,5	94	142	11,5	166.115	166.115F
12	101	151	12	166.120	166.120F
13	101	151	13	166.130	166.130F

D _c h6	L2	L1	D2 h6	166	166F
					Rivestite / Coated
14	108	155	14	166.140	166.140F
14,5	114	169	14,5	166.145	166.145F
15	114	169	15	166.150	166.150F
15,5	120	178	15,5	166.155	166.155F
16	120	178	16	166.160	166.160F

Punte a 2 eliche ad elevato avanzamento - DIN 6539 High performance twist drills-self centering - DIN 6539



Settori d'impiego / Range of application

A: Leghe leggere / Light alloys

A1.1-1.7 A2.1-2.7 A3.1-3.2 A4.1-4.2

C: Acciai / Steels

C1.1-1.8 C2.1-2.4 C3.1-3.5 C4.4-4.2

D: Acciai inossidabili / Stainless Steel

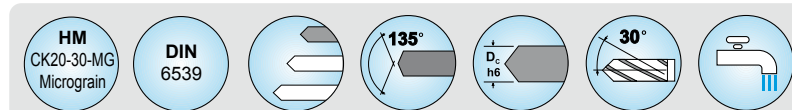
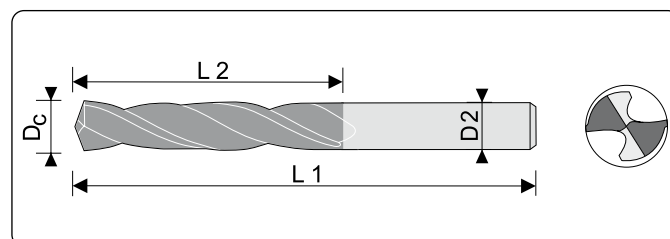
D1.1-1.5.2

E: Titanio / Titanium

E1.1-1.3 E2.1-2.2

F: Ghise / Cast irons

F1.1-1.5 F2.1-2.4

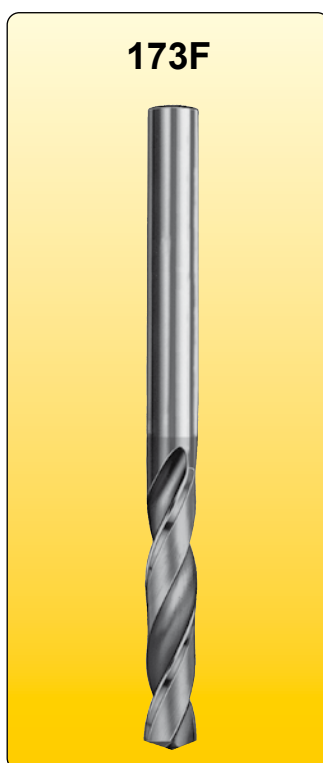
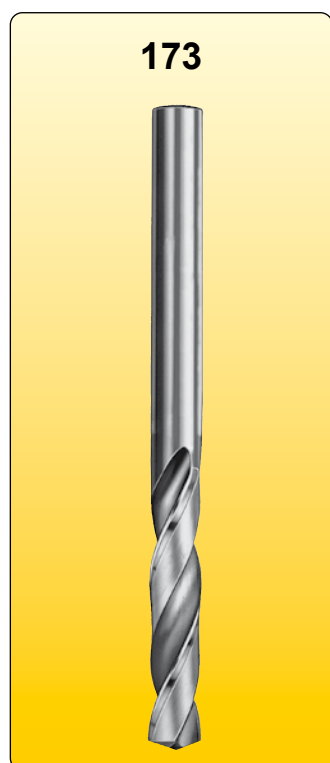


3.
03

D _c h6	L2	L1	D2 h6	172	172F
					Rivestite / Coated
3	16	46	3	172.030	172.030F
3,1	18	49	3,1	172.031	172.031F
3,2	18	49	3,2	172.032	172.032F
3,3	18	49	3,3	172.033	172.033F
3,4	20	52	3,4	172.034	172.034F
3,5	20	52	3,5	172.035	172.035F
3,6	20	52	3,6	172.036	172.036F
3,7	20	52	3,7	172.037	172.037F
3,8	22	55	3,8	172.038	172.038F
3,9	22	55	3,9	172.039	172.039F
4	22	55	4	172.040	172.040F
4,1	22	55	4,1	172.041	172.041F
4,2	22	55	4,2	172.042	172.042F
4,3	24	58	4,3	172.043	172.043F
4,4	24	58	4,4	172.044	172.044F
4,5	24	58	4,5	172.045	172.045F
4,6	24	58	4,6	172.046	172.046F
4,7	24	58	4,7	172.047	172.047F
4,8	26	62	4,8	172.048	172.048F
5	26	62	5	172.050	172.050F
5,1	26	62	5,1	172.051	172.051F
5,3	26	62	5,3	172.053	172.053F

D _c h6	L2	L1	D2 h6	172	172F
					Rivestite / Coated
5,5	28	66	5,5	172.055	172.055F
5,8	28	66	5,8	172.058	172.058F
6	28	66	6	172.060	172.060F
6,4	31	70	6,4	172.064	172.064F
6,5	31	70	6,5	172.065	172.065F
6,6	31	70	6,6	172.066	172.066F
6,8	34	74	6,8	172.068	172.068F
7	34	74	7	172.070	172.070F
7,5	34	74	7,5	172.075	172.075F
7,8	37	79	7,8	172.078	172.078F
8	37	79	8	172.080	172.080F
8,4	37	79	8,4	172.084	172.084F
8,5	37	79	8,5	172.085	172.085F
8,8	40	84	8,8	172.088	172.088F
9	40	84	9	172.090	172.090F
9,5	40	84	9,5	172.095	172.095F
9,8	43	89	9,8	172.098	172.098F
10	43	89	10	172.100	172.100F
10,2	43	89	10,2	172.102	172.102F
10,5	43	89	10,5	172.105	172.105F
10,8	47	95	10,8	172.108	172.108F
11	47	95	11	172.110	172.110F
11,5	47	95	11,5	172.115	172.115F
11,8	47	95	11,8	172.118	172.118F
12	51	102	12	172.120	172.120F
12,5	51	102	12,5	172.125	172.125F
12,8	51	102	12,8	172.128	172.128F
13	51	102	13	172.130	172.130F
13,5	54	107	13,5	172.135	172.135F
13,8	54	107	13,8	172.138	172.138F
14	54	107	14	172.140	172.140F
14,5	56	111	14,5	172.145	172.145F
14,8	56	111	14,8	172.148	172.148F
15	56	111	15	172.150	172.150F
15,5	58	115	15,5	172.155	172.155F
15,8	58	115	15,8	172.158	172.158F
16	58	115	16	172.160	172.160F
16,5	60	119	16,5	172.165	172.165F
17	60	119	17	172.170	172.170F
17,5	62	123	17,5	172.175	172.175F
18	62	123	18	172.180	172.180F
18,5	64	127	18,5	172.185	172.185F
19	64	127	19	172.190	172.190F
19,5	66	131	19,5	172.195	172.195F
20	66	131	20	172.200	172.200F

Punte a 2 eliche ad elevato avanzamento - norma interna
High performance twist drills-self centering - WN



Settore d'impiego / Range of application

A: Leghe Leggere / Light alloys

A1.1-1.7 A2.1-2.7 A3.1-3.2

C: Acciai / Steels

C1.1-1.8 C2.1-2.4 C3.1-3.5 C4.4-4.2

D: Acciai inossidabili / Stainless Steel

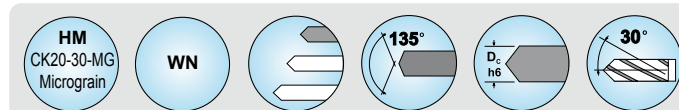
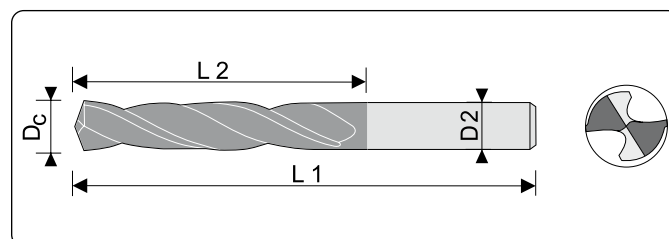
D1.1-1.5.2

E: Titanio / Titanium

E1.1-1.3 E2.1-2.2

F: Ghise / Cast irons

F1.1-1.5 F2.1-2.4

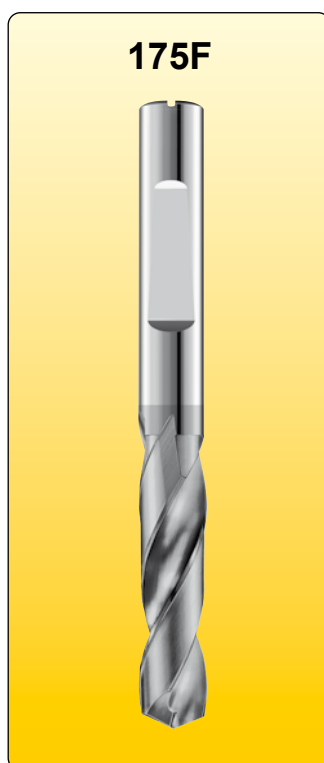
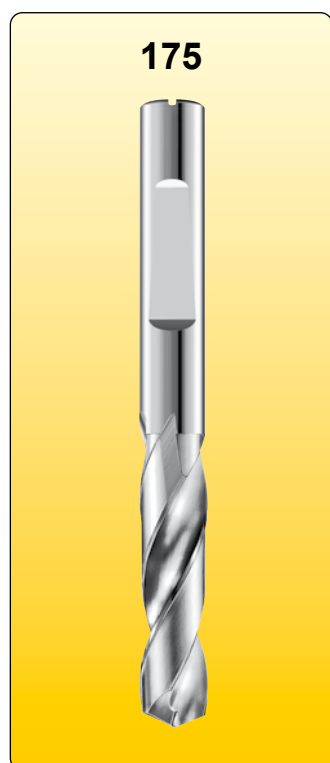


3.
03

D _c h6	L2	L1	D2 h6	173	173F
					Rivestite / Coated
4	40	75	4	173.040	173.040F
4,2	40	75	4,2	173.042	173.042F
4,3	42	80	4,3	173.043	173.043F
4,5	42	80	4,5	173.045	173.045F
4,8	45	86	4,8	173.048	173.048F
5	45	86	5	173.050	173.050F
5,1	45	86	5,1	173.051	173.051F
5,2	45	86	5,2	173.052	173.052F
5,5	48	93	5,5	173.055	173.055F
5,8	48	93	5,8	173.058	173.058F
6	48	93	6	173.060	173.060F
6,1	52	101	6,1	173.061	173.061F
6,5	52	101	6,5	173.065	173.065F
6,6	52	101	6,6	173.066	173.066F
6,8	55	109	6,8	173.068	173.068F
6,9	55	109	6,9	173.069	173.069F
7	55	109	7	173.070	173.070F
7,5	55	109	7,5	173.075	173.075F
7,8	59	117	7,8	173.078	173.078F
7,9	59	117	7,9	173.079	173.079F
8	59	117	8	173.080	173.080F
8,5	59	117	8,5	173.085	173.085F

D _c h6	L2	L1	D2 h6	173	173F
					Rivestite / Coated
8,6	65	125	8,6	173.086	173.086F
8,8	65	125	8,8	173.088	173.088F
9	65	125	9	173.090	173.090F
9,5	65	125	9,5	173.095	173.095F
9,6	69	133	9,6	173.096	173.096F
9,8	69	133	9,8	173.098	173.098F
10	69	133	10	173.100	173.100F
10,2	69	133	10,2	173.102	173.102F
10,4	69	133	10,4	173.104	173.104F
10,5	69	133	10,5	173.105	173.105F
10,8	75	142	10,8	173.108	173.108F
11	75	142	11	173.110	173.110F
11,5	75	142	11,5	173.115	173.115F
11,8	86	151	11,8	173.118	173.118F
12	86	151	12	173.120	173.120F
12,5	86	151	12,5	173.125	173.125F
13	86	151	13	173.130	173.130F
13,5	92	160	13,5	173.135	173.135F
14	92	160	14	173.140	173.140F
14,2	98	169	14,2	173.142	173.142F
14,5	98	169	14,5	173.145	173.145F
15	98	169	15	173.150	173.150F
15,5	105	178	15,5	173.155	173.155F
16	105	178	16	173.160	173.160F
16,5	110	184	16,5	173.165	173.165F
17	110	184	17	173.170	173.170F
17,5	112	191	17,5	173.175	173.175F
17,7	112	191	17,7	173.177	173.177F
18	112	191	18	173.180	173.180F
18,5	112	198	18,5	173.185	173.185F
19	112	198	19	173.190	173.190F
19,5	120	205	19,5	173.195	173.195F
20	120	205	20	173.200	173.200F

Punte a 2 eliche ad elevato avanzamento con adduzione interna - DIN 6537-K
High performance twist drills with coolant ducts-self centering-short acc. to DIN 6537-K



Settori d'impiego / Range of application

A: Leghe Leggere / Light alloys

A1.1-1.7 A2.1-2.7 A3.1-3.2

C: Acciai / Steels

C1.1-1.8 C2.1-2.4 C3.1-3.5 C4.4-4.2

D: Acciai inossidabili/ Stainless Steel

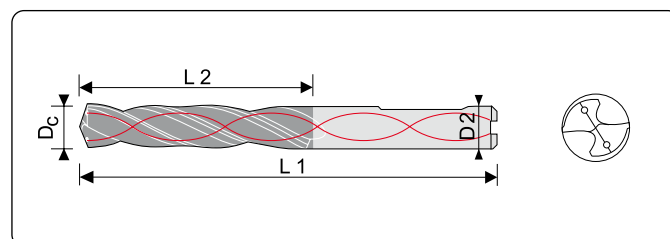
D1.1-1.5.2

E: Titanio / Titanium

E1.1-1.3 E2.1-2.2

F: Ghise / Cast irons

F1.1-1.5 F2.1-2.4



**3.
03**

D _c h6	L2	L1	D2 h6	175	175F
					Rivestite / Coated
5,8	28	66	6	175.058	175.058F
6	28	66	6	175.060	175.060F
6,8	34	79	8	175.068	175.068F
7	34	79	8	175.070	175.070F
7,8	37	79	8	175.078	175.078F
8	37	79	8	175.080	175.080F
8,5	37	89	10	175.085	175.085F
8,8	40	89	10	175.088	175.088F
9	40	89	10	175.090	175.090F
9,5	40	89	10	175.095	175.095F
9,8	43	89	10	175.098	175.098F
10	43	89	10	175.100	175.100F
10,5	43	102	12	175.105	175.105F
10,8	47	102	12	175.108	175.108F
11	47	102	12	175.110	175.110F
11,5	47	102	12	175.115	175.115F
11,8	47	102	12	175.118	175.118F
12	51	102	12	175.120	175.120F
12,5	51	107	14	175.125	175.125F
13	51	107	14	175.130	175.130F
13,5	51	107	14	175.135	175.135F
14	51	107	14	175.140	175.140F

D _c h6	L2	L1	D2 h6	175	175F
					Rivestite / Coated
14,5	56	115	16	175.145	175.145F
15	56	115	16	175.150	175.150F
15,5	58	115	16	175.155	175.155F
16	58	115	16	175.160	175.160F
16,5	60	123	18	175.165	175.165F
17	60	123	18	175.170	175.170F
17,5	62	123	18	175.175	175.175F
18	62	123	18	175.180	175.180F
18,5	64	131	20	175.185	175.185F
19	64	131	20	175.190	175.190F
19,5	66	131	20	175.195	175.195F
20	66	131	20	175.200	175.200F

Punte a 2 eliche ad elevato avanzamento con adduzione interna - lunga - DIN 6537-K
High performance twist drills with coolant ducts-self centering-long acc. to DIN 6537-L



Settori d'impiego / Range of application

A: Leghe Leggere / Light alloys

A1.1-1.7 A2.1-2.7 A3.1-3.2

C: Acciai / Steels

C1.1-1.8 C2.1-2.4 C3.1-3.5 C4.4-4.2

D: Acciai inossidabili / Stainless Steel

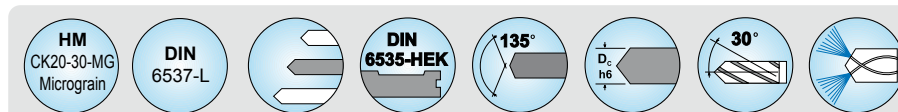
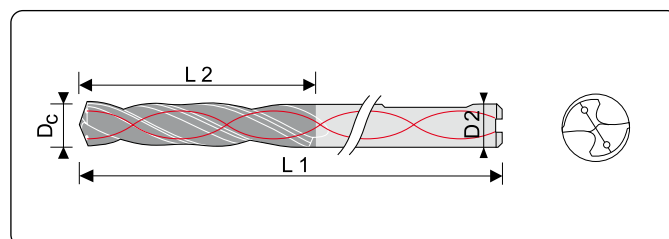
D1.1-1.5.2

E: Titanio / Titanium

E1.1-1.3 E2.1-2.2

F: Ghise / Cast irons

F1.1-1.5 F2.1-2.4



**3.
03**

D _c h6	L2	L1	D2 h6	176	176F
					Rivestite / Coated
5,8	40	82	6	176.058	176.058F
6	40	82	6	176.060	176.060F
6,8	45	91	8	176.068	176.068F
7	45	91	8	176.070	176.070F
7,8	48	91	8	176.078	176.078F
8	48	91	8	176.080	176.080F
8,5	52	103	10	176.085	176.085F
8,8	54	103	10	176.088	176.088F
9	54	103	10	176.090	176.090F
9,5	56	103	10	176.095	176.095F
9,8	58	103	10	176.098	176.098F
10	58	103	10	176.100	176.100F
10,5	65	118	12	176.105	176.105F
10,8	66	118	12	176.108	176.108F
11	66	118	12	176.110	176.110F
11,5	70	118	12	176.115	176.115F
11,8	70	118	12	176.118	176.118F
12	72	118	12	176.120	176.120F
12,5	72	124	14	176.125	176.125F
13	76	124	14	176.130	176.130F
13,5	76	124	14	176.135	176.135F
14	76	124	14	176.140	176.140F

D _c h6	L2	L1	D2 h6	176	176F
					Rivestite / Coated
14,5	78	133	16	176.145	176.145F
15	80	133	16	176.150	176.150F
15,5	80	133	16	176.155	176.155F
16	80	133	16	176.160	176.160F
16,5	82	143	18	176.165	176.165F
17	90	143	18	176.170	176.170F
17,5	92	143	18	176.175	176.175F
18	92	143	18	176.180	176.180F
18,5	100	153	20	176.185	176.185F
19	100	153	20	176.190	176.190F
19,5	100	153	20	176.195	176.195F
20	102	153	20	176.200	176.200F

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