



















Steel <800 N/mm²

NIG Z=4						SIL Z=4						NIG Z=4						SIL Z=4						NIG 731						SIL 731					
																																			
D	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n											
mm	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min											
6,0	0,023	330	3560	0,018	120	1700	0,019	270	3560	0,015	100	1700	0,022	160	3560	0,018	60	1700	0,022	160	3560	0,018	60	1700											
8,0	0,045	480	2670	0,035	180	1270	0,037	400	2670	0,030	150	1270	0,032	170	2670	0,028	70	1270	0,032	170	2670	0,028	70	1270											
10,0	0,061	520	2130	0,049	200	1020	0,050	430	2130	0,039	160	1020	0,042	180	2130	0,034	70	1020	0,042	180	2130	0,034	70	1020											
12,0	0,073	520	1780	0,059	200	850	0,060	430	1780	0,047	160	850	0,053	190	1780	0,041	70	850	0,053	190	1780	0,041	70	850											
16,0	0,098	520	1330	0,082	210	640	0,081	430	1330	0,066	170	640	0,071	190	1330	0,055	70	640	0,071	190	1330	0,055	70	640											
20,0	0,124	530	1070	0,103	210	510	0,103	440	1070	0,083	170	510	0,079	170	1070	0,059	60	510	0,079	170	1070	0,059	60	510											
25,0	0,153	520	850	0,122	200	410	0,126	430	850	0,098	160	410	0,088	150	850	0,067	55	410	0,088	150	850	0,067	55	410											







Steel <1000 N/mm²

NIG Z=4						SIL Z=4						NIG Z=4						SIL Z=4						NIG 731						SIL 731					
																																			
D	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n											
mm	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min											
6,0	0,022	280	3240	0,018	110	1540	0,018	230	3240	0,015	90	1540	0,023	150	3240	0,019	60	1540	0,023	150	3240	0,019	60	1540											
8,0	0,043	420	2430	0,035	160	1150	0,036	350	2430	0,028	130	1150	0,035	170	2430	0,030	70	1150	0,035	170	2430	0,030	70	1150											
10,0	0,058	450	1940	0,046	170	920	0,048	370	1940	0,038	140	920	0,046	180	1940	0,038	70	920	0,046	180	1940	0,038	70	920											
12,0	0,069	450	1620	0,055	170	770	0,057	370	1620	0,045	140	770	0,059	190	1620	0,045	70	770	0,059	190	1620	0,045	70	770											
16,0	0,093	450	1210	0,073	170	580	0,076	370	1210	0,060	140	580	0,074	180	1210	0,060	70	580	0,074	180	1210	0,060	70	580											
20,0	0,119	460	970	0,092	170	460	0,098	380	970	0,076	140	460	0,082	160	970	0,065	60	460	0,082	160	970	0,065	60	460											
25,0	0,144	450	780	0,115	170	370	0,119	370	780	0,095	140	370	0,090	140	780	0,068	50	370	0,090	140	780	0,068	50	370											










Steel <1300 N/mm²

NIG Z=4						SIL Z=4						NIG Z=4						SIL Z=4						NIG 731						SIL 731					
																																			
D	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n											
mm	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min											
6,0	0,020	200	2440	0,017	80	1170	0,016	160	2440	0,013	60	1170	0,020	100	2440	0,017	40	1170	0,020	100	2440	0,017	40	1170											
8,0	0,038	280	1830	0,031	110	880	0,031	230	1830	0,026	90	880	0,033	120	1830	0,023	40	880	0,033	120	1830	0,023	40	880											
10,0	0,051	300	1460	0,043	120	700	0,043	250	1460	0,036	100	700	0,041	120	1460	0,036	50	700	0,041	120	1460	0,036	50	700											
12,0	0,061	300	1220	0,052	120	580	0,051	250	1220	0,043	100	580	0,053	130	1220	0,043	50	580	0,053	130	1220	0,043	50	580											
16,0	0,082	300	920	0,068	120	440	0,068	250	920	0,057	100	440	0,065	120	920	0,057	50	440	0,065	120	920	0,057	50	440											
20,0	0,103	300	730	0,086	120	350	0,086	250	730	0,071	100	350	0,068	100	730	0,057	40	350	0,068	100	730	0,057	40	350											
25,0	0,127	300	590	0,107	120	280	0,106	250	590	0,089	100	280	0,068	80	590	0,063	35	280	0,068	80	590	0,063	35	280											

12 % Cr

NIG Z=4						SIL Z=4						NIG Z=4						SIL Z=4						NIG 731						SIL 731					
																																			
D	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n											
mm	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min											
6,0	0,018	110	1540	0,014	40	740	0,015	90	1540	0,010	30	740	0,019	60	1540	0,020	30	740	0,019	60	1540	0,020	30	740											
8,0	0,035	160	1150	0,027	60	560	0,028	130	1150	0,022	50	560	0,026	60	1150	0,027	30	560	0,026	60	1150	0,027	30	560											
10,0	0,046	170	920	0,033	60	450	0,038	140	920	0,028	50	450	0,038	70	920	0,033	30	450	0,038	70	920	0,033	30	450											
12,0	0,055	170	770	0,041	60	370	0,045	140	770	0,034	50	370	0,045	70	770	0,041	30	370	0,045	70	770	0,041	30	370											
16,0	0,073	170	580	0,054	60	280	0,060	140	580	0,045	50	280	0,060	70	580	0,054	30	280	0,060	70	580	0,054	30	280											
20,0	0,092	170	460	0,068	60	220	0,076	140	460	0,057	50	220	0,065	60	460	0,056	25	220	0,065	60	460	0,056	25	220											
25,0	0,115	170	370	0,083	60	180	0,095	140	370	0,069	50	180	0,068	50	370	0,061	22	180	0,068	50	370	0,061	22	180											

+20%	Serie CORTA	SHORT	KURZ	KRÓTKA
=	Serie NORMALE,	REGULAR	NORMAL	NORMALNA
-20%	Serie MEDIA,	MEDIUM	MITTLERE	WYDŁUŻONA
-40%	Serie LUNGA	LONG	LANG	DŁUGA

Alu & alloys < 6% Si												
NIG Z=3				SIL Z=3			NIG Z=2			SIL Z=2		
												
D	fz	F	n	fz	F	n	fz	F	n	fz	F	n
mm	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min
6,0	0,028	900	10620	0,022	340	5040	0,028	600	10620	0,022	227	5040
8,0	0,056	1340	7960	0,045	510	3780	0,056	893	7960	0,045	340	3780
10,0	0,075	1430	6370	0,061	550	3030	0,075	953	6370	0,061	367	3030
12,0	0,090	1430	5310	0,073	550	2520	0,090	953	5310	0,073	367	2520
16,0	0,122	1460	3980	0,097	550	1890	0,122	973	3980	0,097	367	1890
20,0	0,154	1470	3180	0,124	560	1510	0,154	980	3180	0,124	373	1510
25,0	0,187	1430	2550	0,152	550	1210	0,187	953	2550	0,152	367	1210
Alu & alloys > 6% Si												
NIG Z=3				SIL Z=3			NIG Z=2			SIL Z=2		
												
D	fz	F	n	fz	F	n	fz	F	n	fz	F	n
mm	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min
6,0	0,023	500	7380	0,018	190	3500	0,023	333	7380	0,018	127	3500
8,0	0,045	750	5530	0,035	280	2630	0,045	500	5530	0,035	187	2630
10,0	0,060	800	4430	0,048	300	2100	0,060	533	4430	0,048	200	2100
12,0	0,072	800	3690	0,057	300	1750	0,072	533	3690	0,057	200	1750
16,0	0,097	810	2770	0,079	310	1310	0,097	540	2770	0,079	207	1310
20,0	0,122	810	2210	0,098	310	1050	0,122	540	2210	0,098	207	1050
25,0	0,151	800	1770	0,119	300	840	0,151	533	1770	0,119	200	840
Copper & alloys												
NIG Z=3				SIL Z=3			NIG Z=2			SIL Z=2		
												
D	fz	F	n	fz	F	n	fz	F	n	fz	F	n
mm	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min
6,0	0,018	370	6900	0,012	130	3710	0,018	240	6900	0,012	80	3710
8,0	0,030	460	5170	0,019	150	2780	0,030	310	5170	0,019	100	2780
10,0	0,045	550	4140	0,026	170	2220	0,045	370	4140	0,026	110	2220
12,0	0,065	670	3450	0,040	220	1850	0,065	440	3450	0,040	140	1850
16,0	0,085	650	2580	0,055	220	1390	0,085	430	2580	0,055	150	1390
20,0	0,115	710	2070	0,075	240	1110	0,115	470	2070	0,075	160	1110
25,0	0,155	760	1650	0,090	240	890	0,155	510	1650	0,090	160	890
Thermo Plastics												
NIG Z=3				SIL Z=3			NIG Z=2			SIL Z=2		
												
D	fz	F	n	fz	F	n	fz	F	n	fz	F	n
mm	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min	mm/z	mm/min	min
6,0	0,050	1270	8490	0,020	250	4240	0,050	840	8490	0,020	160	4240
8,0	0,070	1330	6360	0,030	280	3180	0,070	890	6360	0,030	190	3180
10,0	0,080	1220	5090	0,040	300	2540	0,080	810	5090	0,040	200	2540
12,0	0,090	1140	4240	0,050	310	2120	0,090	760	4240	0,050	210	2120
16,0	0,120	1140	3180	0,065	310	1590	0,120	760	3180	0,065	200	1590
20,0	0,150	1140	2540	0,075	280	1270	0,150	760	2540	0,075	190	1270
25,0	0,170	1030	2030	0,090	270	1010	0,170	690	2030	0,090	180	1010
20%	Serie CORTA			SHORT			KURZ			KRÓTKA		
=	Serie NORMALE,			REGULAR			NORMAL			NORMALNA		
-20%	Serie MEDIA,			MEDIUM			MITTLERE			WYDŁUŻONA		
-40%	Serie LUNGA			LONG			LANG			DŁUGA		



730

Frese a finire
serie corta

HSS
M42Co8

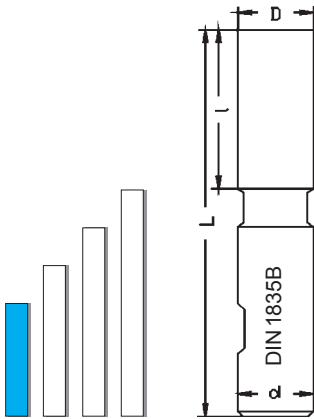


NK

λ 30°
 γ 12°



Toll.D. $\pm 0,01$



Silmax
Norm

Uncoated Alcrona

D	d	L	l	730	VAN	NIG	Z			
$\pm 0,01$	h6				€	€				
0,5	3	37	1,5	730005	26,30	30,80	2			
0,6	3	37	1,5	730006	26,30	30,80	2			
0,7	4	37	2	730007	26,30	30,80	2			
0,8	4	37	2	730008	26,30	30,80	2			
0,9	4	37	2,5	730009	26,30	30,80	2			
1,0	4	37	3	730010	26,30	30,80	2			
1,2	4	37	4	730012	26,30	30,80	2			
1,4	4	37	4	730014	26,70	31,30	2			
1,5	4	37	4	730015	26,70	31,30	2			
1,6	4	37	4	730016	26,70	31,30	2			
1,7	4	37	5	730017	26,70	31,30	2			
1,8	4	37	5	730018	26,70	31,30	2			
2,0	4	37	5	730020	26,70	31,30	2			
2,5	4	40	7	730025	26,70	31,30	2			
3,0	5	44	8	730030	26,70	31,30	2			
3,5	5	44	10	730035	26,70	31,30	2			
4,0	6	51	12	730040	29,60	34,30	2			
4,5	6	51	12	730045	29,60	34,30	2			
5,0	6	52	14	730050	29,60	34,30	2			
5,5	6	52	14	730055	30,30	35,50	2			

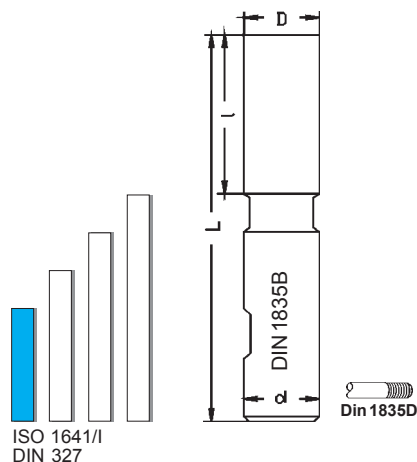
		PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
NIG730	●		Vc 67	Vc 61	Vc 46	Vc 29	--

FIN



731 Frese a finire serie corta

735 Frese a finire serie corta



HSS
M42Co8



NK

λ 30°
 γ 12°



HSS
M42Co8



NK

λ 30°
 γ 12°



Uncoated Alcrona

Alcrona

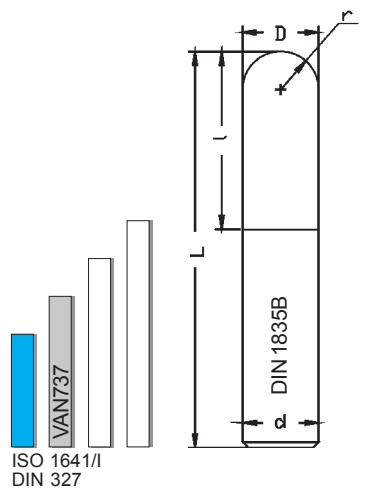
D	d	L	l	731	VAN	NIG	z	735	NIG	z
1,5	h6	49	4	731015	€ 19,10	€ 24,30	2	735015	€ 25,50	2
2	6	49	4	731020	15,50	20,20	2	735020	23,70	2
2,5	6	49	5	731025	15,50	20,20	2	735025	23,70	2
3	6	49	5	731030	14,30	19,00	2	735030	22,00	2
3,5	6	51	7	731035	17,30	22,00	2	735035	24,90	2
4	6	51	7	731040	15,00	19,60	2	735040	23,10	2
4,5	6	51	7	731045	17,30	22,00	2	735045	24,90	2
5	6	52	8	731050	14,30	19,00	2	735050	21,40	2
5,5	6	52	8	731055	16,70	21,40	2	735055	23,70	2
6	6	52	8	731060	15,00	19,60	2	735060	21,40	2
6,5	10	60	10	731065	21,40	30,20	2	735065	31,40	2
7	10	60	10	731070	21,40	30,20	2	735070	31,40	2
7,5	10	61	11	731075	21,40	30,20	2	735075	31,40	2
8	10	61	11	731080	18,50	27,30	2	735080	29,60	2
8,5	10	61	11	731085	21,40	30,20	2	735085	32,60	2
9	10	61	11	731090	21,40	30,20	2	735090	32,60	2
9,5	10	63	13	731095	21,40	30,20	2	735095	32,60	2
10	10	63	13	731100	19,50	28,30	2	735100	29,60	2
10,5	12	70	13	731105	26,90	36,10	2			
11	12	70	13	731110	26,20	35,50	2	735110	38,50	2
12	12	73	16	731120	24,40	33,80	2	735120	36,80	2
13	12	73	16	731130	28,00	37,30	2	735130	39,70	2
14	12	73	16	731140	26,90	36,10	2	735140	38,50	2
15	12	73	16	731150	35,10	44,40	2	735150	46,80	2
16	16	79	19	731160	33,30	45,70	2	735160	48,00	2
17	16	79	19	731170	42,30	56,90	2	735170	58,00	2
18	16	79	19	731180	36,90	52,10	2	735180	53,30	2
19	16	79	19	731190	48,80	64,00	2	735190	66,40	2
20	20	88	22	731200	47,00	65,70	2	735200	67,50	2
22	20	88	22	731220	57,10	78,70	2			
25	25	102	26	731250	76,80	102,40	2			
28	25	102	26	731280	96,40	123,80	2			
30	25	102	26	731300	99,40	126,60	2			
32	32	112	32	731320	126,80	157,50	2			
36	32	112	32	731360	149,30	190,60	2			
40	40	130	38	731400	184,40	231,40	2			

MAX MQL AIR	PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
NIG731	●	Vc 67	Vc 61	Vc 46	Vc 29	--
NIG735	●	Vc 67	Vc 61	Vc 46	Vc 29	--

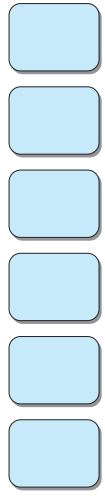


738

Frese semisferiche a finire serie corta



- HSS
M42Co8
- NS
- λ 30°
 γ 12°
- 90°



Uncoated Alcrona

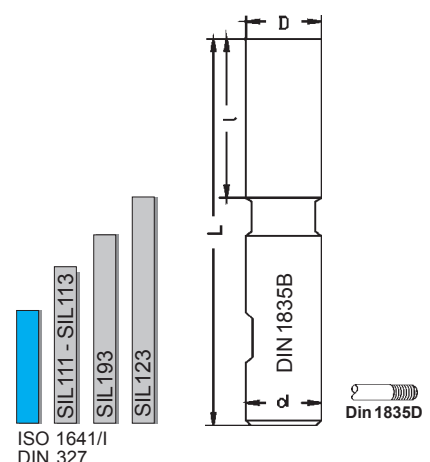
D	d	L	l	r	738	VAN	NIG	Z
k10	h6					€	€	
2	6	49	4	1,0	738020	21,40	26,60	2
2.5	6	49	5	1,25	738025	28,60	33,80	2
3	6	49	5	1,5	738030	28,60	33,80	2
4	6	51	7	2,0	738040	26,20	30,90	2
5	6	52	8	2,5	738050	25,60	30,20	2
5.5	6	52	8	2,75	738055	29,20	34,40	2
6	6	52	8	3,0	738060	25,60	30,20	2
7	10	60	10	3,5	738070	36,30	45,00	2
8	10	61	11	4,0	738080	29,80	38,50	2
10	10	63	13	5,0	738100	32,80	41,40	2
12	12	73	16	6,0	738120	37,50	46,80	2
14	12	73	16	7,0	738140	49,40	51,50	2
15	12	73	16	7,5	738150	50,40	59,70	2
16	16	79	19	8,0	738160	53,00	66,90	2
18	16	79	19	9,0	738180	59,60	74,00	2
20	20	88	22	10,0	738200	65,50	84,00	2

MAX MQL AIR Pag. 251	L	PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
			NIG738	Vc 80	Vc 73	Vc 55	Vc 35



108 Frese a finire serie corta

138 Frese a finire serie corta



- HSS
M42Co8
-
- NK
- $\lambda 30^\circ$
 $\gamma 12^\circ$
-
- Toll.D. e8



- HSS
M42Co8
-
- NS
- $\lambda 30^\circ$
 $\gamma 12^\circ$
-
- 90°



Uncoated Alcrona

Uncoated Alcrona

D	d	L	l		108	SIL	NIG	Z	138	SIL	NIG	Z
	h6					€	€		Toll.D = k10	€	€	
1	6	49	4		108010	17,80	23,10	3				
1,5	6	49	4		108015	17,80	23,10	3				
2	6	49	4		108020	17,80	23,10	3				
2,5	6	49	5		108025	17,80	23,10	3				
3	6	49	5		108030	17,80	23,10	3				
3,5	6	51	7		108035	17,80	23,10	3				
3,8	6	51	7		108038	17,80	23,10	3				
4	6	51	7		108040	17,80	23,10	3				
4,5	6	51	7		108045	17,80	23,10	3				
4,8	6	52	8		108048	17,80	23,10	3				
5	6	52	8		108050	15,50	20,20	3	138005	17,30	22,00	4
5,5	6	52	8		108055	19,10	24,30	3				
6	6	52	8		108060	16,10	20,70	3	138006	17,30	22,00	4
6,5	10	60	10		108065	20,90	29,60	3				
7	10	60	10		108070	22,60	31,40	3	138007	22,10	30,90	4
7,5	10	61	11		108075	22,60	31,40	3				
8	10	61	11		108080	19,60	28,40	3	138008	19,10	27,90	4
8,5	10	61	11		108085	22,60	31,40	3				
9	10	61	11		108090	22,60	31,40	3	138009	23,20	32,00	4
9,5	10	63	13		108095	22,60	31,40	3				
10	10	63	13		108100	19,60	28,40	3	138010	20,30	29,10	4
11	12	70	13		108110	26,90	36,10	3	138011	28,50	37,90	4
12	12	73	16		108120	25,10	34,40	3	138012	25,60	35,00	4
13	12	73	16		108130	28,60	38,50	3	138013	30,40	39,70	4
14	12	73	16		108140	28,60	37,90	3	138014	28,00	37,30	4
15	12	73	16		108150	36,90	46,20	3	138015	37,50	46,80	4
16	16	79	19		108160	35,10	47,40	3	138016	35,10	47,40	4
17	16	79	19		108170	43,40	58,70	3	138017	42,90	57,50	4
18	16	79	19		108180	38,10	53,30	3	138018	38,70	53,90	4
19	16	79	19		108190	50,60	65,70	3	138019	51,20	65,70	4
20	20	88	22		108200	48,80	67,50	3	138020	47,70	66,40	4
22	20	88	22						138022	60,70	81,70	4
25	25	102	26						138025	76,80	102,40	4
28	25	102	26						138028	101,20	128,40	6
30	25	102	26						138030	103,50	130,90	6
32	32	112	32						138032	127,90	159,20	6

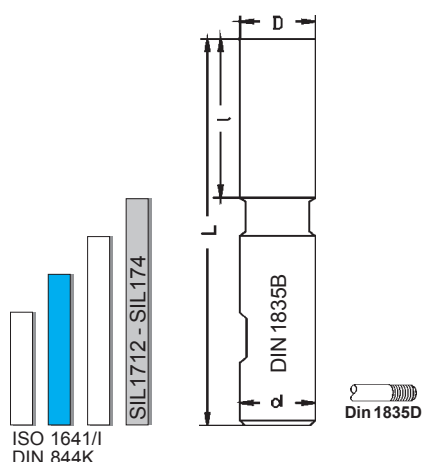
MAX MQL AIR Pag. 251	PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
NIG108	●	Vc 80	Vc 73	Vc 55	Vc 35	--
NIG138	●	Vc 80	Vc 73	Vc 55	Vc 35	--





173 Frese a finire serie normale

171 Frese a finire serie normale



- HSS M42Co8
- W
- $\lambda 35^\circ$
 $\gamma 17^\circ$
- 90°



- HSS M42Co8
- NS
- $\lambda 30^\circ$
 $\gamma 12^\circ$
- 90°



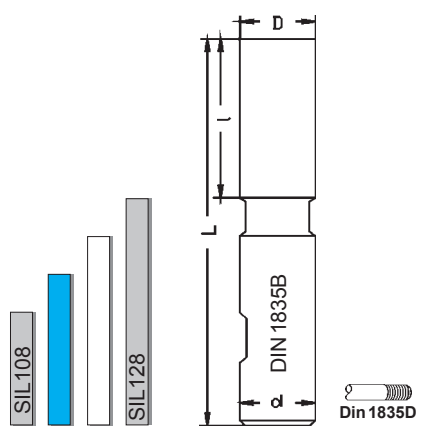
D	d	L	l	173		z	171		z		
				SIL	NIG		SIL	NIG			
k10	h6			€	€		€	€			
1,5	6	52	7				1710015	17,30	22,00	2	
2	6	52	7				1710020	15,50	20,20	2	
2,5	6	52	8				1710025	15,50	20,20	2	
3	6	52	8				171003	15,50	20,20	2	
3,5	6	54	10				1710035	17,40	22,00	2	
4	6	55	11	173004	17,20	21,90	2	171004	16,10	20,70	2
4,5	6	55	11				1710045	19,20	23,70	2	
5	6	57	13	173005	16,60	21,30	2	171005	15,50	20,20	2
5,5	6	57	13				1710055	19,70	24,40	2	
6	6	57	13	173006	16,60	21,30	2	171006	15,50	20,20	2
7	10	66	16	173007	26,70	35,40	2	171007	25,10	33,80	2
8	10	69	19	173008	23,00	31,80	2	171008	20,90	29,60	2
9	10	69	19	173009	26,70	35,40	2	171009	25,10	33,80	2
10	10	72	22	173010	23,00	31,80	2	171010	20,90	29,60	2
11	12	79	22	173011	31,60	40,90	2	171011	28,00	37,30	2
12	12	83	26	173012	29,90	39,20	2	171012	25,60	35,00	2
13	12	83	26	173013	36,20	46,70	2	171013	34,00	44,40	2
14	12	83	26	173014	33,20	44,30	2	171014	31,00	42,10	2
15	12	83	26	173015	41,50	52,60	2	171015	39,30	50,30	2
16	16	92	32	173016	39,10	53,80	2	171016	36,90	51,50	2
17	16	92	32	173017	51,00	69,70	2	171017	47,70	66,40	2
18	16	92	32	173018	46,80	65,60	2	171018	43,40	62,20	2
19	16	92	32	173019	59,20	77,90	2	171019	55,90	74,60	2
20	20	104	38	173020	57,90	76,60	2	171020	53,00	71,70	2
22	20	104	38				2	171022	65,00	88,00	2
25	25	121	45	173025	89,00	115,90	2	171025	85,70	112,50	2
28	25	121	45				2	171028	114,20	145,00	2
30	25	121	45				2	171030	120,20	151,60	2
32	32	133	53				2	171032	137,40	168,70	2
36	32	133	53				2	171036	176,40	217,70	2
40	40	155	63				2	171040	211,70	294,70	2

MAX MQL AIR	PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
NIG173	●	--	--	--	--	Vc 200
NIG171	●	Vc 67	Vc 61	Vc 46	Vc 29	--



111 Frese a finire serie normale

111 Frese a finire serie normale



- HSS M42Co8
- NS
- $\lambda 30^\circ$
 $\gamma 12^\circ$
- 90°



- HSS M42Co8
- NS
- $\lambda 30^\circ$
 $\gamma 12^\circ$
- 90°



D	d	L	l	Uncoated		Alcrona		z	Uncoated		Alcrona		z
				111	SIL	NIG	111		SIL	NIG			
k10	h6				€	€			€	€			
1,5	6	52	7	111015	17,20	22,00	3						
2	6	52	7	111020	15,50	20,20	3						
2,5	6	52	8	111025	16,70	21,40	3						
3	6	52	8	111030	15,50	20,20	3						
3,5	6	54	10	111035	17,30	22,00	3						
4	6	55	11	111040	16,10	20,70	3	111038	18,50	23,70		3	
4,5	6	55	11	111045	18,50	23,70	3						
5	6	57	13	111050	15,50	20,20	3	111048	18,50	23,70		3	
5,5	6	57	13	111055	19,60	24,90	3						
6	6	57	13	111060	15,50	20,20	3	111057	19,60	24,90		3	
7	10	66	16	111070	25,10	33,80	3	111067	25,10	33,80		3	
8	10	69	19	111080	20,90	29,60	3	111077	25,10	33,80		3	
9	10	69	19	111090	25,10	33,80	3	111087	25,10	33,80		3	
10	10	72	22	111100	20,90	29,60	3	111097	25,10	33,80		3	
10,7	10	72	22	111107	28,00	37,30	3	111107	28,00	37,30		3	
11	12	79	22	111110	28,00	37,30	3						
12	12	83	26	111120	25,60	35,00	3	111117	28,10	37,30		3	
13	12	83	26	111130	35,80	46,20	3	111127	35,80	46,20		3	
14	12	83	26	111140	31,00	42,10	3	111137	35,80	46,20		3	
15	12	83	26	111150	39,30	50,30	3	111147	39,30	50,30		3	
16	16	92	32	111160	36,90	51,50	3	111157	39,30	53,90		3	
17	16	92	32	111170	48,80	67,50	3						
18	16	92	32	111180	44,70	63,30	3	111177	48,80	67,50		3	
19	16	92	32	111190	56,60	75,30	3						
20	20	104	38	111200	54,10	72,80	3	111197	59,90	78,60		3	
22	20	104	38	111220	66,70	90,60	3						
25	25	121	45	111250	88,60	115,40	3						
28	25	121	45	111280	114,20	145,00	3						
30	25	121	45	111300	120,20	151,60	3						
32	32	133	53	111320	140,30	171,70	3						

D. < 5 mm. Nom. -0,20 mm.
 D. > 5 < 8 mm. Nom. -0,25 mm.
 D. > 8 mm. Nom. -0,30 mm.

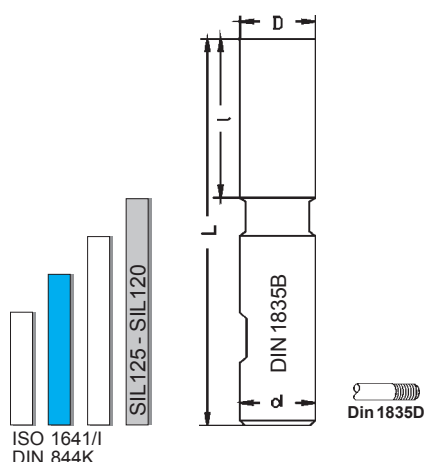
MAX MQL AIR	PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
NIG111	●	Vc 67	Vc 61	Vc 46	Vc 29	--





115 Frese a finire serie normale

110 Frese a finire serie normale



- HSS M42Co8
- W
- $\lambda 35^\circ$
 $\gamma 17^\circ$
- 90°



- HSS M42Co8
- NS
- $\lambda 30^\circ$
 $\gamma 14^\circ$
- 90°



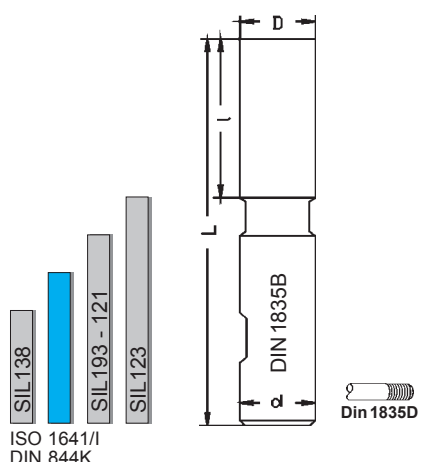
D	d	L	l	115		z	110		z
				SIL	NIG		SIL	NIG	
k10	h6			€	€		€	€	
6	6	57	13	115006	17,80	23,10	3		
8	10	69	19	115008	25,60	34,40	3		
10	10	72	22	115010	26,90	35,50	3		
12	12	83	26	115012	29,20	38,50	3	110012	28,60 37,90
14	12	83	26	115014	42,30	52,70	3	110014	34,00 44,40
16	16	92	32	115016	44,10	58,70	3	110016	38,70 53,30
18	16	92	32	115018	53,00	71,70	3	110018	52,60 71,20
20	20	104	38	115020	61,90	80,50	3	110020	62,00 80,70
22	20	104	38				3	110022	70,20 93,50
25	25	121	45	115025	85,70	112,50	3	110025	91,60 118,40
28	25	121	45					110028	120,70 152,10
30	25	121	45	115030	117,70	149,20	3	110030	129,10 160,50
32	32	133	53	115032	144,50	175,80	3	110032	161,20 191,80
36	32	133	53					110036	189,20 229,60
40	40	155	63	115040	215,90	298,80	3	110040	252,80 335,00
50	50	177	75	115050	347,90	475,30	3	110050	370,50 497,70

MAX MQL AIR	PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
NIG115	●	--	--	--	--	Vc 200
NIG110	●	Vc 67	Vc 61	Vc 46	Vc 29	--



118 Frese a finire serie normale

113 Frese a finire serie normale



- HSS M42Co8
- NS
- $\lambda 40^\circ$
 $\gamma 14^\circ$
- 90°



- HSS M42Co8
- NS
- $\lambda 30^\circ$
 $\gamma 12^\circ$
- 90°



Uncoated Alcrona

Uncoated Alcrona

				118			113				
D	d	L	I	SIL	NIG	Z	SIL	NIG	Z		
k10	h6			€	€		€	€			
1,5	6	52	7				1130015	19,60	24,90	4	
2	6	52	7				1130020	19,60	24,90	4	
2,5	6	52	8				1130025	18,50	23,70	4	
3	6	52	8				1130030	18,50	23,70	4	
3,5	6	54	10				1130035	19,60	24,90	4	
4	6	55	11	118004	21,40	26,60	4	1130040	18,50	23,70	4
4,5	6	55	11				1130045	19,60	24,90	4	
5	6	57	13	118005	21,40	26,60	4	1130050	18,50	23,70	4
5,5	6	57	13				1130055	19,60	24,90	4	
6	6	57	13	118006	21,40	26,60	4	113006	18,50	23,70	4
7	10	66	16	118007	30,40	39,10	4	113007	26,20	35,00	4
8	10	69	19	118008	26,90	35,50	4	113008	24,40	33,20	4
9	10	69	19	118009	31,50	40,30	4	113009	26,90	35,50	4
10	10	72	22	118010	28,00	36,80	4	113010	24,40	33,20	4
11	12	79	22	118011	37,50	46,80	4	113011	31,50	41,40	4
12	12	83	26	118012	31,50	41,40	4	113012	28,60	37,90	4
13	12	83	26	118013	43,40	53,90	4	113013	36,30	46,80	4
14	12	83	26	118014	37,50	48,00	4	113014	34,00	44,40	4
15	12	83	26	118015	51,20	64,00	4	113015	41,70	52,10	4
16	16	92	32	118016	44,10	58,00	4	113016	38,70	53,30	4
17	16	92	32	118017	62,50	81,10	4	113017	52,30	71,00	4
18	16	92	32	118018	54,10	72,80	4	113018	47,00	65,70	4
19	16	92	32	118019	76,10	94,70	4	113019	60,10	78,70	4
20	20	104	38	118020	71,40	90,00	6	113020	55,30	74,00	4
22	20	104	38	118022	82,70	106,60	6	113022	70,20	93,50	4
24	25	121	45				113024	94,60	121,30	4	
25	25	121	45	118025	104,10	130,90	6	113025	96,40	118,40	4
26	25	121	45				113026	111,80	143,20	4	
28	25	121	45	118028	125,00	155,70	6	113028	120,70	152,10	6
30	25	121	45	118030	130,90	162,20	6	113030	129,10	160,50	6
32	32	133	53	118032	175,10	207,80	6	113032	161,20	191,80	6
36	32	133	53				113036	189,20	229,60	6	
40	40	155	63				113040	222,80	305,00	6	
50	50	177	75				113050	370,50	497,70	6	

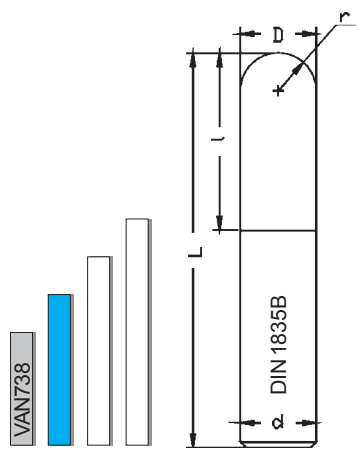
MAX MQL AIR	PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
NIG118	●	Vc 67	Vc 61	Vc 46	Vc 29	--
NIG113	●	Vc 67	Vc 61	Vc 46	Vc 29	--





737 Frese semisferiche a finire serie normale

134 Frese semisferiche a finire serie normale



- HSS M42Co8
- NS
- $\lambda 30^\circ$
 $\gamma 12^\circ$
- W
- ISO 1641/1
DIN 1889/1



- HSS M42Co8
- W
- $\lambda 35^\circ$
 $\gamma 17^\circ$
- ISO 1641/1
DIN 1889/1



Uncoated Alcrona

Uncoated Alcrona

					737				134			
D	d	L	l	r		VAN	NIG	Z	SIL	NIG	Z	
k10	h6					€	€		€	€		
0,5	3	37	1,5	0,25	737005	31,60	36,10	2				
0,8	4	37	2	0,4	737008	31,60	36,10	2				
1	4	37	3	0,5	737010	31,60	36,10	2				
1,2	4	37	4	0,6	737012	31,60	36,10	2				
1,5	4	37	4	0,75	737015	31,60	36,10	2				
1,8	4	37	5	0,9	737018	31,60	36,10	2				
2	6	52	7	1,0	737020	21,40	26,60	2				
2,5	6	52	8	1,25	737025	28,60	33,80	2				
3	6	52	8	1,5	737030	28,60	33,80	2				
4	6	55	11	2,0	737040	26,20	30,90	2	134004	27,30	32,00	
5	6	57	13	2,5	737050	25,60	30,20	2	134005	26,70	31,30	
6	6	57	13	3,0	737060	25,60	30,20	2	134006	26,70	31,30	
7	10	66	16	3,5	737070	36,30	45,00	2				
8	10	69	19	4,0	737080	29,80	38,50	2	134008	32,80	41,50	
10	10	72	22	5,0	737100	32,80	41,40	2	134010	36,10	44,80	
12	12	83	26	6,0	737120	37,50	46,80	2	134012	41,30	50,60	
14	12	83	26	7,0	737140	49,40	59,80	2	134014	54,40	64,80	
16	16	92	32	8,0	737160	53,00	66,90	2	134016	58,30	72,20	
18	16	92	32	9,0	737180	61,90	80,50	2	134018	68,10	86,70	
20	20	104	38	10,0	737200	65,50	84,00	2	134020	72,00	90,60	

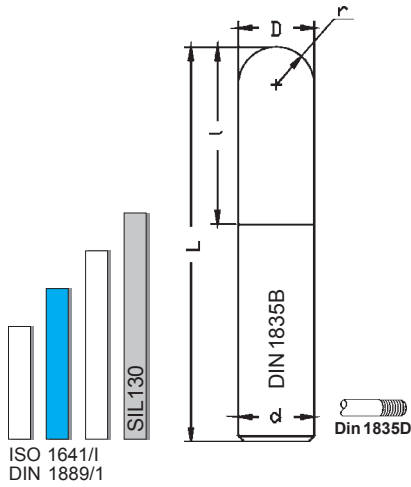
MAX MQL AIR	PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
NIG737	●	Vc 67	Vc 61	Vc 46	Vc 29	--
NIG134	●	--	--	--	--	Vc 200



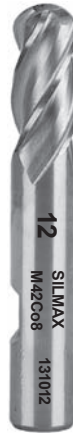
131 Frese semisferiche a finire serie normale

131R Frese semisferiche a finire serie normale

Con fori di lubrificazione
Internal Coolant supply
Mit innerer Kühlmittelzufuhr
Z otworami do dostarczania chłodziwa



- HSS M42Co8
- NS
- $\lambda 30^\circ$
 $\gamma 12^\circ$
- Icons: 4-flute design, chip formation, and end mill profile.



- HSS M42Co8
- NS
- $\lambda 30^\circ$
 $\gamma 12^\circ$
- Icons: 4-flute design with coolant holes, chip formation, and end mill profile.



RAIN MILL

FIN

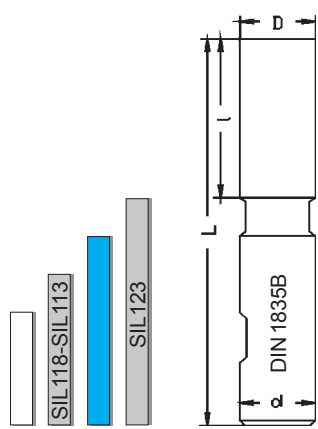
D	d	L	l	r	131		z	131R		z
					SIL	NIG		RMG		
k10	h6				€	€		€		
6	6	57	13	3,0	131006	29,10	33,60	4		
8	10	69	19	4,0	131008	41,70	50,30	4		
10	10	72	22	5,0	131010	45,20	53,90	4		
12	12	83	26	6,0	131012	51,20	60,40	4		
14	12	83	26	7,0	131014	54,80	65,10	4		
16	16	92	32	8,0	131016	65,50	79,90	4	131016	89,40
18	16	92	32	9,0	131018	70,80	89,40	4		
20	20	104	38	10,0	131020	81,50	100,10	6	131020	115,30
22	20	104	38	11,0	131022	96,40	119,60	6		
25	25	121	45	12,5	131025	114,20	140,90	6	131025	176,00
30	25	121	45	15,0	131030	144,50	175,30	6		
32	32	133	53	16,0	131032	173,00	201,20	6	131032	216,00

MAX MQL AIR	PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
NIG131	●	Vc 67	Vc 61	Vc 46	Vc 29	--
RMG131	●	Vc 67	Vc 61	Vc 46	Vc 29	--



121 Frese a finire serie media

193 Frese a finire serie media



HSS
M42Co8

NS

λ 40°
 γ 14°

90°

HSS
M42Co8

NS

λ 30°
 γ 12°

90°

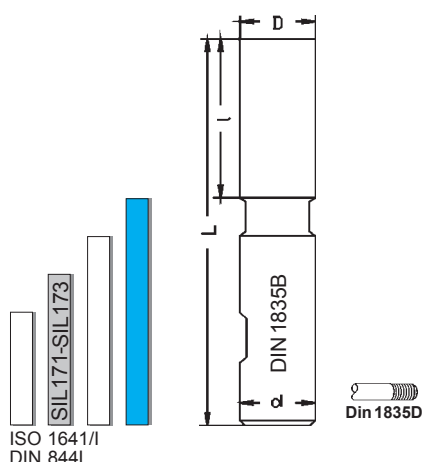
D	d	L	l	121		z	193		z		
				SIL	NIG		SIL	NIG			
k10	h6										
				€	€		€	€			
6	6	62	18	121006	22,70	27,40	4	193006	20,90	26,10	4
8	10	75	25	121008	29,00	37,60	4	193008	26,20	35,00	4
10	10	83	33	121010	32,30	44,50	4	193010	28,00	40,30	4
12	12	96	39	121012	37,00	50,40	4	193012	33,30	46,20	4
14	12	96	39	121014	40,70	54,70	4	193014	37,50	52,10	4
16	16	105	45	121016	49,00	64,70	4	193016	47,00	63,30	4
18	16	105	45	121018	55,40	74,10	4	193018	49,40	68,70	4
20	20	121	55	121020	69,20	93,70	6	193020	63,10	87,60	4
22	20	121	55					193022	75,00	118,40	4
25	25	141	65	121025	112,60	165,70	6	193025	108,70	167,50	4
28	25	141	65					193028	130,90	205,40	6
30	25	141	65					193030	136,80	210,70	6
32	32	158	78					193032	163,80	248,70	6

	MAX MQL AIR	PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
NIG121	●		Vc 54	Vc 49	Vc 37	Vc 23	--
NIG193	●		Vc 54	Vc 49	Vc 37	Vc 23	--



1712 Frese a finire serie lunga

174 Frese a finire serie lunga



- HSS M42Co8
- NS
- λ 30°
 γ 12°
- 90°



- HSS M42Co8
- W
- λ 35°
 γ 17°
- 90°



FIN

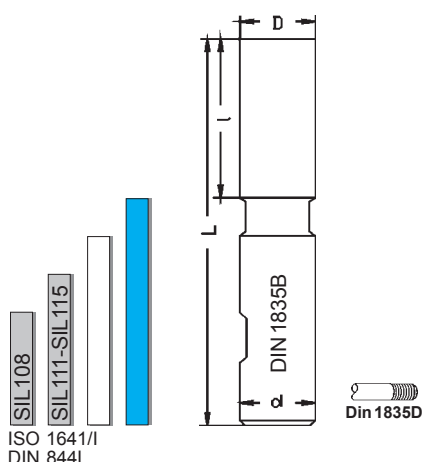
D	d	L	l	1712		z	174		z		
				SIL	NIG		SIL	NIG			
k10	h6			Uncoated	Alcrona		Uncoated	Alcrona			
				€	€		€	€			
6	6	68	24	171206	19,60	26,60	2	174006	20,90	27,90	2
8	10	88	38	171208	25,10	37,30	2	174008	28,00	40,90	2
10	10	95	45	171210	25,60	37,90	2	174010	30,30	43,10	2
12	12	110	53	171212	32,80	45,70	2	174012	36,20	49,10	2
14	12	110	53	171214	38,70	53,30	2	174014	42,90	56,90	2
16	16	123	63	171216	50,60	66,40	2	174016	51,80	68,10	2
18	16	123	63	171218	55,90	80,50	2	174018	60,10	84,00	2
20	20	141	75	171220	73,80	98,30	2	174020	75,00	99,50	2
22	20	141	75	171222	81,50	120,60	2				
25	25	166	90	171225	123,80	182,30	2	174025	126,00	185,20	2
28	25	166	90	171228	158,80	233,20	2				
30	25	166	90	171230	163,60	237,30	2				
32	32	186	106	171232	205,20	289,40	2				
36	32	186	106	171236	245,00	333,20	2				
40	40	217	125	171240	311,10	404,90	2				

MAX MQL AIR	PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys <6% Si
NIG1712	●	Vc 40	Vc 37	Vc 28	Vc 17	--
NIG174	●	--	--	--	--	Vc 200



128 Frese a finire serie lunga

125 Frese a finire serie lunga



- HSS M42Co8
- NS
- λ 30°
 γ 12°
- 90°



- HSS M42Co8
- W
- λ 35°
 γ 17°
- 90°



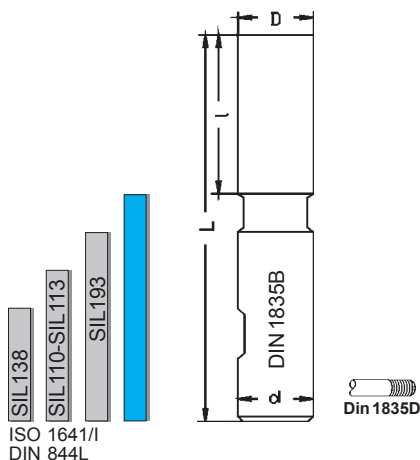
D	d	L	l	128		z	125		z		
				SIL	NIG		SIL	NIG			
k10	h6			€	€		€	€			
3	6	56	12	128003	25,10	29,60	3				
4	6	63	19	128004	25,10	31,40	3				
5	6	68	24	128005	21,40	28,40	3				
6	6	68	24	128006	21,40	28,40	3	125006	22,10	29,10	3
7	10	80	30	128007	29,80	42,70	3				
8	10	88	38	128008	26,20	38,50	3	125008	29,20	42,10	3
9	10	88	38	128009	30,40	43,20	3				
10	10	95	45	128010	26,90	39,10	3	125010	31,00	43,90	3
12	12	110	53	128012	34,50	47,40	3	125012	36,30	49,80	3
14	12	110	53	128014	39,90	54,40	3	125014	43,00	57,60	3
15	12	110	53	128015	57,80	74,00	3				
16	16	123	63	128016	51,80	67,50	3	125016	53,00	69,20	3
18	16	123	63	128018	58,30	82,90	3	125018	62,50	87,00	3
20	20	141	75	128020	76,70	101,20	3	125020	76,80	101,30	3
25	25	166	90					125025	128,90	188,00	3
30	25	166	90					125030	151,40	216,10	3
32	32	186	106					125032	175,50	259,80	3
40	32	217	125					125040	265,50	359,60	3

MAX MQL AIR	PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
NIG128	●	Vc 40	Vc 37	Vc 28	Vc 17	--
NIG125	●	--	--	--	--	Vc 200



120 Frese a finire serie lunga

123 Frese a finire serie lunga



HSS
M42Co8



NS

λ 30°
 γ 12°



90°



HSS
M42Co8



NS

λ 30°
 γ 12°



90°

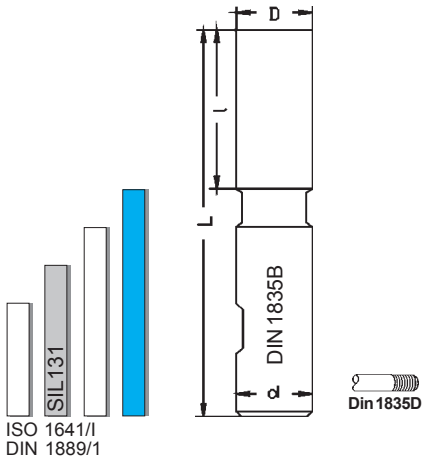


Uncoated Alcrona

Uncoated Alcrona

D	d	L	l	120		z	123		z	
				SIL	NIG		SIL	NIG		
k10	h6			€	€		€	€		
6	6	68	24				123006	25,60	32,60	4
8	10	88	38				123008	29,80	42,70	4
10	10	95	45				123010	31,00	43,90	4
12	12	110	53	120012	33,30	46,20	123012	37,50	50,90	4
14	12	110	53	120014	39,90	54,40	123014	45,90	60,40	4
16	16	123	63	120016	50,60	66,40	123016	54,10	70,50	4
18	16	123	63	120018	56,60	81,10	123018	61,30	85,30	4
20	20	141	75	120020	73,10	97,70	123020	77,90	101,80	4
22	20	141	75	120022	82,70	126,10	123022	89,30	132,70	4
25	25	166	90	120025	122,00	181,10	123025	122,70	181,40	4
28	25	166	90	120028	157,70	232,00	123028	173,00	246,80	6
30	25	166	90	120030	170,70	244,40	123030	180,30	253,90	6
32	32	186	106	120032	202,20	287,00	123032	200,50	285,30	6
36	32	186	106	120036	228,40	316,60	123036	226,60	314,70	6
40	40	217	125	120040	275,90	380,60	123040	300,40	394,20	6
50	50	252	150	120050	440,90	567,90	123050	519,80	646,20	6

MAX MQL AIR Pag. 251	L	PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
			Vc 40	Vc 37	Vc 28	Vc 17	--
NIG120	●		Vc 40	Vc 37	Vc 28	Vc 17	--
NIG123	●		Vc 40	Vc 37	Vc 28	Vc 17	--



130 Frese semisferiche a finire serie lunga

- HSS M42Co8
-
- NS
- $\lambda 30^\circ$
 $\gamma 12^\circ$
-
-



135 Frese semisferiche a finire serie lunga

- HSS M42Co8
-
- W
- $\lambda 35^\circ$
 $\gamma 17^\circ$
-
-



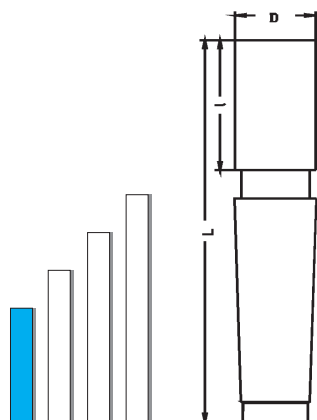
D	d	L	l	r	130		z	135		z
					SIL	NIG		SIL	NIG	
k10	h6				€	€		€	€	
6	6	68	24	3,0	130006	35,10	42,10	4		
8	10	88	38	4,0	130008	48,00	60,10	4	135008	46,20 59,00
10	10	95	45	5,0	130010	54,10	66,40	4	135010	52,30 64,60
12	12	110	53	6,0	130012	56,60	69,90	4	135012	53,40 66,80
16	16	123	63	8,0	130016	69,60	85,30	4	135016	67,10 83,40
20	20	141	75	10,0	130020	96,40	120,30	6	135020	87,70 112,10
25	25	166	90	12,5	130025	155,80	214,90	6	135025	133,30 192,50
32	32	186	106	16,0	130032	212,50	295,90	6	135032	188,50 273,50
40	32	217	125	20,0					135040	302,70 396,50

	MAX MQL AIR	PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
NIG130	●		Vc 40	Vc 37	Vc 28	Vc 17	--
NIG135	●		--	--	--	--	Vc 200



750

Frese a finire
serie corta



ISO 1641/II
DIN 326

HSS
M42Co8



NK

λ 30°
 γ 12°



Uncoated Alcrona

D	L	I	Mk	750	VAN	NIG	Z
e8					€	€	
10	83	13	1	750010	53,00	68,80	2
12	86	16	1	750012	53,20	69,00	2
14	86	16	1	750014	55,80	79,80	2
16	104	19	2	750016	56,70	86,60	2
18	104	19	2	750018	59,00	89,50	2
20	107	22	2	750020	62,50	101,80	2
22	107	22	2	750022	80,90	120,20	2
24	128	26	3	750024	96,40	194,20	2
25	128	26	3	750025	99,40	197,70	2
26	128	26	3	750026	112,40	216,10	2
28	128	26	3	750028	116,00	219,00	2
30	128	26	3	750030	129,60	238,50	2
32	134	32	3	750032	146,30	278,10	2
35	157	32	4	750035	192,20	334,40	2
36	157	32	4	750036	205,40	347,70	2
38	163	38	4	750038	227,20	377,00	2
40	163	38	4	750040	252,80	401,90	2

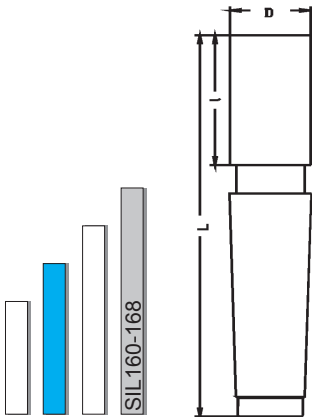
FIN

MAX MQL AIR		PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
NIG750	●		Vc 67	Vc 61	Vc 46	Vc 29	--



158 Frese a finire serie normale

152 Frese a finire serie normale



ISO 1641/II
DIN 845K

HSS
M42Co8

W

λ 35°
 γ 17°

90°



HSS
M42Co8

NS

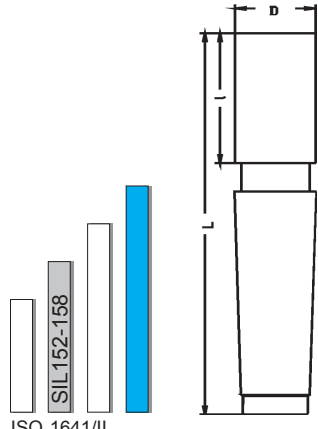
λ 30°
 γ 12°

90°



D	L	I	Mk	158		z	152		z		
				SIL	NIG		SIL	NIG			
k10					€	€		€	€		
16	117	32	2	158016	61,90	91,80	3	152016	60,10	90,00	4
18	117	32	2	158018	71,40	101,30	3	152018	67,20	97,70	4
20	123	38	2	158020	82,70	122,50	3	152020	75,00	114,90	4
22	140	38	3	158022	108,30	206,60	3	152022	99,90	198,30	4
25	147	45	3	158025	132,10	230,20	3	152025	117,20	215,40	4
28	147	45	3	158028	145,00	248,60	3	152028	135,00	237,90	6
30	147	45	3	158030	162,30	271,00	3	152030	154,00	262,80	6
32	155	53	3	158032	179,60	311,30	3	152032	168,90	300,10	6
36	178	53	4					152036	232,50	374,00	6
40	188	63	4					152040	274,80	424,30	6
45	188	63	4					152045	329,50	483,60	6

MAX MQL AIR	PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
NIG158	●	--	--	--	--	Vc 200
NIG152	●	Vc 67	Vc 61	Vc 46	Vc 29	--



ISO 1641/II
DIN 845L

160 Frese a finire serie lunga

- HSS**
M42Co8
-
- NS**
- $\lambda 30^\circ$
 $\gamma 12^\circ$
-
- 90°**



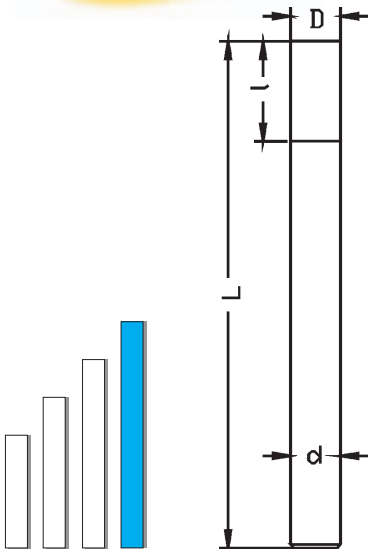
168 Frese a finire serie lunga

- HSS**
M42Co8
-
- W**
- $\lambda 35^\circ$
 $\gamma 17^\circ$
-
- 90°**



D	L	I	Mk	160		z	168		z		
				SIL	NIG		SIL	NIG			
				Uncoated	Alcrona		Uncoated	Alcrona			
				€	€		€	€			
k10											
16	148	63	2	160016	78,20	114,00	4	168016	84,50	120,70	3
18	148	63	2	160018	83,90	119,60	5	168018	97,60	133,20	3
20	177	75	3	160020	121,00	216,40	5	168020	127,50	229,40	3
22	177	75	3	160022	125,00	226,60	5	168022	144,00	246,20	3
25	192	90	3	160025	142,20	243,90	6	168025	167,10	268,70	3
28	192	90	3	160028	178,50	282,90	6	168028	197,50	302,40	3
30	192	90	3	160030	208,70	326,70	6	168030	236,70	355,10	3
32	231	106	4	160032	224,20	363,90	6	168032	256,30	396,50	3
36	231	106	4	160036	285,50	431,40	6				
40	250	125	4	160040	334,80	485,80	6				
50	308	150	5	160050	560,80	798,30	8				
Mk - DIN2207											
40	273	125	4	160140	393,10	543,90	6				
50	336	150	5	160150	764,70	1001,90	8				

		PARAMETRI DI TAGLIO (Cutting data) Pag. 158	Steel <800 N/mm ²	Steel <1000 N/mm ²	Steel <1300 N/mm ²	12% Cr	Alu & alloys < 6% Si
NIG160	●		Vc 40	Vc 37	Vc 28	Vc 17	--
NIG168	●		--	--	--	--	Vc 200



145 Frese a finire serie extra lunga

- HSS M42Co8
-
- NS
- $\lambda 30^\circ$
 $\gamma 10^\circ$
-
- 90°



146 Frese a finire serie extra lunga

- HSS M42Co8
-
- NS
- $\lambda 30^\circ$
 $\gamma 10^\circ$
-
- 90°



					Uncoated				Uncoated				
D	d	L	l		145	SIL		z	146	SIL			z
					€				€				
k10													
6	6	180	25		145006	39,90		4	146006	39,90			2
8	8	180	25		145008	42,90		4	146008	42,90			2
10	10	200	30		145010	52,30		4	146010	52,30			2
12	12	200	30		145012	58,30		4	146012	58,30			2
14	14	200	35		145014	71,40		4	146014	71,40			2
16	16	200	35		145016	91,00		4	146016	91,00			2
20	20	200	35		145020	110,60		4	146020	110,60			2
25	25	200	40		145025	140,30		4					

Gruppo	Nr	DIN	Gruppo	Nr	DIN
Steel < 800 N/mm²	Non legati < 800 N/mm ²	1.1231 Ck67 1.1248 Ck75 1.1274 Ck101 1.0402 C22 1.0406 C25 1.0501 C35 1.0503 C45 1.1133 20Mn5	Legati < 800 N/mm ²	1.5026 55Si7 1.7176 55Cr3 1.8159 50CrV4 1.3505 100Cr6 1.6546 40NiCrMo2 2 1.7218 25CrMo4 1.7220 34CrMo4 1.7223 41CrMo4	
	Legati < 800 N/mm ²	1.7015 15Cr3 1.5752 14NiCr14 1.5919 15CrNi6 1.6523 21NiCrMo2 1.6587 17CrNiMo6 1.7131 16MnCr5			
Steel < 1000 N/mm²	Non legati < 1000 N/mm ²	1.0535 C55 1.0601 C60 1.1203 Ck55 1.1206 Ck50 1.1221 Ck60 1.1157 40Mn4 1.1165 30Mn5 1.1167 36Mn5 1.1170 28Mn6	Legati < 1000 N/mm ²	1.7225 42CrMo4 1.8159 50CrV4 1.7045 42Cr4 1.8507 34CrAlMo5 1.8509 41CrAlMo7 1.8515 31CrMo12	
	Legati < 1000 N/mm ²	1.5710 36NiCr6 1.5755 31NiCr14 1.6511 36CrNiMo4 1.7033 34Cr4 1.7034 37Cr4 1.7035 41Cr4 1.7218 25CrMo4 1.7220 34CrMo4 1.7223 41CrMo4		Acciai legati per utensili	1.2067 100Cr6 1.2330 35CrMo4 1.2332 47CrMo4 1.2510 100MnCrW4 1.2516 120WV4 1.2542 45WCrV7 1.2833 100V1 1.2842 90MnCrV8
Steel < 1300 N/mm²	Legati < 1300 N/mm ²	1.5710 36NiCr6 1.6511 36CrNiMo4 1.6580 30CrNiMo8 1.6582 34CrNiMo6 1.7220 34CrMo4 1.7223 41CrMo4 1.7225 42CrMo4 1.7361 32CrMo12 1.8159 50CrV4	Acciai legati per utensili	1.2311 40CrMnMo7 1.2344 X40CrMoV5 1 1.2365 X32CrMoV3 3 1.2581 X30WCrV9 3 1.2343 X38 CrMoV5 1 1.2344 X40CrMoV5 1 1.2714 56NiCrMoV7	
				Ghisa	0.6030 GG-30 0.6040 GG-40
12% Cr	Acciai legati per utensili	1.2080 X210Cr12 1.2436 X210CrW12 1.2601 X165CrMoV12 1.2706 X3NiCrMo18 8 5 1.2709 X2NiCoMoTi18 9 5 1.2201 X165CrV12 1.2376 X96CrMoV12 1.2379 X155CrMo12 1 1.2609 X165CrVMo12 1 1.2631 X50CrMoW9 1 1 1.2880 X165CrCoMo12	Acciai resistenti al calore	1.4914 - 1.4920 X15CrMo12 1 1.4924 - 1.4718 X45CrSi9 3 1.4845 X12CrNi25 21 1.4878 X12CrNiTi18 9 1.4742 X10CrAl18 1.4923 X22CrMoV12 1	