

**Richiedete il nostro
catalogo completo!**

Utensili EXPERT ALLUMINIO

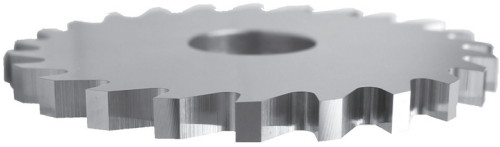


Utensili EXPERT raccomandati per la lavorazione dell' alluminio

Materia dell'utensile : **METALLO DURO**

Rivestimento consigliato : **SOLO**

Gli utensili in PCD possono essere utilizzati anche nella lavorazione dell'alluminio con dei risultati eccellenti.

Operazione	Rif.	Foto	Pagina
Perforazione	343-6/8/12		5/7/10
Fresatura	3200		12
Tagli	223		13
Filettare	5300		18
Incisione	119-2		19
Utensili con profilo speciale	elicoidali		A richiesta

Questa tabella presenta unicamente un utensile ottimale per tipo d'operazione, troverete altri utensili adattati alla lavorazione dell' alluminio nel nostro catalogo.

Index - Alluminio

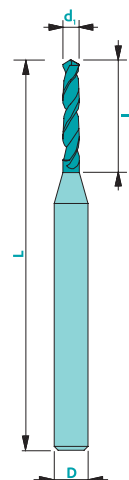
N° Wsn	DIN	AFNOR	Gr.
2.1504	NiAlBz		b
3.0205	Al99		a
3.0205	Al99.0	1200 (A4)	a
3.0255	Al99.5	1050 (A5)	a
3.0257	EAl99.0		a
3.0275	Al99.7		a
3.0285	Al99.8		a
3.0305	Al99.9		a
3.0505	AlMn0.5Mg0.5		a
3.0506	AlMn0.6		a
3.0515	AlMn1		a
3.0517	AlMnCu		a
3.0524	AlMn1Mg0.5	3003 (A – M1)	a
3.0526	AlMn1Mg1	3004 (A – M1G)	a
3.0615	AlMgSiPb		a
3.1255	AlCuSiMn	2014 (A – U4SG)	b
3.1305	AlCu2.5Mg0.5	2117 (A – U2G)	b
3.1325	AlCuMg1		a
3.1355	AlCuMg2	2017A (A – U4G)	b
3.1355	AlCuMg2	2024 (A – U4G1)	b
3.1645	AlCuMgPb		a
3.1655	AlCuBiPb	2011 (A – U5PbBi)	b
3.2131	AlSi5Cu1	A – S7GY	b
3.2134	G – AlSi5Cu1Mg		b
3.2151	AlSi6Cu4	A – S5U3	b
3.2245	SAlSi5	A – S5	a
3.2307	Al99.85MgSi		a
3.2315	AlMgSi1	A – SGM0.7 (anticor. 110)	a
3.2371	AlSi7Mg		b
3.2381	AlSi10Mg	A – S10G	c
3.2525	SAlSi12	A – S12	c
3.2581	G – AlSi12		c
3.2581	AlSi12	A – S12Y4	c
3.2583	G – AlSi12(Cu)		c
3.3206	AlMgSi0.5	A – GS	b
3.3210	AlMgSi0.7		b
3.3292	GD – AlMg9		a
3.3307	Al99.85Mg0.5		a
3.3308	Al99.5Mg0.5		a
3.3315	AlMg1		a
3.3316	AlMg1.5		a
3.3317	Al99.85Mg1		a
3.3326	AlMg1.8		a
3.3345	AlMg4.5		a
3.3523	AlMg2.5		a
3.3525	AlMg2Mn0.3	5052 (A – G3)	a
3.3535	AlMg3	A – G3C	a
3.3543	G – AlMg3(Cu)		a
3.3547	AlMg4.5Mn	A – G4.5MC	a
3.3555	AlMg5		a
3.3561	G – AlMg5		a
3.4365	AlZn6MgCu1.5	7075 (A – Z5GU)	b

Punta elica 34°- l₁=6 mm

343-6

Gruppo materia (vedi pagina 3)	a	b	c
Rivestimento consigliato	SOLO	SOLO	SOLO
V _c non rivestito [m/min]	175	150	100
V _c rivestito [m/min]	195	170	120
F [mm]	Ø/40	Ø/40	Ø/40
Sblocco	Øx1.7	Øx1.8	Øx1.9

Tolleranze d₁: -0.002/-0.004
D: h5



Disponibile con o senza rivestimento

Art. n°	d ₁	l ₁	D	L
343-6d0.60	0.60	6.0	2.0	38
343-6d0.61	0.61	6.0	2.0	38
343-6d0.62	0.62	6.0	2.0	38
343-6d0.63	0.63	6.0	2.0	38
343-6d0.64	0.64	6.0	2.0	38
343-6d0.65	0.65	6.0	2.0	38
343-6d0.66	0.66	6.0	2.0	38
343-6d0.67	0.67	6.0	2.0	38
343-6d0.68	0.68	6.0	2.0	38
343-6d0.69	0.69	6.0	2.0	38
343-6d0.70	0.70	6.0	2.0	38
343-6d0.71	0.71	6.0	2.0	38
343-6d0.72	0.72	6.0	2.0	38
343-6d0.73	0.73	6.0	2.0	38
343-6d0.74	0.74	6.0	2.0	38
343-6d0.75	0.75	6.0	2.0	38
343-6d0.76	0.76	6.0	2.0	38
343-6d0.77	0.77	6.0	2.0	38
343-6d0.78	0.78	6.0	2.0	38
343-6d0.79	0.79	6.0	2.0	38
343-6d0.80	0.80	6.0	2.0	38
343-6d0.81	0.81	6.0	2.0	38
343-6d0.82	0.82	6.0	2.0	38
343-6d0.83	0.83	6.0	2.0	38
343-6d0.84	0.84	6.0	2.0	38
343-6d0.85	0.85	6.0	2.0	38
343-6d0.86	0.86	6.0	2.0	38
343-6d0.87	0.87	6.0	2.0	38
343-6d0.88	0.88	6.0	2.0	38

Art. n°	d ₁	l ₁	D	L
343-6d0.89	0.89	6.0	2.0	38
343-6d0.90	0.90	6.0	2.0	38
343-6d0.91	0.91	6.0	2.0	38
343-6d0.92	0.92	6.0	2.0	38
343-6d0.93	0.93	6.0	2.0	38
343-6d0.94	0.94	6.0	2.0	38
343-6d0.95	0.95	6.0	2.0	38
343-6d0.96	0.96	6.0	2.0	38
343-6d0.97	0.97	6.0	2.0	38
343-6d0.98	0.98	6.0	2.0	38
343-6d0.99	0.99	6.0	2.0	38
343-6d1.00	1.00	6.0	2.0	38
343-6d1.01	1.01	6.0	2.0	38
343-6d1.02	1.02	6.0	2.0	38
343-6d1.03	1.03	6.0	2.0	38
343-6d1.04	1.04	6.0	2.0	38
343-6d1.05	1.05	6.0	2.0	38
343-6d1.06	1.06	6.0	2.0	38
343-6d1.07	1.07	6.0	2.0	38
343-6d1.08	1.08	6.0	2.0	38
343-6d1.09	1.09	6.0	2.0	38
343-6d1.10	1.10	6.0	2.0	38
343-6d1.11	1.11	6.0	2.0	38
343-6d1.12	1.12	6.0	2.0	38
343-6d1.13	1.13	6.0	2.0	38
343-6d1.14	1.14	6.0	2.0	38
343-6d1.15	1.15	6.0	2.0	38
343-6d1.16	1.16	6.0	2.0	38



118°

Z2



λ
34°

CARB

Formule

$$F = F_z \cdot Z$$

$$V_f = F_z \cdot Z \cdot n$$

$$n = \frac{V_c \cdot 1000}{\pi \cdot d_1}$$

$$V_c = \frac{\pi \cdot d_1 \cdot n}{1000}$$

$$f_z = \frac{V_f}{Z \cdot n}$$

Leggenda

F [mm]: Avanzamento per giro

FZ [mm]: Avanzamento per dente

Z: Numero di denti

n: Numero di giri al minuto

Vf [mm/min]: Velocità d'avanzamento

Punta elica 34° - $l_1=6$ mm

Disponibile con o
senza rivestimento



118°

Z2


 λ
34°

CARB

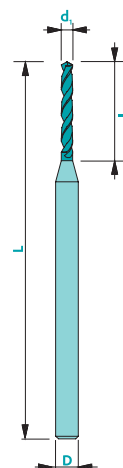
Art. n°	d_1	l_1	D	L
343-6d1.17	1.17	6.0	2.0	38
343-6d1.18	1.18	6.0	2.0	38
343-6d1.19	1.19	6.0	2.0	38
343-6d1.20	1.20	6.0	2.0	38
343-6d1.21	1.21	6.0	2.0	38
343-6d1.22	1.22	6.0	2.0	38
343-6d1.23	1.23	6.0	2.0	38
343-6d1.24	1.24	6.0	2.0	38
343-6d1.25	1.25	6.0	2.0	38
343-6d1.26	1.26	6.0	2.0	38
343-6d1.27	1.27	6.0	2.0	38
343-6d1.28	1.28	6.0	2.0	38
343-6d1.29	1.29	6.0	2.0	38
343-6d1.30	1.30	6.0	2.0	38
343-6d1.31	1.31	6.0	2.0	38
343-6d1.32	1.32	6.0	2.0	38
343-6d1.33	1.33	6.0	2.0	38
343-6d1.34	1.34	6.0	2.0	38
343-6d1.35	1.35	6.0	2.0	38
343-6d1.36	1.36	6.0	2.0	38
343-6d1.37	1.37	6.0	2.0	38
343-6d1.38	1.38	6.0	2.0	38
343-6d1.39	1.39	6.0	2.0	38
343-6d1.40	1.40	6.0	2.0	38
343-6d1.41	1.41	6.0	2.0	38
343-6d1.42	1.42	6.0	2.0	38
343-6d1.43	1.43	6.0	2.0	38
343-6d1.44	1.44	6.0	2.0	38
343-6d1.45	1.45	6.0	2.0	38
343-6d1.46	1.46	6.0	2.0	38
343-6d1.47	1.47	6.0	2.0	38
343-6d1.48	1.48	6.0	2.0	38
343-6d1.49	1.49	6.0	2.0	38
343-6d1.50	1.50	6.0	2.0	38
343-6d1.51	1.51	6.0	2.0	38
343-6d1.52	1.52	6.0	2.0	38
343-6d1.53	1.53	6.0	2.0	38
343-6d1.54	1.54	6.0	2.0	38
343-6d1.55	1.55	6.0	2.0	38
343-6d1.56	1.56	6.0	2.0	38
343-6d1.57	1.57	6.0	2.0	38
343-6d1.58	1.58	6.0	2.0	38
343-6d1.59	1.59	6.0	2.0	38
343-6d1.60	1.60	6.0	2.0	38
343-6d1.61	1.61	6.0	2.0	38

Art. n°	d_1	l_1	D	L
343-6d1.62	1.62	6.0	2.0	38
343-6d1.63	1.63	6.0	2.0	38
343-6d1.64	1.64	6.0	2.0	38
343-6d1.65	1.65	6.0	2.0	38
343-6d1.66	1.66	6.0	2.0	38
343-6d1.67	1.67	6.0	2.0	38
343-6d1.68	1.68	6.0	2.0	38
343-6d1.69	1.69	6.0	2.0	38
343-6d1.70	1.70	6.0	2.0	38
343-6d1.71	1.71	6.0	2.0	38
343-6d1.72	1.72	6.0	2.0	38
343-6d1.73	1.73	6.0	2.0	38
343-6d1.74	1.74	6.0	2.0	38
343-6d1.75	1.75	6.0	2.0	38
343-6d1.76	1.76	6.0	2.0	38
343-6d1.77	1.77	6.0	2.0	38
343-6d1.78	1.78	6.0	2.0	38
343-6d1.79	1.79	6.0	2.0	38
343-6d1.80	1.80	6.0	2.0	38
343-6d1.81	1.81	6.0	2.0	38
343-6d1.82	1.82	6.0	2.0	38
343-6d1.83	1.83	6.0	2.0	38
343-6d1.84	1.84	6.0	2.0	38
343-6d1.85	1.85	6.0	2.0	38
343-6d1.86	1.86	6.0	2.0	38
343-6d1.87	1.87	6.0	2.0	38
343-6d1.88	1.88	6.0	2.0	38
343-6d1.89	1.89	6.0	2.0	38
343-6d1.90	1.90	6.0	2.0	38
343-6d1.91	1.91	6.0	2.0	38
343-6d1.92	1.92	6.0	2.0	38
343-6d1.93	1.93	6.0	2.0	38
343-6d1.94	1.94	6.0	2.0	38
343-6d1.95	1.95	6.0	2.0	38
343-6d1.96	1.96	6.0	2.0	38
343-6d1.97	1.97	6.0	2.0	38
343-6d1.98	1.98	6.0	2.0	38
343-6d1.99	1.99	6.0	2.0	38
343-6d2.00	2.00	6.0	2.0	38

Punta elica 34°- I₁=8 mm

343-8

Gruppo materia (vedi pagina 3)	a	b	c
Rivestimento consigliato	SOLO	SOLO	SOLO
V _c non rivestito [m/min]	175	150	100
V _c rivestito [m/min]	195	170	120
F [mm]	Ø/40	Ø/40	Ø/40
Sblocco	Øx1.7	Øx1.8	Øx1.9



Disponibile con o senza rivestimento

Tolleranze d₁: -0.002/-0.004
D: h5

Art. n°	d ₁	I ₁	D	L
343-8d0.80	0.80	8.0	2.0	38
343-8d0.81	0.81	8.0	2.0	38
343-8d0.82	0.82	8.0	2.0	38
343-8d0.83	0.83	8.0	2.0	38
343-8d0.84	0.84	8.0	2.0	38
343-8d0.85	0.85	8.0	2.0	38
343-8d0.86	0.86	8.0	2.0	38
343-8d0.87	0.87	8.0	2.0	38
343-8d0.88	0.88	8.0	2.0	38
343-8d0.89	0.89	8.0	2.0	38
343-8d0.90	0.90	8.0	2.0	38
343-8d0.91	0.91	8.0	2.0	38
343-8d0.92	0.92	8.0	2.0	38
343-8d0.93	0.93	8.0	2.0	38
343-8d0.94	0.94	8.0	2.0	38
343-8d0.95	0.95	8.0	2.0	38
343-8d0.96	0.96	8.0	2.0	38
343-8d0.97	0.97	8.0	2.0	38
343-8d0.98	0.98	8.0	2.0	38
343-8d0.99	0.99	8.0	2.0	38
343-8d1.00	1.00	8.0	2.0	38
343-8d1.01	1.01	8.0	2.0	38
343-8d1.02	1.02	8.0	2.0	38
343-8d1.03	1.03	8.0	2.0	38
343-8d1.04	1.04	8.0	2.0	38
343-8d1.05	1.05	8.0	2.0	38
343-8d1.06	1.06	8.0	2.0	38
343-8d1.07	1.07	8.0	2.0	38
343-8d1.08	1.08	8.0	2.0	38
343-8d1.09	1.09	8.0	2.0	38

Art. n°	d ₁	I ₁	D	L
343-8d1.10	1.10	8.0	2.0	38
343-8d1.11	1.11	8.0	2.0	38
343-8d1.12	1.12	8.0	2.0	38
343-8d1.13	1.13	8.0	2.0	38
343-8d1.14	1.14	8.0	2.0	38
343-8d1.15	1.15	8.0	2.0	38
343-8d1.16	1.16	8.0	2.0	38
343-8d1.17	1.17	8.0	2.0	38
343-8d1.18	1.18	8.0	2.0	38
343-8d1.19	1.19	8.0	2.0	38
343-8d1.20	1.20	8.0	2.0	38
343-8d1.21	1.21	8.0	2.0	38
343-8d1.22	1.22	8.0	2.0	38
343-8d1.23	1.23	8.0	2.0	38
343-8d1.24	1.24	8.0	2.0	38
343-8d1.25	1.25	8.0	2.0	38
343-8d1.26	1.26	8.0	2.0	38
343-8d1.27	1.27	8.0	2.0	38
343-8d1.28	1.28	8.0	2.0	38
343-8d1.29	1.29	8.0	2.0	38
343-8d1.30	1.30	8.0	2.0	38
343-8d1.31	1.31	8.0	2.0	38
343-8d1.32	1.32	8.0	2.0	38
343-8d1.33	1.33	8.0	2.0	38
343-8d1.34	1.34	8.0	2.0	38
343-8d1.35	1.35	8.0	2.0	38
343-8d1.36	1.36	8.0	2.0	38
343-8d1.37	1.37	8.0	2.0	38
343-8d1.38	1.38	8.0	2.0	38
343-8d1.39	1.39	8.0	2.0	38

118°

Z2



λ
34°

CARB

Formule

$$F = F_z \cdot Z$$

$$V_f = F_z \cdot Z \cdot n$$

$$n = \frac{V_c \cdot 1000}{\pi \cdot d_1}$$

$$V_c = \frac{\pi \cdot d_1 \cdot n}{1000}$$

$$f_z = \frac{V_f}{Z \cdot n}$$

Leggenda

F [mm]: Avanzamento per giro

FZ [mm]: Avanzamento per dente

Z: Numero di denti

n: Numero di giri al minuto

Vf [mm/min]: Velocità d'avanzamento

Punta elica 34° - $l_1=8$ mm

Disponibile con o
senza rivestimento



118°

Z2


 λ
34°

CARB

Art. n°	d_1	l_1	D	L	Art. n°	d_1	l_1	D	L
343-8d1.40	1.40	8.0	2.0	38	343-8d1.85	1.85	8.0	2.0	38
343-8d1.41	1.41	8.0	2.0	38	343-8d1.86	1.86	8.0	2.0	38
343-8d1.42	1.42	8.0	2.0	38	343-8d1.87	1.87	8.0	2.0	38
343-8d1.43	1.43	8.0	2.0	38	343-8d1.88	1.88	8.0	2.0	38
343-8d1.44	1.44	8.0	2.0	38	343-8d1.89	1.89	8.0	2.0	38
343-8d1.45	1.45	8.0	2.0	38	343-8d1.90	1.90	8.0	2.0	38
343-8d1.46	1.46	8.0	2.0	38	343-8d1.91	1.91	8.0	2.0	38
343-8d1.47	1.47	8.0	2.0	38	343-8d1.92	1.92	8.0	2.0	38
343-8d1.48	1.48	8.0	2.0	38	343-8d1.93	1.93	8.0	2.0	38
343-8d1.49	1.49	8.0	2.0	38	343-8d1.94	1.94	8.0	2.0	38
343-8d1.50	1.50	8.0	2.0	38	343-8d1.95	1.95	8.0	2.0	38
343-8d1.51	1.51	8.0	2.0	38	343-8d1.96	1.96	8.0	2.0	38
343-8d1.52	1.52	8.0	2.0	38	343-8d1.97	1.97	8.0	2.0	38
343-8d1.53	1.53	8.0	2.0	38	343-8d1.98	1.98	8.0	2.0	38
343-8d1.54	1.54	8.0	2.0	38	343-8d1.99	1.99	8.0	2.0	38
343-8d1.55	1.55	8.0	2.0	38	343-8d2.00	2.00	8.0	2.0	38
343-8d1.56	1.56	8.0	2.0	38	343-8d2.01	2.01	8.0	3.0	38
343-8d1.57	1.57	8.0	2.0	38	343-8d2.02	2.02	8.0	3.0	38
343-8d1.58	1.58	8.0	2.0	38	343-8d2.03	2.03	8.0	3.0	38
343-8d1.59	1.59	8.0	2.0	38	343-8d2.04	2.04	8.0	3.0	38
343-8d1.60	1.60	8.0	2.0	38	343-8d2.05	2.05	8.0	3.0	38
343-8d1.61	1.61	8.0	2.0	38	343-8d2.06	2.06	8.0	3.0	38
343-8d1.62	1.62	8.0	2.0	38	343-8d2.07	2.07	8.0	3.0	38
343-8d1.63	1.63	8.0	2.0	38	343-8d2.08	2.08	8.0	3.0	38
343-8d1.64	1.64	8.0	2.0	38	343-8d2.09	2.09	8.0	3.0	38
343-8d1.65	1.65	8.0	2.0	38	343-8d2.10	2.10	8.0	3.0	38
343-8d1.66	1.66	8.0	2.0	38	343-8d2.11	2.11	8.0	3.0	38
343-8d1.67	1.67	8.0	2.0	38	343-8d2.12	2.12	8.0	3.0	38
343-8d1.68	1.68	8.0	2.0	38	343-8d2.13	2.13	8.0	3.0	38
343-8d1.69	1.69	8.0	2.0	38	343-8d2.14	2.14	8.0	3.0	38
343-8d1.70	1.70	8.0	2.0	38	343-8d2.15	2.15	8.0	3.0	38
343-8d1.71	1.71	8.0	2.0	38	343-8d2.16	2.16	8.0	3.0	38
343-8d1.72	1.72	8.0	2.0	38	343-8d2.17	2.17	8.0	3.0	38
343-8d1.73	1.73	8.0	2.0	38	343-8d2.18	2.18	8.0	3.0	38
343-8d1.74	1.74	8.0	2.0	38	343-8d2.19	2.19	8.0	3.0	38
343-8d1.75	1.75	8.0	2.0	38	343-8d2.20	2.20	8.0	3.0	38
343-8d1.76	1.76	8.0	2.0	38	343-8d2.21	2.21	8.0	3.0	38
343-8d1.77	1.77	8.0	2.0	38	343-8d2.22	2.22	8.0	3.0	38
343-8d1.78	1.78	8.0	2.0	38	343-8d2.23	2.23	8.0	3.0	38
343-8d1.79	1.79	8.0	2.0	38	343-8d2.24	2.24	8.0	3.0	38
343-8d1.80	1.80	8.0	2.0	38	343-8d2.25	2.25	8.0	3.0	38
343-8d1.81	1.81	8.0	2.0	38	343-8d2.26	2.26	8.0	3.0	38
343-8d1.82	1.82	8.0	2.0	38	343-8d2.27	2.27	8.0	3.0	38
343-8d1.83	1.83	8.0	2.0	38	343-8d2.28	2.28	8.0	3.0	38
343-8d1.84	1.84	8.0	2.0	38	343-8d2.29	2.29	8.0	3.0	38

Punta elica 34°- l₁=8 mm

343-8

Continuazione

Art. n°	d ₁	l ₁	D	L	Art. n°	d ₁	l ₁	D	L
343-8d2.30	2.30	8.0	3.0	38	343-8d2.75	2.75	8.0	3.0	38
343-8d2.31	2.31	8.0	3.0	38	343-8d2.76	2.76	8.0	3.0	38
343-8d2.32	2.32	8.0	3.0	38	343-8d2.77	2.77	8.0	3.0	38
343-8d2.33	2.33	8.0	3.0	38	343-8d2.78	2.78	8.0	3.0	38
343-8d2.34	2.34	8.0	3.0	38	343-8d2.79	2.79	8.0	3.0	38
343-8d2.35	2.35	8.0	3.0	38	343-8d2.80	2.80	8.0	3.0	38
343-8d2.36	2.36	8.0	3.0	38	343-8d2.81	2.81	8.0	3.0	38
343-8d2.37	2.37	8.0	3.0	38	343-8d2.82	2.82	8.0	3.0	38
343-8d2.38	2.38	8.0	3.0	38	343-8d2.83	2.83	8.0	3.0	38
343-8d2.39	2.39	8.0	3.0	38	343-8d2.84	2.84	8.0	3.0	38
343-8d2.40	2.40	8.0	3.0	38	343-8d2.85	2.85	8.0	3.0	38
343-8d2.41	2.41	8.0	3.0	38	343-8d2.86	2.86	8.0	3.0	38
343-8d2.42	2.42	8.0	3.0	38	343-8d2.87	2.87	8.0	3.0	38
343-8d2.43	2.43	8.0	3.0	38	343-8d2.88	2.88	8.0	3.0	38
343-8d2.44	2.44	8.0	3.0	38	343-8d2.89	2.89	8.0	3.0	38
343-8d2.45	2.45	8.0	3.0	38	343-8d2.90	2.90	8.0	3.0	38
343-8d2.46	2.46	8.0	3.0	38	343-8d2.91	2.91	8.0	3.0	38
343-8d2.47	2.47	8.0	3.0	38	343-8d2.92	2.92	8.0	3.0	38
343-8d2.48	2.48	8.0	3.0	38	343-8d2.93	2.93	8.0	3.0	38
343-8d2.49	2.49	8.0	3.0	38	343-8d2.94	2.94	8.0	3.0	38
343-8d2.50	2.50	8.0	3.0	38	343-8d2.95	2.95	8.0	3.0	38
343-8d2.51	2.51	8.0	3.0	38	343-8d2.96	2.96	8.0	3.0	38
343-8d2.52	2.52	8.0	3.0	38	343-8d2.97	2.97	8.0	3.0	38
343-8d2.53	2.53	8.0	3.0	38	343-8d2.98	2.98	8.0	3.0	38
343-8d2.54	2.54	8.0	3.0	38	343-8d2.99	2.99	8.0	3.0	38
343-8d2.55	2.55	8.0	3.0	38	343-8d3.00	3.00	8.0	3.0	38
343-8d2.56	2.56	8.0	3.0	38	343-8d3.10	3.10	8.0	4.0	38
343-8d2.57	2.57	8.0	3.0	38	343-8d3.20	3.20	8.0	4.0	38
343-8d2.58	2.58	8.0	3.0	38	343-8d3.30	3.30	8.0	4.0	38
343-8d2.59	2.59	8.0	3.0	38	343-8d3.40	3.40	8.0	4.0	38
343-8d2.60	2.60	8.0	3.0	38	343-8d3.50	3.50	8.0	4.0	38
343-8d2.61	2.61	8.0	3.0	38	343-8d3.60	3.60	8.0	4.0	38
343-8d2.62	2.62	8.0	3.0	38	343-8d3.70	3.70	8.0	4.0	38
343-8d2.63	2.63	8.0	3.0	38	343-8d3.80	3.80	8.0	4.0	38
343-8d2.64	2.64	8.0	3.0	38	343-8d3.90	3.90	8.0	4.0	38
343-8d2.65	2.65	8.0	3.0	38	343-8d4.00	4.00	8.0	4.0	38
343-8d2.66	2.66	8.0	3.0	38	343-8d4.10	4.10	8.0	4.5	38
343-8d2.67	2.67	8.0	3.0	38	343-8d4.20	4.20	8.0	4.5	38
343-8d2.68	2.68	8.0	3.0	38	343-8d4.30	4.30	8.0	4.5	38
343-8d2.69	2.69	8.0	3.0	38	343-8d4.40	4.40	8.0	4.5	38
343-8d2.70	2.70	8.0	3.0	38	343-8d4.50	4.50	8.0	4.5	38
343-8d2.71	2.71	8.0	3.0	38	343-8d5.00	5.00	8.0	5.0	38
343-8d2.72	2.72	8.0	3.0	38	343-8d5.50	5.50	8.0	5.5	38
343-8d2.73	2.73	8.0	3.0	38	343-8d6.00	6.00	8.0	6.0	38
343-8d2.74	2.74	8.0	3.0	38					



Disponibile con o
senza rivestimento



118°

Z2

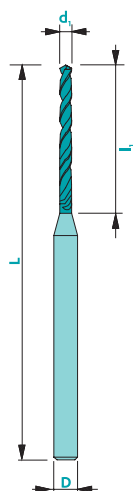


λ
34°

CARB

343-12

Punta elica 34° - l₁=12 mm



Gruppo materia (vedi pagina 3)

	a	b	c
Rivestimento consigliato	SOLO	SOLO	SOLO
V _c non rivestito [m/min]	175	150	100
V _c rivestito [m/min]	195	170	120
F [mm]	Ø/40	Ø/40	Ø/40
Sblocco	Øx1.7	Øx1.8	Øx1.9

Tolleranze
d₁: -0.002/-0.004
D: h5

Disponibile con o senza rivestimento



118°

Z2



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34°

CARB

Formule

$$F = F_z \cdot Z$$

$$V_f = F_z \cdot Z \cdot n$$

$$n = \frac{V_c \cdot 1000}{\pi \cdot d_1}$$

$$V_c = \frac{\pi \cdot d_1 \cdot n}{1000}$$

$$f_z = \frac{V_f}{Z \cdot n}$$

Leggenda

F [mm]: Avanzamento per giro

FZ [mm]: Avanzamento per dente

Z: Numero di denti

n: Numero di giri al minuto

Vf [mm/min]: Velocità d'avanzamento

Art. n°	d ₁	l ₁	D	L
343-12d0.80	0.80	12.0	2.0	38
343-12d0.81	0.81	12.0	2.0	38
343-12d0.82	0.82	12.0	2.0	38
343-12d0.83	0.83	12.0	2.0	38
343-12d0.84	0.84	12.0	2.0	38
343-12d0.85	0.85	12.0	2.0	38
343-12d0.86	0.86	12.0	2.0	38
343-12d0.87	0.87	12.0	2.0	38
343-12d0.88	0.88	12.0	2.0	38
343-12d0.89	0.89	12.0	2.0	38
343-12d0.90	0.90	12.0	2.0	38
343-12d0.91	0.91	12.0	2.0	38
343-12d0.92	0.92	12.0	2.0	38
343-12d0.93	0.93	12.0	2.0	38
343-12d0.94	0.94	12.0	2.0	38
343-12d0.95	0.95	12.0	2.0	38
343-12d0.96	0.96	12.0	2.0	38
343-12d0.97	0.97	12.0	2.0	38
343-12d0.98	0.98	12.0	2.0	38
343-12d0.99	0.99	12.0	2.0	38
343-12d1.00	1.00	12.0	2.0	38
343-12d1.01	1.01	12.0	2.0	38
343-12d1.02	1.02	12.0	2.0	38
343-12d1.03	1.03	12.0	2.0	38
343-12d1.04	1.04	12.0	2.0	38
343-12d1.05	1.05	12.0	2.0	38
343-12d1.06	1.06	12.0	2.0	38
343-12d1.07	1.07	12.0	2.0	38
343-12d1.08	1.08	12.0	2.0	38
343-12d1.09	1.09	12.0	2.0	38
343-12d1.10	1.10	12.0	2.0	38
343-12d1.11	1.11	12.0	2.0	38

Art. n°	d ₁	l ₁	D	L
343-12d1.12	1.12	12.0	2.0	38
343-12d1.13	1.13	12.0	2.0	38
343-12d1.14	1.14	12.0	2.0	38
343-12d1.15	1.15	12.0	2.0	38
343-12d1.16	1.16	12.0	2.0	38
343-12d1.17	1.17	12.0	2.0	38
343-12d1.18	1.18	12.0	2.0	38
343-12d1.19	1.19	12.0	2.0	38
343-12d1.20	1.20	12.0	2.0	38
343-12d1.21	1.21	12.0	2.0	38
343-12d1.22	1.22	12.0	2.0	38
343-12d1.23	1.23	12.0	2.0	38
343-12d1.24	1.24	12.0	2.0	38
343-12d1.25	1.25	12.0	2.0	38
343-12d1.26	1.26	12.0	2.0	38
343-12d1.27	1.27	12.0	2.0	38
343-12d1.28	1.28	12.0	2.0	38
343-12d1.29	1.29	12.0	2.0	38
343-12d1.30	1.30	12.0	2.0	38
343-12d1.31	1.31	12.0	2.0	38
343-12d1.32	1.32	12.0	2.0	38
343-12d1.33	1.33	12.0	2.0	38
343-12d1.34	1.34	12.0	2.0	38
343-12d1.35	1.35	12.0	2.0	38
343-12d1.36	1.36	12.0	2.0	38
343-12d1.37	1.37	12.0	2.0	38
343-12d1.38	1.38	12.0	2.0	38
343-12d1.39	1.39	12.0	2.0	38
343-12d1.40	1.40	12.0	2.0	38
343-12d1.41	1.41	12.0	2.0	38
343-12d1.42	1.42	12.0	2.0	38
343-12d1.43	1.43	12.0	2.0	38

Punta elica 34°- l₁=12 mm

343-12

Continuazione

Art. n°	d ₁	l ₁	D	L	Art. n°	d ₁	l ₁	D	L
343-12d1.44	1.44	12.0	2.0	38	343-12d1.94	1.94	12.0	2.0	38
343-12d1.45	1.45	12.0	2.0	38	343-12d1.95	1.95	12.0	2.0	38
343-12d1.46	1.46	12.0	2.0	38	343-12d1.96	1.96	12.0	2.0	38
343-12d1.47	1.47	12.0	2.0	38	343-12d1.97	1.97	12.0	2.0	38
343-12d1.48	1.48	12.0	2.0	38	343-12d1.98	1.98	12.0	2.0	38
343-12d1.49	1.49	12.0	2.0	38	343-12d1.99	1.99	12.0	2.0	38
343-12d1.50	1.50	12.0	2.0	38	343-12d2.00	2.00	12.0	2.0	38
343-12d1.51	1.51	12.0	2.0	38	343-12d2.05	2.05	12.0	3.0	38
343-12d1.52	1.52	12.0	2.0	38	343-12d2.10	2.10	12.0	3.0	38
343-12d1.53	1.53	12.0	2.0	38	343-12d2.15	2.15	12.0	3.0	38
343-12d1.54	1.54	12.0	2.0	38	343-12d2.17	2.17	12.0	3.0	38
343-12d1.55	1.55	12.0	2.0	38	343-12d2.18	2.18	12.0	3.0	38
343-12d1.56	1.56	12.0	2.0	38	343-12d2.20	2.20	12.0	3.0	38
343-12d1.57	1.57	12.0	2.0	38	343-12d2.25	2.25	12.0	3.0	38
343-12d1.58	1.58	12.0	2.0	38	343-12d2.27	2.27	12.0	3.0	38
343-12d1.59	1.59	12.0	2.0	38	343-12d2.28	2.28	12.0	3.0	38
343-12d1.60	1.60	12.0	2.0	38	343-12d2.30	2.30	12.0	3.0	38
343-12d1.61	1.61	12.0	2.0	38	343-12d2.35	2.35	12.0	3.0	38
343-12d1.62	1.62	12.0	2.0	38	343-12d2.37	2.37	12.0	3.0	38
343-12d1.63	1.63	12.0	2.0	38	343-12d2.38	2.38	12.0	3.0	38
343-12d1.64	1.64	12.0	2.0	38	343-12d2.40	2.40	12.0	3.0	38
343-12d1.65	1.65	12.0	2.0	38	343-12d2.45	2.45	12.0	3.0	38
343-12d1.66	1.66	12.0	2.0	38	343-12d2.50	2.50	12.0	3.0	38
343-12d1.67	1.67	12.0	2.0	38	343-12d2.55	2.55	12.0	3.0	38
343-12d1.68	1.68	12.0	2.0	38	343-12d2.60	2.60	12.0	3.0	38
343-12d1.69	1.69	12.0	2.0	38	343-12d2.65	2.65	12.0	3.0	38
343-12d1.70	1.70	12.0	2.0	38	343-12d2.70	2.70	12.0	3.0	38
343-12d1.71	1.71	12.0	2.0	38	343-12d2.80	2.80	12.0	3.0	38
343-12d1.72	1.72	12.0	2.0	38	343-12d2.90	2.90	12.0	3.0	38
343-12d1.73	1.73	12.0	2.0	38	343-12d2.95	2.95	12.0	3.0	38
343-12d1.74	1.74	12.0	2.0	38	343-12d3.00	3.00	12.0	3.0	38
343-12d1.75	1.75	12.0	2.0	38	343-12d3.10	3.10	12.0	4.0	38
343-12d1.76	1.76	12.0	2.0	38	343-12d3.20	3.20	12.0	4.0	38
343-12d1.77	1.77	12.0	2.0	38	343-12d3.30	3.30	12.0	4.0	38
343-12d1.78	1.78	12.0	2.0	38	343-12d3.40	3.40	12.0	4.0	38
343-12d1.79	1.79	12.0	2.0	38	343-12d3.50	3.50	12.0	4.0	38
343-12d1.80	1.80	12.0	2.0	38	343-12d3.60	3.60	12.0	4.0	38
343-12d1.81	1.81	12.0	2.0	38	343-12d3.70	3.70	12.0	4.0	38
343-12d1.82	1.82	12.0	2.0	38	343-12d3.80	3.80	12.0	4.0	38
343-12d1.83	1.83	12.0	2.0	38	343-12d3.90	3.90	12.0	4.0	38
343-12d1.84	1.84	12.0	2.0	38	343-12d4.00	4.00	12.0	4.0	38
343-12d1.85	1.85	12.0	2.0	38	343-12d4.10	4.10	12.0	4.5	38
343-12d1.86	1.86	12.0	2.0	38	343-12d4.20	4.20	12.0	4.5	38
343-12d1.87	1.87	12.0	2.0	38	343-12d4.30	4.30	12.0	4.5	38
343-12d1.88	1.88	12.0	2.0	38	343-12d4.40	4.40	12.0	4.5	38
343-12d1.89	1.89	12.0	2.0	38	343-12d4.50	4.50	12.0	4.5	38
343-12d1.90	1.90	12.0	2.0	38	343-12d5.00	5.00	12.0	5.0	38
343-12d1.91	1.91	12.0	2.0	38	343-12d5.50	5.50	12.0	5.5	38
343-12d1.92	1.92	12.0	2.0	38	343-12d6.00	6.00	12.0	6.0	38
343-12d1.93	1.93	12.0	2.0	38					



Disponibile con o
senza rivestimento



118°

Z2

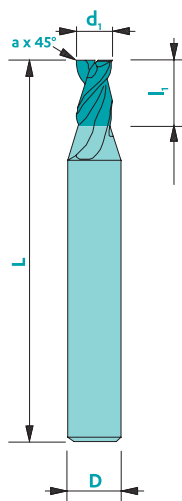


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34°

CARB

3200

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Disponibile con o
senza rivestimento

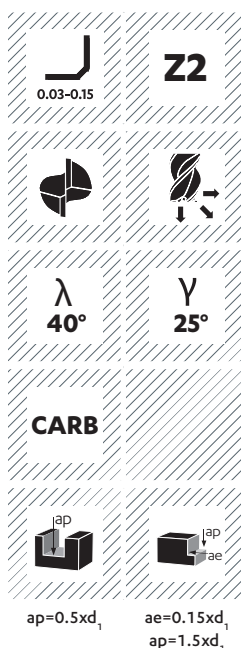
Gruppo materia (vedi pagina 3)

	a	b	c
Rivestimento consigliato	SOLO	SOLO	SOLO
V_c non rivestito [m/min]	320	280	220
V_c rivestito [m/min]	380	335	265
F_z Ø 0.25 [mm]	0.002	0.002	0.002
F_z Ø 0.50 [mm]	0.003	0.003	0.003
F_z Ø 1.00 [mm]	0.006	0.006	0.006
F_z Ø 2.00 [mm]	0.01	0.01	0.01
F_z Ø 4.00 [mm]	0.02	0.02	0.02
F_z Ø 6.00 [mm]	0.025	0.025	0.025
F_z Ø 8.00 [mm]	0.03	0.03	0.03
F_z Ø 10.00 [mm]	0.04	0.04	0.04
F_z Ø 12.00 [mm]	0.045	0.045	0.045
F_z Ø 16.00 [mm]	0.055	0.055	0.055
F_z Ø 20.00 [mm]	0.07	0.07	0.07

Tolleranze

 $d_1 \leq 1 \text{ mm} \rightarrow +0/-0.01$
 $d_1 > 1 \text{ mm} \rightarrow +0/-0.02$
 $D: h5$
 $d_1 = D \rightarrow d_1: e8$

Art. n°	d_1	l_1	D	L	a
3200d0.50	0.5	1.0	6	57	0.03
3200d1.00	1.0	2.0	6	57	0.03
3200d1.50	1.5	3.0	6	57	0.04
3200d2.00	2.0	4.0	6	57	0.04
3200d2.50	2.5	5.0	6	57	0.04
3200d3.00	3.0	6.0	6	57	0.04
3200d3.50	3.5	7.0	6	57	0.05
3200d4.00	4.0	8.0	6	57	0.05
3200d5.00	5.0	10.0	6	57	0.05
3200d6.00	6.0	12.0	6	57	0.07
3200d8.00	8.0	16.0	8	63	0.07
3200d10.00	10.0	20.0	10	72	0.10
3200d12.00	12.0	24.0	12	83	0.15



Formule

$$F = F_z \cdot Z$$

$$V_f = F_z \cdot Z \cdot n$$

$$n = \frac{V_c \cdot 1000}{\pi \cdot d_1}$$

$$V_c = \frac{\pi \cdot d_1 \cdot n}{1000}$$

$$f_z = \frac{V_f}{Z \cdot n}$$

Leggenda

F [mm]: Avanzamento per giro

FZ [mm]: Avanzamento per dente

Z: Numero di denti

n: Numero di giri al minuto

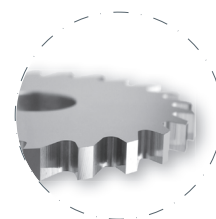
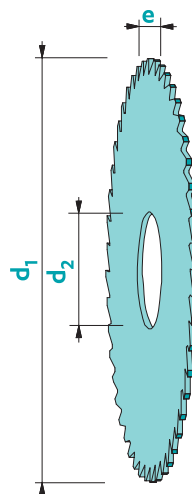
VF [mm/min]: Velocità d'avanzamento

Fresa circolare DIN 1838 dentatura grossa

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Gruppo materia (vedi pagina 3)	a	b	c
Rivestimento consigliato	SOLO	SOLO	SOLO
V_c non rivestito [m/min]	330	310	300
V_c rivestito [m/min]	360	330	320
F_z [mm]	Ø/10000	Ø/10000	Ø/10000

Tolleranze
e: +/-0.01
d₂: H7



Disponibile con o
senza rivestimento

Art. n°	d ₁	e	d ₂	Z
223d15e0.20a5Z20	15	0.20	5	20
223d15e0.25a5Z20	15	0.25	5	20
223d15e0.30a5Z20	15	0.30	5	20
223d15e0.35a5Z20	15	0.35	5	20
223d15e0.40a5Z20	15	0.40	5	20
223d15e0.45a5Z20	15	0.45	5	20
223d15e0.50a5Z20	15	0.50	5	20
223d15e0.60a5Z20	15	0.60	5	20
223d15e0.70a5Z20	15	0.70	5	20
223d15e0.80a5Z20	15	0.80	5	20
223d15e0.90a5Z20	15	0.90	5	20
223d15e1.00a5Z20	15	1.00	5	20
223d15e1.10a5Z20	15	1.10	5	20
223d15e1.20a5Z20	15	1.20	5	20
223d15e1.30a5Z20	15	1.30	5	20
223d15e1.40a5Z20	15	1.40	5	20
223d15e1.50a5Z20	15	1.50	5	20
223d15e1.60a5Z20	15	1.60	5	20
223d15e1.70a5Z20	15	1.70	5	20
223d15e1.80a5Z20	15	1.80	5	20
223d15e1.90a5Z20	15	1.90	5	20
223d15e2.00a5Z20	15	2.00	5	20
223d15e2.10a5Z20	15	2.10	5	20
223d15e2.20a5Z20	15	2.20	5	20
223d15e2.30a5Z20	15	2.30	5	20
223d15e2.40a5Z20	15	2.40	5	20
223d15e2.50a5Z20	15	2.50	5	20
223d15e2.60a5Z20	15	2.60	5	20
223d15e2.70a5Z20	15	2.70	5	20
223d15e2.80a5Z20	15	2.80	5	20
223d15e2.90a5Z20	15	2.90	5	20

Art. n°	d ₁	e	d ₂	Z
223d15e3.00a5Z20	15	3.00	5	20
223d15e3.10a5Z20	15	3.10	5	20
223d15e3.20a5Z20	15	3.20	5	20
223d15e3.30a5Z20	15	3.30	5	20
223d15e3.40a5Z20	15	3.40	5	20
223d15e3.50a5Z20	15	3.50	5	20
223d15e3.60a5Z20	15	3.60	5	20
223d15e3.70a5Z20	15	3.70	5	20
223d15e3.80a5Z20	15	3.80	5	20
223d15e3.90a5Z20	15	3.90	5	20
223d15e4.00a5Z20	15	4.00	5	20
223d15e4.50a5Z20	15	4.50	5	20
223d15e5.00a5Z20	15	5.00	5	20
223d15e5.50a5Z20	15	5.50	5	20
223d15e6.00a5Z20	15	6.00	5	20
223d20e0.20a5Z20	20	0.20	5	20
223d20e0.25a5Z20	20	0.25	5	20
223d20e0.30a5Z20	20	0.30	5	20
223d20e0.35a5Z20	20	0.35	5	20
223d20e0.40a5Z20	20	0.40	5	20
223d20e0.45a5Z20	20	0.45	5	20
223d20e0.50a5Z20	20	0.50	5	20
223d20e0.60a5Z20	20	0.60	5	20
223d20e0.70a5Z20	20	0.70	5	20
223d20e0.80a5Z20	20	0.80	5	20
223d20e0.90a5Z20	20	0.90	5	20
223d20e1.00a5Z20	20	1.00	5	20
223d20e1.10a5Z20	20	1.10	5	20
223d20e1.20a5Z20	20	1.20	5	20
223d20e1.30a5Z20	20	1.30	5	20
223d20e1.40a5Z20	20	1.40	5	20



Z
20-80



λ
0°

γ
8°

CARB

Formule

$$F = F_z \cdot Z$$

$$V_f = F_z \cdot Z \cdot n$$

$$n = \frac{V_c \cdot 1000}{\pi \cdot d_1}$$

$$V_c = \frac{\pi \cdot d_1 \cdot n}{1000}$$

$$f_z = \frac{V_f}{Z \cdot n}$$

Leggenda

F [mm]: Avanzamento per giro

FZ [mm]: Avanzamento per dente

Z: Numero di denti

n: Numero di giri al minuto

Vf [mm/min]: Velocità d'avanzamento

Fresa circolare DIN 1838 dentatura grossa



Disponibile con o
senza rivestimento



Z
20-80



λ
0°

γ
8°

CARB

Art. n°	d ₁	e	d ₂	Z
223d20e1.50a5Z20	20	1.50	5	20
223d20e1.60a5Z20	20	1.60	5	20
223d20e1.70a5Z20	20	1.70	5	20
223d20e1.80a5Z20	20	1.80	5	20
223d20e1.90a5Z20	20	1.90	5	20
223d20e2.00a5Z20	20	2.00	5	20
223d20e2.10a5Z20	20	2.10	5	20
223d20e2.20a5Z20	20	2.20	5	20
223d20e2.30a5Z20	20	2.30	5	20
223d20e2.40a5Z20	20	2.40	5	20
223d20e2.50a5Z20	20	2.50	5	20
223d20e2.60a5Z20	20	2.60	5	20
223d20e2.70a5Z20	20	2.70	5	20
223d20e2.80a5Z20	20	2.80	5	20
223d20e2.90a5Z20	20	2.90	5	20
223d20e3.00a5Z20	20	3.00	5	20
223d20e3.10a5Z20	20	3.10	5	20
223d20e3.20a5Z20	20	3.20	5	20
223d20e3.30a5Z20	20	3.30	5	20
223d20e3.40a5Z20	20	3.40	5	20
223d20e3.50a5Z20	20	3.50	5	20
223d20e3.60a5Z20	20	3.60	5	20
223d20e3.70a5Z20	20	3.70	5	20
223d20e3.80a5Z20	20	3.80	5	20
223d20e3.90a5Z20	20	3.90	5	20
223d20e4.00a5Z20	20	4.00	5	20
223d20e4.50a5Z20	20	4.50	5	20
223d20e5.00a5Z20	20	5.00	5	20
223d20e5.50a5Z20	20	5.50	5	20
223d20e6.00a5Z20	20	6.00	5	20
223d25e0.20a8Z20	25	0.20	8	20
223d25e0.25a8Z20	25	0.25	8	20
223d25e0.30a8Z20	25	0.30	8	20
223d25e0.35a8Z20	25	0.35	8	20
223d25e0.40a8Z20	25	0.40	8	20
223d25e0.45a8Z20	25	0.45	8	20
223d25e0.50a8Z20	25	0.50	8	20
223d25e0.60a8Z20	25	0.60	8	20
223d25e0.70a8Z20	25	0.70	8	20
223d25e0.80a8Z20	25	0.80	8	20
223d25e0.90a8Z20	25	0.90	8	20
223d25e1.00a8Z20	25	1.00	8	20
223d25e1.10a8Z20	25	1.10	8	20
223d25e1.20a8Z20	25	1.20	8	20
223d25e1.30a8Z20	25	1.30	8	20
223d25e1.40a8Z20	25	1.40	8	20
223d25e1.50a8Z20	25	1.50	8	20

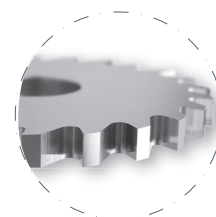
Art. n°	d ₁	e	d ₂	Z
223d25e1.60a8Z20	25	1.60	8	20
223d25e1.70a8Z20	25	1.70	8	20
223d25e1.80a8Z20	25	1.80	8	20
223d25e1.90a8Z20	25	1.90	8	20
223d25e2.00a8Z20	25	2.00	8	20
223d25e2.10a8Z20	25	2.10	8	20
223d25e2.20a8Z20	25	2.20	8	20
223d25e2.30a8Z20	25	2.30	8	20
223d25e2.40a8Z20	25	2.40	8	20
223d25e2.50a8Z20	25	2.50	8	20
223d25e2.60a8Z20	25	2.60	8	20
223d25e2.70a8Z20	25	2.70	8	20
223d25e2.80a8Z20	25	2.80	8	20
223d25e2.90a8Z20	25	2.90	8	20
223d25e3.00a8Z20	25	3.00	8	20
223d25e3.10a8Z20	25	3.10	8	20
223d25e3.20a8Z20	25	3.20	8	20
223d25e3.30a8Z20	25	3.30	8	20
223d25e3.40a8Z20	25	3.40	8	20
223d25e3.50a8Z20	25	3.50	8	20
223d25e3.60a8Z20	25	3.60	8	20
223d25e3.70a8Z20	25	3.70	8	20
223d25e3.80a8Z20	25	3.80	8	20
223d25e3.90a8Z20	25	3.90	8	20
223d25e4.00a8Z20	25	4.00	8	20
223d25e4.50a8Z20	25	4.50	8	20
223d25e5.00a8Z20	25	5.00	8	20
223d25e5.50a8Z20	25	5.50	8	20
223d25e6.00a8Z20	25	6.00	8	20
223d30e0.20a8Z30	30	0.20	8	30
223d30e0.25a8Z30	30	0.25	8	30
223d30e0.30a8Z30	30	0.30	8	30
223d30e0.35a8Z30	30	0.35	8	30
223d30e0.40a8Z30	30	0.40	8	30
223d30e0.45a8Z30	30	0.45	8	30
223d30e0.50a8Z30	30	0.50	8	30
223d30e0.60a8Z30	30	0.60	8	30
223d30e0.70a8Z30	30	0.70	8	30
223d30e0.80a8Z24	30	0.80	8	24
223d30e0.90a8Z24	30	0.90	8	24
223d30e1.00a8Z24	30	1.00	8	24
223d30e1.10a8Z24	30	1.10	8	24
223d30e1.20a8Z24	30	1.20	8	24
223d30e1.30a8Z24	30	1.30	8	24
223d30e1.40a8Z24	30	1.40	8	24
223d30e1.50a8Z24	30	1.50	8	24
223d30e1.60a8Z24	30	1.60	8	24

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Continuazione

Art. n°	d ₁	e	d ₂	Z	Art. n°	d ₁	e	d ₂	Z
223d30e1.70a8Z24	30	1.70	8	24	223d40e1.80a10Z24	40	1.80	10	24
223d30e1.80a8Z24	30	1.80	8	24	223d40e1.90a10Z24	40	1.90	10	24
223d30e1.90a8Z24	30	1.90	8	24	223d40e2.00a10Z24	40	2.00	10	24
223d30e2.00a8Z24	30	2.00	8	24	223d40e2.10a10Z24	40	2.10	10	24
223d30e2.10a8Z24	30	2.10	8	24	223d40e2.20a10Z24	40	2.20	10	24
223d30e2.20a8Z24	30	2.20	8	24	223d40e2.30a10Z24	40	2.30	10	24
223d30e2.30a8Z24	30	2.30	8	24	223d40e2.40a10Z24	40	2.40	10	24
223d30e2.40a8Z24	30	2.40	8	24	223d40e2.50a10Z24	40	2.50	10	24
223d30e2.50a8Z24	30	2.50	8	24	223d40e2.60a10Z24	40	2.60	10	24
223d30e2.60a8Z24	30	2.60	8	24	223d40e2.70a10Z24	40	2.70	10	24
223d30e2.70a8Z24	30	2.70	8	24	223d40e2.80a10Z24	40	2.80	10	24
223d30e2.80a8Z24	30	2.80	8	24	223d40e2.90a10Z24	40	2.90	10	24
223d30e2.90a8Z24	30	2.90	8	24	223d40e3.00a10Z24	40	3.00	10	24
223d30e3.00a8Z24	30	3.00	8	24	223d40e3.10a10Z20	40	3.10	10	20
223d30e3.10a8Z24	30	3.10	8	24	223d40e3.20a10Z20	40	3.20	10	20
223d30e3.20a8Z24	30	3.20	8	24	223d40e3.30a10Z20	40	3.30	10	20
223d30e3.30a8Z24	30	3.30	8	24	223d40e3.40a10Z20	40	3.40	10	20
223d30e3.40a8Z24	30	3.40	8	24	223d40e3.50a10Z20	40	3.50	10	20
223d30e3.50a8Z24	30	3.50	8	24	223d40e3.60a10Z20	40	3.60	10	20
223d30e3.60a8Z24	30	3.60	8	24	223d40e3.70a10Z20	40	3.70	10	20
223d30e3.70a8Z24	30	3.70	8	24	223d40e3.80a10Z20	40	3.80	10	20
223d30e3.80a8Z24	30	3.80	8	24	223d40e3.90a10Z20	40	3.90	10	20
223d30e3.90a8Z24	30	3.90	8	24	223d40e4.00a10Z20	40	4.00	10	20
223d30e4.00a8Z24	30	4.00	8	24	223d40e4.50a10Z20	40	4.50	10	20
223d30e4.50a8Z24	30	4.50	8	24	223d40e5.00a10Z20	40	5.00	10	20
223d30e5.00a8Z24	30	5.00	8	24	223d40e5.50a10Z20	40	5.50	10	20
223d30e5.50a8Z24	30	5.50	8	24	223d40e6.00a10Z20	40	6.00	10	20
223d30e6.00a8Z24	30	6.00	8	24	223d50e0.40a13Z48	50	0.40	13	48
223d40e0.20a10Z40	40	0.20	10	40	223d50e0.45a13Z48	50	0.45	13	48
223d40e0.25a10Z40	40	0.25	10	40	223d50e0.50a13Z48	50	0.50	13	48
223d40e0.30a10Z40	40	0.30	10	40	223d50e0.60a13Z40	50	0.60	13	40
223d40e0.35a10Z40	40	0.35	10	40	223d50e0.70a13Z40	50	0.70	13	40
223d40e0.40a10Z40	40	0.40	10	40	223d50e0.80a13Z40	50	0.80	13	40
223d40e0.45a10Z40	40	0.45	10	40	223d50e0.90a13Z40	50	0.90	13	40
223d40e0.50a10Z40	40	0.50	10	40	223d50e1.00a13Z40	50	1.00	13	40
223d40e0.60a10Z40	40	0.60	10	40	223d50e1.10a13Z40	50	1.10	13	40
223d40e0.70a10Z40	40	0.70	10	40	223d50e1.20a13Z40	50	1.20	13	40
223d40e0.80a10Z32	40	0.80	10	32	223d50e1.30a13Z32	50	1.30	13	32
223d40e0.90a10Z32	40	0.90	10	32	223d50e1.40a13Z32	50	1.40	13	32
223d40e1.00a10Z32	40	1.00	10	32	223d50e1.50a13Z32	50	1.50	13	32
223d40e1.10a10Z32	40	1.10	10	32	223d50e1.60a13Z32	50	1.60	13	32
223d40e1.20a10Z32	40	1.20	10	32	223d50e1.70a13Z32	50	1.70	13	32
223d40e1.30a10Z32	40	1.30	10	32	223d50e1.80a13Z32	50	1.80	13	32
223d40e1.40a10Z32	40	1.40	10	32	223d50e1.90a13Z32	50	1.90	13	32
223d40e1.50a10Z32	40	1.50	10	32	223d50e2.00a13Z32	50	2.00	13	32
223d40e1.60a10Z32	40	1.60	10	32	223d50e2.10a13Z32	50	2.10	13	32
223d40e1.70a10Z24	40	1.70	10	24	223d50e2.20a13Z32	50	2.20	13	32



Disponibile con o senza rivestimento



Z
20-80



λ
0°

γ
8°

CARB

Fresa circolare DIN 1838 dentatura grossa



Disponibile con o
senza rivestimento



Z
20-80



λ
0°

γ
8°

CARB

Art. n°	d ₁	e	d ₂	Z
223d50e2.30a13Z32	50	2.30	13	32
223d50e2.40a13Z32	50	2.40	13	32
223d50e2.50a13Z32	50	2.50	13	32
223d50e2.60a13Z24	50	2.60	13	24
223d50e2.70a13Z24	50	2.70	13	24
223d50e2.80a13Z24	50	2.80	13	24
223d50e2.90a13Z24	50	2.90	13	24
223d50e3.00a13Z24	50	3.00	13	24
223d50e3.10a13Z24	50	3.10	13	24
223d50e3.20a13Z24	50	3.20	13	24
223d50e3.30a13Z24	50	3.30	13	24
223d50e3.40a13Z24	50	3.40	13	24
223d50e3.50a13Z24	50	3.50	13	24
223d50e3.60a13Z24	50	3.60	13	24
223d50e3.70a13Z24	50	3.70	13	24
223d50e3.80a13Z24	50	3.80	13	24
223d50e3.90a13Z24	50	3.90	13	24
223d50e4.00a13Z24	50	4.00	13	24
223d50e4.50a13Z24	50	4.50	13	24
223d50e5.00a13Z24	50	5.00	13	24
223d50e5.50a13Z20	50	5.50	13	20
223d50e6.00a13Z20	50	6.00	13	20
223d63e0.40a16Z64	63	0.40	16	64
223d63e0.45a16Z64	63	0.45	16	64
223d63e0.50a16Z64	63	0.50	16	64
223d63e0.60a16Z48	63	0.60	16	48
223d63e0.70a16Z48	63	0.70	16	48
223d63e0.80a16Z48	63	0.80	16	48
223d63e0.90a16Z48	63	0.90	16	48
223d63e1.00a16Z40	63	1.00	16	40
223d63e1.10a16Z40	63	1.10	16	40
223d63e1.20a16Z40	63	1.20	16	40
223d63e1.30a16Z40	63	1.30	16	40
223d63e1.40a16Z40	63	1.40	16	40
223d63e1.50a16Z40	63	1.50	16	40
223d63e1.60a16Z40	63	1.60	16	40
223d63e1.70a16Z40	63	1.70	16	40
223d63e1.80a16Z40	63	1.80	16	40
223d63e1.90a16Z40	63	1.90	16	40
223d63e2.00a16Z40	63	2.00	16	40
223d63e2.10a16Z32	63	2.10	16	32
223d63e2.20a16Z32	63	2.20	16	32
223d63e2.30a16Z32	63	2.30	16	32
223d63e2.40a16Z32	63	2.40	16	32
223d63e2.50a16Z32	63	2.50	16	32
223d63e2.60a16Z32	63	2.60	16	32
223d63e2.70a16Z32	63	2.70	16	32

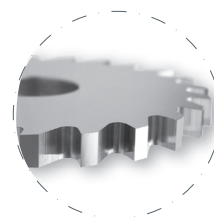
Art. n°	d ₁	e	d ₂	Z
223d63e2.80a16Z32	63	2.80	16	32
223d63e2.90a16Z32	63	2.90	16	32
223d63e3.00a16Z32	63	3.00	16	32
223d63e3.10a16Z32	63	3.10	16	32
223d63e3.20a16Z32	63	3.20	16	32
223d63e3.30a16Z32	63	3.30	16	32
223d63e3.40a16Z32	63	3.40	16	32
223d63e3.50a16Z32	63	3.50	16	32
223d63e3.60a16Z32	63	3.60	16	32
223d63e3.70a16Z32	63	3.70	16	32
223d63e3.80a16Z32	63	3.80	16	32
223d63e3.90a16Z32	63	3.90	16	32
223d63e4.00a16Z32	63	4.00	16	32
223d63e4.50a16Z24	63	4.50	16	24
223d63e5.00a16Z24	63	5.00	16	24
223d63e5.50a16Z24	63	5.50	16	24
223d63e6.00a16Z24	63	6.00	16	24
223d80e0.60a22Z64	80	0.60	22	64
223d80e0.70a22Z64	80	0.70	22	64
223d80e0.80a22Z64	80	0.80	22	64
223d80e0.90a22Z48	80	0.90	22	48
223d80e1.00a22Z48	80	1.00	22	48
223d80e1.10a22Z48	80	1.10	22	48
223d80e1.20a22Z48	80	1.20	22	48
223d80e1.30a22Z48	80	1.30	22	48
223d80e1.40a22Z48	80	1.40	22	48
223d80e1.50a22Z48	80	1.50	22	48
223d80e1.60a22Z48	80	1.60	22	48
223d80e1.70a22Z40	80	1.70	22	40
223d80e1.80a22Z40	80	1.80	22	40
223d80e1.90a22Z40	80	1.90	22	40
223d80e2.00a22Z40	80	2.00	22	40
223d80e2.10a22Z40	80	2.10	22	40
223d80e2.20a22Z40	80	2.20	22	40
223d80e2.30a22Z40	80	2.30	22	40
223d80e2.40a22Z40	80	2.40	22	40
223d80e2.50a22Z40	80	2.50	22	40
223d80e2.60a22Z40	80	2.60	22	40
223d80e2.70a22Z40	80	2.70	22	40
223d80e2.80a22Z40	80	2.80	22	40
223d80e2.90a22Z40	80	2.90	22	40
223d80e3.00a22Z40	80	3.00	22	40
223d80e3.10a22Z32	80	3.10	22	32
223d80e3.20a22Z32	80	3.20	22	32
223d80e3.30a22Z32	80	3.30	22	32
223d80e3.40a22Z32	80	3.40	22	32
223d80e3.50a22Z32	80	3.50	22	32

Fresa circolare DIN 1838 dentatura grossa

223

Continuazione

Art. n°	d ₁	e	d ₂	Z	Art. n°	d ₁	e	d ₂	Z
223d80e3.60a22Z32	80	3.60	22	32	223d100e6.00a22Z32	100	6.00	22	32
223d80e3.70a22Z32	80	3.70	22	32	223d125e0.80a22Z80	125	0.80	22	80
223d80e3.80a22Z32	80	3.80	22	32	223d125e0.90a22Z80	125	0.90	22	80
223d80e3.90a22Z32	80	3.90	22	32	223d125e1.00a22Z80	125	1.00	22	80
223d80e4.00a22Z32	80	4.00	22	32	223d125e1.10a22Z64	125	1.10	22	64
223d80e4.50a22Z32	80	4.50	22	32	223d125e1.20a22Z64	125	1.20	22	64
223d80e5.00a22Z32	80	5.00	22	32	223d125e1.30a22Z64	125	1.30	22	64
223d80e5.50a22Z32	80	5.50	22	32	223d125e1.40a22Z64	125	1.40	22	64
223d80e6.00a22Z32	80	6.00	22	32	223d125e1.50a22Z64	125	1.50	22	64
223d100e0.60a22Z80	100	0.60	22	80	223d125e1.60a22Z64	125	1.60	22	64
223d100e0.70a22Z64	100	0.70	22	64	223d125e1.70a22Z64	125	1.70	22	64
223d100e0.80a22Z64	100	0.80	22	64	223d125e1.80a22Z64	125	1.80	22	64
223d100e0.90a22Z64	100	0.90	22	64	223d125e1.90a22Z64	125	1.90	22	64
223d100e1.00a22Z64	100	1.00	22	64	223d125e2.00a22Z64	125	2.00	22	64
223d100e1.10a22Z64	100	1.10	22	64	223d125e2.10a22Z48	125	2.10	22	48
223d100e1.20a22Z64	100	1.20	22	64	223d125e2.20a22Z48	125	2.20	22	48
223d100e1.30a22Z48	100	1.30	22	48	223d125e2.30a22Z48	125	2.30	22	48
223d100e1.40a22Z48	100	1.40	22	48	223d125e2.40a22Z48	125	2.40	22	48
223d100e1.50a22Z48	100	1.50	22	48	223d125e2.50a22Z48	125	2.50	22	48
223d100e1.60a22Z48	100	1.60	22	48	223d125e2.60a22Z48	125	2.60	22	48
223d100e1.70a22Z48	100	1.70	22	48	223d125e2.70a22Z48	125	2.70	22	48
223d100e1.80a22Z48	100	1.80	22	48	223d125e2.80a22Z48	125	2.80	22	48
223d100e1.90a22Z48	100	1.90	22	48	223d125e2.90a22Z48	125	2.90	22	48
223d100e2.00a22Z48	100	2.00	22	48	223d125e3.00a22Z48	125	3.00	22	48
223d100e2.10a22Z48	100	2.10	22	48	223d125e3.10a22Z48	125	3.10	22	48
223d100e2.20a22Z48	100	2.20	22	48	223d125e3.20a22Z48	125	3.20	22	48
223d100e2.30a22Z48	100	2.30	22	48	223d125e3.30a22Z48	125	3.30	22	48
223d100e2.40a22Z48	100	2.40	22	48	223d125e3.40a22Z48	125	3.40	22	48
223d100e2.50a22Z48	100	2.50	22	48	223d125e3.50a22Z48	125	3.50	22	48
223d100e2.60a22Z40	100	2.60	22	40	223d125e3.60a22Z48	125	3.60	22	48
223d100e2.70a22Z40	100	2.70	22	40	223d125e3.70a22Z48	125	3.70	22	48
223d100e2.80a22Z40	100	2.80	22	40	223d125e3.80a22Z48	125	3.80	22	48
223d100e2.90a22Z40	100	2.90	22	40	223d125e3.90a22Z48	125	3.90	22	48
223d100e3.00a22Z40	100	3.00	22	40	223d125e4.00a22Z48	125	4.00	22	48
223d100e3.10a22Z40	100	3.10	22	40	223d125e4.50a22Z40	125	4.50	22	40
223d100e3.20a22Z40	100	3.20	22	40	223d125e5.00a22Z40	125	5.00	22	40
223d100e3.30a22Z40	100	3.30	22	40	223d125e5.50a22Z40	125	5.50	22	40
223d100e3.40a22Z40	100	3.40	22	40	223d125e6.00a22Z40	125	6.00	22	40
223d100e3.50a22Z40	100	3.50	22	40	223d160e1.00a32Z80	160	1.00	32	80
223d100e3.60a22Z40	100	3.60	22	40	223d160e1.20a32Z80	160	1.20	32	80
223d100e3.70a22Z40	100	3.70	22	40	223d160e1.50a32Z80	160	1.50	32	80
223d100e3.80a22Z40	100	3.80	22	40	223d160e2.00a32Z80	160	2.00	32	80
223d100e3.90a22Z40	100	3.90	22	40	223d160e2.50a32Z80	160	2.50	32	80
223d100e4.00a22Z40	100	4.00	22	40	223d160e3.00a32Z64	160	3.00	32	64
223d100e4.50a22Z40	100	4.50	22	40					
223d100e5.00a22Z40	100	5.00	22	40					
223d100e5.50a22Z32	100	5.50	22	32					



Disponibile con o
senza rivestimento



Z
20-80



λ
0°

γ
8°

CARB

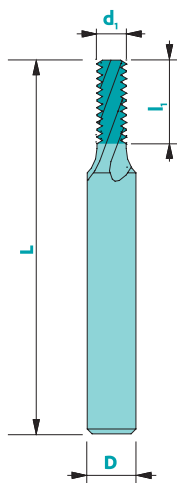
5300

Fresa a filettare elicoidale - ISO 60°

filettatura interna e esterna



Disponibile con o senza rivestimento



Gruppo materia (vedi pagina 3)

	a	b	c
Rivestimento consigliato	SOLO	SOLO	SOLO
V_c non rivestito [m/min]	320	280	220
V_c rivestito [m/min]	380	335	265

Tolleranze $d_1 \leq 1 \text{ mm}$ ▶ +0/-0.01 $D: h5$
 $d_1 > 1 \text{ mm}$ ▶ +0/-0.02
 $d_1 = D$ ▶ $d_1: e8$

Z2-5



λ
20°

γ
8°

CARB

Art. n°	Ø nominal	Passo	d_1	l_1	D	L	Z
5300M1.20	M1.20	0.25	0.85	2.4	3	38	2
5300M1.40	M1.40	0.30	1.00	2.8	3	38	3
5300M1.60/1.80	M1.60/1.80	0.35	1.10	3.6	3	38	3
5300M2.00	M2.00	0.40	1.40	4.0	3	38	3
5300M2.50	M2.50	0.45	1.80	5.0	3	38	3
5300M3.00	M3.00	0.50	2.30	6.0	3	38	3
5300M4.00	M4.00	0.70	3.00	8.0	6	57	3
5300M5.00	M5.00	0.80	3.80	10.0	6	57	4
5300M6.00	M6.00	1.00	4.50	12.0	6	57	4
5300M8.00	M8.00	1.25	5.00	16.0	6	57	4
5300M10.00	M10.00	1.50	6.00	20.0	6	57	5

A richiesta



☐ Ordine

☐ Domanda d'offerta

Formule

$$F = F_z \cdot Z$$

$$V_f = F_z \cdot Z \cdot n$$

$$n = \frac{V_c \cdot 1000}{\pi \cdot d_1}$$

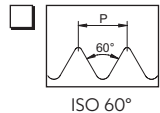
$$V_c = \frac{\pi \cdot d_1 \cdot n}{1000}$$

$$f_z = \frac{V_f}{Z \cdot n}$$

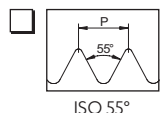
Leggenda

F [mm]: Avanzamento per giro
 FZ [mm]: Avanzamento per dente
 Z : Numero di denti
 n : Numero di giri al minuto
 V_f [mm/min]: Velocità d'avanzamento

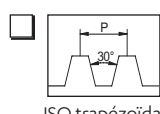
☐ Norma :



ISO 60°



ISO 55°



ISO trapézoïdal

☐ Altro :

☐ Dimensioni :

d_1 : _____ l_1 : _____
 d_2 : _____ l_2 : _____
 D^* : _____ L^* : _____

☐ Materiale da lavorare :

☐ Quantità :

☐ Persona di contatto :

☐ Timbro della ditta e data :

☐ Rivestimento :

☐ Rivestito** : _____
☐ Senza rivestimento

☐ No. Ordine :

*Dimensioni standard delle barre : Ø 3x L 38, Ø 4x L 38, Ø 6x L 38, Ø 6x L 51, Ø 8x L 61, Ø 10x L 72, Ø 12x L 83, Ø 16x L 92, Ø 20x L 104

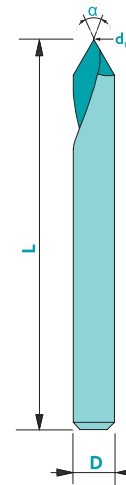
** Senza indicazioni da parte vostra, il rivestimento più adatto sarà applicato.

Fresa a incidere elicoidale - piatto alla punta

119-2

Gruppo materia (vedi pagina 3)	a	b	c
Rivestimento consigliato	SOLO	SOLO	SOLO
n [rpm]	30'000	30'000	30'000
Fz↓ [mm]	0.006	0.006	0.006
Fz→ [mm]	0.012	0.012	0.012

Tolleranze
 d_1 : +/- 0.01
D: h5



Disponibile con o
senza rivestimento

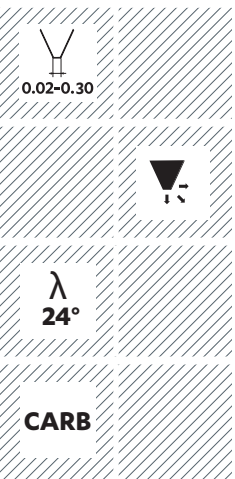
Codice art.: 119-2a##d#.#
Esempio: fresa ref. 119-2 con angolo di 25° e diametro all'estremità 0.05mm: 119-2a25d0.05

α^*	d_1^{**}	D	L
15-45°	0.02-0.09	3	33
15-45°	0.10-0.30	3	33
50-140°	0.02-0.09	3	33
50-140°	0.10-0.30	3	33

* Angoli possibili: tutti i 5° tra 15° e 45° e tutti gli 10° tra 50° e 140°

** Diametri possibili: tutti gli 0.01 mm tra 0.02 e 0.09 e tutti gli 0.05 mm tra 0.10 e 0.30 mm

Altre dimensioni (angolo, diametro all'estremità, codolo) a richiesta



Formule

$$F = F_z \cdot Z$$

$$V_f = F_z \cdot Z \cdot n$$

$$n = \frac{V_c \cdot 1000}{\pi \cdot d_1}$$

$$V_c = \frac{\pi \cdot d_1 \cdot n}{1000}$$

$$f_z = \frac{V_f}{Z \cdot n}$$

Leggenda

F [mm]: Avanzamento per giro

FZ [mm]: Avanzamento per dente

Z: Numero di denti

n: Numero di giri al minuto

Vf [mm/min]: Velocità d'avanzamento

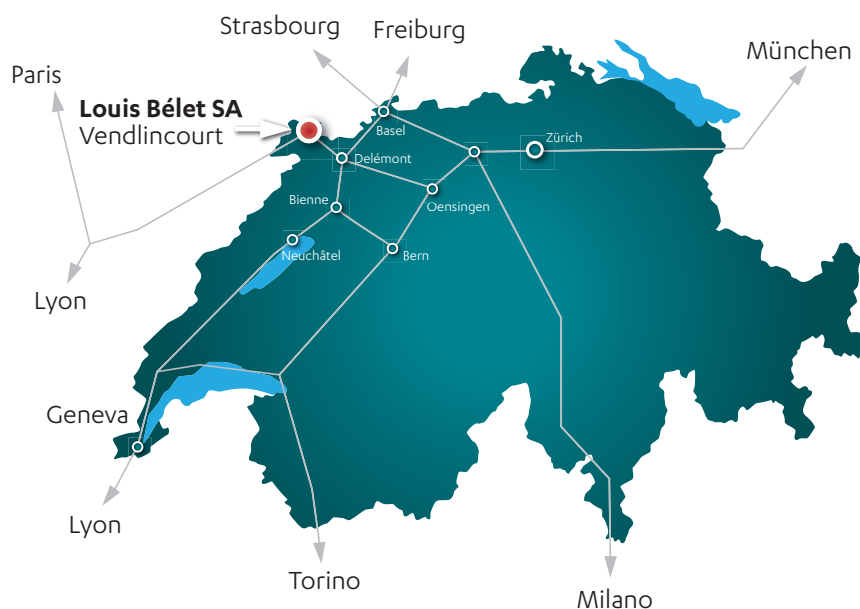


Dal 1948

Dal 1948, Louis Bélet SA, un'impresa a conduzione familiare con oltre 150 collaboratori, produce utensili di alta precisione in metallo duro, PCD e ceramica. Nel 2008, la direzione della ditta è stata ripresa dai due nipoti del fondatore, la signora Roxane Piquerez e il signor Arnaud Maître.

LOUIS BELET SA

Les Gasses 11
CH - 2943 Vendlincourt
Tél. +41 (0) 32 474 04 10
Fax +41 (0) 32 474 45 42
www.louisbelet.ch
info@louisbelet.ch



La ricerca dell'eccellenza

Lo spirito della ditta Belet si basa sulla continua ricerca dell'eccellenza. In tutte le nostre attività, cerchiamo sempre di trovare le soluzioni migliori per i nostri clienti e dipendenti.

La gestione della qualità e la gestione ambientale sono attestate di certificati ISO 9001:2008 e ISO 14001:2004

**Lista dei agenti
disponibili su www.louisbelet.ch**

