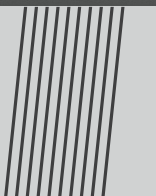


GU

Frese in metallo duro integrale / Solid carbide end mills

generalutensili



2024

generalutensili.com



INDICE / INDEX

08	Gamma prodotti GU Standard GU Standard product range
26	Parametri di lavoro GU Standard GU Standard working parameters
32	Gamma prodotti GU High Performance GU High Performance product range
34	Parametri di lavoro GU High Performance GU High Performance parameters
36	Durezza Hardness
38	Formule Formulas
39	Legenda Legend



GU STANDARD

Frese in metallo duro integrale

Generalutensili presenta la nuova linea GU STANDARD una serie di utensili con elica differenziata con divisione irregolare dei taglienti, e standard, per la lavorazione di acciai generici, acciai inossidabili ferritici ed austenitici e leghe leggere, sia corte che lunghe. Tutte le frese sono rivestite con Alcrona Pro.



	GU100	GU101	GU102	GU103	GU104	GU105	GU106	GU107	GU108	GU109	GU110	GU111	GU112	GU113	GU114
Ø (D mm)	5,0 ÷ 20,0	3,0 ÷ 20,0	5,0 ÷ 20,0	3,0 ÷ 20,0	4,0 ÷ 20,0	5,0 ÷ 20,0	3,0 ÷ 20,0	2,0 ÷ 20,0	2,0 ÷ 12,0	2,0 ÷ 10,0	3,0 ÷ 16,0	6,0 ÷ 20,0	4,0 ÷ 16,0	4,0 ÷ 20,0	2,0 ÷ 20,0
Z	4	4	4	4	4	4	4	4	4	4	4	6	4	4	2
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X
	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	-	-	X	X	-	X		X
ALLUMINIO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RAME	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PLASTICHE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ACCIAIO	-	X	X	-	-	-	-	-	-	-	-	-	-	-	X
INOX	X	-	-	X	X	x	X	X	X	X	X	X	X	X	X
GHISA	X	-	-	X	X	x	X	X	X	X	X	X	X	X	X
INOX	X	-	-	X	X	x	X	X	X	X	X	X	X	X	X
Pagina	8	8	9	9	10	11	12	13	14	14	15	15	16	16	17
Page	8	8	9	9	10	11	12	13	14	14	15	15	16	16	17

Solid carbide end mills

Generalutensili presents the new line GU Standard: a line with variable helix with inequal flute spacing, and standard, for machining of generic steels, ferritic and austenitic stainless steels, long and short light alloys.



	GU115	GU116	GU117	GU118	GU119	GU120	GU121	GU122	GU123	GU124	GU125	GU126	GU127	GU128	GU129	GU129
	2,0 ÷ 12,0	2,0 ÷ 20,0	6,0 ÷ 16,0	2,0 ÷ 20,0	4,0 ÷ 16,0	2,0 ÷ 10,0	2,0 ÷ 20,0	4,0 ÷ 16,0	2,0 ÷ 20,0	2,0 ÷ 10,0	4,0 ÷ 16,0	4,0 ÷ 20,0	3,0 ÷ 20,0	2,0 ÷ 20,0	3,0 ÷ 20,0	3,0 ÷ 20,0
	2	4	4	2	2	2	2	2	3	3	3	2	3/4	3	4/6	4/6
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X
	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-
	X	-	-	-	-	X	X	X	X	X	X	X	-	X	-	-
	-	-	-	-	-	-	-	-	-	-	-	X	X	X	-	-
	-	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-
	X	-	-	-	-	-	-	X	X	X	X	X	X	X	-	-
	X	-	-	-	-	X	X	X	X	X	X	X	X	X	-	-
	-	-	-	-	-	-	-	-	-	-	-	X	X	X	-	-
	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-
	X	X	X	X	X	X	X	X	X	X	X	-	-	-	X	X
	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25

GU

HP

GU HIGH PERFORMANCE

La serie di frese in metallo duro integrale ad alta prestazione.

Tutte le nostre frese High Performance seguono uno speciale processo di finitura teso ad eliminare i residui di lavorazione, lucidare la superficie dell'utensile e rinforzare il tagliente. Tutto questo permette di aver migliore adesione dei rivestimenti, rugosità superficiali minori ed incremento della tool life.

GU400 / GU401

Progettate per acciaio fino a 45 HRC, realizzate con micrograna h5 e rivestimento a doppio strato, combinati con la speciale geometria, consentono eccellenti proprietà di evacuazione del truciolo e una grande durata dell'utensile.

GU500

Specifico per acciaio inossidabile, HRSA e acciaio. Realizzato con micrograna H5 macinata e rivestimento a doppio strato ha una specifica preparazione del tagliente che consente una riduzione della forza di taglio durante la lavorazione.



	GU400	GU401	GU500
∅ (D mm)	3,0 ÷ 20,0	3,0 ÷ 20,0	3,0 ÷ 20,0
Z	4	4	4
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
ALLUMINIO	-	-	-
RAME	-	-	-
PLASTICHE	-	-	-
ACCIAIO	-	-	-
INOX	-	-	-
TITANO	-	-	-
ACCIAIO GHISA INOX	-	-	-
Pagina Page	32	32	33

The high performance solid carbide end mill series.

PSH (polish, smooth, honing) is the process that all our HP end mills are subjected to which eliminates grinding residues, polishes the surface of the tool and strengthens the cutting edge. All this allows better adhesion of the coatings, lower surface roughness, tool life increase and better finished surface.

GU400 / GU401

Designed for steel up to 45 HRC, H5 grinded micrograne and dual layer coating combined with the special geometry allows excellent properties of chip evacuation and great tool life.

GU500

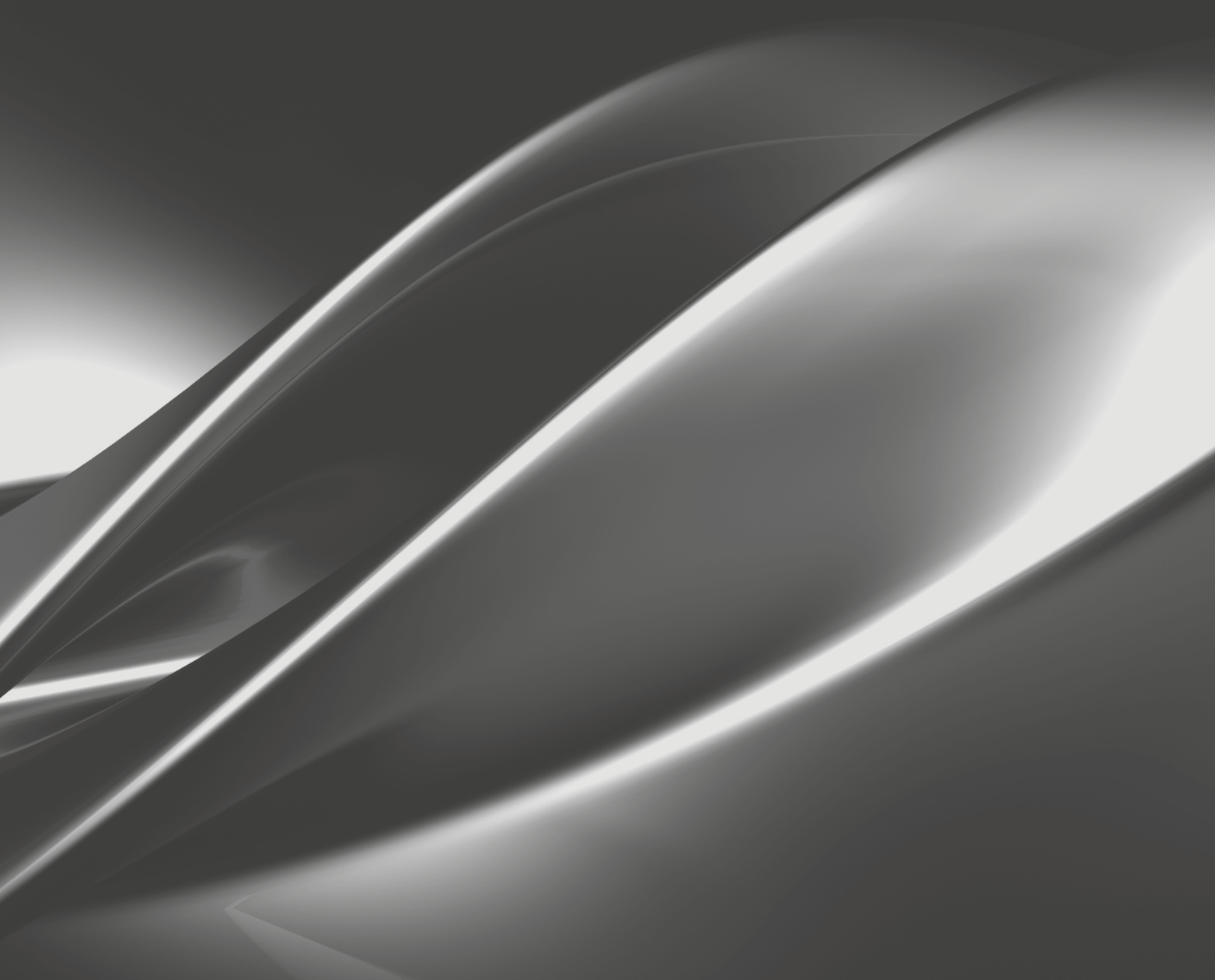
Specific for stainless steel, HRSA and steel. Made with H5 grinded micrograne and dual layer coating, it has a specific edge preparation that allows a reduction in cutting force during machining.

GU

Standard

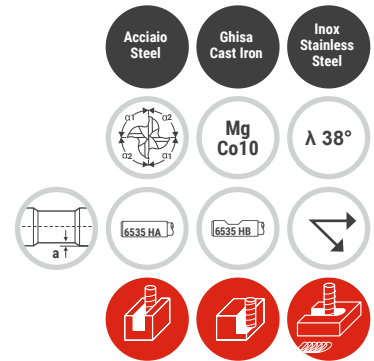
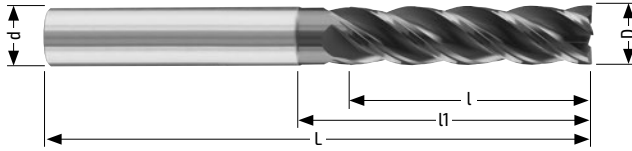
GU

High Performance



GU100

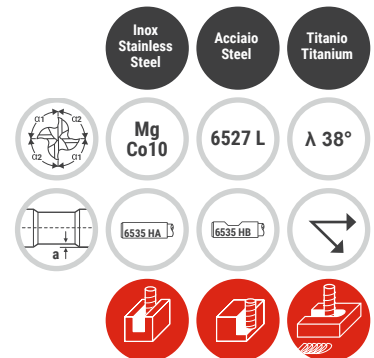
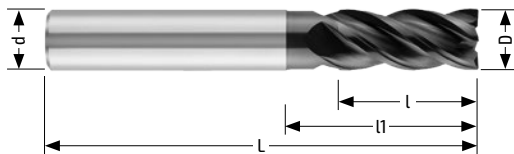
FRESA ELICOIDALE LUNGA RIVESTITA COATED HELICAL END MILL LONG VERSION



45°	D	l	l1	Z	d	L	a	45°		Normale	Weidon
	h10	ap			h6			+0,05/+0			
	5,0	20	25	4	6	74	0,10	0,10		GU100SMLD05	GU100SMLWD05
	6,0	24	30	4	6	74	0,15	0,10		GU100SMLD06	GU100SMLWD06
	8,0	32	40	4	8	80	0,15	0,15		GU100SMLD08	GU100SMLWD08
	10,0	40	46	4	10	87	0,15	0,15		GU100SMLD10	GU100SMLWD10
	12,0	48	58	4	12	105	0,20	0,15		GU100SMLD12	GU100SMLWD12
	14,0	48	58	4	14	105	0,20	0,15		GU100SMLD14	GU100SMLWD14
	16,0	64	68	4	16	125	0,20	0,20		GU100SMLD16	GU100SMLWD16
	20,0	70	80	4	20	160	0,20	0,20		GU100SMLD20	GU100SMLWD20

GU101

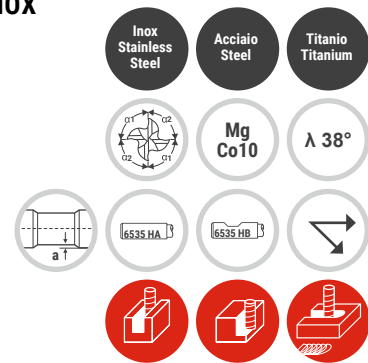
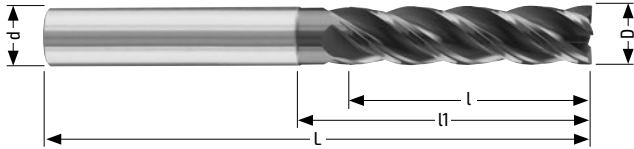
FRESA ELICOIDALE RIVESTITA PER INOX COATED HELICAL END MILL FOR INOX



45°	D	l	l1	Z	d	L	a	45°		Normale	Weidon
	h10	ap			h6			+0,05/+0			
	3,0	8	11	4	6	57	0,10	0,10		GU101SMD03	GU101SMWD03
	4,0	11	16	4	6	57	0,10	0,10		GU101SMD04	GU101SMWD04
	5,0	13	18	4	6	57	0,10	0,10		GU101SMD05	GU101SMWD05
	6,0	13	20	4	6	57	0,15	0,10		GU101SMD06	GU101SMWD06
	8,0	19	25	4	8	63	0,15	0,15		GU101SMD08	GU101SMWD08
	10,0	22	30	4	10	72	0,15	0,15		GU101SMD10	GU101SMWD10
	12,0	26	36	4	12	83	0,20	0,15		GU101SMD12	GU101SMWD12
	14,0	26	36	4	14	83	0,20	0,15		GU101SMD14	GU101SMWD14
	16,0	32	42	4	16	92	0,20	0,20		GU101SMD16	GU101SMWD16
	18,0	32	42	4	18	92	0,20	0,20		GU101SMD18	GU101SMWD18
	20,0	38	52	4	20	104	0,20	0,20		GU101SMD20	GU101SMWD20

GU102

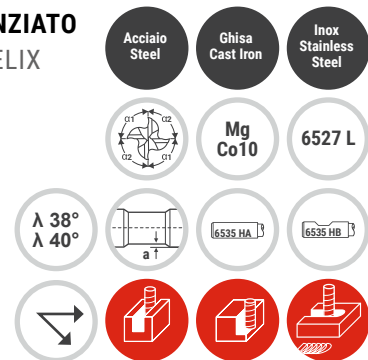
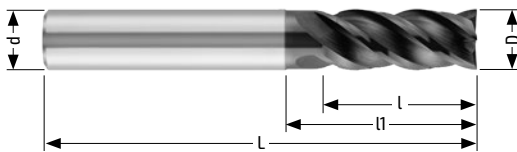
FRESA ELICOIDALE LUNGA RIVESTITA PER INOX
 COATED HELICAL END MILL FOR
 STAINLESS STEEL LONG VERSION



45°	D	l	l1	Z	d	L	a	45°	Normale	Weldon
	h10	ap			h6		+0,05/+0			
	5,0	20	25	4	6	74	0,10	0,10	GU102SMLD05	GU102SMLWD05
	6,0	24	30	4	6	74	0,15	0,10	GU102SMLD06	GU102SMLWD06
	8,0	32	40	4	8	80	0,15	0,15	GU102SMLD08	GU102SMLWD08
	10,0	40	46	4	10	87	0,15	0,15	GU102SMLD10	GU102SMLWD10
	12,0	48	58	4	12	105	0,20	0,15	GU102SMLD12	GU102SMLWD12
	14,0	48	58	4	14	105	0,20	0,15	GU102SMLD14	GU102SMLWD14
	16,0	64	68	4	16	125	0,20	0,20	GU102SMLD16	GU102SMLWD16
	20,0	70	80	4	20	160	0,20	0,20	GU102SMLD20	GU102SMLWD20

GU103

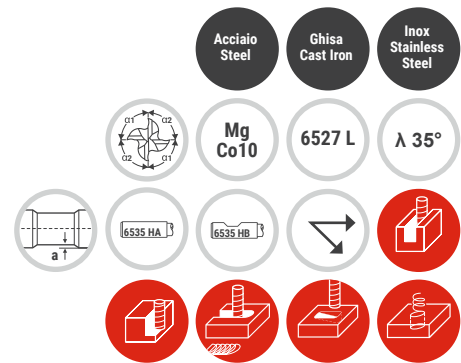
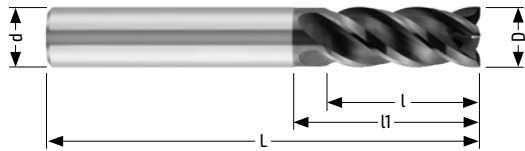
FRESA ELICOIDALE RIVESTITA PASSO DIFFERENZIATO
 COATED HELICAL END MILL WITH VARIABLE HELIX



45°	D	l	l1	Z	d	L	a	45°	Normale	Weldon
	h10	ap			h6		+0,05/+0			
	3,0	8		4	6	57		0,05	GU103SMD03	GU103SMWD03
	4,0	11	16	4	6	57	0,10	0,05	GU103SMD04	GU103SMWD04
	5,0	13	18	4	6	57	0,10	0,05	GU103SMD05	GU103SMWD05
	6,0	13	20	4	6	57	0,15	0,05	GU103SMD06	GU103SMWD06
	8,0	19	25	4	8	63	0,15	0,05	GU103SMD08	GU103SMWD08
	10,0	22	30	4	10	72	0,15	0,05	GU103SMD10	GU103SMWD10
	12,0	26	36	4	12	83	0,20	0,05	GU103SMD12	GU103SMWD12
	14,0	26	36	4	14	83	0,20	0,05	GU103SMD14	GU103SMWD14
	16,0	35	42	4	16	92	0,20	0,05	GU103SMD16	GU103SMWD16
	18,0	35	42	4	18	92	0,20	0,05	GU103SMD18	GU103SMWD18
	20,0	42	52	4	20	104	0,20	0,05	GU103SMD20	GU103SMWD20

GU104

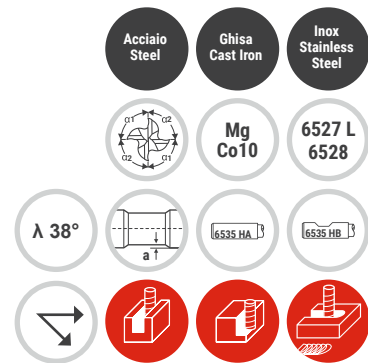
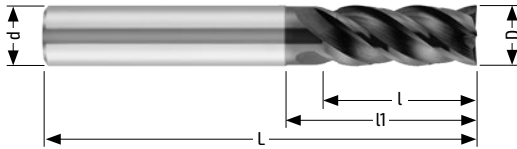
FRESA ELICOIDALE RIVESTITA COATED HELICAL END MILL



45°	D	l	l1	Z	d	L	a	45°		Normale	Weldon
	h10	ap			h6			+0,05/+0			
	4,0	11	15	4	6	57	0,15	0,20	GU104SMD04	GU104SMWD04	
	5,0	13	18	4	6	57	0,15	0,20	GU104SMD05	GU104SMWD05	
	6,0	13	20	4	6	57	0,15	0,25	GU104SMD06	GU104SMWD06	
	8,0	19	25	4	8	63	0,15	0,30	GU104SMD08	GU104SMWD08	
	10,0	22	30	4	10	72	0,15	0,35	GU104SMD10	GU104SMWD10	
	12,0	26	36	4	12	83	0,20	0,40	GU104SMD12	GU104SMWD12	
	16,0	32	42	4	16	92	0,20	0,45	GU104SMD16	GU104SMWD16	
	20,0	38	52	4	20	104	0,20	0,50	GU104SMD20	GU104SMWD20	

GU105

FRESA ELICOIDALE RIVESTITA COATED HELICAL END MILL



90°

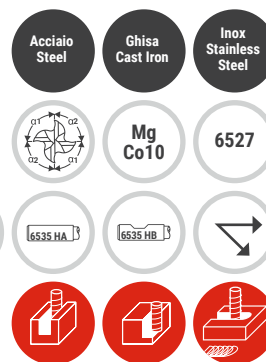
D h10	l ap	l1	Z	d h6	L	a	45° +0,05/+0	Normale	Weldon
3,0	8	-	4	3	38	-	-	GU105D03	-
3,0	8	11	4	6	57	0,10	-	GU105D03G6	GU105WD03G6
4,0	11	16	4	4	50	0,10	-	GU105D04	-
4,0	11	16	4	6	57	0,10	-	GU105D04G6	GU105WD04G6
5,0	13	18	4	5	50	0,10	-	GU105D05	-
5,0	13	18	4	6	57	0,10	-	GU105D05G6	GU105WD05G6
6,0	13	20	4	6	57	0,15	-	GU105D06	GU105WD06
8,0	19	25	4	8	63	0,15	-	GU105D08	GU105WD08
10,0	22	30	4	10	72	0,15	-	GU105D10	GU105WD10
12,0	26	36	4	12	83	0,20	-	GU105D12	GU105WD12
14,0	26	36	4	14	83	0,20	-	GU105D14	GU105WD14
16,0	32	42	4	16	92	0,20	-	GU105D16	GU105WD16
18,0	32	42	4	18	92	0,20	-	GU105D18	GU105WD18
20,0	38	52	4	20	104	0,20	-	GU105D20	GU105WD20

45°

D h10	l ap	l1	Z	d h6	L	a	45° +0,05/+0	Normale	Weldon
3,0	8	-	4	3	38	-	-	GU105SMD03	-
3,0	8	11	4	6	57	0,10	0,05	GU105SMD03G6	GU105SMWD03G6
4,0	11	16	4	4	50	0,10	0,10	GU105SMD04	-
4,0	11	16	4	6	57	0,10	0,10	GU105SMD04G6	GU105SMWD04G6
5,0	13	18	4	5	50	0,10	0,10	GU105SMD05	-
5,0	13	18	4	6	57	0,10	0,10	GU105SMD05G6	GU105SMWD05G6
6,0	13	20	4	6	57	0,15	0,10	GU105SMD06	GU105SMWD06
8,0	19	25	4	8	63	0,15	0,15	GU105SMD08	GU105SMWD08
10,0	22	30	4	10	72	0,15	0,15	GU105SMD10	GU105SMWD10
12,0	26	36	4	12	83	0,20	0,15	GU105SMD12	GU105SMWD12
14,0	26	36	4	14	83	0,20	0,15	GU105SMD14	GU105SMWD14
16,0	32	42	4	16	92	0,20	0,20	GU105SMD16	GU105SMWD16
18,0	32	42	4	18	92	0,20	0,20	GU105SMD18	GU105SMWD18
20,0	38	52	4	20	104	0,20	0,20	GU105SMD20	GU105SMWD20

GU106

FRESA ELICOIDALE CORTA RIVESTITA COATED HELICAL END MILL SHORT VERSION

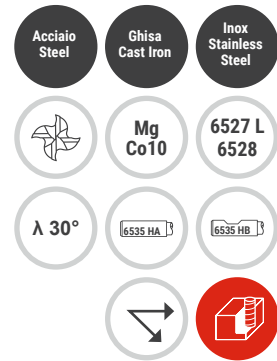
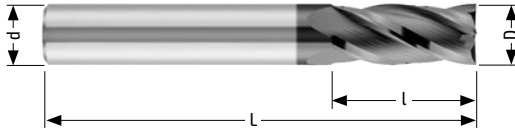


90°	D	l	Z	d	L	45°	Normale	Weidon
	h10	ap		h6		+0,05/+0		
	3,0	6	4	6	54	-	GU106CD03	GU106CWD03
	4,0	8	4	6	54	-	GU106CD04	GU106CWD04
	5,0	9	4	6	54	-	GU106CD05	GU106CWD05
	6,0	10	4	6	54	-	GU106CD06	GU106CWD06
	8,0	12	4	8	57	-	GU106CD08	GU106CWD08
	10,0	14	4	10	66	-	GU106CD10	GU106CWD10
	12,0	16	4	12	73	-	GU106CD12	GU106CWD12
	14,0	18	4	14	75	-	GU106CD14	GU106CWD14
	16,0	22	4	16	82	-	GU106CD16	GU106CWD16
	18,0	24	4	18	84	-	GU106CD18	GU106CWD18
	20,0	26	4	20	92	-	GU106CD20	GU106CWD20

45°	D	l	Z	d	L	45°	Normale	Weidon
	h10	ap		h6		+0,05/+0		
	3,0	6	4	6	54	0,05	GU106SMCD03	GU106SMCWD03
	4,0	8	4	6	54	0,10	GU106SMCD04	GU106SMCWD04
	5,0	9	4	6	54	0,10	GU106SMCD05	GU106SMCWD05
	6,0	10	4	6	54	0,10	GU106SMCD06	GU106SMCWD06
	8,0	12	4	8	57	0,15	GU106SMCD08	GU106SMCWD08
	10,0	14	4	10	66	0,15	GU106SMCD10	GU106SMCWD10
	12,0	16	4	12	73	0,15	GU106SMCD12	GU106SMCWD12
	14,0	18	4	14	75	0,15	GU106SMCD14	GU106SMCWD14
	16,0	22	4	16	82	0,20	GU106SMCD16	GU106SMCWD16
	18,0	24	4	18	84	0,20	GU106SMCD18	GU106SMCWD18
	20,0	26	4	20	92	0,20	GU106SMCD20	GU106SMCWD20

GU107

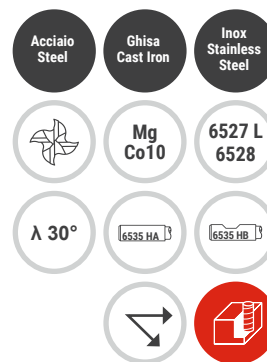
FRESA ELICOIDALE RIVESTITA
COATED HELICAL END MILL



90°	D	l	Z	d	L		
	h10	ap		h6		Normale	Weldon
	2,00	7	4	4	50	GU107D02	-
	2,50	8	4	4	50	GU107D02.5	-
	3,00	8	4	4	50	GU107D03	-
	3,50	10	4	4	50	GU107D03.5	-
	4,00	11	4	4	50	GU107D04	-
	4,50	11	4	5	50	GU107D04.5	-
	5,00	13	4	5	50	GU107D05	-
	5,50	13	4	6	57	GU107D05.5	GU107WD05.5
	6,00	13	4	6	57	GU107D06	GU107WD06
	6,50	16	4	7	60	GU107D06.5	-
	7,00	16	4	7	60	GU107D07	-
	7,50	19	4	8	63	GU107D07.5	GU107WD07.5
	8,00	19	4	8	63	GU107D08	GU107WD08
	8,50	19	4	9	67	GU107D08.5	-
	9,00	19	4	9	67	GU107D09	-
	9,50	22	4	10	72	GU107D09.5	GU107WD9.5
	10,00	22	4	10	72	GU107D10	GU107WD10
	11,00	26	4	11	83	GU107D11	-
	12,00	26	4	12	83	GU107D12	GU107WD12
	13,00	26	4	13	83	GU107D13	-
	14,00	26	4	14	83	GU107D14	GU107WD14
	15,00	32	4	15	92	GU107D15	-
	16,00	32	4	16	92	GU107D16	GU107WD16
	18,00	32	4	18	92	GU107D18	GU107WD18
	20,00	38	4	20	104	GU107D20	GU107WD20

GU108

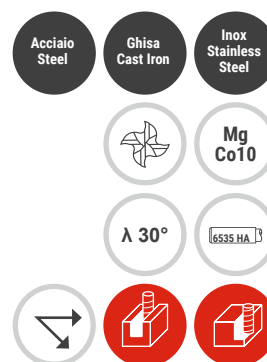
FRESA ELICOIDALE RIVESTITA COATED HELICAL END MILL



Cr	D	l	Z	d	L	CR	Normale	Weidon
	h10	ap		h6				
	2,00	7	4	4	50	0,50	GU108D02R05	-
	3,00	8	4	4	50	0,50	GU108D03R05	-
	4,00	11	4	4	50	0,50	GU108D04R05	-
	5,00	13	4	5	50	1,00	GU108D05R10	-
	6,00	13	4	6	57	0,50	GU108D06R05	GU108WD06R05
	6,00	13	4	6	57	1,00	GU108D06R10	GU108WD06R10
	8,00	19	4	8	63	0,50	GU108D08R05	GU108WD08R05
	8,00	19	4	8	63	1,00	GU108D08R10	GU108WD08R10
	10,00	22	4	10	72	0,50	GU108D10R05	GU108WD10R05
	10,00	22	4	10	72	1,00	GU108D10R10	GU108WD10R10
	10,00	22	4	10	72	2,00	GU108D10R20	GU108WD10R20
	12,00	26	4	12	83	0,50	GU108D12R05	GU108WD12R05
	12,00	26	4	12	83	1,00	GU108D12R10	GU108WD12R10
	12,00	26	4	12	83	2,00	GU108D12R20	GU108WD12R20
	14,00	26	4	14	83	1,50	GU108D14R15	GU108WD14R15
	16,00	32	4	16	92	1,50	GU108D16R15	GU108WD16R15
	18,00	32	4	18	92	1,50	GU108D18R15	GU108WD18R15
	20,00	38	4	20	104	2,00	GU108D20R20	GU108WD20R20

GU109

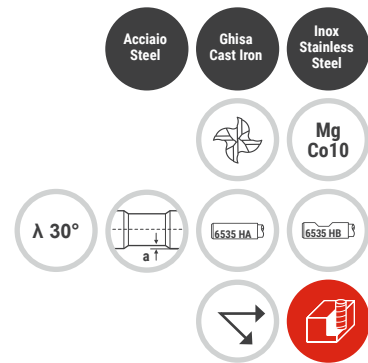
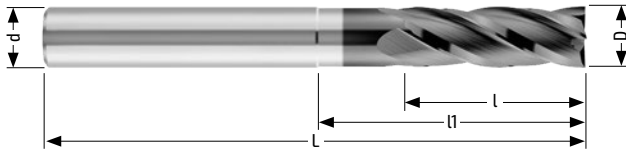
FRESA ELICOIDALE EXTRA CORTA RIVESTITA COATED HELICAL END MILL EXTRA SHORT VERSION



90°	D	l	Z	d	L	Normale
	h10	ap		h6		
	2,0	4	4	6	38	GU109XCD02
	3,0	5	4	6	38	GU109XCD03
	4,0	7	4	6	38	GU109XCD04
	5,0	8	4	6	38	GU109XCD05
	6,0	8	4	6	38	GU109XCD06
	8,0	11	4	8	43	GU109XCD08
	10,0	13	4	10	50	GU109XCD10

GU110

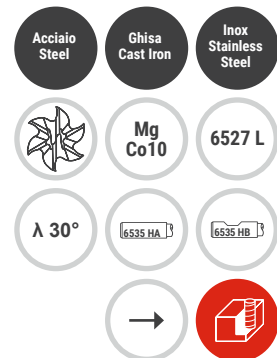
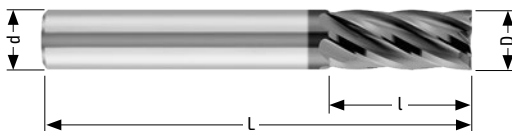
FRESA ELICOIDALE LUNGA RIVESTITA COATED HELICAL END MILL LONG VERSION



90°	D	l	l1	Z	d	L	a	Normale	Weldon
	h10	ap			h6				
	3,0	14	-	4	3	62	-	GU110LD03	-
	4,0	16	-	4	4	62	-	GU110LD04	-
	5,0	20	-	4	5	62	-	GU110LD05	-
	6,0	20	30	4	6	78	0,15	GU110LD06	GU110LWD06
	8,0	25	35	4	8	78	0,15	GU110LD08	GU110LWD08
	10,0	28	48	4	10	105	0,15	GU110LD10	GU110LWD10
	12,0	32	52	4	12	105	0,20	GU110LD12	GU110LWD12
	16,0	40	60	4	16	130	0,20	GU110LD16	GU110LWD16

GU111

FRESA ELICOIDALE RIVESTITA COATED HELICAL END MILL

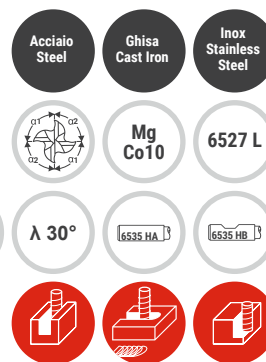
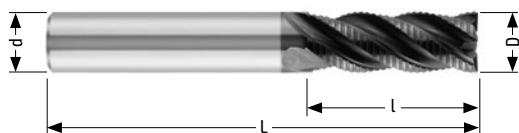


90°	D	l	Z	d	L	Normale	Weldon
	h10	ap		h6			
	6,0	13	6	6	57	GU111D06	GU111WD06
	8,0	19	6	8	63	GU111D08	GU111WD08
	10,0	22	6	10	72	GU111D10	GU111WD10
	12,0	26	6	12	83	GU111D12	GU111WD12
	14,0	26	6	14	83	GU111D14	GU111WD14
	16,0	32	6	16	92	GU111D16	GU111WD16
	20,0	38	6	20	104	GU111D20	GU111WD20

GU112

FRESA ELICOIDALE IRREGOLARE RIVESTITA CON ROMPITRUCIOLO

COATED HELICAL END MILL IRREGULAR VERSION WITH CHIP BREAKER

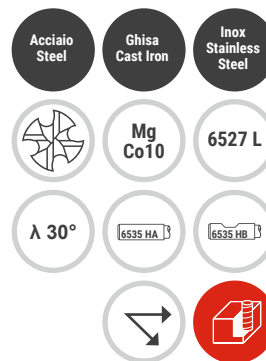
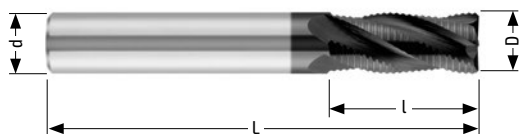


45°	D	l	Z	d	L	45°	Normale	Weidon
	h10	ap		h6		+0,05/+0		
	4,0	13	4	6	57	0,40	GU112SMID04	GU112SMIWD04
	5,0	13	4	6	57	0,50	GU112SMID05	GU112SMIWD05
	6,0	13	4	6	57	0,50	GU112SMID06	GU112SMIWD06
	8,0	19	4	8	63	0,50	GU112SMID08	GU112SMIWD08
	10,0	22	4	10	72	0,50	GU112SMID10	GU112SMIWD10
	12,0	26	4	12	83	0,50	GU112SMID12	GU112SMIWD12
	16,0	32	4	16	92	0,60	GU112SMID16	GU112SMIWD16

GU113

FRESA ELICOIDALE RIVESTITA CON ROMPITRUCIOLO

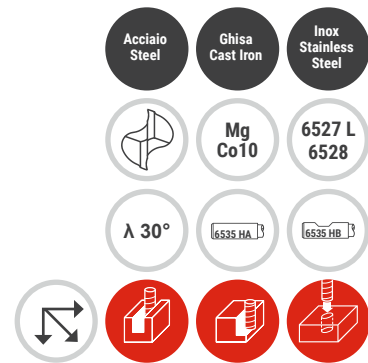
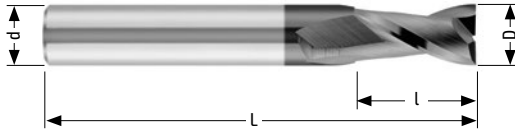
COATED HELICAL END MILL WITH CHIP BREAKER



45°	D	l	Z	d	L	45°	Normale	Weidon
	h10	ap		h6		+0,05/+0		
	4,0	13	4	6	57	0,40	GU113SMTD04	GU113SMTWD04
	4,5	13	4	6	57	0,40	GU113SMTD04,5	GU113SMTWD04,5
	5,0	13	4	6	57	0,50	GU113SMTD05	GU113SMTWD05
	5,5	13	4	6	57	0,50	GU113SMTD05,5	GU113SMTWD05,5
	6,0	13	4	6	57	0,50	GU113SMTD06	GU113SMTWD06
	7,0	16	4	7	60	0,50	GU113SMTD07	-
	8,0	19	4	8	63	0,50	GU113SMTD08	GU113SMTWD08
	9,0	19	4	9	67	0,50	GU113SMTD09	-
	10,0	22	4	10	72	0,50	GU113SMTD10	GU113SMTWD10
	11,0	26	4	11	83	0,50	GU113SMTD11	-
	12,0	26	4	12	83	0,50	GU113SMTD12	GU113SMTWD12
	13,0	26	4	13	83	0,60	GU113SMTD13	-
	14,0	26	4	14	83	0,60	GU113SMTD14	GU113SMTWD14
	15,0	32	4	15	92	0,60	GU113SMTD15	-
	16,0	32	4	16	92	0,60	GU113SMTD16	GU113SMTWD16
	18,0	32	4	18	92	0,60	GU113SMTD18	GU113SMTWD18
	20,0	38	4	20	104	0,60	GU113SMTD20	GU113SMTWD20

GU114

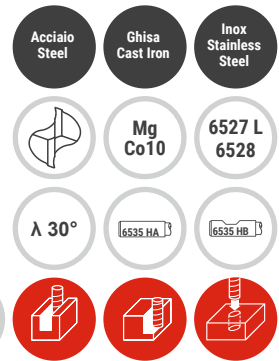
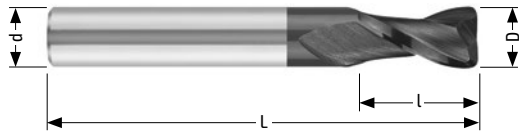
FRESA ELICOIDALE RIVESTITA
COATED HELICAL END MILL VERSION



90°	D	l	Z	d	L		
	h10	ap		h6		Normale	Weldon
	2,0	5	2	4	50	GU114D02	-
	2,5	7	2	4	50	GU114D02.5	-
	3,0	7	2	4	50	GU114D03	-
	3,5	7	2	4	50	GU114D03.5	-
	4,0	8	2	4	50	GU114D04	-
	4,5	8	2	5	50	GU114D04.5	-
	5,0	10	2	5	50	GU114D05	-
	5,5	10	2	6	57	GU114D05.5	GU114WD05.5
	6,0	10	2	6	57	GU114D06	GU114WD06
	7,0	13	2	7	60	GU114D07	-
	8,0	16	2	8	63	GU114D08	GU114WD08
	9,0	16	2	9	67	GU114D09	-
	10,0	19	2	10	72	GU114D10	GU114WD10
	11,0	22	2	11	83	GU114D11	-
	12,0	22	2	12	83	GU114D12	GU114WD12
	13,0	22	2	13	83	GU114D13	-
	14,0	22	2	14	83	GU114D14	GU114WD14
	15,0	26	2	15	92	GU114D15	-
	16,0	26	2	16	92	GU114D16	GU114WD16
	17,0	26	2	17	92	GU114D17	-
	18,0	26	2	18	92	GU114D18	GU114WD18
	19,0	26	2	19	92	GU114D19	-
	20,0	32	2	20	104	GU114D20	GU114WD20

GU115

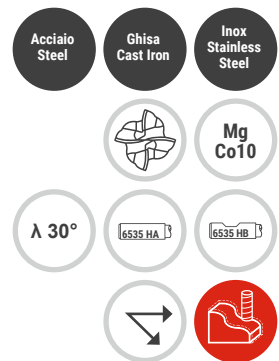
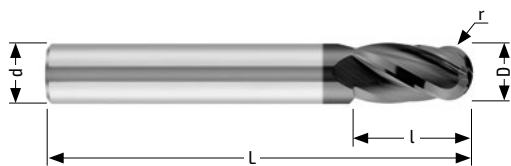
FRESA ELICOIDALE RIVESTITA COATED HELICAL END MILL VERSION



Cr	D	l	Z	d	L	CR	Normale	Weldon
	h10	ap		h6				
	2,0	5	2	4	50	0,50	GU115D02R05	-
	3,0	7	2	4	50	0,50	GU115D03R05	-
	4,0	8	2	4	50	0,50	GU115D04R05	-
	5,0	10	2	5	50	1,00	GU115D05R10	-
	6,0	10	2	6	57	0,50	GU115D06R05	GU115WD06R05
	6,0	10	2	6	57	1,00	GU115D06R10	GU115WD06R10
	8,0	16	2	8	63	0,50	GU115D08R05	GU115WD08R05
	8,0	16	2	8	63	1,00	GU115D08R10	GU115WD08R10
	10,0	19	2	10	72	0,50	GU115D10R05	GU115WD10R05
	10,0	19	2	10	72	1,00	GU115D10R10	GU115WD10R10
	10,0	19	2	10	72	2,00	GU115D10R20	GU115WD10R20
	12,0	22	2	12	83	0,50	GU115D12R05	GU115WD12R05
	12,0	22	2	12	83	1,00	GU115D12R10	GU115WD12R10
	12,0	22	2	12	83	2,00	GU115D12R20	GU115WD12R20
	14,0	22	2	14	83	1,50	GU115D14R15	GU115WD14R15
	16,0	26	2	16	92	1,50	GU115D16R15	GU115WD16R15
	18,0	26	2	18	92	1,50	GU115D18R15	GU115WD18R15
	20,0	32	2	20	104	2,00	GU115D20R20	GU115WD20R20

GU116

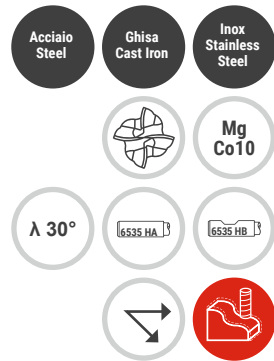
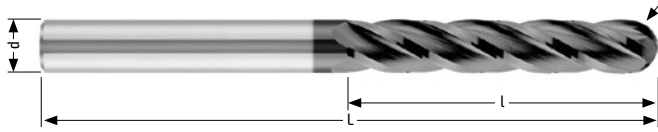
FRESA ELICOIDALE SEMISFERICA COATED HELICAL BALL NOSE END MILL



U	D	l	Z	d	L	r	Normale	Weldon
	h10	ap		h6				
	2,00	5	4	3	38	1,00	GU116SD02	-
	3,00	7	4	3	38	1,50	GU116SD03	-
	4,00	8	4	4	50	2,00	GU116SD04	-
	5,00	10	4	5	50	2,50	GU116SD05	-
	6,00	10	4	6	57	3,00	GU116SD06	GU116SWD06
	7,00	13	4	7	60	3,50	GU116SD07	-
	8,00	16	4	8	63	4,00	GU116SD08	GU116SWD08
	9,00	16	4	9	67	4,50	GU116SD09	-
	10,00	19	4	10	72	5,00	GU116SD10	GU116SWD10
	12,00	22	4	12	83	6,00	GU116SD12	GU116SWD12
	13,00	22	4	13	83	6,50	GU116SD13	-
	14,00	22	4	14	83	7,00	GU116SD14	GU116SWD14
	16,00	26	4	16	92	8,00	GU116SD16	GU116SWD16
	18,00	26	4	18	92	9,00	GU116SD18	GU116SWD18
	20,00	32	4	20	104	10,00	GU116SD20	GU116SWD20

GU117

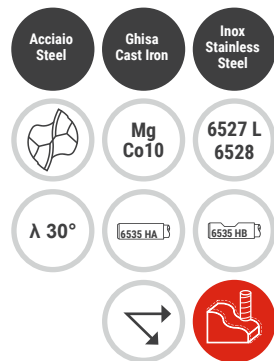
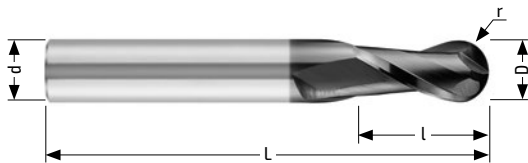
FRESA ELICOIDALE SEMISFERICA LUNGA COATED HELICAL BALL NOSE END MILL LONG VERSION



D h10	l ap	Z	d h6	L	r	Normale	Weldon
6,00	42	4	6	105	3	GU117LSD06	GU117LSWD06
8,00	50	4	8	105	4	GU117LSD08	GU117LSWD08
10,00	50	4	10	120	5	GU117LSD10	GU117LSWD10
12,00	65	4	12	160	6	GU117LSD12	GU117LSWD12
16,00	70	4	16	160	8	GU117LSD16	GU117LSWD16

GU118

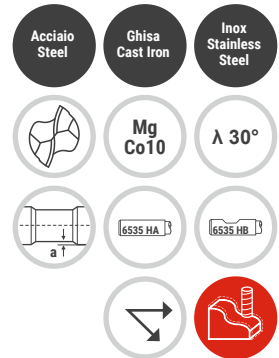
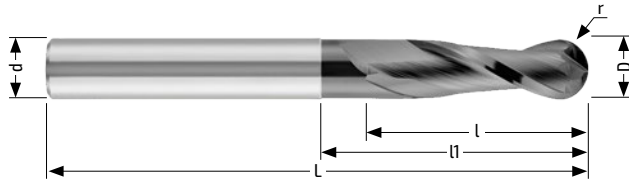
FRESA ELICOIDALE SEMISFERICA COATED HELICAL BALL NOSE END MILL



D h10	l ap	Z	d h6	L	r	Normale	Weldon
2,00	5	2	3	50	1,00	GU118SD02G3	-
2,00	5	2	6	50	1,00	GU118SD02G6	-
3,00	7	2	3	50	1,50	GU118SD03G3	-
3,00	7	2	6	50	1,50	GU118SD03G6	-
4,00	8	2	4	50	2,00	GU118SD04	-
5,00	10	2	5	50	2,50	GU118SD05	-
6,00	10	2	6	57	3,00	GU118SD06	GU118SWD06
8,00	16	2	8	63	4,00	GU118SD08	GU118SWD08
10,00	19	2	10	72	5,00	GU118SD10	GU118SWD10
12,00	22	2	12	83	6,00	GU118SD12	GU118SWD12
14,00	22	2	14	83	7,00	GU118SD14	GU118SWD14
16,00	26	2	16	92	8,00	GU118SD16	GU118SWD16
20,00	32	2	20	104	10,00	GU118SD20	GU118SWD20

GU119

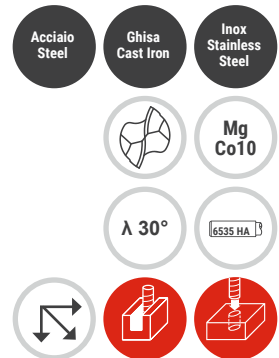
FRESA ELICOIDALE SEMISFERICA MEDIA COATED HELICAL BALL NOSE END MILL MEDIUM



D	l	l 1	Z	d	L	a	r	Normale	Weidon
h10	ap			h6					
4,0	16		2	4	62	-	2,00	GU119MSD04	-
5,0	20		2	5	62	-	2,50	GU119MSD05	-
6,0	20	30	2	6	78	0,15	3,00	GU119MSD06	GU119MSWD06
8,0	25	35	2	8	78	0,15	4,00	GU1129MSD8	GU119MSWD08
10,0	28	48	2	10	105	0,15	5,00	GU119MSD10	GU119MSWD10
12,0	32	52	2	12	105	0,20	6,00	GU119MSD12	GU119MSWD12
16,0	40	60	2	16	130	0,20	8,00	GU119MSD16	GU119MSWD16

GU120

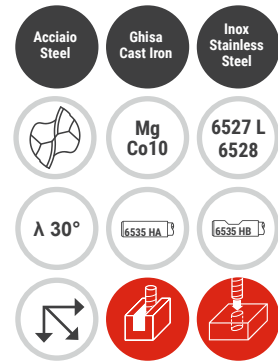
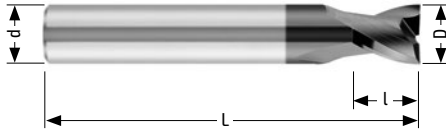
FRESA ELICOIDALE EXTRA CORTA RIVESTITA COATED HELICAL END MILL EXTRA SORT VERSION



D	l	Z	d	L	Normale	Weidon
h10	ap		h6			
2,0	3	2	6	38	GU120XCD02	
3,0	4	2	6	38	GU120XCD03	
4,0	5	2	6	38	GU120XCD04	
5,0	6	2	6	38	GU120XCD05	
6,0	7	2	6	38	GU120XCD06	
7,0	9	2	8	43	GU120XCD07	
8,0	9	2	8	43	GU120XCD08	
9,0	11	2	10	50	GU120XCD09	
10,0	11	2	10	50	GU120XCD10	
12,0	12	2	12	63	GU120XCD12	

GU121

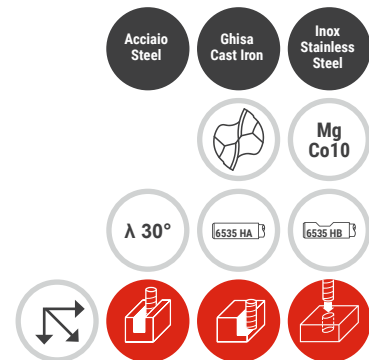
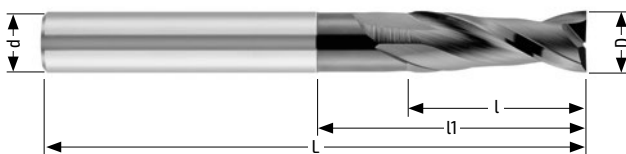
FRESA ELICOIDALE CORTA RIVESTITA COATED HELICAL END MILL SORT VERSION



90°	D e8	l ap	Z	d h6	L	Form	
						Normale	Weldon
	2,0	3	2	6	50	GU121CD02	GU121CWD02
	2,5	4	2	6	50	GU121CD02,5	GU121CWD02,5
	3,0	4	2	6	50	GU121CD03	GU121CWD03
	3,5	4	2	6	50	GU121CD03,5	GU121CWD03,5
	4,0	5	2	6	54	GU121CD04	GU121CWD04
	4,5	5	2	6	54	GU121CD04,5	GU121CWD04,5
	5,0	6	2	6	54	GU121CD05	GU121CWD05
	5,5	6	2	6	54	GU121CD05,5	GU121CWD05,5
	6,0	7	2	6	54	GU121CD06	GU121CWD06
	7,0	9	2	8	58	GU121CD07	GU121CWD07
	8,0	9	2	8	58	GU121CD08	GU121CWD08
	9,0	11	2	10	66	GU121CD09	GU121CWD09
	10,0	11	2	10	66	GU121CD10	GU121CWD10
	11,0	12	2	12	73	GU121CD11	GU121CWD11
	12,0	12	2	12	73	GU121CD12	GU121CWD12
	13,0	14	2	14	75	GU121CD13	GU121CWD13
	14,0	14	2	14	75	GU121CD14	GU121CWD14
	16,0	16	2	16	82	GU121CD16	GU121CWD16
	20,0	20	2	20	92	GU121CD20	GU121CWD20

GU122

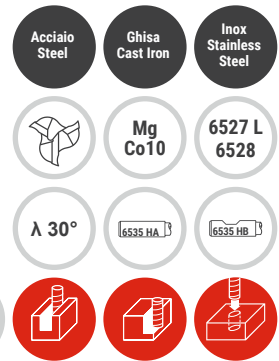
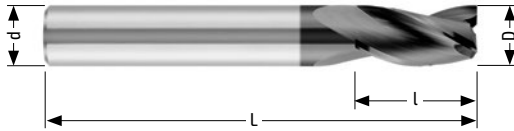
FRESA ELICOIDALE RIVESTITA COATED HELICAL END MILL



90°	D h10	l ap	l1	Z	d h6	L	a	Form	
								Normale	Weldon
	3,0	14	-	-	-	62	-	GU122MD03	-
	4,0	16	-	2	4	62	-	GU122MD04	-
	5,0	20	-	2	5	62	-	GU122MD05	-
	6,0	20	30	2	6	78	0,15	GU122MD06	GU122MWD06
	8,0	25	35	2	8	78	0,15	GU122MD08	GU122MWD08
	10,0	28	48	2	10	105	0,15	GU122MD10	GU122MWD10
	12,0	32	52	2	12	105	0,20	GU122MD12	GU122MWD12
	16,0	40	60	2	16	130	0,20	GU122MD16	GU122MWD16

GU123

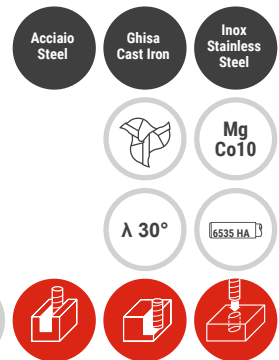
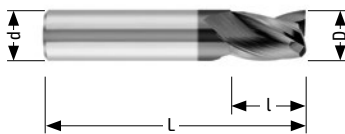
FRESA ELICOIDALE RIVESTITA COATED HELICAL END MILL



90°	D	l	Z	d	L		
	h10	ap		h6		Normale	Weidon
	2,0	5	3	4	50	GU123D02	-
	3,0	7	3	4	50	GU123D03	-
	4,0	8	3	4	50	GU123D04	-
	5,0	10	3	5	50	GU123D05	-
	6,0	10	3	6	57	GU123D06	GU123WD06
	7,0	13	3	7	60	GU123D07	-
	8,0	16	3	8	63	GU123D08	GU123WD08
	9,0	16	3	9	67	GU123D09	-
	10,0	19	3	10	72	GU123D10	GU123WD10
	11,0	22	3	11	83	GU123D11	-
	12,0	22	3	12	83	GU123D12	GU123WD12
	13,0	22	3	13	83	GU123D13	-
	14,0	22	3	14	83	GU123D14	GU123WD14
	15,0	26	3	15	92	GU123D15	-
	16,0	26	3	16	92	GU123D16	GU123WD16
	18,0	26	3	18	92	GU123D18	GU123WD18
	20,0	32	3	20	104	GU123D20	GU123WD20

GU124

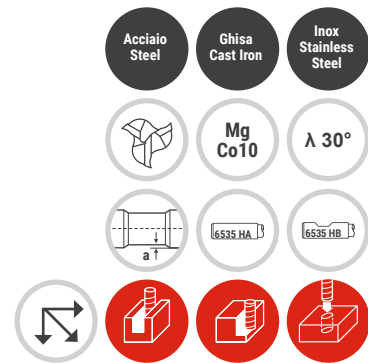
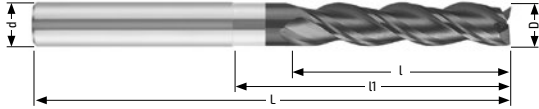
FRESA ELICOIDALE EXTRA CORTA RIVESTITA COATED HELICAL END MILL EXTRA SHORT VERSION



90°	D	l	Z	d	L		
	h10	ap		h6		Normale	
	2,0	4	3	6	38	GU124XCD02	
	2,5	4	3	6	38	GU124XCD02.5	
	3,0	5	3	6	38	GU124XCD03	
	3,5	6	3	6	38	GU124XCD03.5	
	4,0	7	3	6	38	GU124XCD04	
	4,5	8	3	6	38	GU124XCD04.5	
	5,0	8	3	6	38	GU124XCD05	
	6,0	8	3	6	38	GU124XCD06	
	7,0	11	3	8	43	GU124XCD07	
	8,0	11	3	8	43	GU124XCD08	
	9,0	13	3	10	50	GU124XCD09	
	10,0	13	3	10	50	GU124XCD10	
	12,0	14	3	12	63	GU124XCD12	

GU125

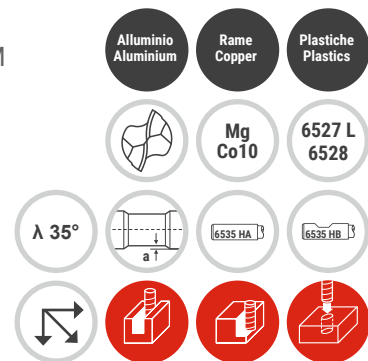
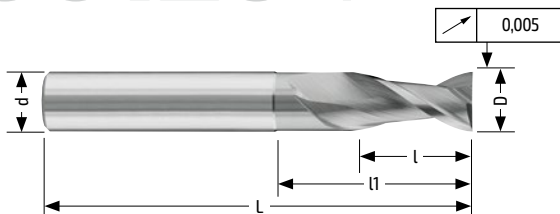
FRESA ELICOIDALE LUNGA RIVESTITA COATED HELICAL END MILL LONG VERSION



90°	D	l	l1	Z	d	L	a	Normale	Weldon
	h10	ap			h6				
	4,0	16	-	3	4	62	-	GU125LD04	-
	5,0	20	-	3	5	62	-	GU125LD05	-
	6,0	20	30	3	6	78	0,15	GU125LD06	GU125LWD06
	8,0	25	35	3	8	78	0,15	GU125LD08	GU125LWD08
	10,0	28	48	3	10	105	0,15	GU125LD10	GU125LWD10
	12,0	32	52	3	12	105	0,20	GU125LD12	GU125LWD12
	16,0	40	60	3	16	130	0,20	GU125LD16	GU125LWD16

GU126

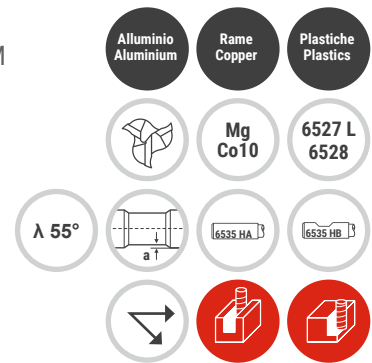
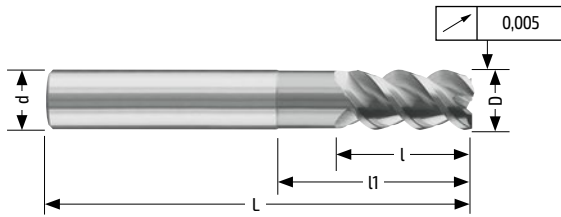
FRESA ELICOIDALE PER ALLUMINIO COATED HELICAL END MILL FOR ALLUMINIUM



90°	D	l	l1	Z	d	L	a	Normale	Weldon
	h10	ap			h6				
	2,0	6	-	2	3	50	-	GU126AD02	-
	3,0	7	18	2	3	50	0,10	GU126AD03	-
	4,0	8	19	2	4	50	0,10	GU126AD04	-
	5,0	10	21	2	5	50	0,10	GU126AD05	-
	6,0	10	21	2	6	57	0,15	GU126AD06	GU126AWD06
	8,0	16	27	2	8	63	0,15	GU126AD08	GU126AWD08
	10,0	19	30	2	10	72	0,15	GU126AD10	GU126AWD10
	12,0	22	38	2	12	83	0,20	GU126AD12	GU126AWD12
	14,0	22	38	2	14	83	0,20	GU126AD14	GU126AWD14
	16,0	26	42	2	16	92	0,20	GU126AD16	GU126AWD16
	20,0	32	54	2	20	104	0,20	GU126AD20	GU126AWD20

GU127

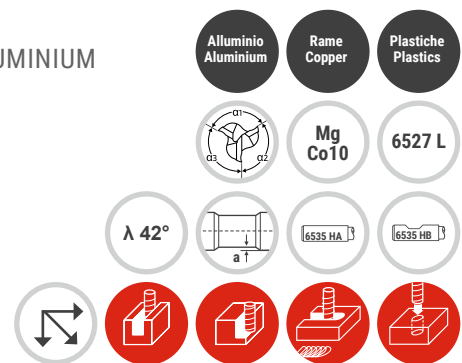
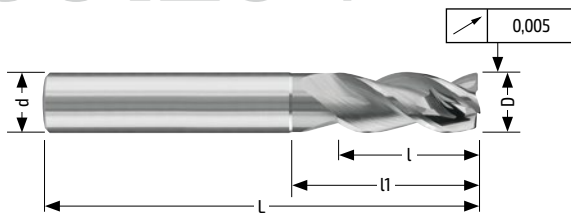
FRESA ELICOIDALE PER ALLUMINIO COATED HELICAL END MILL FOR ALLUMINIUM



90°	D	l	l1	Z	d	L	a		Normale	Weidon
	h10	ap			h6					
	4,0	8	19	3	4	50	0,10		GU127AD04	-
	5,0	10	21	3	5	50	0,10		GU127AD05	-
	6,0	10	21	3	6	57	0,15		GU127AD06	GU127AWD06
	7,0	13	24	3	7	60	0,15		GU127AD07	-
	8,0	16	27	3	8	63	0,15		GU127AD08	GU127AWD08
	9,0	16	27	3	9	67	0,15		GU127AD09	-
	10,0	19	30	3	10	72	0,15		GU127AD10	GU127AWD10
	12,0	22	38	3	12	83	0,20		GU127AD12	GU127AWD12
	14,0	22	38	3	14	83	0,20		GU127AD14	GU127AWD14
	16,0	26	42	3	16	92	0,20		GU127AD16	GU127AWD16
	20,0	32	54	3	20	104	0,20		GU127AD20	GU127AWD20

GU128

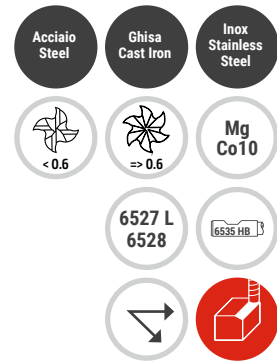
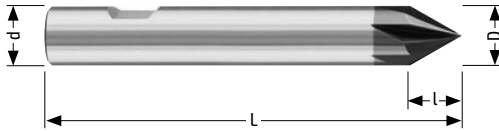
FRESA ELICOIDALE PER ALLUMINIO COATED HELICAL END MILL FOR ALLUMINIUM



45°	D	l	l1	Z	d	L	a	45°		Normale	Weidon
	h10	ap			h6			+0,05/+0			
	3,0	8	-	3	6	57	-	0,05		GU128SMAD03	GU128SMAWD03
	4,0	11	-	3	6	57	-	0,05		GU128SMAD04	GU128SMAWD04
	5,0	13	-	3	6	57	-	0,10		GU128SMAD05	GU128SMAWD05
	6,0	13	20	3	6	57	0,15	0,10		GU128SMAD06	GU128SMAWD06
	8,0	19	25	3	8	63	0,15	0,15		GU128SMAD08	GU128SMAWD08
	10,0	22	30	3	10	72	0,15	0,20		GU128SMAD10	GU128SMAWD10
	12,0	26	36	3	12	83	0,20	0,25		GU128SMAD12	GU128SMAWD12
	16,0	32	42	3	16	92	0,20	0,30		GU128SMAD16	GU128SMAWD16
	20,0	38	52	3	20	104	0,20	0,35		GU128SMAD20	GU128SMAWD20

GU129

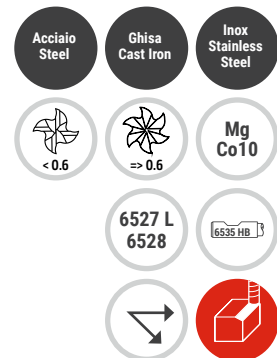
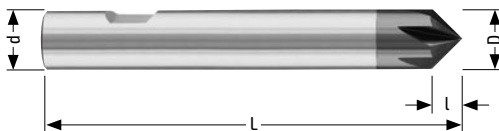
FRESA PER SMUSSI 60° RIVESTITA COATED END MILL FOR CHAMFER 60°



60°	D	Z	d	L	Normale	Weldon
	e8		h6			
	3,0	4	4	50	GU129SM60D03	-
	4,0	4	4	50	GU129SM60D04	-
	6,0	6	6	57		GU129SM60WD06
	8,0	6	8	63		GU129SM60WD08
	10,0	6	10	72		GU129SM60WD10
	12,0	6	12	83		GU129SM60WD12
	16,0	6	16	92		GU129SM60WD16
	20,0	6	20	104		GU129SM60WD18

GU129

FRESA PER SMUSSI 90° RIVESTITA COATED END MILL FOR CHAMFER 90°



90°	D	Z	d	L	Normale	Weldon
	e8		h6			
	3,0	4	4	50	GU129SM60D03	-
	4,0	4	4	50	GU129SM60D04	-
	6,0	6	6	57		GU129SM60WD06
	8,0	6	8	63		GU129SM60WD08
	10,0	6	10	72		GU129SM60WD10
	12,0	6	12	83		GU129SM60WD12
	16,0	6	16	92		GU129SM60WD16
	20,0	6	20	104		GU129SM60WD18

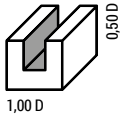
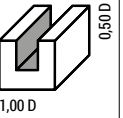
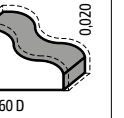
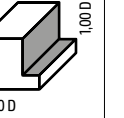
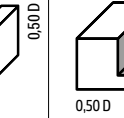
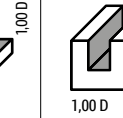
Materiale Material	Diametro Diameter	GU103									GU100 / GU104						GU104			GU104 / GU103									
		m/min			Vc=140			Vc=160			Vc=240			Vc=140			Vc=160			α=12° Vc=140			Vc=260			Vc=330			
D	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n	fz	F	n		
Acciaio <800 N/mm² Steel <800 N/mm²																													
2,0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3,0	0,010	594	14862	0,010	679	16985	0,020	2037	25465	0,010	594	14854	0,010	679	16977	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acciaio <1000 N/mm² - Ghisa Steel <1000 N/mm² - Cast Iron																													
m/min Vc=115 Vc=130 Vc=200 Vc=115 Vc=125 α=12° Vc=115 Vc=220 Vc=280																													
2,0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3,0	0,010	488	12208	0,010	552	13800	0,020	1698	21221	0,010	488	12202	0,010	531	13263	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acciaio <1500 N/mm² Steel <1500 N/mm²																													
m/min Vc=85 Vc=100 Vc=160 Vc=85 Vc=95 α=12° Vc=85 Vc=180 Vc=230																													
2,0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3,0	0,010	361	9023	0,010	425	10616	0,020	1358	16977	0,010	361	9019	0,010	403	10080	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acciai alloyati High alloyed tool steel																													
m/min Vc=45 Vc=60 Vc=90 Vc=45 Vc=50 α=10° Vc=45 Vc=80 Vc=110																													
2,0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3,0	0,010	191	4777	0,010	255	6369	0,020	764	9549	0,010	191	4775	0,010	212	5305	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acciaio Inox Stainless Steel																													
m/min Vc=95 Vc=100 Vc=120 Vc=35 Vc=45 α=8° Vc=45 Vc=80 Vc=110																													
2,0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3,0	0,010	403	10085	0,010	403	10085	0,020	1019	3714	0,010	149	3714	0,010	191	4775	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Serie lunga -15% rispetto ai parametri di lavoro del corrispettivo utensile serie normale. / Long series: 15% less than the working parameters of the corresponding tool standard series.

Parametri di lavoro /// Working parameters

Materiale Material	GU107				GU109				GU111				GU116				GU112				GU113				GU114								
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm					
Acciaio <800 N/mm ² Steel <800 N/mm ²	Vc = 175																																
	Vc = 150																																
	Vc = 175																																
	Vc = 360																																
	Vc = 140																																
	Vc = 160																																
	Vc = 140																																
	Vc = 120																																
	Vc = 145																																
	Vc = 125																																
	Vc = 145																																
	Vc = 295																																
	Vc = 115																																
	Vc = 125																																
	Vc = 115																																
	Vc = 100																																
	Vc = 110																																
	Vc = 90																																
	Vc = 110																																
	Vc = 225																																
Vc = 85																																	
Vc = 95																																	
Vc = 90																																	
Vc = 75																																	
Vc = 55																																	
Vc = 40																																	
Vc = 55																																	
Vc = 115																																	
Vc = 45																																	
Vc = 50																																	
Vc = 45																																	
Vc = 40																																	
Vc = 45																																	
Vc = 45																																	
Vc = 45																																	
Vc = 75																																	
Vc = 35																																	
Vc = 45																																	
Vc = 40																																	
Vc = 40																																	
Acciaio <1300 N/mm ² Steel <1300 N/mm ²	Vc = 55																																
	Vc = 40																																
	Vc = 55																																
	Vc = 115																																
	Vc = 45																																
	Vc = 50																																
	Vc = 45																																
	Vc = 40																																
	Acciaio Inox Stainless Steel	Vc = 45																															
		Vc = 45																															
		Vc = 45																															
		Vc = 75																															
		Vc = 35																															
		Vc = 45																															
		Vc = 40																															
		Vc = 40																															

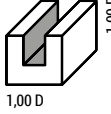
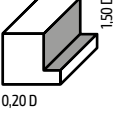
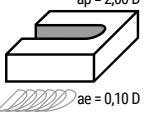
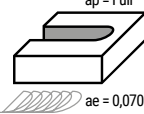
Serie lunga: -15% rispetto ai parametri di lavoro del corrispondente utensile serie normale. / Long series: -15% less than the working parameters of the corresponding tool standard series.

		GU120				GU121				GU118				GU123				GU124				GU129											
Materiale Material	Diametro Diameter																																
		1,00 D				1,00 D				0,060 D				0,50 D				1,00 D				0,50 D											
		Vc = 120				Vc = 120				Vc = 360				Vc = 130				Vc = 120				Vc = 130				Vc = 120				Vc = 90			
Acciaio <800 N/mm² Steel <800 N/mm²	m/min	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	rpm	mm/z	mm/min	rpm	mm/z	mm/min	rpm	mm/z	mm/min	rpm	mm/z	mm/min	rpm	mm/z	mm/min	rpm	mm/z	mm/min	rpm	mm/z	mm/min	rpm	mm/z	mm/min	rpm				
	2,0	0,002	76	19108	0,002	76	19108	0,022	2521	57296	0,002	124	20701	0,002	115	19108	0,002	124	20701	0,002	115	19108	-	-	-	-	-	-	-				
	3,0	0,004	102	12739	0,004	102	12739	0,081	6188	38197	0,004	166	13800	0,004	153	12739	0,004	166	13800	0,004	153	12739	0,020	76	9554	0,020	76	9554					
	4,0	0,009	172	9554	0,009	172	9554	0,139	7964	28648	0,009	279	10350	0,009	258	9554	0,009	279	10350	0,009	258	9554	0,030	860	7166	0,030	860	7166					
	5,0	0,014	214	7643	0,014	214	7643	0,184	8434	22918	0,014	348	8280	0,014	321	7643	0,014	348	8280	0,014	321	7643	-	-	-	-	-	-					
	6,0	0,018	229	6369	0,018	229	6369	0,220	8403	19099	0,018	373	6900	0,018	344	6369	0,018	373	6900	0,018	344	6369	0,040	764	4777	0,040	764	4777					
	8,0	0,023	220	4777	0,023	220	4777	0,278	7964	14324	0,023	357	5175	0,023	330	4777	0,023	357	5175	0,023	330	4777	0,050	717	3583	0,050	717	3583					
	10,0	0,028	214	3822	0,028	214	3822	0,322	7380	11459	0,028	348	4140	0,028	321	3822	0,028	348	4140	0,028	321	3822	0,060	688	2866	0,060	688	2866					
	12,0	-	-	-	0,032	204	3185	0,359	6856	9549	0,032	331	3450	0,032	306	3185	-	-	-	-	-	-	-	0,070	669	2389	0,070	669	2389				
	14,0	-	-	-	0,034	186	2730	0,389	6368	8185	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	16,0	-	-	-	0,038	182	2389	0,416	5959	7162	0,038	295	2588	0,038	272	2389	-	-	-	-	-	-	-	0,070	502	1791	0,070	502	1791				
20,0	-	-	-	0,042	161	1911	-	-	-	0,042	261	2070	0,042	241	1911	-	-	-	-	-	-	-	0,080	459	1433	0,080	459	1433					

Serie lunga: -15% rispetto ai parametri di lavoro del corrispondente utensile serie normale. / Long series: 15% less than the working parameters of the corresponding tool standard series.

Parametri di lavoro /// Working parameters

Materiale Material	Diametro Diameter	GU126					GU127					GU128													
Alluminio e leghe <6% Si Aluminium and alloys <6% Si	m/min	Vc = 600				Vc = 795				Vc = 600				Vc = 795				Vc = 600				Vc = 800			
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm			
	2,0	0,010	1910	95493	0,010	2531	126528	-	-	-	-	-	-	0,012	2292	63662	0,012	3056	84883	-	-	-			
	3,0	0,014	1783	63662	0,014	2362	84352	-	-	-	-	-	-	0,020	2865	47746	0,020	3820	63662	0,020	3820	63662			
	4,0	0,024	2292	47746	0,024	3037	63264	0,021	3008	47746	0,021	3986	63264	0,020	2865	47746	0,020	3820	63662	0,020	3820	63662			
	5,0	0,044	3361	38197	0,044	4454	50611	0,035	4011	38197	0,035	5314	50611	0,035	4011	38197	0,035	5348	50930	0,035	5348	50930			
	6,0	0,060	3820	31831	0,060	5061	42176	0,050	4775	31831	0,050	6326	42176	0,050	4775	31831	0,050	6366	42441	0,050	6366	42441			
	8,0	0,086	4106	23873	0,086	5441	31632	0,073	5228	23873	0,073	6927	31632	0,070	5013	23873	0,070	6685	31831	0,070	6685	31831			
	10,0	0,106	4049	16099	0,106	5365	25306	0,091	5214	19099	0,091	6908	25306	0,090	5157	19099	0,090	6875	25465	0,090	6875	25465			
	12,0	0,122	3883	15915	0,122	5145	21088	0,105	5013	15915	0,105	6643	21088	0,105	5013	15915	0,105	6685	21221	0,105	6685	21221			
	14,0	0,136	3711	13642	0,136	4917	18075	0,118	4829	13642	0,118	6399	18075	0,110	4502	13642	0,110	6002	18189	0,110	6002	18189			
	16,0	0,148	3533	11937	0,148	4682	15816	0,128	4584	11937	0,128	6073	15816	0,130	4655	11937	0,130	6207	15915	0,130	6207	15915			
20,0	0,160	3056	9549	0,160	4049	12653	0,140	4011	9549	0,140	5314	12653	0,160	4584	9549	0,160	6112	12732	0,160	6112	12732				
Alluminio e leghe >6% Si Aluminium and alloys >6% Si																									
m/min	Vc = 225				Vc = 300				Vc = 225				Vc = 300				Vc = 600				Vc = 800				
D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm				
2,0	0,010	716	35810	0,010	955	47746	-	-	-	-	-	-	0,012	2292	63662	0,012	3056	84883	-	-	-				
3,0	0,014	668	23873	0,014	891	31831	-	-	-	-	-	-	0,020	2865	47746	0,020	3820	63662	0,020	3820	63662				
4,0	0,024	859	17905	0,024	1146	23873	0,021	1128	17905	0,021	1504	23873	0,020	2865	47746	0,020	3820	63662	0,020	3820	63662				
5,0	0,044	1261	14324	0,044	1681	19099	0,035	1504	14324	0,035	2005	19099	0,035	4011	38197	0,035	5348	50930	0,035	5348	50930				
6,0	0,060	1432	11937	0,060	1910	15915	0,050	1790	11937	0,050	2387	15915	0,050	4775	31831	0,050	6366	42441	0,050	6366	42441				
8,0	0,086	1540	8952	0,086	2053	11937	0,073	1961	8952	0,073	2614	11937	0,070	5013	23873	0,070	6685	31831	0,070	6685	31831				
10,0	0,106	1518	7162	0,106	2024	9549	0,091	1955	7162	0,091	2607	9549	0,090	5157	19099	0,090	6875	25465	0,090	6875	25465				
12,0	0,122	1456	5968	0,122	1942	7958	0,105	1880	5968	0,105	2057	7958	0,105	5013	15915	0,105	6685	21221	0,105	6685	21221				
14,0	0,136	1391	5116	0,136	1855	6821	0,118	1811	5116	0,118	2415	6821	0,110	4502	13642	0,110	6002	18189	0,110	6002	18189				
16,0	0,148	1325	4476	0,148	1767	5968	0,128	1719	4476	0,128	2292	5968	0,130	4655	11937	0,130	6207	15915	0,130	6207	15915				
20,0	0,160	1146	3581	0,160	1528	4775	0,140	1504	3581	0,140	2005	4775	0,160	4584	9549	0,160	6112	12732	0,160	6112	12732				
Rame e leghe Copper and alloys																									
m/min	Vc = 375				Vc = 495				Vc = 375				Vc = 495				Vc = 350				Vc = 500				
D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm				
2,0	0,010	1194	59683	0,010	1576	78782	-	-	-	-	-	-	0,012	1337	37136	0,012	1910	53052	-	-	-				
3,0	0,014	1114	39789	0,014	1471	52521	-	-	-	-	-	-	0,020	1671	27852	0,020	2387	39789	0,020	2387	39789				
4,0	0,024	1432	29842	0,024	1891	39391	0,021	1880	29842	0,021	2482	39391	0,020	1671	27852	0,020	2387	39789	0,020	2387	39789				
5,0	0,044	2101	23873	0,044	2773	31513	0,035	2507	23873	0,035	3309	31513	0,035	2340	22282	0,035	3342	31831	0,035	3342	31831				
6,0	0,060	2387	19894	0,060	3151	26261	0,050	2984	19894	0,050	3939	26261	0,050	2785	18568	0,050	3979	26526	0,050	3979	26526				
8,0	0,086	2566	14921	0,086	3388	19695	0,073	3268	14921	0,073	4313	19695	0,070	2924	13926	0,070	4178	19894	0,070	4178	19894				
10,0	0,106	2531	11937	0,106	3340	15756	0,091	3259	11937	0,091	4301	15756	0,090	3008	11141	0,090	4297	15915	0,090	4297	15915				
12,0	0,122	2427	9947	0,122	3204	13130	0,105	3133	9947	0,105	4136	13130	0,105	2924	9284	0,105	4178	13263	0,105	4178	13263				
14,0	0,136	2319	8526	0,136	3061	11255	0,118	3018	8526	0,118	3984	11255	0,110	2626	7958	0,110	3752	11368	0,110	3752	11368				
16,0	0,148	2208	7460	0,148	2915	9848	0,128	2865	7460	0,128	3782	9848	0,130	2716	6963	0,130	3879	9947	0,130	3879	9947				
20,0	0,160	1910	5968	0,160	2521	7878	0,140	2507	5968	0,140	3309	7878	0,160	2674	5570	0,160	3820	7958	0,160	3820	7958				
Resina termoplastica Thermoplastics																									
m/min	Vc = 450				Vc = 595				Vc = 450				Vc = 595				Vc = 450				Vc = 600				
D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm				
2,0	0,010	1432	71620	0,010	1894	94697	-	-	-	-	-	-	0,012	1719	47746	0,012	2292	63662	-	-	-				
3,0	0,014	1337	47746	0,014	1768	63131	-	-	-	-	-	-	0,020	2149	35810	0,020	2865	47746	0,020	2865	47746				
4,0	0,024	1719	35810	0,024	2273	47349	0,021	2256	35810	0,021	2983	47349	0,020	2149	35810	0,020	2865	47746	0,020	2865	47746				
5,0	0,044	2521	28648	0,044	3333	37879	0,035	3008	28648	0,035	3977	37879	0,035	3008	28648	0,035	4011	38197	0,035	4011	38197				
6,0	0,060	2865	23873	0,060	3788	31566	0,050	3581	23873	0,050	4735	31566	0,050	3581	23873	0,050	4775	31831	0,050	4775	31831				
8,0	0,086	3080	17905	0,086	4072	23674	0,073	3921	17905	0,073	5185	23674	0,070	3760	17905	0,070	5013	23873	0,070	5013	23873				
10,0	0,106	3037	14324	0,106	4015	18939	0,091	3910	14324	0,091	5170	18939	0,090	3867	14324	0,090	5157	19099	0,090	5157	19099				
12,0	0,122	2913	11937	0,122	3851	15783	0,105	3760	11937	0,105	4972	15783	0,105	3760	11937	0,105	5013	15915	0,105	5013	15915				
14,0	0,136	2783	10231	0,136	3680	13528	0,118	3622	10231	0,118	4789	13528	0,110	3376	10231	0,110	4502	13642	0,110	4502	13642				
16,0	0,148	2650	8952	0,148	3504	11837	0,128	3438	8952	0,128	4545	11837	0,130	3491	8952	0,130	4655	11937	0,130	4655	11937				
20,0	0,160	2292	7162	0,160	3030	9470	0,140	3008	7162	0,140	3977	9470	0,160	3438	7162	0,160	4584	9549	0,160	4584	9549				

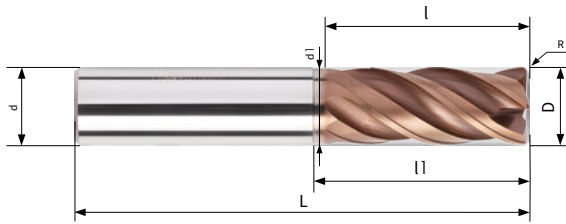
GU104 / GU105 / GU106													GU100		
Materiale Material	Diametro Diameter														
		1,00 D				0,20 D			ap = 2,00 D ae = 0,10 D			ap = Full ae = 0,070 D			
Acciaio <800 N/mm ² Steel <800 N/mm ²	m/min	Vc = 140				Vc = 160			Vc=180			Vc=160			
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm		
	3,0	0,010	594	14854	0,010	679	16977	0,020	1528	19099	-	-	-		
	4,0	0,015	668	11141	0,015	764	12732	0,050	2865	14324	-	-	-		
	5,0	0,02	713	8913	0,020	815	10186	0,070	3209	11459	0,060	2445	10186		
	6,0	0,03	891	7427	0,030	1019	8488	0,090	3438	9549	0,070	2377	8488		
	8,0	0,045	1003	5570	0,045	1146	6366	0,120	3438	7162	0,090	2292	6366		
	10,0	0,060	1069	4456	0,060	1222	5093	0,150	3438	5730	0,110	2241	5093		
	12,0	0,070	1040	3714	0,070	1188	4244	0,180	3438	4775	0,130	2207	4244		
	14,0	0,072	917	3183	0,072	1048	3638	0,200	3274	4093	0,150	2183	3638		
	16,0	0,075	836	2785	0,075	955	3183	0,220	3151	3581	0,170	2164	3183		
20,0	0,082	731	2228	0,090	917	2546	0,250	2865	2865	0,200	2037	2546			
Acciaio <1000 N/mm ² - Ghisa Steel <1000 N/mm ² - Cast Iron	m/min	Vc = 115				Vc = 125			Vc=150			Vc=140			
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm		
	3,0	0,010	488	12202	0,010	531	13263	0,020	1273	15915	-	-	-		
	4,0	0,015	549	9151	0,015	597	9947	0,050	2387	11937	-	-	-		
	5,0	0,02	586	7321	0,020	637	7958	0,070	2674	9549	0,060	2139	8913		
	6,0	0,03	732	6101	0,030	796	6631	0,090	2865	7958	0,070	2080	7427		
	8,0	0,045	824	4576	0,045	895	4974	0,120	2865	5968	0,090	2005	5570		
	10,0	0,060	879	3661	0,060	955	3979	0,150	2865	4775	0,110	1961	4456		
	12,0	0,070	854	3050	0,070	928	3316	0,180	2865	3979	0,130	1931	3714		
	14,0	0,072	753	2615	0,072	819	2842	0,200	2728	3410	0,150	1910	3183		
	16,0	0,075	686	2288	0,075	746	2487	0,220	2626	2984	0,170	1894	2785		
20,0	0,082	600	1830	0,090	716	1989	0,250	2387	2387	0,200	1782	2228			
Acciaio <1300 N/mm ² Steel <1300 N/mm ²	m/min	Vc = 85				Vc = 95			Vc=130			Vc=110			
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm		
	3,0	0,010	361	9019	0,010	403	10080	0,020	1103	13793	-	-	-		
	4,0	0,015	406	6764	0,015	454	7560	0,050	2069	10345	-	-	-		
	5,0	0,020	433	5411	0,02	484	6048	0,070	2317	8276	0,060	1681	7003		
	6,0	0,030	541	4509	0,03	605	5040	0,090	2483	6897	0,070	1634	5836		
	8,0	0,045	609	3382	0,045	680	3780	0,120	2483	5173	0,090	1576	4377		
	10,0	0,060	649	2706	0,060	726	3024	0,150	2483	4138	0,110	1540	3501		
	12,0	0,070	631	2255	0,070	706	2520	0,180	2483	3448	0,130	1517	2918		
	14,0	0,072	557	1933	0,072	622	2160	0,200	2365	2956	0,150	1501	2501		
	16,0	0,075	507	1691	0,075	567	1890	0,220	2276	2586	0,170	1488	2188		
20,0	0,082	444	1353	0,090	544	1512	0,250	2069	2069	0,200	1401	1751			
Acciai alloyati High alloyed tool steel	m/min	Vc = 45				Vc = 50			Vc=80			Vc=65			
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm		
	3,0	0,010	191	4775	0,010	212	5305	0,020	679	8488	-	-	-		
	4,0	0,015	215	3581	0,015	239	3979	0,040	1019	6366	-	-	-		
	5,0	0,020	229	2865	0,020	255	3183	0,050	1019	5093	0,050	828	4138		
	6,0	0,030	286	2387	0,030	318	2653	0,060	1019	4244	0,060	828	3448		
	8,0	0,045	322	1790	0,045	358	1989	0,080	1019	3183	0,080	828	2586		
	10,0	0,060	344	1432	0,060	382	1592	0,100	1019	2546	0,100	828	2069		
	12,0	0,070	334	1194	0,070	371	1326	0,120	1019	2122	0,120	828	1724		
	14,0	0,072	295	1023	0,072	327	1137	0,140	1019	1819	0,140	828	1478		
	16,0	0,075	269	895	0,075	298	995	0,160	1019	1592	0,160	828	1293		
20,0	0,082	235	716	0,090	286	796	0,180	917	1273	0,180	745	1035			
Acciaio Inox Stainless Steel	m/min	Vc = 35				Vc = 45			Vc=100			Vc=90			
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm		
	3,0	0,010	149	3714	0,010	191	4775	0,020	849	10610	-	-	-		
	4,0	0,015	167	2785	0,015	215	3581	0,040	1273	7958	-	-	-		
	5,0	0,020	178	2228	0,020	229	2865	0,065	1655	6366	0,050	1146	5730		
	6,0	0,030	223	1857	0,030	286	2387	0,080	1698	5305	0,060	1146	4775		
	8,0	0,045	251	1393	0,045	322	1790	0,100	1592	3979	0,080	1146	3581		
	10,0	0,060	267	1114	0,060	344	1432	0,120	1528	3183	0,100	1146	2865		
	12,0	0,070	260	928	0,070	334	1194	0,140	1486	2653	0,120	1146	2387		
	14,0	0,072	229	796	0,072	295	1023	0,160	1455	2274	0,140	1146	2046		
	16,0	0,075	209	696	0,075	269	895	0,180	1432	1989	0,160	1146	1790		
20,0	0,082	183	557	0,090	258	716	0,220	1401	1592	0,180	1031	1432			

Parametri di lavoro /// Working parameters

		GU101						GU102						
Materiale Material	Diametro Diameter	1,00 D		2,00 D		ap = 2,00 D ae = 0,10 D		ap = Full ae = 0,070 D						
		D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
Inox ferritico Ferritic stainless steel	m/min	Vc=130				Vc=140			Vc=160			Vc=160		
	3,0	0,013	718	13800	0,013	773	14862	0,025	1698	16977	-	-	-	
	4,0	0,020	828	10350	0,020	892	11146	0,040	2037	12732	-	-	-	
	5,0	0,025	828	8280	0,025	892	8917	0,050	2037	10186	0,060	2139	8913	
	6,0	0,030	828	6900	0,030	892	7431	0,060	2037	8488	0,070	2080	7427	
	8,0	0,040	828	5175	0,040	892	5573	0,080	2037	6366	0,090	2005	5570	
	10,0	0,050	828	4140	0,050	892	4459	0,100	2037	5093	0,110	1961	4456	
	12,0	0,060	828	3450	0,060	892	3715	0,120	2037	4244	0,130	1931	3714	
	14,0	0,065	759	2956	0,065	828	3183	0,130	1892	3638	-	-	-	
	16,0	0,070	725	2588	0,070	780	2787	0,140	1782	3183	0,150	1671	2785	
	18,0	0,075	690	2299	0,075	743	2476	0,150	1697	2829	-	-	-	
20,0	0,080	662	2070	0,080	713	2229	0,160	1629	2546	0,200	1782	2228		
Inox austenitico Austenitic stainless steel	m/min	Vc=110				Vc=120			Vc=150			Vc=150		
	3,0	0,013	607	11677	0,013	662	12739	0,025	1592	15915	-	-	-	
	4,0	0,020	701	8758	0,020	764	9554	0,040	1910	11937	-	-	-	
	5,0	0,025	701	7006	0,025	764	7643	0,050	1910	9549	0,060	2292	9549	
	6,0	0,030	701	5839	0,030	764	6369	0,060	1910	7958	0,070	2228	7958	
	8,0	0,040	701	4379	0,040	764	4777	0,080	1910	5968	0,090	2148	5968	
	10,0	0,050	701	3503	0,050	764	3822	0,100	1910	4775	0,110	2101	4775	
	12,0	0,060	701	2919	0,060	764	3185	0,120	1910	3979	0,130	2069	3979	
	14,0	0,065	650	2501	0,065	709	2728	0,130	1773	3410	-	-	-	
	16,0	0,070	613	2189	0,070	669	2389	0,140	1671	2984	0,150	1790	2984	
	18,0	0,075	584	1945	0,075	637	2122	0,150	1592	2653	-	-	-	
20,0	0,080	561	1752	0,080	611	1911	0,160	1528	2387	0,200	1910	2387		
Titanio Titanium	m/min	Vc=60				Vc=70			Vc=90			Vc=90		
	3,0	0,005	127	6369	0,010	297	7431	0,020	764	9549	-	-	-	
	4,0	0,007	124	4777	0,016	357	5573	0,032	917	7162	-	-	-	
	5,0	0,009	130	3822	0,020	357	4459	0,040	917	5730	0,030	688	5730	
	6,0	0,010	127	3185	0,030	446	3715	0,060	1146	4775	0,040	764	4775	
	8,0	0,013	124	2389	0,040	446	2787	0,080	1146	3581	0,060	859	3581	
	10,0	0,018	138	1911	0,050	446	2229	0,100	1146	2865	0,080	917	2865	
	12,0	0,022	140	1592	0,060	446	1858	0,120	1146	2387	0,100	955	2387	
	14,0	0,027	147	1364	0,070	446	1592	0,140	1146	2046	-	-	-	
	16,0	0,032	153	1194	0,080	446	1393	0,160	1146	1790	0,140	1002	1790	
	18,0	0,036	153	1061	0,090	446	1238	0,180	1146	1592	-	-	-	
20,0	0,040	153	955	0,100	446	1115	0,200	1146	1432	0,180	1031	1432		
Acciaio <800 N/mm² Steel <800N/mm²	m/min	Vc=130				Vc=140			Vc=170			Vc=170		
	3,0	0,013	718	13800	0,013	773	14862	0,025	1804	18038	-	-	-	
	4,0	0,020	828	10350	0,020	892	11146	0,040	2164	13528	-	-	-	
	5,0	0,025	828	8280	0,025	892	8917	0,050	2165	10823	0,060	2598	10823	
	6,0	0,030	828	6900	0,030	892	7431	0,060	2165	9019	0,070	2525	9019	
	8,0	0,040	828	5175	0,040	892	5573	0,080	2164	6764	0,090	2435	6764	
	10,0	0,050	828	4140	0,050	892	4459	0,100	2164	5411	0,110	2381	5411	
	12,0	0,060	828	3450	0,060	892	3715	0,120	2164	4509	0,130	2345	4509	
	14,0	0,065	769	2956	0,065	828	3183	0,130	2010	3865	-	-	-	
	16,0	0,070	725	2588	0,070	780	2787	0,140	1894	3382	0,150	2029	3382	
	18,0	0,075	690	2299	0,075	743	2476	0,150	1804	3006	-	-	-	
20,0	0,080	662	2070	0,080	713	2229	0,160	1732	2706	0,200	2165	2706		

GU400

FRESA ELICOIDALE RIVESTITA COATED HELICAL END MILL



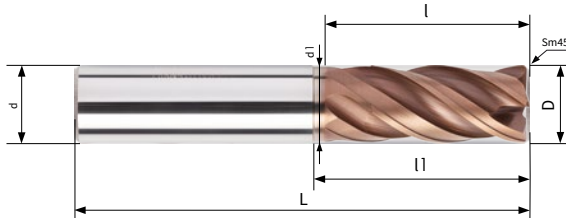
Acciaio Steel Ghisa Cast Iron



Cr	D	l	l1	Z	d	L	d1	R	Normale	Weldon
	3,0	6	6	4	6	55	-	0,20	0,20	GU400D03
4,0	8	8	4	6	55	-	0,20	0,20	GU400D04	
5,0	10	10	4	6	55	-	0,20	0,20	GU400D05	
6,0	12	18	4	6	55	5,7	0,20	0,20	GU400D06	
8,0	16	26	4	8	63	7,7	0,30	0,30	GU400D08	
10,0	22	30	4	10	73	9,6	0,50	0,50		GU400WD10
12,0	26	36	4	12	84	11,6	0,50	0,50		GU400WD12
14,0	26	36	4	12	84	13,5	0,80	0,80		GU400WD14
16,0	33	47	4	16	93	15,5	1,00	1,00		GU400WD16
20,0	42	54	4	20	105	19,5	1,00	1,00		GU400WD20

GU401

FRESA ELICOIDALE RIVESTITA COATED HELICAL END MILL



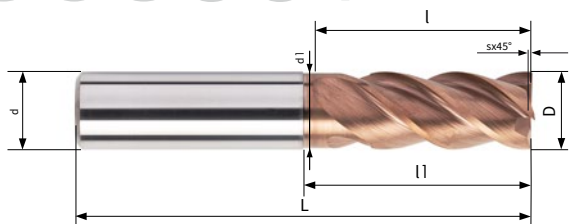
Acciaio Steel Ghisa Cast Iron



45°	D	l	l1	Z	d	L	d1	Sm45°	Normale	Weldon
	3,0	6	6	4	6	55	-	-	-	GU401D03
4,0	8	8	4	6	55	-	0,10	0,10	GU401D04	
5,0	10	10	4	6	55	-	0,10	0,10	GU401D05	
6,0	12	18	4	6	55	5,7	0,15	0,15	GU401D06	
8,0	16	26	4	8	63	7,7	0,15	0,15	GU401D08	
10,0	22	30	4	10	73	9,6	0,15	0,15		GU401WD10
12,0	26	36	4	12	84	11,6	0,20	0,20		GU401WD12
14,0	26	36	4	12	84	13,5	0,20	0,20		GU401WD14
16,0	33	47	4	16	93	15,5	0,20	0,20		GU401WD16
20,0	42	54	4	20	105	19,5	0,20	0,20		GU401WD20

GU500

FRESA ELICOIDALE RIVESTITA COATED HELICAL END MILL

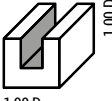
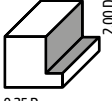


Acciaio Steel Superleghe Superalloys



45°

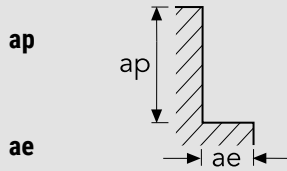
D	l	l1	Z	d	L	d1	Sx45°	Normale	Weldon
3,0	6	6	4	6	55	-		GU500D03	
4,0	8	8	4	6	55	-		GU500D04	
5,0	10	10	4	6	55	-		GU500D05	
6,0	12	18	4	6	55	5,7		GU500D06	
8,0	16	26	4	8	63	7,7		GU500D08	
10,0	20	30	4	10	73	9,6			GU500WD10
12,0	25	36	4	12	84	11,6			GU500WD12
16,0	33	47	4	16	93	15,5			GU500WD16
20,0	42	54	4	20	105	19,5			GU500WD20

GU500							
Materiale Material	Diametro Diameter	1,00 D		0,25 D			
							
Acciaio di costruzione / Acciaio non legato Construction steel / Unalloyed steel	m/min	Vc=140 (120-160)			Vc=180 (160-200)		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	3,0	0,010	594	14862	0,015	1146	19109
	4,0	0,010	445	11147	0,018	1031	14332
	5,0	0,020	713	8918	0,030	1375	11465
	6,0	0,030	891	7431	0,040	1528	9555
	8,0	0,030	668	5574	0,050	1433	7166
	10,0	0,040	713	4459	0,060	1375	5733
	12,0	0,040	594	3716	0,070	1337	4778
	16,0	0,050	557	2787	0,080	1146	3583
	20,0	0,070	624	2230	0,100	1146	2867
	25,0	0,090	642	1784	0,120	1100	2293
	Acciaio <200 N/mm ² - Ghisa Steel <200 N/mm ² - Cast iron	m/min	Vc=80 (60-120)			Vc=100 (60-120)	
D mm		fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
3,0		0,010	339	8490	0,015	636	10610
4,0		0,010	254	6370	0,018	573	7960
5,0		0,020	407	5090	0,030	764	6370
6,0		0,030	508	4240	0,040	849	5310
8,0		0,030	381	3180	0,050	796	3980
10,0		0,040	400	2500	0,060	763	3180
12,0		0,040	339	2120	0,070	742	2650
16,0		0,050	318	1590	0,080	636	1990
20,0		0,070	355	1270	0,100	636	1590
25,0		0,090	367	1020	0,120	609	1270
Leghe di titanio > 300 HB (per es. TiAlV6) Titanium alloys > 300 HB (e.g. TiAlV6)		m/min	Vc=40 (30-80)			Vc=50 (30-80)	
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	3,0	0,010	169	4240	0,015	318	5310
	4,0	0,010	127	3180	0,018	286	3980
	5,0	0,020	204	2550	0,030	381	3180
	6,0	0,030	254	2120	0,040	424	2650
	8,0	0,030	190	1590	0,050	398	1990
	10,0	0,040	203	1270	0,060	381	1590
	12,0	0,040	169	1060	0,070	372	1330
	16,0	0,050	160	800	0,080	316	990
	20,0	0,070	179	640	0,100	320	800
	25,0	0,090	183	510	0,120	307	640
	Leghe a base di nickel (per es. Inconel) Nickel-based alloys (e.g. Inconel)	m/min	Vc=30 (20-60)			Vc=30 (20-60)	
D mm		fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
3,0		0,010	127	3180	0,015	190	3180
4,0		0,010	95	2390	0,018	172	2390
5,0		0,020	152	1910	0,030	229	1910
6,0		0,030	190	1590	0,040	254	1590
8,0		0,030	142	1190	0,050	238	1190
10,0		0,040	152	950	0,060	228	950
12,0		0,040	128	800	0,070	224	800
16,0		0,050	120	600	0,080	192	600
20,0		0,070	134	480	0,100	192	480
25,0		0,090	136	380	0,120	182	380
Acciaio Inox Stainless steel		m/min	Vc=80 (60-100)			Vc=100 (80-120)	
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	3,0	0,010	339	8490	0,015	636	10610
	4,0	0,010	254	6370	0,018	573	7960
	5,0	0,020	407	5090	0,030	764	6370
	6,0	0,030	508	4240	0,040	849	5310
	8,0	0,030	381	3180	0,050	796	3980
	10,0	0,040	400	2500	0,060	763	3180
	12,0	0,040	339	2120	0,070	742	2650
	16,0	0,050	318	1590	0,080	636	1990
	20,0	0,070	355	1270	0,100	636	1590
	25,0	0,090	367	1020	0,120	609	1270

	Materiali / Materials	Durezza / Hardness Rm
P1	Acciai automatici e acciai strutturali Free cutting steel and structural steel	< 500 N/mm ²
P2	Acciai al carbonio e acciai basso legati Carbon steel and low alloy steel	500-700 N/mm ²
P3	Acciai medio legati e acciai di bonifica Medium alloy steel and heat treated steel	600-800 N/mm ²
P4	Acciai alto legati High alloy steel	800-1000 N/mm ²
P5	Acciai per utensili Tool steel	900-1200 N/mm ²
P6	Acciai ad alta resistenza High tensile strength steel	1200-1480 N/mm ²
M1	Acciai inossidabili austenitici (buona lavorabilità) Austenitic stainless steel (good machinability)	
M2	Acciai inossidabili austenitici (buona lavorabilità) Austenitic stainless steel (medium machinability) and Duplex	
M3	Acciai inossidabili austenitici (media lavorabilità) e Duplex Super austenitic stainless steel and super Duplex	
M4	Acciai inossidabili ferritici e martensitici Ferritic - Martensitic stainless steel	
M5	Acciai inossidabili PH - indurenti per precipitazione PH stainless steel	
K1	Ghise grigie Grey cast iron	150-250 HB
K2	Ghise sferoidali Nodular cast iron	150-350 HB
K3	Ghise austenitiche Austenitic cast iron	120-260 HB
K4	Ghise ADI ADI cast iron	250-500 HB
N1	Leghe di alluminio ≤ 12% Si Aluminium alloys ≤ 12% Si	
N2	Leghe di alluminio > 12% Si e alluminio-magnesio Aluminium alloy > 12% Si and Aluminium-Magnesium	
N3	Leghe di rame Copper alloy	
N4	Leghe di ottone e leghe di bronzo Brass alloy and Bronze alloy	
N5	Polimeri Plastic material	
N6	Fibra di carbonio e compositi Carbon fiber and composite	
S1	Leghe a base di nichel resistenti al calore (buona lavorabilità) Heat resistant super alloys (HRSA) Ni base (good machinability)	< 25 HRC
S2	Leghe a base di nichel resistenti al calore (media lavorabilità) Heat resistant super alloys (HRSA) Ni base (medium machinability)	25-35 HRC
S3	Leghe a base di nichel resistenti al calore (difficile lavorabilità) Heat resistant super alloys (HRSA) Ni base (low machinability)	35-45 HRC
S4	Leghe di titanio basso legate (buona lavorabilità) Low Titanium base alloy (good machinability)	
S5	Leghe di titanio alto legate (media lavorabilità) High Titanium base alloy (medium machinability)	
H1	Acciai temprati generali Hardened steel	50-56 HRC
H2	Acciai temprati per cuscinetti Hardened bearing steel	54-62 HRC
H3	Acciai temprati per utensili Hardened tool steel	60-65 HRC
H4	Acciai inossidabili martensitici temprati Hardened martensitic stainless steel	50-56 HRC
H5	Ghise bianche temprate Hardened white cast iron	48-55 HRC

HRC	VICKERS	BRINELL hardness		ROCKWELL hardness			ROCKWELL superficial hardness			SHORE hardness	N/mm ² Tensile strength
		standard ball	tungsten carbide ball	A scale	B scale	D scale	15-N scale	30-N scale	45-N scale		
68	940	-	-	85.6	-	76.9	93.2	84.4	75.4	97	-
67	900	-	-	85.0	-	76.1	92.9	83.6	74.2	95	-
66	865	-	-	84.5	-	75.4	92.5	82.8	73.3	92	-
65	832	-	(739)	83.9	-	74.5	92.2	81.9	72.0	91	-
64	800	-	(722)	83.4	-	73.8	91.8	81.1	71.0	88	-
63	772	-	(705)	82.8	-	73.0	91.4	80.1	69.9	87	-
62	746	-	(688)	82.3	-	72.2	91.1	79.3	68.8	85	-
61	720	-	(670)	81.8	-	71.5	90.7	78.4	67.7	83	-
60	697	-	(654)	81.2	-	70.7	90.2	77.5	66.7	81	-
59	674	-	(634)	80.7	-	69.9	89.8	76.6	65.5	80	-
58	653	-	615	80.1	-	69.2	89.3	75.7	64.3	78	-
57	633	-	595	79.6	-	68.5	88.9	74.8	63.2	76	-
56	613	-	577	79.0	-	67.7	88.3	73.9	62.0	75	-
55	595	-	560	78.5	-	66.9	87.9	73.0	60.9	74	2075
54	577	-	543	78.0	-	66.1	87.4	72.0	59.8	72	2015
53	560	-	525	77.4	-	65.4	86.9	71.2	58.6	71	1950
52	544	(500)	512	76.8	-	64.6	86.4	70.2	57.4	69	1880
51	528	(487)	496	76.3	-	63.8	85.9	69.4	56.1	68	1820
50	513	(475)	481	75.9	-	63.1	85.5	68.5	55.0	67	1760
49	498	(464)	469	75.2	-	62.1	85.0	67.6	53.8	66	1695
48	484	451	455	74.7	-	61.4	84.5	66.7	52.5	64	1635
47	471	442	443	74.1	-	60.8	83.9	65.8	51.4	63	1580
46	458	432	432	73.6	-	60.0	83.5	64.8	50.3	62	1530
45	446	421	421	73.1	-	59.2	83.0	64.0	49.0	60	1480
44	434	409	409	72.5	-	58.5	82.5	63.1	47.8	58	1435
43	423	400	400	72.0	-	57.7	82.0	62.2	46.7	57	1385
42	412	390	390	71.5	-	56.9	81.5	61.3	45.5	56	1340
41	402	381	381	70.9	-	56.2	80.9	60.4	44.3	55	1295
40	392	371	371	70.4	-	55.4	80.4	59.5	43.1	54	1250
39	382	362	362	69.9	-	54.6	79.9	58.6	41.9	52	1215
38	372	353	353	69.4	-	53.8	79.4	57.7	40.8	51	1180
37	363	344	344	68.9	-	53.1	78.8	56.8	39.6	50	1160
36	354	336	336	68.4	(109.0)	52.3	78.3	55.9	38.4	49	1115
35	345	327	327	67.9	(108.5)	51.5	77.7	55.0	37.2	48	1080
34	336	319	319	67.4	(108.0)	50.8	77.2	54.2	36.1	47	1055
33	327	311	311	66.8	(107.5)	50.0	76.6	53.3	34.9	46	1025
32	318	301	301	66.3	(107.0)	49.2	76.1	52.1	33.7	44	1000
31	310	294	294	65.8	(106.0)	48.4	75.6	51.3	32.5	43	980
30	302	286	286	65.3	(105.5)	47.7	75.0	50.4	31.3	42	950
29	294	279	279	64.7	(104.5)	47.0	74.5	49.5	30.1	41	930
28	286	271	271	64.3	(104.0)	46.1	73.9	48.6	28.9	41	910
27	279	264	264	63.8	(103.0)	45.2	73.3	47.7	27.8	40	880
26	272	258	258	63.3	(102.5)	44.6	72.8	46.8	26.7	38	860
25	266	253	253	62.8	(101.5)	43.8	72.2	45.9	25.5	38	840
24	260	247	247	62.4	(101.0)	43.1	71.6	45.0	24.3	37	825
23	254	243	243	62.0	100.0	42.1	71.0	44.0	23.1	36	805
22	248	237	237	61.5	99.0	41.6	70.5	43.2	22.0	35	785
21	243	231	231	61.0	98.5	40.9	69.9	42.3	20.7	35	770
20	238	226	226	60.5	97.8	40.1	69.4	41.5	19.6	34	760
(18)	230	219	219	-	96.7	-	-	-	-	33	730
(16)	222	212	212	-	95.5	-	-	-	-	32	705
(14)	213	203	203	-	93.9	-	-	-	-	31	675
(12)	204	194	194	-	92.3	-	-	-	-	29	650
(10)	196	187	187	-	90.7	-	-	-	-	28	620
(8)	188	179	179	-	89.5	-	-	-	-	27	600
(6)	180	171	171	-	87.1	-	-	-	-	26	580
(4)	173	165	165	-	85.5	-	-	-	-	25	550
(2)	166	158	158	-	83.5	-	-	-	-	24	530
(0)	160	152	152	-	81.7	-	-	-	-	24	515

Formule /// Formulas



D = Diametro / Diameter

Z = Numero taglienti / Number of teeth

Velocità di taglio / Cutting speed

$$V_c = \frac{D \times \pi \times n}{1000} \quad \mathbf{m/min}$$

Velocità di rotazione mandrino / Spindle speed

$$n = \frac{V_c \times 1000}{\pi \times D} \quad \mathbf{rpm}$$

Avanzamento per giro / Feed per revolution

$$f_n = \frac{V_f}{n} \quad \mathbf{mm/rev} \qquad f_n = f_z \times z \quad \mathbf{mm/rev}$$

Velocità di avanzamento / Feed rate































$$V_f = f_n \times n \quad \mathbf{mm/min}$$

Avanzamento/Tagliente / Feed/Tooth

$$f_z = \frac{V_f}{n \times z} \quad \mathbf{mm}$$

Volume truciolo asportato / Metal (chip) removal rate

$$Q = \frac{a_p \times a_e \times V_f}{1000} \quad \mathbf{cm^3/min}$$

	2 Taglienti 2 Flutes		Attacco 6535 HA 6535 HA holder
	3 Taglienti 3 Flutes		Attacco 6535 HB 6535 HB holder
	3 Taglienti con elica differenziata 3 Flutes with unequal helix		Direzione di avanzamento Feed direction
	4 Taglienti 4 Flutes		Fresatura di cava Slotting
	4 Taglienti 4 Flutes		Fresatura laterale e frontale Side and face milling
	4 Taglienti 4 Flutes		Fresatura trocoidale Trochoidal milling
	4 Taglienti con elica differenziata 4 Flutes with unequal helix		Fresatura in rampa Ramp milling
	6 Taglienti 6 Flutes		Copiatura 3D 3D Copy milling
	Qualità metallo duro Hard metal quality		Smussatura Chamfering
	Norma 6527 L 6528 6527 L 6528 Norm		Geometria frontale 45° 45° Profile geometry
	Norma 6527 L 6527 L Norm		Geometria frontale 60° 60° Profile geometry
	Norma 6527 K 6528 6527 K 6528 Norm		Geometria frontale 90° 90° Profile geometry
	Angolo elica Helix angle		Geometria frontale 120° 120° Profile geometry
	Ribassamento dopo il tagliente / Neck relief		Geom. front. corner radius Corner radius prof. geom.
	Preparazione tagliente Edge preparation		Geom. front. semisferica Ball nose profile geometry

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