



02

FRESE PIATTE

SQUARE END MILLS

FRAISE CYLINDRIQUE EN BOUT

LANGLOCHFRÄSER

FRESA Z2 – Serie Normale

EN Z2 SQUARE END MILL ALUMINIUM | Normal Series

FR Z2 FRAISE CYLINDRIQUE EN BOUT ALUMINIUM | Serie Normale

DE Z2 LANGLOCHFRÄSER ALUMINIUM | Normale Serien

IT Acciaio, acciaio inossidabile, ghisa, rame, titanio fino a 35-45 HRC.

EN Steel, Stainless Steel, Cast Iron, Copper, Titanium and Hardened Steels up to 35-45 HRC.

FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane et Acier jusqu'à 35-45 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Gehärteter Stahl 35-45 HRC.

Serie Normale



SERIE NORMALE – Normal Series

Ref.	Dimensione - Dimension (mm)			
2 Taglienti (Z2)	Dc	d	Lc	L
MES-H2010-d3	1	3	3	38
MES-H2010-d4	1	4	3	50
MES-H2015-d3	1,5	3	4	38
MES-H2015-d4	1,5	4	4	50
MES-H2020-d3	2	3	6	38
MES-H2020-d4	2	4	6	50
MES-H2025-d3	2,5	3	8	38
MES-H2025-d4	2,5	4	8	50
MES-H2030-d3	3	3	8	38
MES-H2030-d4	3	4	8	50
MES-H2030-d6	3	6	8	50
MES-H2035-d4	3,5	4	11	50
MES-H2040	4	4	11	50
MES-H2040-d6	4	6	11	50
MES-H2045-d6	4,5	6	11	50
MES-H2050	5	5	13	50
MES-H2050-d6	5	6	13	50
MES-H2055	5,5	6	16	50
MES-H2060	6	6	16	50
MES-H2063	6,35	8	19	60
MES-H2065	6,5	8	19	60

SERIE NORMALE – Normal Series

Ref.	Dimensione - Dimension (mm)			
2 Taglienti (Z2)	Dc	d	Lc	L
MES-H2070	7	8	19	60
MES-H2075	7,5	8	19	60
MES-H2080	8	8	19	60
MES-H2085	8,5	10	22	72
MES-H2090	9	10	22	72
MES-H2095	9,5	10	22	72
MES-H2100	10	10	22	72
MES-H2105	10,5	12	26	75
MES-H2110	11	12	26	75
MES-H2120	12	12	26	75
MES-H2125	12,5	14	30	84
MES-H2130	13	14	30	84
MES-H2140	14	14	30	84
MES-H2150	15	16	32	92
MES-H2160	16	16	32	92
MES-H2170	17	18	38	100
MES-H2180	18	18	38	100
MES-H2190	19	20	38	100
MES-H2200	20	20	38	100
MES-H2220	22	22	38	100
MES-H2250	25	25	45	100

FRESA Z2 – Serie Lunga / Serie Extralunga

EN Z2 SQUARE END MILL ALUMINIUM I Long Series/Extra Long Series

FR Z2 FRAISE CYLINDRIQUE EN BOUT ALUMINIUM I Serie Longue/Extra Longue

DE Z2 LANGLOCHFRÄSER ALUMINIUM I Lange/Extra Lange Serien

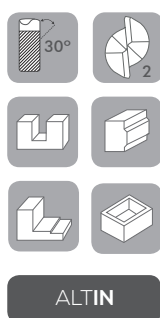
IT Acciaio, acciaio inossidabile, ghisa, rame, titanio fino a 35-45 HRC.

EN Steel, Stainless Steel, Cast Iron, Copper, Titanium and Hardened Steels up to 35-45 HRC.

FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane et Acier jusqu'à 35-45 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Gehärteter Stahl 35-45 HRC.

Serie Lunga



Serie Extralunga



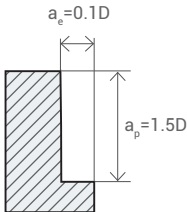
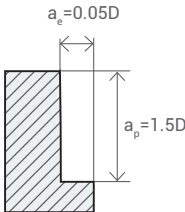
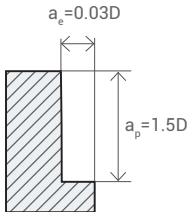
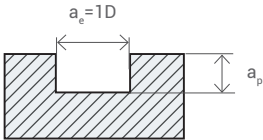
SERIE LUNGA - Long Series

Ref.	Dimensione - Dimension (mm)			
2 Taglienti (Z2)	Dc	d	Lc	L
MES-H2010L	1	3	5	60
MES-H2020L	2	3	10	60
MES-H2030L	3	3	15	60
MES-H2040L	4	4	20	80
MES-H2050L	5	5	25	80
MES-H2060L	6	6	25	80
MES-H2080L	8	8	35	90
MES-H2100L	10	10	45	100
MES-H2120L	12	12	50	100
MES-H2140L	14	14	65	150
MES-H2160L	16	16	65	150
MES-H2200L	20	20	70	150
MES-H2250L	25	25	75	150

SERIE EXTRA LUNGA - Extra Long Series

Ref.	Dimensione - Dimension (mm)			
2 Taglienti (Z2)	Dc	d	Lc	L
MES-H2030LL	3	3	25	75
MES-H2040LL	4	4	25	100
MES-H2050LL	5	5	25	100
MES-H2060LL	6	6	25	100
MES-H2060XL	6	6	40	100
MES-H2060LLL	6	6	25	150
MES-H2060XXL	6	6	40	150
MES-H2080XL	8	8	45	100
MES-H2080LL	8	8	25	150
MES-H2080XXL	8	8	45	150
MES-H2100LL	10	10	38	150
MES-H2100XL	10	10	50	150
MES-H2100XXL	10	10	65	150
MES-H2120LL	12	12	38	150
MES-H2120XL	12	12	50	150
MES-H2120XXL	12	12	75	150
MES-H2120LLL	12	12	38	200

MES-H Z2 - Fresa piatta

Materiale pezzo Workpiece material	Ghisa, Acciaio al carbonio, Acciaio legato -30 HRC Cast iron, Carbon steel, alloy steel -30 HRC		Acciaio inossidabile Stainless steel		Acciaio pretemprato, acciaio bonificato e temprato -40HRC Pre-hardened steel, quenched and tempered steel -40HRC		Acciaio pretemprato, acciaio bonificato e temprato -50HRC Pre-hardened steel, quenched and tempered steel -50HRC		Acciaio rinforzato -56HRC Hardened steel -56HRC														
Diametro Ø mm	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)													
1	20000	200	20000	60	20000	165	20000	120	20000	90													
2	15000	320	11150	85	15000	285	13000	180	11140	130													
3	14000	545	7500	120	10600	420	8500	330	7430	240													
4	10800	560	5500	135	8000	425	6500	335	5570	245													
5	8200	585	4500	135	6400	445	5000	355	4460	260													
6	7000	600	3700	140	5300	465	4200	360	3710	260													
8	5200	595	2800	140	4000	455	3200	365	2785	270													
10	4200	585	2200	140	3200	445	2500	350	2230	250													
12	3500	585	1850	140	2650	445	2100	350	1855	250													
14	3000	545	1600	135	2300	420	1800	330	1590	240													
16	2600	545	1400	120	2000	420	1600	330	1390	240													
18	2300	535	1250	120	1800	415	1400	325	1240	235													
20	2050	535	1100	120	1600	415	1250	325	1115	235													
25	1650	425	880	100	1300	345	1000	260	890	185													
Massima profondità di taglio Max. Cutting depth																							
					Fessura di fresatura Milling Slot <table><tr><th>Ø</th><th>Ap</th></tr><tr><td>Ø1≤Ø3</td><td>0.15D</td></tr><tr><td>Ø3≤Ø6</td><td>0.3D</td></tr><tr><td>Ø6≤D<Ø20</td><td>0.5D</td></tr></table>			Ø	Ap	Ø1≤Ø3	0.15D	Ø3≤Ø6	0.3D	Ø6≤D<Ø20	0.5D	Fessura di fresatura Milling Slot <table><tr><th>Ø</th><th>Ap</th></tr><tr><td>Ø1≤D<Ø3</td><td>0.1D</td></tr><tr><td>Ø3≤D</td><td>0.2D</td></tr></table>			Ø	Ap	Ø1≤D<Ø3	0.1D	Ø3≤D
Ø	Ap																						
Ø1≤Ø3	0.15D																						
Ø3≤Ø6	0.3D																						
Ø6≤D<Ø20	0.5D																						
Ø	Ap																						
Ø1≤D<Ø3	0.1D																						
Ø3≤D	0.2D																						

FRESA Z3 – Serie Normale

EN Z3 SQUARE END MILL | Normal Series

FR Z3 FRAISE CYLINDRIQUE EN BOUT | Serie Normale

DE Z3 LANGLOCHFRÄSER | Normale Serien

IT Acciaio, acciaio inossidabile, ghisa, rame, titanio fino a 35-45 HRC.

EN Steel, Stainless Steel, Cast Iron, Copper, Titanium and Hardened Steels up to 35-45 HRC.

FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane et Acier jusqu'à 35-45 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Gehärteter Stahl 35-45 HRC.

Serie Normale



SERIE NORMALE – Normal Series

Ref.	Dimensione - Dimension (mm)			
3 Taglienti (Z3)	Dc	d	Lc	L
MES-H3010-d3	1	3	3	38
MES-H3010-d4	1	4	3	50
MES-H3015-d3	1,5	3	4	38
MES-H3015-d4	1,5	4	4	50
MES-H3020-d3	2	3	6	38
MES-H3020-d4	2	4	6	50
MES-H3025-d3	2,5	3	8	38
MES-H3025-d4	2,5	4	8	50
MES-H3030-d3	3	3	8	38
MES-H3030-d4	3	4	8	50
MES-H3030-d6	3	6	8	50
MES-H3035-d4	3,5	4	8	50
MES-H3040	4	4	11	50
MES-H3040-d6	4	6	11	50
MES-H3045-d6	4,5	6	11	50
MES-H3050	5	5	13	50
MES-H3050-d6	5	6	13	50
MES-H3055	5,5	6	16	50
MES-H3060	6	6	16	50
MES-H3063	6,35	8	19	60
MES-H3065	6,5	8	19	60

SERIE NORMALE – Normal Series

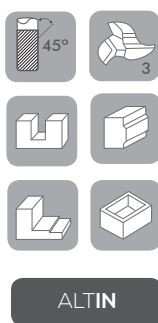
Ref.	Dimensione - Dimension (mm)			
3 Taglienti (Z3)	Dc	d	Lc	L
MES-H3070	7	8	19	60
MES-H3075	7,5	8	19	60
MES-H3080	8	8	19	60
MES-H3085	8,5	10	22	72
MES-H3090	9	10	22	72
MES-H3095	9,5	10	22	72
MES-H3100	10	10	22	72
MES-H3105	10,5	12	26	75
MES-H3110	11	12	26	75
MES-H3120	12	12	26	75
MES-H3125	12,5	14	30	84
MES-H3130	13	14	30	84
MES-H3140	14	14	30	84
MES-H3150	15	16	32	92
MES-H3160	16	16	32	92
MES-H3170	17	18	38	100
MES-H3180	18	18	38	100
MES-H3190	19	20	38	100
MES-H3200	20	20	38	100
MES-H3220	22	22	38	100
MES-H3250	25	25	45	100

FRESA Z3 – Serie Lunga

- EN** Z3 SQUARE END MILL ALUMINIUM | Long Series
- FR** Z3 FRAISE CYLINDRIQUE EN BOUT ALUMINIUM | Serie Longue
- DE** Z3 LANGLOCHFRÄSER ALUMINIUM | Lange Serien

- IT** Acciaio, acciaio inossidabile, ghisa, rame, titanio fino a 35-45 HRC.
- EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium and Hardened Steels up to 35-45 HRC.
- FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane et Acier jusqu'à 35-45 HRC.
- DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Gehärteter Stahl 35-45 HRC.

Serie Lunga

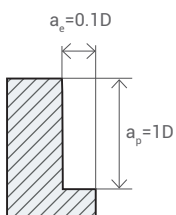
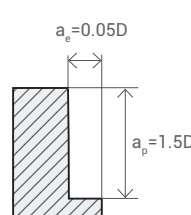
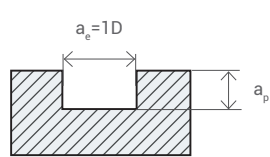
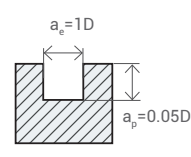


SERIE LUNGA - Long Series

Ref.	Dimensione - Dimension (mm)			
3 Taglienti (Z3)	Dc	d	Lc	L
MES-H3010L	1	3	5	60
MES-H3020L	2	3	10	60
MES-H3030L	3	3	15	60
MES-H3040L	4	4	20	80
MES-H3050L	5	5	25	80
MES-H3060L	6	6	25	80
MES-H3080L	8	8	35	90
MES-H3100L	10	10	45	100
MES-H3120L	12	12	50	100
MES-H3140L	14	14	65	150
MES-H3160L	16	16	65	150
MES-H3200L	20	20	70	150
MES-H3250L	25	25	75	150

MES-H Z3

Fresa piatta

Materiale pezzo Workpiece material	Ghisa, ghisa sferoidale Cast Iron, Nodular cast iron		Acciaio al carbonio, Acciaio legato -750 Nmm² Carbon steel, Alloy steel -750Nmm²		Acciaio al carbonio, Acciaio legato -30 HRC Carbon steel, Alloy steel -30 HRC		Acciaio pretemprato, acciaio bonificato e temprato -40HRC Pre-hardened steel, quenched and tempered steel 40HRC		Acciaio inossidabile Stainless steel		Acciaio pretemprato, acciaio bonificato e temprato -56HRC Pre-Hardened steel, Quenched and tempered steel -56HRC						
Diametro Ø mm	Rotante Rotating (minimo -¹)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -¹)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -¹)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -¹)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -¹)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -¹)	Avanzamento Feed (mm/minuto)					
1	20.000	215	20000	215	20000	175	20000	175	20000	65	20000	130					
2	15.000	345	15000	345	15000	310	15000	305	11150	90	13000	195					
3	14000	590	14000	590	13000	546	10600	455	7500	130	8500	360					
4	10800	600	10800	605	10000	560	8000	460	5500	145	6500	365					
5	8200	630	8200	630	7600	585	6400	480	4500	145	5000	380					
6	7000	650	7000	650	6400	600	5300	500	3700	150	4200	390					
8	5200	645	5200	645	4800	590	4000	495	2800	150	3200	400					
10	4200	630	4200	630	3800	585	3200	480	2200	150	2500	380					
12	3500	630	3500	630	3200	585	2650	480	1850	150	2100	380					
14	3000	590	3000	590	2700	545	2300	455	1600	145	1800	360					
16	2600	590	2600	590	2400	545	2000	455	1400	130	1600	360					
18	2300	580	2300	580	2100	530	1800	450	1250	130	1400	350					
20	2050	580	2050	580	1900	530	1600	450	1100	130	1250	350					
25	1650	465	1650	465	1520	425	1300	370	880	110	1000	280					
Massima profondità di taglio Max. Cutting depth																	
						<table><tr><th>Ø</th><th>Ap</th></tr><tr><td>Ø1 ≤ D < Ø3</td><td>0.15D</td></tr><tr><td>Ø3 ≤ D</td><td>0.3D</td></tr></table>					Ø	Ap	Ø1 ≤ D < Ø3	0.15D	Ø3 ≤ D	0.3D	
Ø	Ap																
Ø1 ≤ D < Ø3	0.15D																
Ø3 ≤ D	0.3D																

FRESA Z4 – Serie Normale

EN Z4 SQUARE END MILL | Normal Series

FR Z4 FRAISE CYLINDRIQUE EN BOUT | Serie Normale

DE Z4 LANGLOCHFRÄSER | Normale Serien

IT Acciaio, acciaio inossidabile, ghisa, rame, titanio fino a 35-45 HRC.

EN Steel, Stainless Steel, Cast Iron, Copper, Titanium and Hardened Steels up to 35-45 HRC.

FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane et Acier jusqu'à 35-45 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Gehärteter Stahl 35-45 HRC.

Serie Normale



SERIE NORMALE – Normal Series

Ref.	Dimensione - Dimension (mm)			
4 Taglienti (Z4)	Dc	d	Lc	L
MES-H4010-d3	1	3	3	38
MES-H4010-d4	1	4	3	50
MES-H4015-d3	1,5	3	4	38
MES-H4015-d4	1,5	4	4	50
MES-H4020-d3	2	3	6	38
MES-H4020-d4	2	4	6	50
MES-H4025-d3	2,5	3	8	38
MES-H4025-d4	2,5	4	8	50
MES-H4030-d3	3	3	8	38
MES-H4030-d4	3	4	8	50
MES-H4030-d6	3	6	8	50
MES-H4035-d4	3,5	4	8	50
MES-H4040	4	4	11	50
MES-H4040-d6	4	6	11	50
MES-H4045-d6	4,5	6	11	50
MES-H4050	5	5	13	50
MES-H4050-d6	5	6	13	50
MES-H4055	5,5	6	16	50
MES-H4060	6	6	16	50
MES-H4060S	6	6	22	58
MES-H4063	6,35	8	19	60
MES-H4065	6,5	8	19	60
MES-H4070	7	8	19	60
MES-H4075	7,5	8	19	60
MES-H3080	8	8	19	60

SERIE NORMALE – Normal Series

Ref.	Dimensione - Dimension (mm)			
4 Taglienti (Z4)	Dc	d	Lc	L
MES-H4085	8,5	10	22	72
MES-H4090	9	10	22	72
MES-H4095	9,5	10	22	72
MES-H4100	10	10	22	72
MES-H4100S	10	10	32	80
MES-H4105	10,5	12	26	75
MES-H4110	11	12	26	75
MES-H4120	12	12	26	75
MES-H4120S	12	12	32	75
MES-H4125	12,5	14	30	84
MES-H4130	13	14	30	84
MES-H4140	14	14	30	84
MES-H4140S	14	14	50	100
MES-H4150	15	16	32	92
MES-H4160	16	16	32	92
MES-H4160S	16	16	50	100
MES-H4170	17	18	38	100
MES-H4180	18	18	38	100
MES-H4180S	18	18	50	100
MES-H4190	19	20	38	100
MES-H4200	20	20	38	100
MES-H4200S	20	20	50	100
MES-H4220	22	22	38	100
MES-H4250	25	25	45	100
MES-H4250S	25	25	55	110

FRESA Z4 – Serie Lunga / Extra Lunga

- EN** Z4 SQUARE END MILL | Long Series/Extra Long Series
FR Z4 FRAISE CYLINDRIQUE EN BOUT | Serie Longue/Extra Longue
DE Z4 LANGLOCHFRÄSER | Lange/Extra Lange Serien

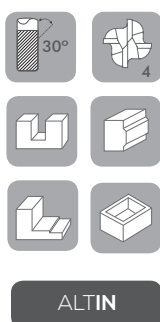
IT Acciaio, acciaio inossidabile, ghisa, rame, titanio fino a 35-45 HRC.

EN Steel, Stainless Steel, Cast Iron, Cooper, Titanium and Hardened Steels up to 35-45 HRC.

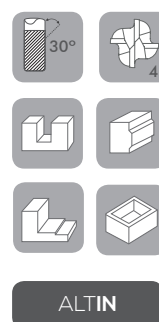
FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane et Acier jusqu'à 35-45 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Gehärteter Stahl 35-45 HRC.

Serie Lunga



Serie Extralunga



SERIE LUNGA - Long Series

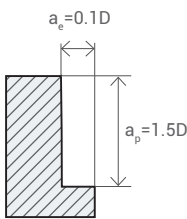
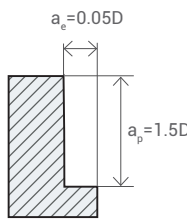
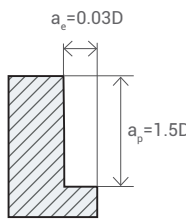
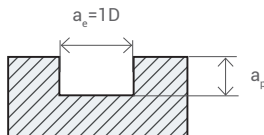
Ref.	Dimensione - Dimension (mm)			
4 Taglienti (Z4)	Dc	d	Lc	L
MES-H4010L	1	3	5	60
MES-H4020L	2	3	10	60
MES-H4030L	3	3	15	60
MES-H4040L	4	4	20	80
MES-H4050L	5	5	25	80
MES-H4060L	6	6	25	80
MES-H4070L	7	8	35	90
MES-H4080L	8	8	35	90
MES-H4090L	9	10	45	100
MES-H4100L	10	10	45	100
MES-H4120L	12	12	50	100
MES-H4140L	14	14	65	150
MES-H4140LL	14	14	90	150
MES-H4160L	16	16	65	150
MES-H4160LL	16	16	90	150
MES-H4180L	18	18	70	150
MES-H4200L	20	20	70	150
MES-H4200LL	20	20	90	150
MES-H4200XL	20	20	100	165
MES-H4200XLL	20	20	110	200
MES-H4250L	25	25	75	150

SERIE EXTRA LUNGA - Extralong Series

Ref.	Dimensione - Dimension (mm)			
3 Taglienti (Z3)	Dc	d	Lc	L
MES-H4030LL	3	3	25	75
MES-H4030XL	3	3	25	100
MES-H4040LL	4	4	25	100
MES-H4050LL	5	5	25	100
MES-H4060LL	6	6	25	100
MES-H4060XL	6	6	40	100
MES-H406LLL	6	6	25	150
MES-H4060XXL	6	6	40	150
MES-H4080XL	8	8	45	100
MES-H4080LL	8	8	25	150
MES-H4080XXL	8	8	45	150
MES-H4100LL	10	10	38	150
MES-H4100XL	10	10	50	150
MES-H4100XXL	10	10	65	150
MES-H4120LL	12	12	38	150
MES-H4120XL	12	12	50	150
MES-H4120XXL	12	12	75	150
MES-H4120LLL	12	12	38	200

MES-H Z4

Fresa piatta

Materiale pezzo Workpiece material	Ghisa, Acciaio al carbonio, Acciaio legato -30 HRC Cast iron, Carbon steel, alloy steel -30 HRC		Acciaio inossidabile Stainless steel		Acciaio pretemprato, acciaio bonificato e temprato -40HRC Pre-hardened steel, quenched and tempered steel -40HRC		Acciaio pretemprato, acciaio bonificato e temprato -50HRC Pre-hardened steel, quenched and tempered steel -50HRC		Acciaio temprato -56HRC Hardened steel -56HRC												
Diametro Ø mm	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)											
1	20.000	270	20000	95	20000	215	20000	135	20000	120											
2	15.000	435	11150	110	15000	380	13000	200	11140	175											
3	14000	735	7500	135	10600	565	8500	370	7430	325											
4	10800	755	5500	140	8000	575	6500	380	5570	335											
5	8200	795	4500	140	6400	605	5000	400	4460	350											
6	7000	810	3700	145	5300	620	4200	405	3710	350											
8	5200	800	2800	145	4000	615	3200	415	2785	365											
10	4200	795	2200	145	3200	605	2500	390	2230	340											
12	3500	795	1850	145	2650	605	2100	390	1855	340											
14	3000	735	1600	140	2300	565	1800	370	1590	325											
16	2600	735	1400	135	2000	565	1600	370	1390	325											
18	2300	720	1250	115	1800	555	1400	365	1240	315											
20	2050	720	1100	115	1600	555	1250	365	1115	2050											
25	1650	575	880	95	1300	445	1000	295	900	255											
Massima profondità di taglio Max. Cutting depth																					
					Fessura di fresatura Milling Slot <table><tr><th>Ø</th><th>Ap</th></tr><tr><td>Ø1≤Ø3</td><td>0.15D</td></tr><tr><td>Ø3≤Ø6</td><td>0.3D</td></tr><tr><td>Ø6≤D<Ø20</td><td>0.5D</td></tr></table>		Ø	Ap	Ø1≤Ø3	0.15D	Ø3≤Ø6	0.3D	Ø6≤D<Ø20	0.5D	Fessura di fresatura Milling Slot <table><tr><th>Ø</th><th>Ap</th></tr><tr><td>Ø1≤D<Ø3</td><td>0.1D</td></tr><tr><td>Ø3≤D</td><td>0.2D</td></tr></table>		Ø	Ap	Ø1≤D<Ø3	0.1D	Ø3≤D
Ø	Ap																				
Ø1≤Ø3	0.15D																				
Ø3≤Ø6	0.3D																				
Ø6≤D<Ø20	0.5D																				
Ø	Ap																				
Ø1≤D<Ø3	0.1D																				
Ø3≤D	0.2D																				

FRESA Z6 - Serie Normale / Lunga / Extra Lunga

EN Z6 SQUARE END MILL | Normal/Long /Extra Long Series

FR Z6 FRAISE CYLINDRIQUE EN BOUT | Serie Normale/Longue/Extra Longue

DE Z6 LANGLOCHFRÄSER | Normale/Lange/Extra Lange Serien

IT Acciaio, acciaio inossidabile, ghisa, rame, titanio fino a 35-45 HRC.

EN Steel, Stainless Steel, Cast Iron, Cooper, Titanium and Hardened Steels up to 35-45 HRC.

FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane et Acier jusqu'à 35-45 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Gehärteter Stahl 35-45 HRC.

Serie Normale



Serie Lunga/Extralunga



SERIE NORMALE - Normal Series

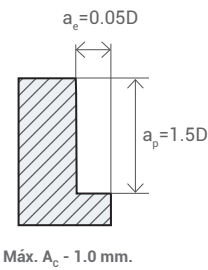
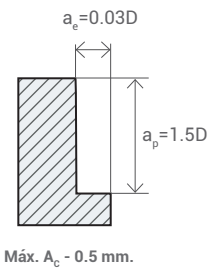
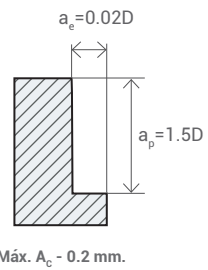
Ref.	Dimensione - Dimension (mm)			
6 Taglienti (Z6)	Dc	d	Lc	L
MEH-H4030-Z4	3.0	3	8	38
MEH-H4040-Z4	4.0	4	11	50
MEH-H4050-Z4	5.0	5	13	50
MEH-H6060	6.0	6	16	50
MEH-H6080	8.0	8	19	60
MEH-H6100	10.0	10	22	75
MEH-H6120	12.0	12	26	75
MEH-H6140	14.0	14	32	90
MEH-H6160	16.0	16	32	100
MEH-H6160S	16.0	16	50	100
MEH-H6180	18.0	18	38	100
MEH-H6200	20.0	20	38	100
MEH-H6200S	20.0	20	50	100
MEH-H6250	25.0	25	38	100

SERIE LUNGA/EXTRA LUNGA - Long/Extra Long Series

Ref.	Dimensione - Dimension (mm)			
6 Taglienti (Z6)	Dc	d	Lc	L
MEH-H4030L-Z4	3.0	3	15	60
MEH-H4040L-Z4	4.0	4	20	80
MEH-H4050L-Z4	5.0	5	25	80
MEH-H6060L	6.0	6	25	80
MEH-H6080L	8.0	8	35	90
MEH-H6100L	10.0	10	45	100
MEH-H6120L	12.0	12	50	100
MEH-H6120LL	12.0	12	70	125
MEH-H6140L	14.0	14	65	150
MEH-H6160L	16.0	16	65	150
MEH-H6160LL	16.0	16	100	165
MEH-H6200L	20.0	20	70	150
MEH-H6200LL	20.0	20	100	165
MEH-H6200LLL	20.0	20	135	200
MEH-H6250L	25.0	25	75	150
MEH-H6250LL	25.0	25	100	165
MEH-H6250LLL	25.0	25	140	200
MEH-H6320LL	32.0	32	100	165
MEH-H6320LLL	32.0	32	150	210

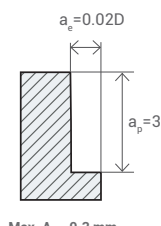
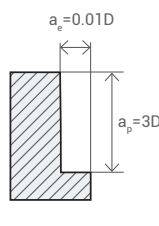
MEH-H Z6

Fresa piatta

Materiale pezzo Workpiece material	Acciaio pretemprato, acciaio bonificato e temprato 40HRC Pre-hardened steel, quenched and tempered steel 40HRC		Acciaio temprato 50-60HRC Hardened steel 50-60HRC		Acciaio temprato 60-65HRC Hardened steel 60-65HRC	
Diametro Ø mm	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)
3	29135	3380	14625	1690	9685	1130
4	22940	2660	11515	1330	7625	890
5	18880	2180	9440	1090	6250	732
6	16000	1850	8000	925	5300	610
8	12000	1850	6000	925	4000	610
10	9600	1850	4800	925	3200	610
12	8000	1920	4000	960	2700	650
14	6800	1600	3400	815	2300	550
16	6000	1440	3000	720	2000	480
18	5300	1270	2700	635	1800	430
20	4800	1150	2400	575	1600	385
25	4250	1025	2120	510	1420	340
Massima profondità di taglio Max. Cutting depth						

MEH-H Z6

Frese piatte lunghe e extralunghe

Materiale pezzo Workpiece material	Acciaio pretemprato, Acciaio temprato 40-50HRC Pre-hardened steel, Hardened steel 40-50HRC		Acciaio temprato 50-60HRC Hardened steel 50-60HRC		Acciaio temprato 60-65HRC Hardened steel 60-65HRC	
Velocità di taglio Cutting Speed	300m/min		150m/min		100m/min	
Diametro Ø mm Diameter Ø mm	Rotante (min ⁻¹) Rotating (min ⁻¹)	Avanzamento (mm/minuto) Feed (mm/minute)	Rotante (min ⁻¹) Rotating (min ⁻¹)	Avanzamento (mm/minuto) Feed (mm/minute)	Rotante (min ⁻¹) Rotating (min ⁻¹)	Avanzamento (mm/minuto) Feed (mm/minute)
3	29135	2380	14625	1190	9685	795
4	22940	1875	11515	935	7625	626
5	18880	1535	9440	770	6250	515
6	16000	1300	8000	650	5300	430
8	12000	1300	6000	650	4000	430
10	9600	1300	4800	650	3200	430
12	8000	1350	4000	670	2700	460
14	6800	1150	3400	570	2300	380
16	6000	1000	3000	500	2000	340
18	5300	890	2700	450	1800	300
20	4800	800	2400	400	1600	270
25	4250	720	2120	360	1420	240
32	3900	680	2000	320	1350	190
Massima profondità di taglio Max. Cutting depth						
						

FRESA Z3/Z4 A SGROSSARE – Serie Normale / Serie Lunga

EN Z3-Z4 SEMI-ROUGHING END MILL | Normal Series /Long Series

FR Z3-Z4 FRAISE CYLINDRIQUE EN BOUT. SEMI-FINITION | Serie Normale/Longue

DE Z3-Z4 SCHRUPPSCHLICHTFRÄSER | Normale/Lange Serien

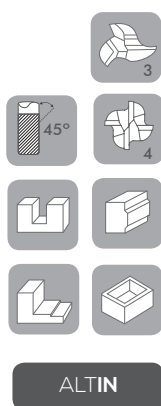
IT Acciaio, acciaio inossidabile, ghisa, rame, titanio fino a 35-45 HRC.

EN Steel, Stainless Steel, Cast Iron, Cooper, Titanium and Hardened Steels up to 35-45 HRC.

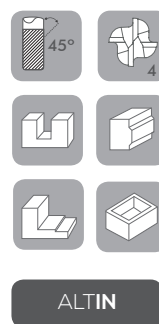
FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane et Acier jusqu'à 35-45 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Gehärteter Stahl 35-45 HRC.

Serie Normale



Serie Lunga



SERIE NORMALE - Normal Series

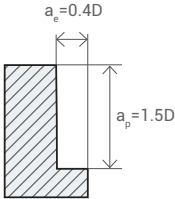
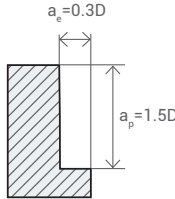
Ref.	Dimensione - Dimension (mm)				
3 Taglienti (Z3)	4 Taglienti (Z4)	Dc	d	Lc	L
MES-BW3060	MES-BW4060	6	6	16	50
MES-BW3080	MES-BW4080	8	8	19	60
	MES-BW4100	10	10	22	75
	MES-BW4120	12	12	26	75
	MES-BW4140	14	14	30	90
	MES-BW4160	16	16	32	100
	MES-BW4200	20	20	38	100

SERIE LUNGA - Long Series

Ref.	Dimensione - Dimension (mm)			
4 Taglienti (Z4)	Dc	d	Lc	L
MES-BW4060L	6	6	25	80
MES-BW4080L	8	8	35	90
MES-BW4100L	10	10	45	100
MES-BW4120L	12	12	50	100
MES-BW4160L	16	16	65	150
MES-BW4200L	20	20	70	150

MES-BW Z3-Z4

Fresa a sgrossare

Materiale pezzo Workpiece material	Ghisa, ghisa sferoidale Cast Iron, Nodular cast iron		Acciaio al carbonio, Acciaio legato -750 Nmm ² Carbon steel, Alloy steel -750Nmm ²		Acciaio al carbonio, Acciaio legato -30 HRC Carbon steel, Alloy steel -30 HRC		Acciaio pretemprato, acciaio bonificato e temprato -40-50HRC Pre-hardened steel, quenched and tempered steel 40-50HRC		Acciaio inossidabile Stainless steel	
Diametro Ø mm	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)	Rotante Rotating (minimo -1)	Avanzamento Feed (mm/minuto)
6	6350	760	5300	640	4500	360	3450	280	2650	210
8	4750	760	4000	640	3400	410	2650	310	2000	240
10	3800	760	3200	640	2400	430	2050	330	1600	260
12	3200	770	2250	650	1950	470	1500	360	1150	280
14	2800	770	2125	650	1825	470	1400	360	1075	280
16	2400	770	2000	640	1700	480	1300	360	1000	280
20	1900	760	1600	610	1350	470	1050	350	800	260
Massima profondità di taglio Max. Cutting depth	 									

FRESA Z2 - SCARICO RIBASSATO - Codolo Ø6 Serie Normale

EN Z2 END MILLS - SHANK Ø6 | Reduced Neck - Normal Series

FR Z2 FRAISE CYLINDRIQUE | Col réduit - Serie Normale

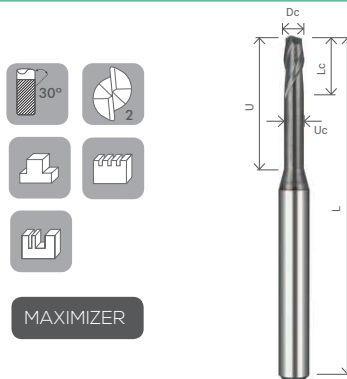
DE Z2 LANGLOCHFRÄSER | Reduzierter Hals - Normale Serien

IT Acciaio, acciaio inossidabile, ghisa, rame, titanio fino a 35-45 HRC.

EN Steel, Stainless Steel, Cast Iron, Cooper, Titanium and Hardened Steels up to 35-45 HRC.

FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane et Acier jusqu'à 35-45 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Gehärteter Stahl 35-45 HRC.



SERIE NORMALE - Normal Series

Ref.	Dimensione - Dimension (mm)					
2 Taglienti (Z2)	Dc	d	U/C	U	Lc	L
MES-H2010-05	1	6	0,95	5	1,5	57
MES-H2010-08	1	6	0,95	8	1,5	57
MES-H2010-10	1	6	0,95	10	1,5	57
MES-H2010-12	1	6	0,95	12	1,5	65
MES-H2010-15	1	6	0,95	15	1,5	65
MES-H2010-20	1	6	0,95	20	1,5	65
MES-H2015-05	1,5	6	1,42	5	2	57
MES-H2015-08	1,5	6	1,42	8	2	57
MES-H2015-10	1,5	6	1,42	10	2	57
MES-H2015-12	1,5	6	1,42	12	2	65
MES-H2015-15	1,5	6	1,42	15	2	65
MES-H2015-20	1,5	6	1,42	20	2	65
MES-H2015-25	1,5	6	1,42	25	2	65
MES-H2020-06	2	6	1,92	6	3	57
MES-H2020-08	2	6	1,92	8	3	57
MES-H2020-10	2	6	1,92	10	3	57
MES-H2020-12	2	6	1,92	12	3	60
MES-H2020-14	2	6	1,92	14	3	65
MES-H2020-16	2	6	1,92	16	3	65
MES-H2020-20	2	6	1,92	20	3	65
MES-H2020-25	2	6	1,92	25	3	65
MES-H2020-30	2	6	1,92	30	3	80
MES-H2020-35	2	6	1,92	35	2	80
MES-H2020-40	2	6	1,92	40	3	80
MES-H2020-50	2	6	1,92	50	3	100
MES-H2025-10	2,5	6	2,4	10	4	57
MES-H2025-16	2,5	6	2,4	16	4	65

SERIE NORMALE - Normal Series

Ref.	Dimensione - Dimension (mm)					
2 Taglienti (Z2)	Dc	d	U/C	U	Lc	L
MES-H2025-20	2,5	6	2,4	20	4	65
MES-H2025-30	2,5	6	2,4	30	4	80
MES-H2025-40	2,5	6	2,4	40	4	80
MES-H2030-09	3	6	2,9	9	5	57
MES-H2030-12	3	6	2,9	12	5	60
MES-H2030-15	3	6	2,9	15	5	65
MES-H2030-20	3	6	2,9	20	5	65
MES-H2030-25	3	6	2,9	25	5	65
MES-H2030-30	3	6	2,9	30	5	80
MES-H2030-35	3	6	2,9	35	5	80
MES-H2030-40	3	6	2,9	40	5	80
MES-H2030-50	3	6	2,9	50	5	100
MES-H2040-10	4	6	3,9	10	6	57
MES-H2040-12	4	6	3,9	12	6	60
MES-H2040-16	4	6	3,9	16	6	65
MES-H2040-20	4	6	3,9	20	6	65
MES-H2040-25	4	6	3,9	25	6	65
MES-H2040-30	4	6	3,9	30	6	80
MES-H2040-35	4	6	3,9	35	6	80
MES-H2040-40	4	6	3,9	40	6	80
MES-H2040-50	4	6	3,9	50	6	100
MES-H2050-12	5	6	4,8	12	7	60
MES-H2050-20	5	6	4,8	20	7	65
MES-H2050-30	5	6	4,8	30	7	80
MES-H2050-40	5	6	4,8	40	7	80
MES-H2050-50	5	6	4,8	50	7	100

FRESA Z4 - SCARICO RIBASSATO - Codolo Ø6 Serie Normale

EN Z4 END MILLS - SHANK Ø6 | Reduced Neck - Normal Series

FR Z4 FRAISE CYLINDRIQUE | Col réduit - Serie Normale

DE Z4 LANGLOCHFRÄSER | Reduzierter Hals - Normale Serien

IT Acciaio, acciaio inossidabile, ghisa, rame, titanio fino a 35-45 HRC.

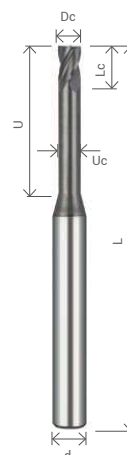
EN Steel, Stainless Steel, Cast Iron, Cooper, Titanium and Hardened Steels up to 35-45 HRC.

FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane et Acier jusqu'à 35-45 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Gehärteter Stahl 35-45 HRC.



MAXIMIZER



SERIE NORMALE - Normal Series

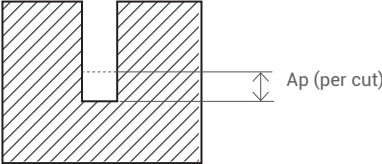
Ref.	Dimensione - Dimension (mm)					
4 Taglienti (Z4)	Dc	d	U/C	U	Lc	L
MES-H4020-06	2	6	1,92	6	3	57
MES-H4020-08	2	6	1,92	8	3	57
MES-H4020-10	2	6	1,92	10	3	57
MES-H4020-12	2	6	1,92	12	3	60
MES-H4020-14	2	6	1,92	14	3	65
MES-H4020-16	2	6	1,92	16	3	65
MES-H4020-20	2	6	1,92	20	3	65
MES-H4020-25	2	6	1,92	25	3	65
MES-H4020-30	2	6	1,92	30	3	80
MES-H4020-35	2	6	1,92	35	2	80
MES-H4020-40	2	6	1,92	40	3	80
MES-H4020-50	2	6	1,92	50	3	100
MES-H4025-10	2,5	6	2,4	10	4	57
MES-H4025-16	2,5	6	2,4	16	4	65
MES-H4025-20	2,5	6	2,4	20	4	65
MES-H4025-30	2,5	6	2,4	30	4	80
MES-H4025-40	2,5	6	2,4	40	4	80
MES-H4030-09	3	6	2,9	9	5	57
MES-H4030-12	3	6	2,9	12	5	60
MES-H4030-15	3	6	2,9	15	5	65

SERIE NORMALE - Normal Series

Ref.	Dimensione - Dimension (mm)					
4 Taglienti (Z4)	Dc	d	U/C	U	Lc	L
MES-H4030-20	3	6	2,9	20	5	65
MES-H4030-25	3	6	2,9	25	5	65
MES-H4030-30	3	6	2,9	30	5	80
MES-H4030-35	3	6	2,9	35	5	80
MES-H4030-40	3	6	2,9	40	5	80
MES-H4030-50	3	6	2,9	50	5	100
MES-H4040-10	4	6	3,9	10	6	57
MES-H4040-12	4	6	3,9	12	6	60
MES-H4040-16	4	6	3,9	16	6	65
MES-H4040-20	4	6	3,9	20	6	65
MES-H4040-25	4	6	3,9	25	6	65
MES-H4040-30	4	6	3,9	30	6	80
MES-H4040-35	4	6	3,9	35	6	80
MES-H4040-40	4	6	3,9	40	6	80
MES-H4040-50	4	6	3,9	50	6	100
MES-H4050-12	5	6	4,8	12	7	60
MES-H4050-20	5	6	4,8	20	7	65
MES-H4050-30	5	6	4,8	30	7	80
MES-H4050-40	5	6	4,8	40	7	80
MES-H4050-50	5	6	4,8	50	7	100

MES-H Ø6

Microfresa piatta

Materiale pezzo Workpiece material		Acciaio pretemprato, Acciaio temprato -40HRC Pre-hardened steel, Hardened steel -40HRC			Acciaio temprato 40-56HRC Hardened steel 40-56HRC		
Diametro Ø mm Diameter Ø mm	Lunghezza effettiva (mm) Effective length(mm)	Avanzamento (mm/minuto) Feed (mm/minute)	Rotante (minimo -1) Rotating (minimum -1)	Ap (mm)	Avanzamento (mm/minuto) Feed (mm/minute)	Rotante (minimo -1) Rotating (minimum -1)	Ap (mm)
1.0	5	17000	400	0.03	12000	100	0.014
	12	12000	150	0.01	10000	50	0.008
1.5	5	12000	400	0.06	8000	200	0.028
	12	10000	300	0.025	7000	100	0.01
2.0	10	7000	300	0.10	6000	200	0.05
	16	7000	200	0.02	6000	100	0.008
3.0	10	7000	400	0.12	5000	300	0.06
	16	6000	300	0.06	5000	200	0.03
4.0	12	4500	400	0.16	4000	300	0.08
	20	4500	300	0.10	4000	300	0.04
Massima profondità di taglio Max. Cutting depth							

MICROFRESA Z2 - Codolo Ø4

EN Z2 MICRO END MILLS | SHANK Ø4 | Normal Series

FR Z2 MICROFRAISE CYLINDRIQUE | Serie Normale

DE Z2 MIKROLANGLOCHFRÄSER | Normale Serien

IT Acciaio, acciaio inossidabile, ghisa, rame, titanio fino a 35-45 HRC.

EN Steel, Stainless Steel, Cast Iron, Cooper, Titanium and Hardened Steels up to 35-45 HRC.

FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane et Acier jusqu'à 35-45 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Gehärteter Stahl 35-45 HRC.

Serie Normale

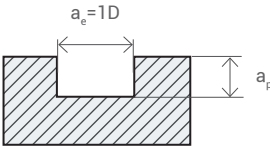
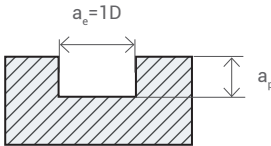


SERIE NORMALE- Normal Series

Ref.	Dimensione - Dimension (mm)			
2 Taglienti (Z2)	Dc	d	Lc	L
MES-M2002	0,2	4	0,4	50
MES-M2003	0,3	4	0,6	50
MES-M2004	0,4	4	0,8	50
MES-M2005	0,5	4	1	50
MES-M2006	0,6	4	1,2	50
MES-M2007	0,7	4	1,4	50
MES-M2008	0,8	4	1,6	50
MES-M2009	0,9	4	1,8	50

MES-M

Microfresa

Materiale pezzo Workpiece material	Acciaio pretemprato, Acciaio temprato -40HRC Pre-hardened steel, Hardened steel -40HRC		Acciaio temprato 40-56HRC Hardened steel 40-56HRC	
Diametro Ø mm Diameter Ø mm	Rotante (minimo -1) Rotating (minimum -1)	Avanzamento (mm/minuto) Feed (mm/minute)	Rotante (minimo -1) Rotating (minimum -1)	Avanzamento (mm/minuto) Feed (mm/minute)
0.2	32.000	150	25000	120
0.3	32.000	150	25000	120
0.4	32000	200	25000	160
0.5	21000	400	17000	300
0.6	21000	480	17000	380
0.7	20000	520	14000	360
0.8	20000	560	14000	400
0.9	17000	560	12000	400
Massima profondità di taglio Max. Cutting depth				

MICROFRESA Z2 - Scarico Ribassato Codolo Ø4

EN Z2 MICRO END MILLS | SHANK Ø4 | Reduced neck

FR Z2 MICROFRAISE CYLINDRIQUE | Col réduit

DE Z2 MIKROLANGLOCHFRÄSER | Reduzierter Hals

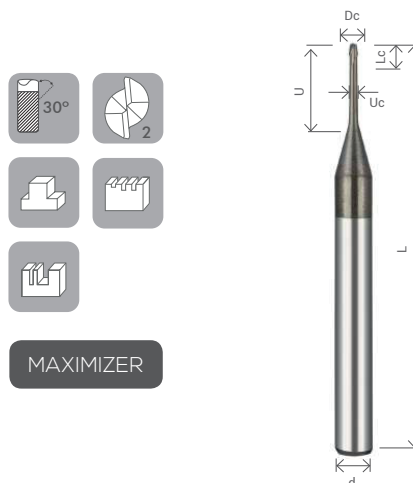
IT Acciaio, acciaio inossidabile, ghisa, rame, titanio fino a 35-45 HRC.

EN Steel, Stainless Steel, Cast Iron, Cooper, Titanium and Hardened Steels up to 35-45 HRC.

FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane et Acier jusqu'à 35-45 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Gehärteter Stahl 35-45 HRC.

Scarico ribassato



SCARICO RIBASSATO - Reduced Neck

Ref.	Dimensione - Dimension (mm)					
2 Taglienti (Z2)	Dc	d	U/C	U	Lc	L
MEM-H2005-04	0,5	4	0,48	4	0,7	50
MEM-H2005-06	0,5	4	0,48	6	0,7	50
MEM-H2006-04	0,6	4	0,57	4	0,9	50
MEM-H2006-06	0,6	4	0,57	6	0,9	50
MEM-H2006-08	0,6	4	0,57	8	0,9	50
MEM-H2008-06	0,8	4	0,76	6	1,2	50
MEM-H2008-08	0,8	4	0,76	8	1,2	50
MEM-H2008-10	0,8	4	0,76	10	1,2	50
MEM-H2012-06	1,2	4	1,15	6	1,8	50
MEM-H2012-08	1,2	4	1,15	8	1,8	50
MEM-H2012-10	1,2	4	1,15	10	1,8	50

MEM-H

Microfresa piatta

Materiale pezzo Workpiece material		Acciaio pretemprato, Acciaio temprato -40HRC Pre-hardened steel, Hardened steel -40HRC		Acciaio temprato 50-60HRC Hardened steel 50-60HRC	
Diametro Ø mm Diameter Ø mm	Lunghezza effettiva (mm) Effective length(mm)	Avanzamento (mm/minuto) Feed (mm/minute)	Rotante (minimo -1) Rotating (minimum -1)	Avanzamento (mm/minuto) Feed (mm/minute)	Rotante (minimo -1) Rotating (minimum -1)
0.5	4	150	28.000	100	25.000
	6	100	22.000	75	20.000
0.6	4	150	28.000	100	25.000
	6	100	22.000	75	20.000
	8	75	22.000	75	18.000
0.8	6	200	26.000	150	21.000
	8	125	22.000	100	18.000
	10	75	22.000	75	18.000
1.2	6	400	22.000	300	17.000
	8	300	19.000	200	14.000
	10	300	19.000	200	14.000
Massima profondità di taglio Max. Cutting depth		