

## FRESA DE 2 LABIOS PARA ACEROS DE TEMPLE EXTREMO 70HRC



Ref. FMG01

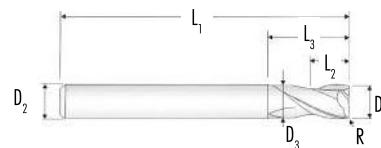
MD



30° CILÍNDRICO

BLUE

2 Z

Micro Grano  
MD

## REVOLUCIONES Y AVANCES

	50-55 HRc		55-60 HRc		60-65 HRc		65-70 HRc	
R.P.M. rev./min.	AVANCE mm/min	R.P.M. rev./min.	AVANCE mm/min	R.P.M. rev./min.	AVANCE mm/min	R.P.M. rev./min.	AVANCE mm/min	
25.500	360	20.500	215	16.000	135	12.500	88	
21.500	390	17.500	240	13.500	150	11.000	102	
11.500	420	9.500	260	7.500	160	6.400	115	
10.150	430	8.350	270	6.550	165	5.575	118	
8.800	440	7.200	270	5.600	170	4.750	118	
8.550	470	6.800	280	5.350	175	4.600	125	
6.900	480	5.300	280	4.200	180	3.700	130	
4.100	415	3.200	240	2.550	155	2.200	112	
3.500	415	2.650	240	2.100	155	1.860	112	
2.600	365	2.000	210	1.600	135	1.400	98	
2.050	335	1.600	295	1.300	125	1.100	88	

	TOL Especial	TOL h6	FMG01						
			D1 mm	D2 mm	D3 mm	L1 mm	L2 mm	L3 mm	R
FMG010100		1,0	3	-	40	1,5	-	0,1	17,54*
FMG010150		1,5	3	-	40	2,2	-	0,1	17,54*
FMG010300		3,0	6	2,9	45	4,0	7	0,1	23,24*
FMG010350		3,5	6	3,3	45	5,0	9	0,1	23,24*
FMG010400		4,0	6	3,8	45	5,0	9	0,1	23,24*
FMG010450		4,5	6	4,3	45	6,0	10	0,1	23,24*
FMG010600		6,0	6	5,8	50	7,0	14	0,2	23,24*
FMG011000		10,0	10	9,7	75	12,0	25	0,2	43,92*
FMG011200		12,0	12	11,7	75	15,0	30	0,3	60,56*
FMG011600		16,0	16	15,7	90	18,0	38	0,3	100,97*
FMG012000		20,0	20	19,7	100	24,0	45	0,3	133,56*

\*Hasta fin de existencias



## FRESA DE 4 LABIOS PARA ACEROS DE TEMPLE EXTREMO 70HRC



Ref. FMG04

MD



30° CILÍNDRICO

BLUE

4 Z

Micro Grano  
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## REVOLUCIONES Y AVANCES

	50-55 HRc		55-60 HRc		60-65 HRc		65-70 HRc	
R.P.M. rev./min.	AVANCE mm/min	R.P.M. rev./min.	AVANCE mm/min	R.P.M. rev./min.	AVANCE mm/min	R.P.M. rev./min.	AVANCE mm/min	
25.500	710	20.500	430	16.000	270	12.500	175	
21.500	775	17.500	475	13.500	295	11.000	200	
17.500	840	14.500	520	11.000	320	9.500	230	
11.500	840	9.500	520	7.500	320	6.400	230	
10.150	860	8.350	530	6.550	328	5.575	240	
8.800	880	7.200	540	5.600	335	4.750	240	
8.550	940	6.800	560	5.350	353	4.600	255	
6.900	950	5.300	560	4.200	350	3.700	260	
4.100	840	3.200	480	2.550	310	2.200	220	
3.500	840	2.650	480	2.100	300	1.860	220	
2.600	730	2.000	420	1.600	270	1.400	200	
2.050	650	1.600	380	1.300	250	1.100	180	

	TOL Especial	TOL h6	FMG04						
			D1 mm	D2 mm	D3 mm	L1 mm	L2 mm	L3 mm	R
FMG040100		1,0	3	-	40	1,5	-	0,1	17,54*
FMG040150		1,5	3	-	40	2,2	-	0,1	17,54*
FMG040200		2,0	3	1,9	40	3,0	6	0,1	15,91*
FMG040300		3,0	6	2,9	45	4,0	7	0,1	23,24*
FMG040350		3,5	6	3,3	45	5,0	9	0,1	23,24*
FMG040400		4,0	6	3,8	45	5,0	9	0,1	23,24*
FMG040450		4,5	6	4,3	45	6,0	10	0,1	23,24*
FMG040600		6,0	6	5,8	50	7,0	14	0,2	23,24*
FMG041000		10,0	10	9,7	75	12,0	25	0,2	43,92*
FMG041200		12,0	12	11,7	75	15,0	30	0,3	60,56*
FMG041600		16,0	16	15,7	90	18,0	38	0,3	100,97*
FMG042000		20,0	20	19,7	100	24,0	45	0,3	133,56*



\*Hasta fin de existencias

## FRESA DE 2 LABIOS SEMIESFÉRICA PARA ACEROS DE TEMPLE EXTREMO 70HRC



Ref. FMG02

MD

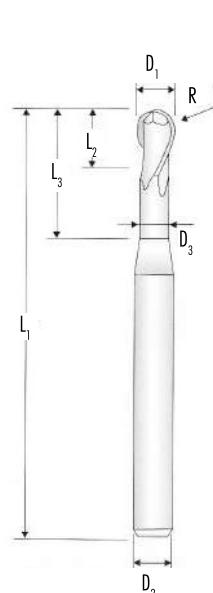


30°



BLUE

2 Z

Micro Grano  
MD

## SERIE CORTA

## REVOLUCIONES Y AVANCES

	50-55 HRc		55-60 HRc		60-65 HRc		65-70 HRc	
R.P.M. rev./min.	AVANCE mm/min	R.P.M. rev./min.	AVANCE mm/min	R.P.M. rev./min.	AVANCE mm/min	R.P.M. rev./min.	AVANCE mm/min	
57.000	4.000	54.000	3.400	51.000	2.700	48.000	2.300	
48.500	4.000	44.500	3.275	41.500	2.750	38.250	2.300	
40.000	4.000	35.000	3.150	32.000	2.800	28.500	2.300	
26.500	4.000	23.500	3.150	21.000	2.800	19.000	2.300	
15.000	3.750	13.500	3.050	11.500	2.550	10.500	2.100	
11.000	3.100	10.000	2.500	8.800	2.150	8.000	1.750	
9.000	2.700	8.000	2.150	7.000	1.850	6.500	1.550	
7.500	2.400	6.600	1.900	5.800	1.650	5.300	1.380	
5.600	1.900	5.000	1.550	4.400	1.250	4.000	1.050	
5.000	1.800	4.500	1.450	3.950	1.125	3.600	950	
4.000	1.600	3.600	1.275	3.150	900	2.875	750	
3.600	1.500	3.200	1.200	2.800	800	2.550	660	
-	-	-	-	-	-	-	-	

	TOL Especial	TOL h6	FMG02						€	
			D1 mm	D2 mm	D3 mm	L1 mm	L2 mm	L3 mm		
FMG020100			1,0	4	0,95	50	1,0	2,2	0,5	28,92*
FMG020150			1,5	4	1,40	50	1,5	3,0	0,8	28,92*
FMG020200			2,0	4	1,90	50	2,0	4,0	1,0	27,46*
FMG020300			3,0	6	2,90	60	3,0	6,0	1,5	27,46*
FMG020500			5,0	6	4,90	80	5,0	10,0	2,5	29,55*
FMG020600			6,0	6	5,90	90	6,0	12,0	3,0	31,69*
FMG020800			8,0	8	7,90	100	8,0	16,0	4,0	49,45*
FMG021000			10,0	10	9,90	100	10,0	20,0	5,0	81,55*
FMG021200			12,0	12	11,90	110	12,0	24,0	6,0	104,68*
FMG021400			14,0	14	13,80	110	14,0	28,0	7,0	105,90*
FMG021800			18,0	18	17,80	140	18,0	36,0	9,0	150,96*
FMG022000			20,0	20	19,80	160	20,0	40,0	10,0	213,94*
FMG022500			25,0	25	24,80	180	25,0	50,0	12,5	346,80*

\*Hasta fin de existencias

## TOLERANCIAS SEGÚN DIN 7160 y 7161

Gama de tolerancias µm / Diámetro nominal en mm					
	de 1 a 3	de 3 a 6	de 6 a 10	de 10 a 18	de 18 a 30
TOL Especial	0 - 12	0 - 12	0 - 15	0 - 15	0 - 15
TOL h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13
TOL R	0 - 5	0 - 10	0 - 10	0 - 10	0 - 10

## FRESAS DE 6 LABIOS PARA ACEROS DE TEMPLE EXTREMO 70HRc



Ref. FMG06

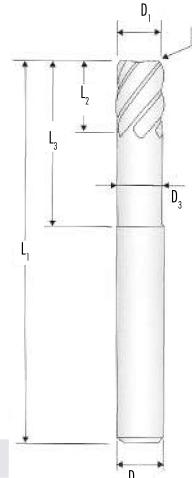
MD



CILÍNDRICO

BLUE

6 Z

Micro Grano  
MD

SERIE CORTA

## REVOLUCIONES Y AVANCES

50-55 HRc		55-60 HRc		60-65 HRc		65-70 HRc	
R.P.M. rev./min.	AVANCE 1 mm/min						
12.000	4.600	10.000	3.100	8.000	2.000	6.000	1.400
9.500	4.100	8.000	2.900	6.400	1.800	4.800	1.300
8.000	3.800	6.600	2.500	5.300	1.600	4.000	1.150

	TOL Especial	TOL h6						TOL R	€
	D1 mm	D2 mm	D3 mm	L1 mm	L2 mm	L3 mm			
FMG060800	8,0	8	7,65	60	8	24	0,5	39,65*	
FMG061000	10,0	10	9,65	70	10	30	1,0	61,85*	
FMG061200	12,0	12	11,60	75	12	30	1,0	73,88*	

\*Hasta fin de existencias

## REVOLUCIONES Y AVANCES

50-55 HRc		55-60 HRc		60-65 HRc		65-70 HRc	
R.P.M. rev./min.	AVANCE 1 mm/min						
16.000	4.900	13.500	3.300	10.500	2.100	8.000	1.450
12.000	4.600	10.000	3.100	8.000	2.000	6.000	1.400
9.500	4.100	8.000	2.900	6.400	1.800	4.800	1.300
8.000	3.800	6.600	2.500	5.300	1.600	4.000	1.150
8.000	3.800	6.600	2.500	5.300	1.600	4.000	1.150
6.000	3.400	5.000	2.300	4.000	1.250	3.000	870
6.000	3.400	5.000	2.300	4.000	1.250	3.000	870
4.800	3.200	4.000	2.100	3.200	1.020	2.400	690
4.800	3.200	4.000	2.100	3.200	1.020	2.400	690
4.800	3.200	4.000	2.100	3.200	1.020	2.400	690

## SERIE LARGA

	TOL Especial	TOL h6						TOL R	€
	D1 mm	D2 mm	L1 mm	L2 mm	R				
FMG070600	6,0	6	70	13	0,5	37,77*			
FMG070800	8,0	8	90	19	0,5	47,34*			
FMG071000	10,0	10	100	22	0,5	71,32*			
FMG071200	12,0	12	110	26	0,5	97,28*			
FMG071201	12,0	12	110	26	1,0	108,95*			
FMG071600	16,0	16	130	32	1,0	131,24*			
FMG071601	16,0	16	130	32	1,5	143,33*			
FMG072000	20,0	20	140	38	1,0	192,06*			
FMG072001	20,0	20	140	38	1,5	209,81*			
FMG072002	20,0	20	140	38	2,0	209,81*			

\*Hasta fin de existencias

## TOLERANCIAS SEGÚN DIN 7160 y 7161

TOL Especial	Gama de tolerancias µm / Diámetro nominal en mm				
	de 1 a 3	de 3 a 6	de 6 a 10	de 10 a 18	de 18 a 30
0 - 12	0 - 12	0 - 15	0 - 15	0 - 15	0 - 15
0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 13

**FRESAS PARA ACEROS DE TEMPLE EXTREMO 70HRC,  
TECNOLOGÍA DE MICROFRESADO PIEZAS DE PRECISIÓN**



Ref. FMG09

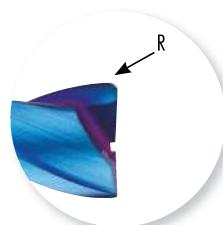
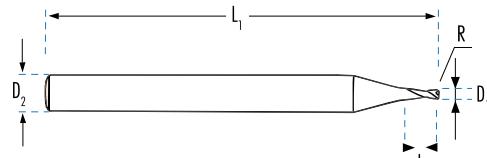
MD



CILÍNDRICO

BLUE

2 Z

TOL D1  
-0,012TOL D2  
h6Micro Grano  
MD

FMG09

	D <sub>1</sub> mm	D <sub>2</sub> mm	L <sub>1</sub> mm	L <sub>2</sub> mm	R	€
FMG090040	0,40	6	50	0,60	-	63,50*
FMG090050	0,50	6	50	0,70	0,05	55,24*
FMG090060	0,60	6	50	0,90	0,05	53,14*
FMG090080	0,80	6	50	1,20	0,05	48,97*
FMG090100	1,00	6	50	1,50	0,10	46,93*
FMG090120	1,20	6	50	1,80	0,10	46,93*
FMG090150	1,50	6	50	2,20	0,15	46,93*
FMG090200	2,00	6	50	2,20	0,15	42,53*

\*Hasta fin de existencias



Ref. FMG08

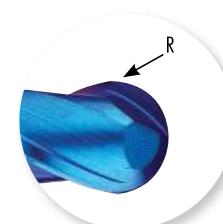
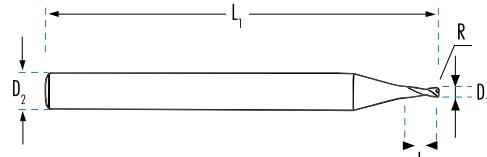
MD



CILÍNDRICO

BLUE

2 Z

TOL D1  
-0,012TOL D2  
h6Micro Grano  
MD

FMG08

	D <sub>1</sub> mm	D <sub>2</sub> mm	L <sub>1</sub> mm	L <sub>2</sub> mm	R	€
FMG080040	0,40	6	50	0,40	0,20	68,68*
FMG080050	0,50	6	50	0,50	0,25	63,40*
FMG080060	0,60	6	50	0,60	0,30	58,13*
FMG080080	0,80	6	50	0,80	0,40	47,41*
FMG080100	1,00	6	50	1,00	0,50	44,64*
FMG080120	1,20	6	50	1,20	0,60	44,64*
FMG080150	1,50	6	50	1,50	0,75	44,64*
FMG080200	2,00	6	50	2,00	1,00	40,45*

\*Hasta fin de existencias