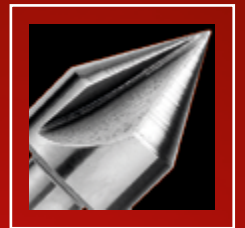
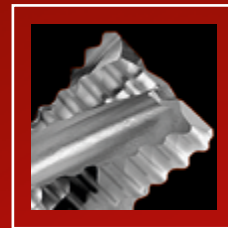
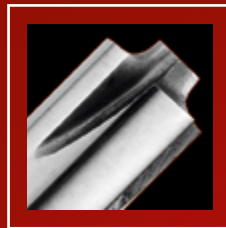
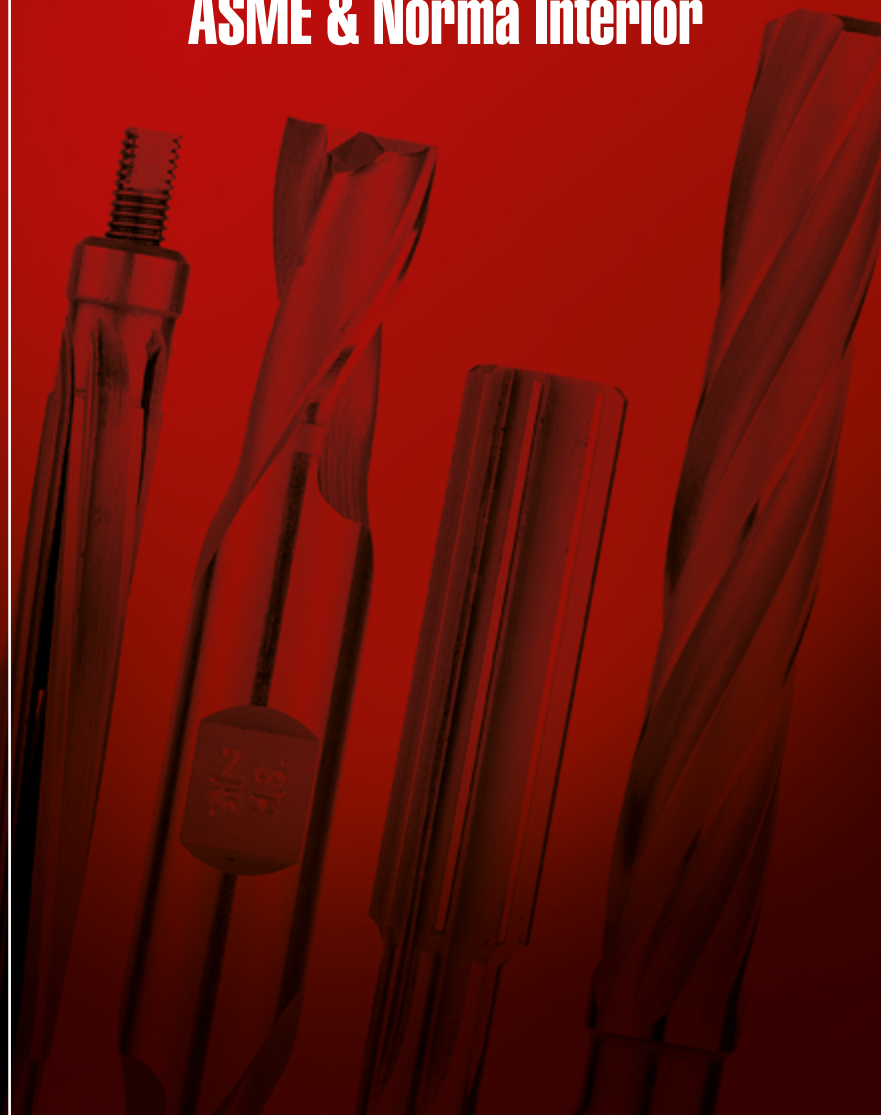
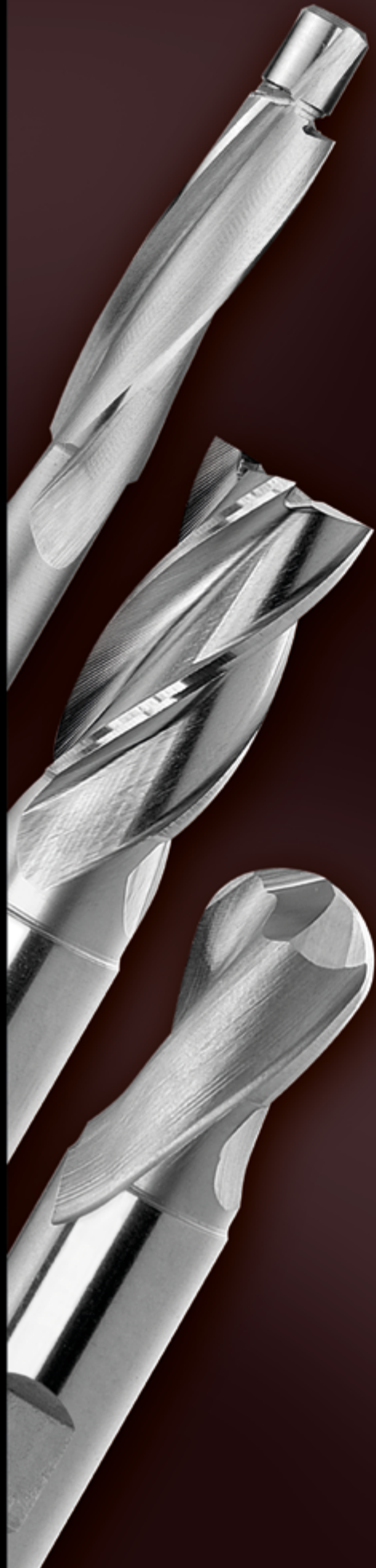


[www.fenes.com.pl](http://www.fenes.com.pl)



**Catalogue of products  
acc. to ASME & Internal Standards**

**Catálogo de herramientas según  
ASME & Norma Interior**



**TYPE OF TOOL • TIPO DE HERRAMIENTA**

<b>END MILLS ACC. TO ASME • FRESAS (CORTADORES) VERTICALES SEGÚN ASME</b>	<b>standard acc. to ASME</b>	<b>norma según FENES S.A.</b>	<b>P.</b>
End mills single end with Weldon shank Fresas verticales, punta sencilla con mango Weldon	ASME B94.19-1997	AFAa	4-5
End mills single end long flute with Weldon shank Fresas verticales, punta sencilla, filo largo con mango Weldon	ASME B94.19-1997	AFAb	6
End mills 4 flute double end with Weldon shank Fresas verticales, 4 filos, punta doble con mango Weldon	ASME B94.19-1997	AFAc	7
End mills single end extra long flute with Weldon shank Fresas verticales, punta sencilla, filo largo con mango Weldon	ASME B94.19-1997	AFAd	8
End mills heavy duty 3 flutes with twin drive shank Fresas verticales de gran potencia, 3 filos con mango de arrastre doble	ASME B94.19-1997	AFGh	9
End mills heavy duty 4 flutes with twin drive shank Fresas verticales de gran potencia, 4 filos con mango de arrastre doble	ASME B94.19-1997	AFAf	10
End mills heavy duty 6 flutes with twin drive shank Fresas verticales de gran potencia, 6 filos con mango de arrastre doble	ASME B94.19-1997	AFAk	11
End mills 2 flute single end with Weldon shank Fresas verticales, 2 filos, punta sencilla con mango Weldon	ASME B94.19-1997	AFGa	12-13
End mills 2 long flute single end with Weldon shank Fresas verticales, 2 filos largos, punta sencilla con mango Weldon	ASME B94.19-1997	AFGm	14
End mills 2 flute single end extended length with Weldon shank Fresas verticales, 2 filos, punta sencilla y longitud larga con mango Weldon	ASME B94.19-1997	AFGd	15
End mills 2 flute double end with Weldon shank Fresas verticales, 2 filos, punta doble con mango Weldon	ANS B94.19-1985	AFGb	16
Ball end mills 2 flute single end with Weldon shank Fresas de bola, 2 filos, punta sencilla con mango Weldon	ASME B94.19-1997	AFGp	17
Ball end mills 2 flute double end with Weldon shank Fresas de bola, 2 filos, punta doble con mango Weldon	ASME B94.19-1997	AFGr	18
Ball end mills multi flute single end with Weldon shank Fresas de bola, filos múltiples, punta sencilla con mango Weldon	ASME B94.19-1997	AFAr	19
Corner rounding end mills with Weldon shank Fresas de radios verticales con mango Weldon	ASME B94.19-1997	AFFd	20
End mills metric size single end with Weldon shank Fresas verticales métricas, punta sencilla con mango Weldon		AFA s	21
End mills metric size 2 flute single end with Weldon shank Fresas verticales métricas, 2 filos, punta sencilla con mango Weldon		AFG s	22
Roughing end mills single end with Weldon shank Fresas verticales de desbaste, punta sencilla con mango Weldon		AFAa NR	23

**GEAR CUTTERS • FRESAS (CORTADORES) CIRCULARES PARA ENGRANAJES**

Gear cutters - diametral pitch Fresas (cortadores) circulares para engranajes	ASME B94.19-1997	AFFn	24-25
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**REAMERS & DRILLS ACC. TO ASME • RIMAS & BROCAS SEGÚN ASME**

Chucking reamers straight flutes with straight shank - fractional sizes Rimas para máquina filo recto con mango recto - medidas fraccionales	ASME B94.2-1995	ARDa	26-27
Chucking reamers straight flutes with straight shank - letter sizes A÷Z Rimas para máquina filo recto con mango recto - medidas alfabéticas A÷Z	ASME B94.2-1995	ARDa	28

**TYPE OF TOOL • TIPO DE HERRAMIENTA**

<b>REAMERS &amp; DRILLS ACC. TO ASME • RIMAS &amp; BROCAS SEGÚN ASME</b>	<b>standard acc. to ASME</b>	<b>norma según FENES S.A.</b>	<b>P.</b>
Chucking reamers straight flutes with straight shank - wire gage sizes no. 1÷32 Rimas para máquina, filo recto con mango recto – medidas numéricas 1÷32	ASME B94.2-1995	ARDa	29
Chucking reamers straight flutes with straight shank - decimal sizes Rimas para máquina, filo recto con mango recto – medidas decimales	ASME B94.2-1995	ARDa	30-31
Chucking reamers helical flutes with straight shank Rimas para máquina, filo espiral con mango recto	ASME B94.2-1995	ARDp	32-33
Chucking reamers with Morse taper shank Rimas para máquina con mango cónico	ASME B94.2-1995	ARCa, ARCb	34-35
Jobber reamers with Morse taper shank Rimas de trabajo “Jobber” con mango cónico	ASME B94.2-1995	ARCc	36
Bridge reamers 5 flutes with Morse taper shank Rimas tipo puente “Bridge” con mango cónico	ASME B94.2-1995	ARAAa, ARAB	37
Taper car reamers 5 flutes with Morse taper shank Rimas cónicas automotrices, 5 filos con mango cónico	ASME B94.2-1995	ARAE	38
Taper car reamers 5 flutes with straight (3-equal-flat) shank Rimas cónicas automotrices, 5 filos con mango de 3 chaflanes iguales	ASME B94.2-1995	ARAF	39
Taper car reamers 5 flutes with hexagonal shank Rimas cónicas automotrices, 5 filos con mango hexagonal	ASME B94.2-1995	ARAg	40
Hand reamers Rimas de mano	ASME B94.2-1995	ARHa, ARHb	41-42
ExpASMEon hand reamers Rimas manuales de expASMEón	ASME B94.2-1995	ARZf, ARZg	43
Taper pipe reamers included taper ¾ In/Ft Rimas cónicas para tubo	ASME B94.2-1995	ARTa, ARTb	44
Taper pin reamers Rimas cónicas	ASME B94.2-1995	ARKa, ARKb	45
ExpASMEon chucking reamers Rimas de expASMEón para máquinas		ARZa, ARZc	46-47
Core drills long 4 flutes with Morse taper shank Rimas “Core drills”, 4 filos con mango cónico	ASME B94.11M-1993	ARBb	48-49
Core drills long 4 flutes with straight shank Rimas “Core drills”, 4 filos con mango recto	ASME B94.11M-1993	ARBd	50

**COUNTERSINKS & COUNTERBORES • AVELLANADORES & BROCALADORES**

Capscrew counterbores 3 flute - inch and metric sizes Brocaladores, broca piloto para caja de tornillo “Allen” – medidas fraccionales y métricas		AWCe, AWCf AWCg	51
Capscrew counterbores 2 flute with straight shank Brocaladores, 2 filos con mango recto		AWCa, AWCb	52
Center countersinks 3 flute Avellanadores de 3 filos		AWSc	53

**TECHNICAL INFORMATION • INFORMACIÓN TÉCNICA**

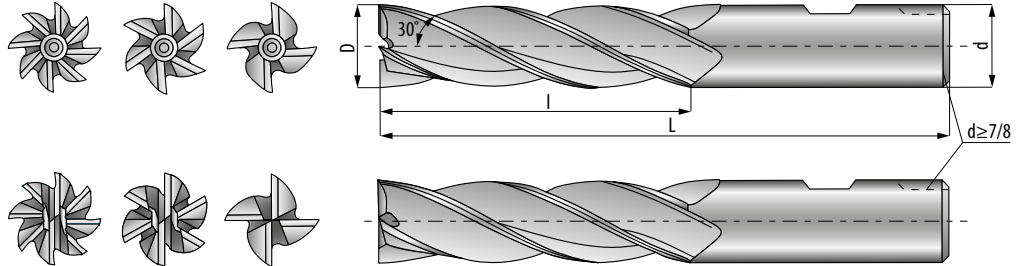
Table for changing inches into millimetres Tabla para el cambio de pulgadas a milímetros			54
Tolerances for standard end mills Tolerancias para fresas estándar			55

**End mills single end with Weldon shank**

**Fresas verticales, punta sencilla con mango Weldon**

- Multiple flute / Filo múltiple
- Single end / Punta sencilla
- Right hand cut / Corte a la derecha
- Center cutting / Corte al centro
- Regular length / Longitud regular

AFAa HSS HSS-E



D	d	l	L	No. of flutes No. de filos	Code No. AFAa	Code No. AFAa-CC	
					HSS 0641-513-...	HSS 0641-513-...	HSS-E 0641-513-...
1/8	3/8	3/8	2.5/16	4	...200-005	...201-005	...201-505
5/32	3/8	3/8	2.5/16	4	...200-010	...201-010	...201-510
3/16	3/8	1/2	2.3/8	4	...200-015	...201-015	...201-515
7/32	3/8	5/8	2.7/16	4	...200-020	...201-020	...201-520
1/4	3/8	5/8	2.7/16	4	...200-025	...201-025	...201-525
9/32	3/8	3/4	2.1/2	4	...200-030	...201-030	...201-530
5/16	3/8	3/4	2.1/2	4	...200-035	...201-035	...201-535
11/32	3/8	3/4	2.1/2	4	...200-040	...201-040	...201-540
3/8	3/8	3/4	2.1/2	4	...200-045	...201-045	...201-545
13/32	3/8	1	2.11/16	4	...200-050	...201-050	...201-550
7/16	3/8	1	2.11/16	4	...200-055	...201-055	...201-555
15/32	3/8	1	2.11/16	4	...200-060	...201-060	...201-560
1/2	3/8	1	2.11/16	4	...200-065	...201-065	...201-565
1/2	1/2	1.1/4	3.1/4	4	...200-070	...201-070	...201-570
9/16	1/2	1.3/8	3.3/8	4	...200-080	...201-080	...201-580
5/8	1/2	1.3/8	3.3/8	4	...200-085	...201-085	...201-585
11/16	1/2	1.5/8	3.5/8	4	...200-090	...201-090	...201-590
3/4	1/2	1.5/8	3.5/8	4	...200-095	...201-095	...201-595
13/16	1/2	1.7/8	4	4	...200-100	...201-100	...201-600
7/8	1/2	1.7/8	4	4	...200-105	...201-105	...201-605
7/8	1/2	1.7/8	4	6	...200-110	...201-110	...201-610
15/16	1/2	1.7/8	4	6	...200-115	...201-115	...201-615
1	1/2	1.7/8	4	4	...200-120	...201-120	...201-620
1	1/2	1.7/8	4	6	...200-125	...201-125	...201-625
5/8	5/8	1.5/8	3.3/4	4	...200-130	...201-130	...201-630
11/16	5/8	1.5/8	3.3/4	4	...200-135	...201-135	...201-635
3/4	5/8	1.5/8	3.3/4	4	...200-140	...201-140	...201-640
13/16	5/8	1.7/8	4	4	...200-145	...201-145	...201-645
13/16	5/8	1.7/8	4	6	...200-150	...201-150	...201-650
7/8	5/8	1.7/8	4	6	...200-155	...201-155	...201-655
15/16	5/8	1.7/8	4	6	...200-160	...201-160	...201-660
1	5/8	1.7/8	4	4	...200-165	...201-165	...201-665





D	d	l	L	No. of flutes No. de filos	Code No. AFAa	Code No. AFAa-CC	
					HSS 0641-513-...	HSS 0641-513-...	HSS-E 0641-513-...
1	5/8	1.7/8	4	6	...200-170	...201-170	...201-670
3/4	3/4	1.5/8	3.3/4	4	...200-175	...201-175	...201-675
3/4	3/4	1.5/8	3.3/4	6	...200-180	...201-180	...201-680
13/16	3/4	1.7/8	4.1/8	4	...200-185	...201-185	...201-685
13/16	3/4	1.7/8	4.1/8	6	...200-187	...201-187	...201-687
7/8	3/4	1.7/8	4.1/8	4	...200-190	...201-190	...201-690
7/8	3/4	1.7/8	4.1/8	6	...200-195	...201-195	...201-695
15/16	3/4	1.7/8	4.1/8	4	...200-200	...201-200	...201-700
1	3/4	1.7/8	4.1/8	4	...200-205	...201-205	...201-705
1	3/4	1.7/8	4.1/8	6	...200-210	...201-210	...201-710
1.1/16	3/4	2	4.1/4	4	...200-215	...201-215	...201-715
1.1/16	3/4	2	4.1/4	6	...200-220	...201-220	...201-720
1.1/8	3/4	2	4.1/4	6	...200-225	...201-225	...201-725
1.3/16	3/4	2	4.1/4	6	...200-230	...201-230	...201-730
1.1/4	3/4	2	4.1/4	6	...200-235	...201-235	...201-735
1.5/16	3/4	2	4.1/2	6	...200-240	...201-240	...201-740
1.3/8	3/4	2	4.1/2	6	...200-245	...201-245	...201-745
1.7/16	3/4	2	4.1/2	6	...200-250	...201-250	...201-750
1.1/2	3/4	2	4.1/2	6	...200-255	...201-255	...201-755
1.5/8	3/4	2	4.1/2	6	...200-260	...201-260	...201-760
1.3/4	3/4	2	4.1/2	6	...200-265	...201-265	...201-765
1.7/8	3/4	2	4.1/2	6	...200-252	...201-267	...201-767
2	3/4	2	4.1/2	8	...200-270	...201-270	...201-770
7/8	7/8	1.7/8	4.1/8	4	...200-275	...201-275	...201-775
15/16	7/8	1.7/8	4.1/8	4	...200-280	...201-280	...201-780
1	7/8	1.7/8	4.1/8	4	...200-285	...201-285	...201-785
1.1/8	7/8	2	4.1/4	6	...200-290	...201-290	...201-790
1.1/4	7/8	2	4.1/4	4	...200-295	...201-295	...201-795
1.1/4	7/8	2	4.1/4	6	...200-300	...201-300	...201-800
1	1	2	4.1/2	4	...200-305	...201-305	...201-805
1	1	2	4.1/2	6	...200-310	...201-310	...201-810
1.1/8	1	2	4.1/2	6	...200-315	...201-315	...201-815
1.1/4	1	2	4.1/2	6	...200-320	...201-320	...201-820
1.3/8	1	2	4.1/2	6	...200-325	...201-325	...201-825
1.1/2	1	2	4.1/2	4	...200-330	...201-330	...201-830
1.1/2	1	2	4.1/2	6	...200-335	...201-335	...201-835
1.1/4	1.1/4	2	4.1/2	6	...200-340	...201-340	...201-840
1.1/4	1.1/4	2	4.1/2	4	...200-345	...201-345	...201-845
1.3/8	1.1/4	2	4.1/2	6	...200-350	...201-350	...201-850
1.1/2	1.1/4	2	4.1/2	4	...200-355	...201-355	...201-855
1.1/2	1.1/4	2	4.1/2	6	...200-360	...201-360	...201-860
1.5/8	1.1/4	2	4.1/2	4	...200-365	...201-365	...201-865
1.5/8	1.1/4	2	4.1/2	6	...200-370	...201-370	...201-870
1.3/4	1.1/4	2	4.1/2	4	...200-375	...201-375	...201-875
1.3/4	1.1/4	2	4.1/2	6	...200-380	...201-380	...201-880
1.7/8	1.1/4	2	4.1/2	6	...200-385	...201-385	...201-885
1.7/8	1.1/4	2	4.1/2	4	...200-390	...201-390	...201-890
1.7/8	1.1/4	2	4.1/2	8	...200-395	...201-395	...201-895
2	1.1/4	2	4.1/2	4	...200-400	...201-400	...201-900
2	1.1/4	2	4.1/2	6	...200-405	...201-405	...201-905
2	1.1/4	2	4.1/2	8	...200-410	...201-410	...201-910



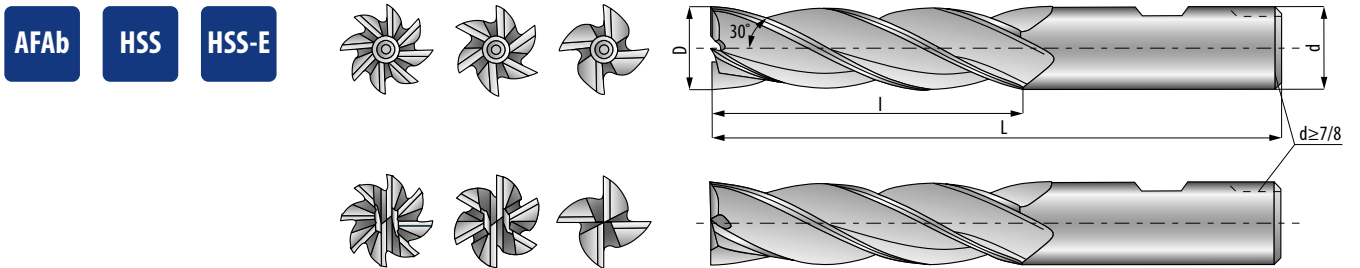
**Ordering example:** End Mill AFAa 1/2 x 1/2 CC 4F M42 or **Code No.** 0641-513-211-525

**Ejemplo de pedido:** Fresa AFAa 1/2 x 1/2 CC 4F M42 o **Número de Código** 0641-513-211-525

**End mills single end long flute with Weldon shank**

**Fresas verticales, punta sencilla, filo largo con mango Weldon**

- Multiple flute / Filo múltiple
- Single end / Punta sencilla
- Right hand cut / Corte a la derecha
- Long flute / Filo largo
- Weldon shank / Mango Weldon



D	d	l	L	No. of flutes No. de filos	Code No. AFAb	Code No. AFAb-CC	
					HSS 0641-513-...	HSS 0641-513-...	HSS-E 0641-513-...
1/4	3/8	1.1/4	3.1/16	4	...210-005	...211-005	...211-505
5/16	3/8	1.3/8	3.1/8	4	...210-010	...211-010	...211-510
3/8	3/8	1.1/2	3.1/4	4	...210-015	...211-015	...211-515
7/16	1/2	1.3/4	3.3/4	4	...210-020	...211-020	...211-520
1/2	1/2	2	4	4	...210-025	...211-025	...211-525
5/8	1/2	2.1/2	4.5/8	4	...210-030	...211-030	...211-530
3/4	1/2	3	5.1/4	4	...210-035	...211-035	...211-535
5/8	5/8	2.1/2	4.5/8	4	...210-040	...211-040	...211-540
3/4	3/4	3	5.1/4	4	...210-045	...211-045	...211-545
1	3/4	4	6.1/2	4	...210-050	...211-050	...211-550
1.1/8	3/4	4	6.1/2	6	...210-055	...211-055	...211-555
1.1/4	3/4	4	6.1/2	4	...210-060	...211-060	...211-560
7/8	7/8	3.1/2	5.3/4	4	...210-065	...211-065	...211-565
1	1	4	6.1/2	4	...210-070	...211-070	...211-570
1.1/8	1	4	6.1/2	6	...210-075	...211-075	...211-575
1.1/4	1	4	6.1/2	6	...210-080	...211-080	...211-580
1.3/8	1	4	6.1/2	6	...210-085	...211-085	...211-585
1.1/2	1	4	6.1/2	6	...210-090	...211-090	...211-590
1.1/4	1.1/4	4	6.1/2	4	...210-095	...211-095	...211-595
1.1/4	1.1/4	4	6.1/2	6	...210-100	...211-100	...211-600
1.1/2	1.1/4	4	6.1/2	6	...210-105	...211-105	...211-605
1.3/4	1.1/4	4	6.1/2	6	...210-110	...211-110	...211-610
2	1.1/4	4	6.1/2	4	...210-115	...211-115	...211-615
2	1.1/4	4	6.1/2	6	...210-120	...211-120	...211-620
2	1.1/4	4	6.1/2	8	...210-125	...211-125	...211-625
2	2	6	9.3/4	6	...210-130	...211-130	...211-630
2.1/2	2	4	7.5/8	6	...210-135	...211-135	...211-635



**Ordering example:** End Mill AFAb 1/2 x 1/2 CC 4F M42 or **Code No.** 0641-513-211-525

**Ejemplo de pedido:** Fresa AFAb 1/2 x 1/2 CC 4F M42 o **Número de Código** 0641-513-211-525

**End mills 4 flute double end with Weldon shank**

**Fresas verticales, 4 filos, punta doble con mango Weldon**

4 flute  
4 filos

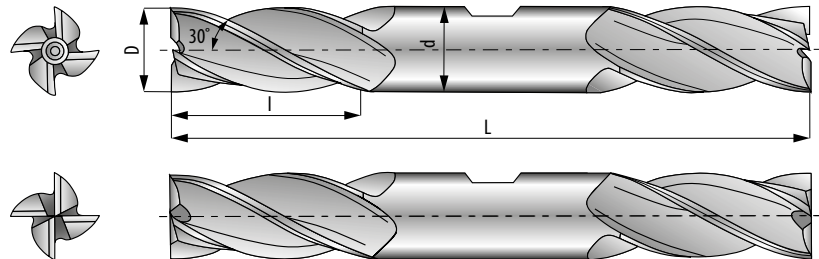
Double end  
Punta doble

Right hand cut  
Corte a la derecha

Regular length  
Longitud regular

Weldon shank  
Mango Weldon

AFAc HSS HSS-E



D	d	l	L	Code No. AFAc	Code No. AFAc-CC	
				HSS 0641-513-...	HSS 0641-513-...	HSS-E 0641-513-...
1/8	3/8	3/8	3.1/16	...230-005	...231-005	...231-505
5/32	3/8	7/16	3.1/8	...230-010	...231-010	...231-510
3/16	3/8	1/2	3.1/4	...230-015	...231-015	...231-515
13/64	3/8	9/16	3.1/4	...230-020	...231-020	...231-520
7/32	3/8	9/16	3.1/4	...230-025	...231-025	...231-525
15/64	3/8	9/16	3.1/4	...230-030	...231-030	...231-530
1/4	3/8	5/8	3.3/8	...230-035	...231-035	...231-535
9/32	3/8	11/16	3.3/8	...230-040	...231-040	...231-540
5/16	3/8	3/4	3.1/2	...230-045	...231-045	...231-545
11/32	3/8	3/4	3.1/2	...230-050	...231-050	...231-550
3/8	3/8	3/4	3.1/2	...230-055	...231-055	...231-555
13/32	1/2	1	4.1/8	...230-060	...231-060	...231-560
7/16	1/2	1	4.1/8	...230-065	...231-065	...231-565
15/32	1/2	1	4.1/8	...230-070	...231-070	...231-570
1/2	1/2	1	4.1/8	...230-075	...231-075	...231-575
9/16	5/8	1.3/8	5	...230-080	...231-080	...231-580
5/8	5/8	1.3/8	5	...230-085	...231-085	...231-585
11/16	3/4	1.5/8	5.5/8	...230-090	...231-090	...231-590
3/4	3/4	1.5/8	5.5/8	...230-095	...231-095	...231-595
13/16	7/8	1.7/8	6.1/8	...230-100	...231-100	...231-600
7/8	7/8	1.7/8	6.1/8	...230-105	...231-105	...231-605
15/16	1	1.7/8	6.3/8	...230-110	...231-110	...231-610
1	1	1.7/8	6.3/8	...230-115	...231-115	...231-615

**Ordering example:** End Mill AFAc 1/2 x 1/2 CC M42 or **Code No.** 0641-513-231-575

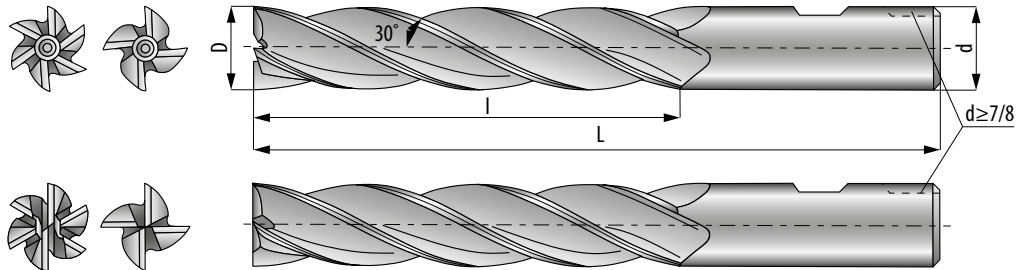
**Ejemplo de pedido:** Fresa AFAc 1/2 x 1/2 CC M42 o **Número de Código** 0641-513-231-575

**End mills single end extra long flute with Weldon shank**

**Fresas verticales, punta sencilla, filo largo con mango Weldon**

- Multiple flute / Filo múltiple
- Single end / Punta sencilla
- Right hand cut / Corte a la derecha
- Extra long flute / Filo extra largo
- Weldon shank / Mango Weldon

AFAd HSS



D	d	l	L	No. of flutes No. de filos	Code No. AFAd 0641-513-...	Code No. AFAd-CC 0641-513-...
1/4	3/8	1.3/4	3.9/16	4	...220-005	...221-005
5/16	3/8	2	3.3/4	4	...220-010	...221-010
3/8	3/8	2.1/2	4.1/4	4	...220-015	...221-015
1/2	1/2	3	5	4	...220-020	...221-020
5/8	1/2	4	6.1/8	4	...220-025	...221-025
3/4	1/2	4	6.1/4	4	...220-030	...221-030
5/8	5/8	4	6.1/8	4	...220-035	...221-035
3/4	3/4	4	6.1/4	4	...220-040	...221-040
7/8	7/8	5	7.1/4	4	...220-045	...221-045
1	1	6	8.1/2	4	...220-050	...221-050
1.1/4	1.1/4	6	8.1/2	4	...220-055	...221-055
1.1/4	1.1/4	6	8.1/2	6	...220-060	...221-060
1.1/2	1.1/4	8	10.1/2	6	...220-065	...221-065
2	2	8	11.3/4	6	...220-070	-
2	2	10	13.3/4	6	...220-075	-



**Ordering example:** End Mill AFAd 1/2 x 1/2 4F or **Code No.** 0641-513-220-020  
**Ejemplo de pedido:** Fresa AFAd 1/2 x 1/2 4F o **Número de Código** 0641-513-220-020



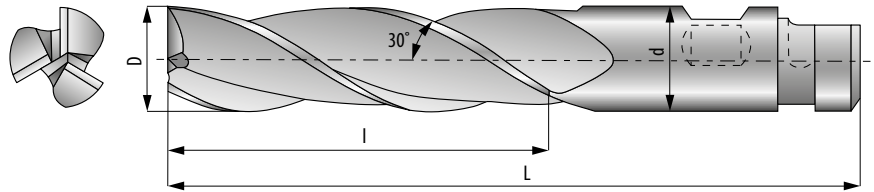
**End mills heavy duty 3 flutes with twin drive shank**

**Fresas verticales de gran potencia, 3 filos con mango de arrastre doble**

- 3 flute / 3 filos
- Single end / Punta sencilla
- Extra long flute / Filo extra largo
- Twin drive shank / Mango de arrastre doble

AFGh

HSS



D	d	l	L	Code No. 0641-553-...
2	2	3	6.3/4	...601-010
2	2	4	7.3/4	...601-020
2	2	6	9.3/4	...601-040
2.1/2	2	4	7.3/4	...601-050

**Ordering example:** End Mill AFGh 2x2x6x9.3/4 3f or **Code No.** 0641-553-601-040

**Ejemplo de pedido:** Fresa AFGh 2x2x6x9.3/4 3f o **Número de Código** 0641-553-601-040

**End mills heavy duty 4 flutes with twin drive shank**

**Fresas verticales de gran potencia, 4 filos con mango de arrastre doble**

4 flute  
4 filos

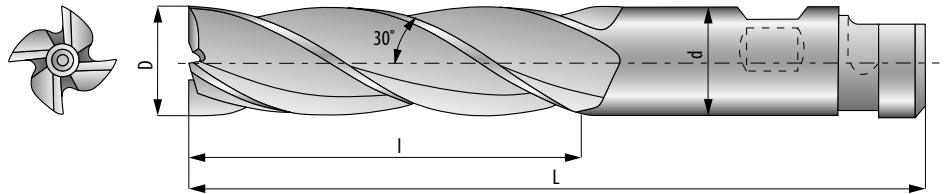
Single end  
Punta sencilla

Extra long flute  
Filo extra largo

Twin drive shank  
Mango de arrastre doble

AFAf

HSS



D	d	l	L	Code No. 0641-513-...
2	2	2	5.3/4	...600-010
2	2	4	7.3/4	...600-020
2	2	6	9.3/4	...600-030
2	2	8	11.3/4	...600-040
2.1/2	2	4	7.3/4	...600-050
2.1/2	2	6	9.3/4	...600-060

**Ordering example:** End Mill AFAf 2 x 2 x 8 x 11.3/4 4F or **Code No.** 0641-513-600-040  
**Ejemplo de pedido:** Fresa AFAf 2 x 2 x 8 x 11.3/4 4F o **Número de Código** 0641-513-600-040

**End mills heavy duty 6 flutes with twin drive shank**

***Fresas verticales de gran potencia, 6 filos con mango de arrastre doble***

6 flute  
6 filos

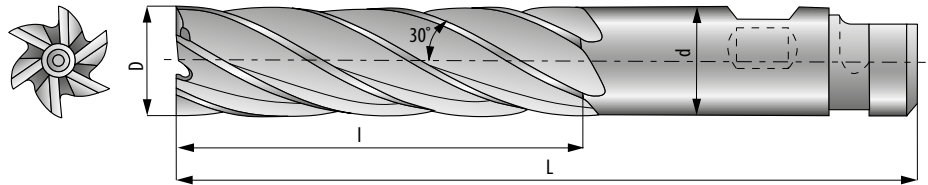
Single end  
Punta sencilla

Extra long flute  
Filo extra largo

Twin drive shank  
Mango de arrastre doble

AFAk

HSS



D	d	l	L	Code No. 0641-513-...
2	2	4	7.3/4	...600-210
2	2	6	9.3/4	...600-220
2	2	8	11.3/4	...600-230
2	2	10	13.3/4	...600-240
2	2	12	15.3/4	...600-250
2.1/2	2	4	7.3/4	...600-260
2.1/2	2	6	9.3/4	...600-270
2.1/2	2	8	11.3/4	...600-280

**Ordering example:** End Mill AFAk 2 x 2 x 6 x 9.3/4 6F or **Code No.** 0641-513-600-220

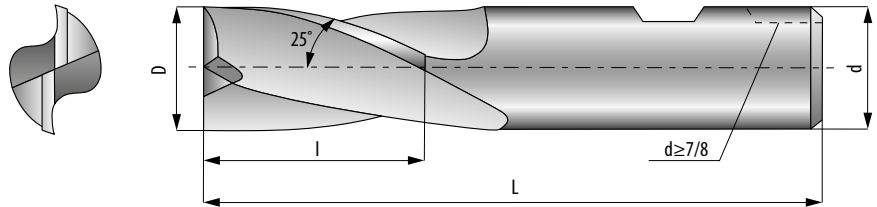
**Ejemplo de pedido:** Fresa AFAk 2 x 2 x 6 x 9.3/4 6F o **Número de Código** 0641-513-600-220

**End mills 2 flute single end with Weldon shank**

**Fresas verticales, 2 filos, punta sencilla con mango Weldon**

- 2 flute / 2 Filos
- Single end / Punta sencilla
- Right hand cut / Corte a la derecha
- Center cutting / Corte al centro
- Regular length / Longitud regular
- Weldon shank / Mango Weldon

AFGa HSS HSS-E



D	d	l	L	Code No.	
				HSS 0641-553-...	HSS-E 0641-553-...
1/8	3/8	3/8	2.5/16	...200-005	...200-505
5/32	3/8	7/16	2.5/16	...200-010	...200-510
3/16	3/8	7/16	2.5/16	...200-015	...200-515
7/32	3/8	1/2	2.5/16	...200-020	...200-520
1/4	3/8	1/2	2.5/16	...200-025	...200-525
9/32	3/8	9/16	2.5/16	...200-030	...200-530
5/16	3/8	9/16	2.5/16	...200-035	...200-535
11/32	3/8	9/16	2.5/16	...200-040	...200-540
3/8	3/8	9/16	2.5/16	...200-045	...200-545
13/32	3/8	13/16	2.1/2	...200-050	...200-550
7/16	3/8	13/16	2.1/2	...200-055	...200-555
15/32	3/8	13/16	2.1/2	...200-060	...200-560
1/2	3/8	13/16	2.1/2	...200-065	...200-565
1/2	1/2	1	3	...200-070	...200-570
9/16	1/2	1.1/8	3.1/8	...200-075	...200-575
5/8	1/2	1.1/8	3.1/8	...200-080	...200-580
11/16	1/2	1.5/16	3.5/16	...200-085	...200-585
3/4	1/2	1.5/16	3.5/16	...200-090	...200-590
13/16	1/2	1.1/2	3.5/8	...200-095	...200-595
7/8	1/2	1.1/2	3.5/8	...200-100	...200-600
15/16	1/2	1.1/2	3.5/8	...200-105	...200-605
1	1/2	1.1/2	3.5/8	...200-110	...200-610
1.1/2	1/2	1.5/8	3.7/8	...200-115	...200-615
5/8	5/8	1.5/16	3.7/16	...200-120	...200-620
11/16	5/8	1.5/16	3.7/16	...200-125	...200-625
3/4	5/8	1.5/16	3.7/16	...200-130	...200-630
13/16	5/8	1.1/2	3.5/8	...200-135	...200-635
7/8	5/8	1.1/2	3.5/8	...200-140	...200-640
15/16	5/8	1.1/2	3.5/8	...200-145	...200-645
1	5/8	1.1/2	3.5/8	...200-150	...200-650
1.1/16	5/8	1.5/8	3.7/8	...200-155	...200-655
3/4	3/4	1.5/16	3.7/16	...200-160	...200-660





D	d	l	L	Code No.	
				HSS 0641-513-...	HSS-E 0641-513-...
13/16	3/4	1.1/2	3.3/4	...200-165	...200-665
7/8	3/4	1.1/2	3.3/4	...200-170	...200-670
15/16	3/4	1.1/2	3.3/4	...200-175	...200-675
1	3/4	1.1/2	3.3/4	...200-180	...200-680
1.1/16	3/4	1.5/8	3.7/8	...200-185	...200-685
1.1/8	3/4	1.5/8	3.7/8	...200-190	...200-690
1.3/16	3/4	1.5/8	3.7/8	...200-195	...200-695
1.1/4	3/4	1.5/8	3.7/8	...200-200	...200-700
1.5/16	3/4	1.5/8	3.7/8	...200-205	...200-705
1.3/8	3/4	1.5/8	3.7/8	...200-210	...200-710
1.7/16	3/4	1.5/8	3.7/8	...200-215	...200-715
1.1/2	3/4	1.5/8	3.7/8	...200-220	...200-720
1.5/8	3/4	1.5/8	3.7/8	...200-225	...200-725
1.3/4	3/4	1.5/8	3.7/8	...200-230	...200-730
1.7/8	3/4	1.5/8	3.7/8	...200-235	...200-735
2	3/4	1.5/8	3.7/8	...200-240	...200-740
7/8	7/8	1.1/2	3.3/4	...200-245	...200-745
15/16	7/8	1.1/2	3.3/4	...200-250	...200-750
1	7/8	1.1/2	3.3/4	...200-255	...200-755
1.1/16	7/8	1.5/8	3.7/8	...200-260	...200-760
1.1/8	7/8	1.5/8	3.7/8	...200-265	...200-765
1.1/4	7/8	1.5/8	3.7/8	...200-270	...200-770
1	1	1.5/8	4.1/8	...200-275	...200-775
1.1/8	1	1.5/8	4.1/8	...200-280	...200-780
1.1/4	1	1.5/8	4.1/8	...200-285	...200-785
1.3/8	1	1.5/8	4.1/8	...200-290	...200-790
1.1/2	1	1.5/8	4.1/8	...200-295	...200-795
1.1/4	1.1/4	1.5/8	4.1/8	...200-300	...200-800
1.1/2	1.1/4	1.5/8	4.1/8	...200-305	...200-805
1.5/8	1.1/4	1.5/8	4.1/8	...200-310	...200-810
1.3/4	1.1/4	1.5/8	4.1/8	...200-315	...200-815
1.7/8	1.1/4	1.5/8	4.1/8	...200-320	...200-820
2	1.1/4	1.5/8	4.1/8	...200-325	...200-825
2	1.1/4	2.1/2	5	...200-330	...200-830
2	2	4	7.3/4	...200-335	...200-835
2.1/2	2	4	7.5/8	...200-340	...200-840
2.1/2	2	6	9.5/8	...200-345	...200-845



**Ordering example:** End Mill AFGa 1/2 x 1/2 M42 or **Code No.** 0641-553-200-570

**Ejemplo de pedido:** Fresa AFGa 1/2 x 1/2 M42 o **Número de Código** 0641-553-200-570

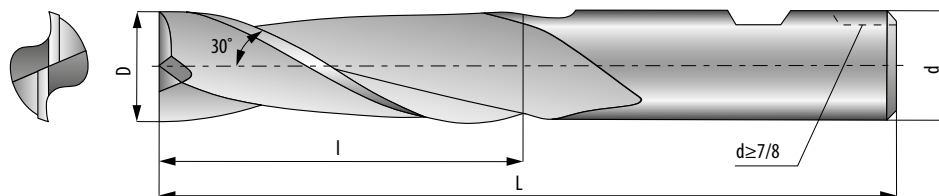
**End mills 2 long flute single end with Weldon shank**

**Fresas verticales, 2 filos largos, punta sencilla con mango Weldon**

- 2 flute  
2 filos
- Single end  
Punta sencilla
- Right hand cut  
Corte a la derecha
- Weldon shank  
Mango Weldon

AFGm

HSS



D	d	I	L	Code No. 0641-553-...
3/8	3/8	1.1/2	3.1/4	...220-005
1/2	1/2	2	4	...220-010
5/8	5/8	2	4.1/8	...220-015
3/4	3/4	2.1/4	4.1/2	...220-020
7/8	7/8	2.1/2	4.3/4	...220-025
1	1	3	5.1/2	...220-030
1.1/8	1	3	5.1/2	...220-035
1.1/4	1	3	5.1/2	...220-040
1.3/8	1	3	5.1/2	...220-045
1.1/4	1.1/4	3	5.1/2	...220-050
1.1/2	1.1/4	3	5.1/2	...220-055
1.5/8	1.1/4	3	5.1/2	...220-060
1.3/4	1.1/4	3	5.1/2	...220-065
1.7/8	1.1/4	3	5.1/2	...220-070
2	1.1/4	3	5.1/2	...220-075



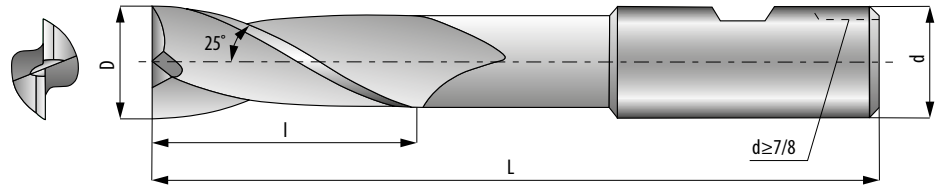
**Ordering example:** End Mill AFGm 1/2 x 1/2 or **Code No.** 0641-553-220-010

**Ejemplo de pedido:** Fresa AFGm 1/2 x 1/2 o **Número de Código** 0641-553-220-010

**End mills 2 flute single end extended length with Weldon shank**  
**Fresas verticales, 2 filos, punta sencilla y longitud larga con mango Weldon**

- 2 flute / 2 filos
- Single end / Punta sencilla
- Right hand cut / Corte a la derecha
- Weldon shank / Mango Weldon

AFGd HSS



D	d	l	L	Code No. 0641-553-...
1/4	3/8	5/8	3.1/16	...210-005
5/16	3/8	3/4	3.5/16	...210-010
3/8	3/8	3/4	3.5/16	...210-015
1/2	1/2	1	4	...210-020
5/8	5/8	1.3/8	4.5/8	...210-025
3/4	3/4	1.5/8	5.3/8	...210-030
7/8	7/8	2	6	...210-035
1	1	2.1/2	7.1/4	...210-040
1.1/4	1.1/4	3	7.1/4	...210-045

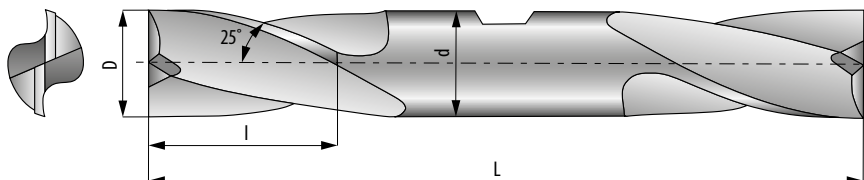
**Ordering example:** End Mill AFGd 1/2 x 1/2 or **Code No.** 0641-553-210-020  
**Ejemplo de pedido:** Fresa AFGd 1/2 x 1/2 o **Número de Código** 0641-553-210-020

**End mills 2 flute double end with Weldon shank**

**Fresas verticales, 2 filos, punta doble con mango Weldon**

- 2 flute / 2 filos
- Double end / Punta doble
- Center cutting / Corte al centro
- Regular length / Longitud regular
- Weldon shank / Mango Weldon

AFGb HSS HSS-E



D	d	l	L	Code No.	
				HSS 0641-553-...	HSS-E 0641-553-...
1/8	3/8	3/8	3.1/16	...230-005	...230-505
5/32	3/8	7/16	3.1/8	...230-010	...230-510
3/16	3/8	7/16	3.1/8	...230-015	...230-515
13/64	3/8	1/2	3.1/8	...230-020	...230-520
7/32	3/8	1/2	3.1/8	...230-025	...230-525
15/64	3/8	1/2	3.1/8	...230-030	...230-530
1/4	3/8	1/2	3.1/8	...230-035	...230-535
9/32	3/8	9/16	3.1/8	...230-040	...230-540
5/16	3/8	9/16	3.1/8	...230-045	...230-545
11/32	3/8	9/16	3.1/8	...230-050	...230-550
3/8	3/8	9/16	3.1/8	...230-055	...230-555
13/32	1/2	13/16	3.3/4	...230-060	...230-560
7/16	1/2	13/16	3.3/4	...230-065	...230-565
15/32	1/2	13/16	3.3/4	...230-070	...230-570
1/2	1/2	13/16	3.3/4	...230-075	...230-575
9/16	5/8	1.1/8	4.1/2	...230-080	...230-580
5/8	5/8	1.1/8	4.1/2	...230-085	...230-585
11/16	3/4	1.5/16	5	...230-090	...230-590
3/4	3/4	1.5/16	5	...230-095	...230-595
13/16	7/8	1.9/16	5.1/2	...230-100	...230-600
7/8	7/8	1.9/16	5.1/2	...230-105	...230-605
15/16	1	1.5/8	5.7/8	...230-110	...230-610
1	1	1.5/8	5.7/8	...230-115	...230-615

**Ordering example:** End Mill AFGb 1/2 x 1/2 M42 or **Code No.** 0641-553-230-575

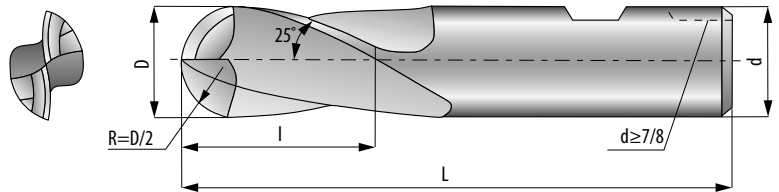
**Ejemplo de pedido:** Fresa AFGb 1/2 x 1/2 M42 o **Número de Código** 0641-553-230-575



**Ball end mills 2 flute single end with Weldon shank**  
**Fresas de bola, 2 filos, punta sencilla con mango Weldon**

- 2 flute / 2 filos
- Single end / Punta sencilla
- Right hand cut / Corte a la derecha
- Center cutting / Corte al centro
- Regular length / Longitud regular
- Weldon shank / Mango Weldon

AFGp HSS HSS-E



D	d	l	L	Code No.	
				HSS 0641-553-...	HSS-E 0641-553-...
1/8	3/8	3/8	2.5/16	...202-205	...202-705
3/16	3/8	1/2	2.3/8	...202-210	...202-710
1/4	3/8	5/8	2.7/16	...202-215	...202-715
5/16	3/8	3/4	2.1/2	...202-220	...202-720
3/8	3/8	3/4	2.1/2	...202-225	...202-725
7/16	1/2	1	3	...202-230	...202-730
1/2	1/2	1	3	...202-235	...202-735
9/16	1/2	1.1/8	3.1/8	...202-240	...202-740
5/8	1/2	1.1/8	3.1/8	...202-245	...202-745
3/4	1/2	1.5/16	3.5/16	...202-250	...202-750
5/8	5/8	1.3/8	3.1/2	...202-255	...202-755
3/4	3/4	1.5/8	3.7/8	...202-260	...202-760
13/16	3/4	2	4.1/4	...202-262	...202-762
7/8	3/4	2	4.1/4	...202-263	...202-763
15/16	3/4	2.1/4	4.1/2	...202-267	...202-767
1	3/4	2.1/4	4.9/16	...202-268	...202-768
7/8	7/8	2	4.1/4	...202-265	...202-765
1	1	2.1/4	4.3/4	...202-270	...202-770
1.1/8	1	2.1/4	4.3/4	...202-275	...202-775
1.1/4	1.1/4	2.1/2	5	...202-280	...202-780
1.3/8	1.1/4	2.1/2	5	...202-285	...202-785
1.1/2	1.1/4	2.1/2	5	...202-290	...202-790
2	1.1/4	2.1/2	5	...202-295	...202-795

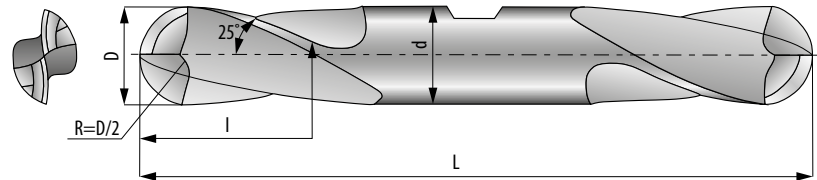


**Ordering example:** End Mill AFGp 1/2 x 1/2 M42 or **Code No.** 0641-553-202-735  
**Ejemplo de pedido:** Fresa AFGp 1/2 x 1/2 M42 o **Número de Código** 0641-553-202-735

**Ball end mills 2 flute double end with Weldon shank**  
**Fresas de bola, 2 filos, punta doble con mango Weldon**

- 2 flute / 2 filos
- Double end / Punta doble
- Weldon shank / Mango Weldon

AFGr HSS HSS-E



D	d	I	L	Code No.	
				HSS 0641-553-...	HSS-E 0641-553-...
1/8	3/8	3/8	3.1/16	...232-205	...232-705
3/16	3/8	7/16	3.1/8	...232-210	...232-710
1/4	3/8	1/2	3.1/8	...232-215	...232-715
5/16	3/8	9/16	3.1/8	...232-220	...232-720
3/8	3/8	9/16	3.1/8	...232-225	...232-725
7/16	1/2	13/16	3.3/4	...232-230	...232-730
1/2	1/2	13/16	3.3/4	...232-235	...232-735
5/8	5/8	1.1/8	4.1/2	...232-240	...232-740
3/4	3/4	1.5/16	5	...232-245	...232-745
7/8	7/8	1.9/16	5.1/2	...232-250	...232-750
1	1	1.5/8	5.7/8	...232-255	...232-755

**Ordering example:** End Mill AFGGr 1/2 x 1/2 M2 or **Code No.** 0641-553-232-235  
**Ejemplo de pedido:** Fresa AFGGr 1/2 x 1/2 M2 o **Número de Código** 0641-553-232-235

**Ball end mills multi flute single end with Weldon shank;**  
**Fresas de bola, filos múltiples, punta sencilla con mango Weldon**

Multiple flute  
Filo múltiple

Single end  
Punta sencilla

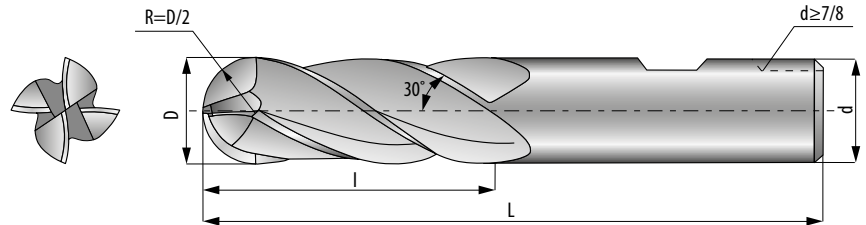
Center cutting  
Corte al centro

Weldon shank  
Mango Weldon

AFAr

HSS

HSS-E



D	d	l	L	No. of flutes No. de filos	Code No.	
					HSS 0641-513-...	HSS-E 0641-513-...
1/8	3/8	3/8	2.5/16	4	...212-005	...212-505
3/16	3/8	1/2	2.3/8	4	...212-007	...212-507
1/4	3/8	5/8	2.7/16	4	...212-010	...212-510
5/16	3/8	3/4	2.1/2	4	...212-012	...212-512
3/8	3/8	3/4	2.1/2	4	...212-015	...212-515
7/16	1/2	1.1/4	3.1/4	4	...212-018	...212-518
1/2	1/2	1.1/4	3.1/4	4	...212-020	...212-520
5/8	5/8	1.5/8	3.3/4	4	...212-025	...212-525
3/4	3/4	1.5/8	3.7/8	4	...212-030	...212-530
7/8	7/8	1.7/8	4.1/8	4	...212-035	...212-535
1	1	2	4.1/2	4	...212-040	...212-540
1.1/4	1.1/4	2	4.1/2	6	...212-045	...212-545
1.1/2	1.1/4	2	4.1/2	6	...212-050	...212-550

**Ordering example:** End Mill AFAr 1/2 x 1/2 4F M42 or **Code No.** 0641-513-212-520  
**Ejemplo de pedido:** Fresa AFAr 1/2 x 1/2 4F M42 o **Número de Código** 0641-513-212-520

**Corner rounding end mills with Weldon shank**  
**Fresas de radios con mango Weldon**

Single end  
Punta sencilla

Right hand cut  
Corte a la derecha

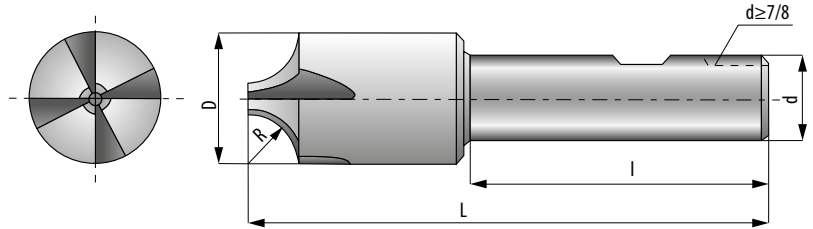
Regular length  
Longitud regular

Weldon shank  
Mango Weldon

AFFd

HSS

HSS-E



R	D	d	L	Code No.	
				HSS 0641-583-...	HSS-E 0641-583-...
1/16	7/16	3/8	2.1/2	...200-005	...200-505
3/32	1/2	3/8	2.1/2	...200-010	...200-510
1/8	5/8	3/8	2.1/2	...200-014	...200-514
1/8	5/8	1/2	3	...200-015	...200-515
5/32	3/4	1/2	3	...200-020	...200-520
3/16	7/8	1/2	3	...200-025	...200-525
3/16	7/8	3/4	3.1/8	...200-030	...200-530
1/4	1	1/2	3	...200-035	...200-535
1/4	1	3/4	3.1/4	...200-040	...200-540
9/32	1	1/2	3	...200-044	...200-544
9/32	1	5/8	3	...200-045	...200-545
5/16	1.1/8	1/2	3.1/4	...200-050	...200-550
5/16	1.1/8	5/8	3.1/2	...200-055	...200-555
5/16	1.1/8	3/4	3.1/2	...200-060	...200-560
5/16	1.1/8	7/8	3.1/2	...200-065	...200-565
3/8	1.1/4	1/2	3.1/2	...200-070	...200-570
3/8	1.1/4	3/4	3.3/4	...200-075	...200-575
3/8	1.1/4	7/8	3.3/4	...200-080	...200-580
7/16	1.3/8	3/4	3.3/4	...200-085	...200-585
7/16	1.3/8	1	4	...200-090	...200-590
15/32	1.7/16	3/4	3.3/4	...200-092	...200-592
1/2	1.1/2	3/4	3.7/8	...200-095	...200-595
1/2	1.1/2	1	4.1/8	...200-100	...200-600
9/16	1.5/8	3/4	3.7/8	...200-102	...200-602
5/8	1.3/4	3/4	3.7/8	...200-105	...200-605
5/8	1.3/4	1	4	...200-110	...200-610
21/32	1.13/16	3/4	3.7/8	...200-112	...200-612
3/4	2	3/4	3.7/8	...200-115	...200-615
3/4	2	1	4	...200-120	...200-620
13/16	2.1/8	1	4.1/8	...200-130	...200-630
1	2.9/16	3/4	4	...200-140	...200-640
1	2.9/16	1	4.5/16	...200-145	...200-645



**Ordering example:** End Mill AFFd R1/4 x 1/2 M42 or **Code No.** 0641-583-200-535  
**Ejemplo de pedido:** Fresa AFFd R1/4 x 1/2 M42 o **Número de Código** 0641-583-200-535

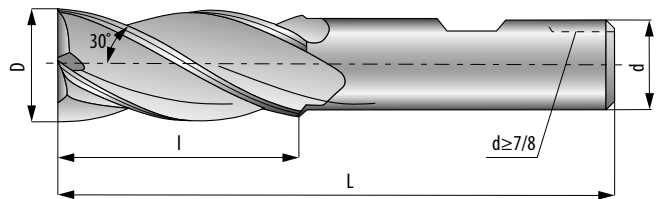
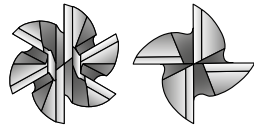
**End mills metric size single end with Weldon shank**  
**Fresas verticales métricas, punta sencilla con mango Weldon**

Single end  
Punta sencilla

Weldon shank  
Mango Weldon

AFAs

HSS



D [mm]	d	l	L	No. of flutes No. de filos	Code No. 0641-513-...
3	3/8	3/8	2.5/16	4	...208-005
4	3/8	1/2	2.3/8	4	...208-010
5	3/8	9/16	2.1/2	4	...208-015
6	3/8	5/8	2.1/2	4	...208-020
7	3/8	3/4	2.1/2	4	...208-025
8	3/8	3/4	2.1/2	4	...208-030
9	3/8	3/4	2.1/2	4	...208-035
10	3/8	1	2.11/16	4	...208-040
11	3/8	1	2.11/16	4	...208-045
12	3/8	1	2.11/16	4	...208-050
13	1/2	1.1/4	3.1/4	4	...208-055
14	1/2	1.3/8	3.3/8	4	...208-060
15	1/2	1.3/8	3.3/8	4	...208-065
16	5/8	1.5/8	3.3/4	4	...208-070
18	5/8	1.5/8	3.3/4	4	...208-075
20	5/8	1.7/8	4.1/8	4	...208-080
18	3/4	1.5/8	3.3/4	4	...208-085
19	3/4	1.5/8	3.3/4	4	...208-090
20	3/4	1.7/8	4.1/8	4	...208-095
22	3/4	1.7/8	4.1/8	4	...208-100
24	3/4	2	4.1/2	4	...208-105
22	7/8	1.7/8	4.1/8	4	...208-110
24	7/8	2	4.1/2	4	...208-115
32	1	2	4.1/2	6	...208-120
36	1	2	4.1/2	6	...208-125

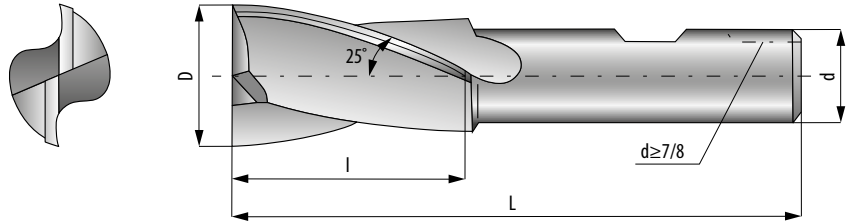


**Ordering example:** End Mill AFAs 14 x 1/2 CC 4F M2 or **Code No.** 0641-513-208-060  
**Ejemplo de pedido:** AFAs 14 x 1/2 CC 4F M2 o **Número de Código** 0641-513-208-060

**End mills metric size 2 flute single end with Weldon shank**  
**Fresas verticales métricas, 2 filos, punta sencilla con mango Weldon**

- 2 flute / 2 filos
- Single end / Punta sencilla
- Weldon shank / Mango Weldon

AFGs HSS



D [mm]	d	l	L	Code No. 0641-553-...
3	3/8	3/8	2.5/16	...208-005
4	3/8	7/16	2.5/16	...208-010
5	3/8	1/2	2.5/16	...208-015
6	3/8	1/2	2.5/16	...208-020
7	3/8	9/16	2.5/16	...208-025
8	3/8	9/16	2.5/16	...208-030
9	3/8	9/16	2.5/16	...208-035
10	3/8	13/16	2.1/2	...208-040
11	3/8	13/16	2.1/2	...208-045
12	3/8	13/16	2.1/2	...208-050
12	1/2	1.1/8	3.1/8	...208-055
13	1/2	1.1/8	3.1/8	...208-060
14	1/2	1.1/8	3.1/8	...208-065
15	1/2	1.1/8	3.1/8	...208-070
16	1/2	1.1/8	3.1/8	...208-075
18	1/2	1.5/16	3.7/16	...208-080
24	1/2	2	4.1/2	...208-085
16	5/8	1.5/16	3.7/16	...208-090
18	5/8	1.5/16	3.7/16	...208-095
20	5/8	1.1/2	3.3/4	...208-100
19	3/4	1.5/16	3.7/16	...208-105
20	3/4	1.1/2	3.3/4	...208-110
22	3/4	1.1/2	3.3/4	...208-115
24	3/4	2	4.1/2	...208-120
25	3/4	2	4.1/2	...208-125
26	3/4	2	4.1/2	...208-130
22	7/8	1.1/2	3.3/4	...208-135
25	1	2	4.1/2	...208-140
30	1	2	4.1/2	...208-145
32	1	2	4.1/2	...208-150
36	1	2	4.1/2	...208-155



**Ordering example:** End Mill AFGs 14 x 1/2 M2 or **Code No.** 0641-553-208-065  
**Ejemplo de pedido:** Fresa AFGs 14 x 1/2 M2 o **Número de Código** 0641-553-208-065

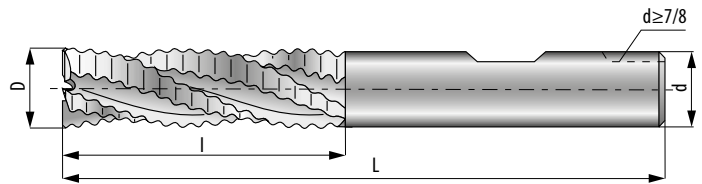
**Roughing end mills single end with Weldon shank**

**Fresas verticales de desbaste, punta sencilla con mango Weldon**

- Multiple flute / Filo múltiple
- Single end / Punta sencilla
- Right hand cut / Corte a la derecha
- Center cutting / Corte al centro
- Regular length / Longitud regular
- Weldon shank / Mango Weldon

AFAa  
NR

HSS



D [mm]	d	l	L	No. of flutes No. de filos	Code No. 0641-513-...
1/4	3/8	5/8	2-7/16	3	...203-025
5/16	3/8	3/4	2-1/2	3	...203-035
3/8	3/8	3/4	2-1/2	4	...203-045
7/16	3/8	1	2-3/4	4	...203-055
1/2	1/2	1-1/4	3-1/4	4	...203-065
1/2	1/2	2	4	4	...203-075
9/16	1/2	1-3/8	3-3/8	4	...203-085
5/8	5/8	1-5/8	3-3/4	4	...203-095
5/8	5/8	2-1/2	4-5/8	4	...203-105
11/16	5/8	1-5/8	3-3/4	4	...203-115
3/4	5/8	1-5/8	3-3/4	4	...203-125
3/4	3/4	1-5/8	3-3/4	4	...203-134
3/4	3/4	1-5/8	3-7/8	4	...203-135
3/4	3/4	3	5-1/4	4	...203-145
13/16	3/4	1-7/8	4	4	...203-155
7/8	3/4	1-7/8	4-1/8	5	...203-165
7/8	7/8	1-7/8	4-1/8	4	...203-175
7/8	7/8	3-1/2	5-3/4	4	...203-185
15/16	3/4	1-7/8	4-1/8	4	...203-195
1	1	2	4-1/2	5	...203-205
1	3/4	2	4-1/4	5	...203-210
1	1	4	6-1/2	5	...203-215
1-1/8	1	2	4-1/2	5	...203-225
1-1/4	3/4	2	4-1/2	6	...203-235
1-1/4	1-1/4	2	4-1/2	6	...203-245
1-1/4	1-1/4	3	5-1/2	6	...203-255
1-1/4	1-1/4	4	6-1/2	6	...203-265
1-1/2	3/4	2	4-1/2	6	...203-275
1-1/2	3/4	2	4-1/4	6	...203-280
1-1/2	1-1/4	2	4-1/2	6	...203-285
1-1/2	1-1/4	4	6-1/2	6	...203-295



**Ordering example:** End Mill AFAa NR 1/2x1/2x2x4 or **Code No.** 0641-513-203-075

**Ejemplo de pedido:** Fresas AFAa NR 1/2x1/2x2x4 o **Número de Código** 0641-513-203-075

**Gear cutters - diametral pitch**

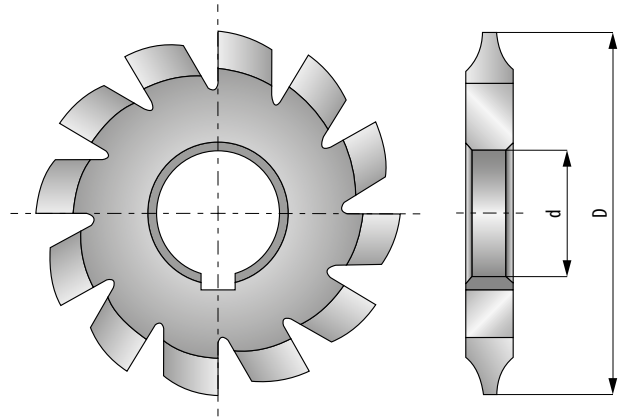
**Fresas (cortadores) circulares para engranajes**

AFFn

HSS

Cutter No. No de cortador	Range of Teeth Cut Rango de dientes
1	135 ÷ ∞
2	55 ÷ 134
3	35 ÷ 54
4	26 ÷ 34
5	21 ÷ 25
6	17 ÷ 20
7	14 ÷ 16
8	12 ÷ 13

Pressure angle • Ángulo de presión = 14.5°



DP	D	d	Cutter sizes • Cortador tamaños Code No. 0641-563-001-...								
			#1	#2	#3	#4	#5	#6	#7	#8	Set
3	5.3/4	1.1/2	...031	...032	...033	...034	...035	...036	...037	...038	...039
3	5.1/4	1.1/2	...041	...042	...043	...044	...045	...046	...047	...048	...049
3	5.1/4	1.1/4	...051	...052	...053	...054	...055	...056	...057	...058	...059
3	4.3/4	1.1/4	...061	...062	...063	...064	...065	...066	...067	...068	...069
4	4.1/2	1.1/2	...071	...072	...073	...074	...075	...076	...077	...078	...079
4	4.1/4	1.1/4	...081	...082	...083	...084	...085	...086	...087	...088	...089
4	3.5/8	1	...091	...092	...093	...094	...095	...096	...097	...098	...099
5	3.3/4	1.1/4	...101	...102	...103	...104	...105	...106	...107	...108	...109
5	3.5/8	1	...111	...112	...113	...114	...115	...116	...117	...118	...119
5	3.3/8	1	...121	...122	...123	...124	...125	...126	...127	...128	...129
6	3.1/2	1.1/4	...131	...132	...133	...134	...135	...136	...137	...138	...139
6	3.1/8	1	...141	...142	...143	...144	...145	...146	...147	...148	...149
7	3.3/8	1.1/4	...151	...152	...153	...154	...155	...156	...157	...158	...159
7	2.7/8	1	...161	...162	...163	...164	...165	...166	...167	...168	...169
8	3.1/4	1.1/4	...171	...172	...173	...174	...175	...176	...177	...178	...179
8	2.7/8	1	...181	...182	...183	...184	...185	...186	...187	...188	...189
9	3.1/8	1.1/4	...191	...192	...193	...194	...195	...196	...197	...198	...199
9	2.3/4	1	...201	...202	...203	...204	...205	...206	...207	...208	...209
10	2.3/4	1	...211	...212	...213	...214	...215	...216	...217	...218	...219
10	2.3/8	7/8	...221	...222	...223	...224	...225	...226	...227	...228	...229
11	2.5/8	1	...231	...232	...233	...234	...235	...236	...237	...238	...239
11	2.3/8	7/8	...241	...242	...243	...244	...245	...246	...247	...248	...249
12	2.5/8	1	...251	...252	...253	...254	...255	...256	...257	...258	...259
12	2.1/4	7/8	...261	...262	...263	...264	...265	...266	...267	...268	...269
14	2.1/2	1	...271	...272	...273	...274	...275	...276	...277	...278	...279
14	2.1/8	7/8	...281	...282	...283	...284	...285	...286	...287	...288	...289
16	2.1/2	1	...291	...292	...293	...294	...295	...296	...297	...298	...299

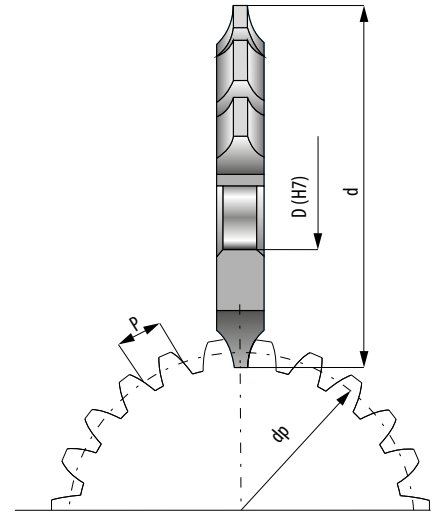




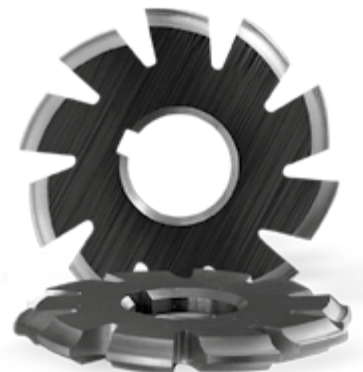


**Table for changing diametral pitch into modules**  
**Tabla para cambiar pasos diametrales en módulos**

DP	m	DP	m	DP	m
1/2	50.8000	8	3.1750	26	0.9769
3/4	33.8667	9	2.8222	28	0.9071
1	25.4000	10	2.5400	30	0.8467
1.1/4	20.3200	11	2.3091	32	0.7938
1.1/2	16.9333	12	2.1167	34	0.7471
1.3/4	14.5140	13	1.9538	36	0.7056
2	12.7000	14	1.8143	38	0.6684
2.1/4	11.2889	15	1.6933	40	0.6350
2.1/2	10.1600	16	1.5875	42	0.6048
2.3/4	9.2364	17	1.4941	44	0.5773
3	8.4667	18	1.4111	46	0.5522
3.1/2	7.2571	19	1.3368	48	0.5292
4	6.3500	20	1.2700	50	0.5080
5	5.0800	22	1.1545	56	0.4536
6	4.2333	24	1.0583	60	0.4233
7	3.6286	25	1.0160		



DP	D	d	Cutter sizes • Cortador tamaños								
			#1	#2	#3	#4	#5	#6	#7	#8	Set
16	2.1/8	1	...301	...302	...303	...304	...305	...306	...307	...308	...309
16	2.1/8	7/8	...311	...312	...313	...314	...315	...316	...317	...318	...319
18	2.3/8	1	...321	...322	...323	...324	...325	...326	...327	...328	...329
18	2	7/8	...331	...332	...333	...334	...335	...336	...337	...338	...339
20	2.3/8	1	...341	...342	...343	...344	...345	...346	...347	...348	...349
20	2	7/8	...351	...352	...353	...354	...355	...356	...357	...358	...359
22	2.1/4	1	...361	...362	...363	...364	...365	...366	...367	...368	...369
22	2	7/8	...371	...372	...373	...374	...375	...376	...377	...378	...379
24	2.1/4	1	...381	...382	...383	...384	...385	...386	...387	...388	...389
24	1.3/4	7/8	...391	...392	...393	...394	...395	...396	...397	...398	...399
26	2.1/4	1	...401	...402	...403	...404	...405	...406	...407	...408	...409
26	1.3/4	7/8	...411	...412	...413	...414	...415	...416	...417	...418	...419
28	2.1/4	1	...421	...422	...423	...424	...425	...426	...427	...428	...429
28	1.3/4	7/8	...431	...432	...433	...434	...435	...436	...437	...438	...439
30	2.1/4	1	...441	...442	...443	...444	...445	...446	...447	...448	...449
30	1.3/4	7/8	...451	...452	...453	...454	...455	...456	...457	...458	...459
32	2.1/4	1	...461	...462	...463	...464	...465	...466	...467	...468	...469
32	2.1/4	7/8	...471	...472	...473	...474	...475	...476	...477	...478	...479
32	1.3/4	7/8	...481	...482	...483	...484	...485	...486	...487	...488	...489
36	2.1/4	1	...491	...492	...493	...494	...495	...496	...497	...498	...499
36	1.3/4	7/8	...501	...502	...503	...504	...505	...506	...507	...508	...509
40	2.1/4	1	...511	...512	...513	...514	...515	...516	...517	...518	...519
40	1.3/4	7/8	...521	...522	...523	...524	...525	...526	...527	...528	...529
48	2.1/4	1	...531	...532	...533	...534	...535	...536	...537	...538	...539
48	1.3/4	7/8	...541	...542	...543	...544	...545	...546	...547	...548	...549



**Ordering example:** Gear Cutter AFFn DP10 x 2.3/4 x 1 #8 or **Code No.** 0641-563-001-218  
**Ejemplo de pedido:** Fresa AFFn DP10 x 2.3/4 x 1 #8 o **Número de Código** 0641-563-001-218

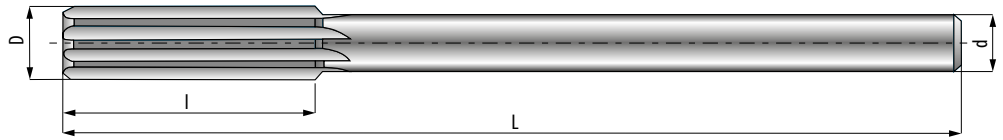
**Chucking reamers straight flutes with straight shank**

**Rimas para máquina, filo recto con mango recto**

- Straight shank
Straight flute
Right hand cut
- Mango recto
Filo recto
Corte a la derecha

ARDa

HSS



**Fractional sizes • Medidas fraccionales**

D	d	l	L	No. of flutes No. de filos	Code No. 0641-413-...
1/8	0.1190	7/8	3.1/2	6	...300-005
9/64	0.1350	1	4	6	...300-010
5/32	0.1510	1	4	6	...300-015
11/64	0.1645	1.1/8	4.1/2	6	...300-020
3/16	0.1805	1.1/8	4.1/2	6	...300-025
13/64	0.1945	1.1/4	5	6	...300-030
7/32	0.2075	1.1/4	5	6	...300-035
15/64	0.2265	1.1/2	6	6	...300-040
1/4	0.2405	1.1/2	6	6	...300-045
17/64	0.2485	1.1/2	6	6	...300-050
9/32	0.2485	1.1/2	6	6	...300-055
19/64	0.2792	1.1/2	6	6	...300-060
5/16	0.2792	1.1/2	6	6	...300-065
21/64	0.2792	1.1/2	6	6	...300-070
11/32	0.2792	1.1/2	6	6	...300-075
23/64	0.3105	1.3/4	7	6	...300-080
3/8	0.3105	1.3/4	7	6	...300-085
25/64	0.3105	1.3/4	7	6	...300-090
13/32	0.3105	1.3/4	7	6	...300-095
27/64	0.3730	1.3/4	7	8	...300-100
7/16	0.3730	1.3/4	7	8	...300-105
29/64	0.3730	1.3/4	7	8	...300-110
15/32	0.3730	1.3/4	7	8	...300-115
31/64	0.4355	2	8	8	...300-120
1/2	0.4355	2	8	8	...300-125
33/64	0.4355	2	8	8	...300-130
17/32	0.4355	2	8	8	...300-135
35/64	0.4355	2	8	8	...300-140
9/16	0.4355	2	8	8	...300-145
37/64	0.4355	2	8	8	...300-150
19/32	0.4355	2	8	8	...300-155
39/64	0.5620	2.1/4	9	8	...300-160
5/8	0.5620	2.1/4	9	8	...300-165
41/64	0.5620	2.1/4	9	8	...300-170
21/32	0.5620	2.1/4	9	8	...300-175
43/64	0.5620	2.1/4	9	8	...300-180
11/16	0.5620	2.1/4	9	8	...300-185
45/64	0.5620	2.1/4	9	8	...300-190





## Tolerances • Tolerancias

Tool part Elemento	Range Límites	Direction Dirección	Tolerance Tolerancia
Diameter of reamer (D) Diámetro rima (D)	up to ¼ incl. • hasta ¼ incluido	Plus • Más	0.0001 ÷ 0.0004
	over ¼ to 1 incl. • encima de 1 incluido	Plus • Más	0.0001 ÷ 0.0005
	over 1 • encima de 1	Plus • Más	0.0002 ÷ 0.0006
Overall length (L) Largo total (L)	½ ÷ 1 incl. • ½ ÷ 1 incluido	Plus or minus • Más o menos	⅓ <sub>16</sub>
	1 ½ ÷ 2 incl. • 1 ½ ÷ 2 incluido	Plus or minus • Más o menos	⅓ <sub>32</sub>
Length of flute (l) Largo filo (l)	½ ÷ 1 incl. • ½ ÷ 1 incluido	Plus or minus • Más o menos	⅓ <sub>16</sub>
	1 ½ ÷ 2 incl. • 1 ½ ÷ 2 incluido	Plus or minus • Más o menos	⅓ <sub>32</sub>

D	d	l	L	No. of flutes No. de filos	Code No. 0641-413-...
23/32	0.5620	2.1/4	9	8	...300-195
47/64	0.6245	2.1/2	9.1/2	8	...300-200
3/4	0.6245	2.1/2	9.1/2	8	...300-205
49/64	0.6245	2.1/2	9.1/2	10	...300-210
25/32	0.6245	2.1/2	9.1/2	10	...300-215
51/64	0.6245	2.1/2	9.1/2	10	...300-220
13/16	0.6245	2.1/2	9.1/2	10	...300-225
53/64	0.6245	2.1/2	9.1/2	10	...300-230
27/32	0.6245	2.1/2	9.1/2	10	...300-235
55/64	0.7495	2.5/8	10	10	...300-240
7/8	0.7495	2.5/8	10	10	...300-245
57/64	0.7495	2.5/8	10	10	...300-250
29/32	0.7495	2.5/8	10	10	...300-255
59/64	0.7495	2.5/8	10	10	...300-260
15/16	0.7495	2.5/8	10	10	...300-265
61/64	0.7495	2.5/8	10	10	...300-270
31/32	0.7495	2.5/8	10	10	...300-275
63/64	0.8745	2.3/4	10.1/2	10	...300-280
1	0.8745	2.3/4	10.1/2	10	...300-285
1.1/32	0.8745	2.3/4	10.1/2	10	...300-290
1.1/16	0.8745	2.3/4	10.1/2	10	...300-295
1.3/32	0.8745	2.7/8	11	10	...300-300
1.1/8	0.8745	2.7/8	11	10	...300-305
1.5/32	0.9995	2.7/8	11	12	...300-310
1.3/16	0.9995	2.7/8	11	12	...300-315
1.7/32	0.9995	3	11.1/2	12	...300-318
1.1/4	0.9995	3	11.1/2	12	...300-320
1.5/16	0.9995	3	11.1/2	12	...300-325
1.3/8	0.9995	3.1/4	12	12	...300-330
1.7/16	1.2495	3.1/4	12	12	...300-335
1.1/2	1.2495	3.1/2	12.1/2	12	...300-340
1.9/16	1.2495	3.1/2	12.1/2	12	...300-345
1.5/8	1.2495	3.1/2	13	12	...300-350
1.11/16	1.2495	3.1/2	13	12	...300-355
1.3/4	1.2495	4	13.1/2	12	...300-360
1.7/8	1.5000	4	14	12	...300-365
2	1.5000	4	14	14	...300-370



**Ordering example:** Reamer ARDa 1/2 or **Code No.** 0641-413-300-125

**Ejemplo de pedido:** Rima ARDa 1/2 o **Número de Código** 0641-413-300-125

## Chucking reamers straight flutes with straight shank

### Rimas para máquina, filo recto con mango recto

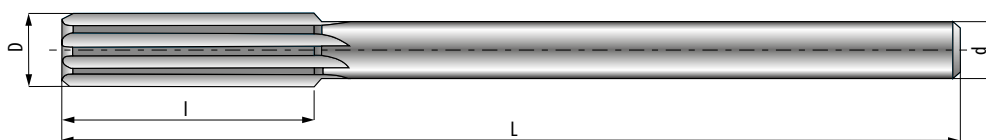
Straight shank  
Mango recto

Straight flute  
Filo recto

Right hand cut  
Corte a la derecha

ARDa

HSS



### Tolerances • Tolerancias

Tool part Elemento	Range Límites	Direction Dirección	Tolerance Tolerancia
Diameter of reamer (D) Diámetro rima (D)	A ÷ E incl. • A ÷ E incluido F ÷ Z incl. • F ÷ Z incluido	Plus • Más Plus • Más	0.0001 ÷ 0.0004 0.0001 ÷ 0.0005
Overall length (L) Largo total (L)	A ÷ Z incl. • A ÷ Z incluido	Plus or minus • Más o menos	1/16
Length of flute (l) Largo filo (l)	A ÷ Z incl. • A ÷ Z incluido	Plus or minus • Más o menos	1/16



### Letter sizes A ÷ Z • Medidas alfabéticas A ÷ Z

Letter Letra	D	d	l	L	No. of flutes No. de filos	Code No. 0641-413-...
A	0.2340	0.2265	1.1/2	6	6	...300-700
B	0.2380	0.2329	1.1/2	6	6	...300-705
C	0.2420	0.2329	1.1/2	6	6	...300-710
D	0.2460	0.2329	1.1/2	6	6	...300-715
E	0.2500	0.2405	1.1/2	6	6	...300-720
F	0.2570	0.2485	1.1/2	6	6	...300-725
G	0.2610	0.2485	1.1/2	6	6	...300-730
H	0.2660	0.2485	1.1/2	6	6	...300-735
I	0.2720	0.2485	1.1/2	6	6	...300-740
J	0.2770	0.2485	1.1/2	6	6	...300-745
K	0.2810	0.2485	1.1/2	6	6	...300-750
L	0.2900	0.2792	1.1/2	6	6	...300-755
M	0.2950	0.2792	1.1/2	6	6	...300-760
N	0.3020	0.2792	1.1/2	6	6	...300-765
O	0.3160	0.2792	1.1/2	6	6	...300-770
P	0.3230	0.2792	1.1/2	6	6	...300-775
Q	0.3320	0.2792	1.1/2	6	6	...300-780
R	0.3390	0.2792	1.1/2	6	6	...300-785
S	0.3480	0.3105	1.3/4	7	6	...300-790
T	0.3580	0.3105	1.3/4	7	6	...300-795
U	0.3680	0.3105	1.3/4	7	6	...300-800
V	0.3770	0.3105	1.3/4	7	6	...300-805
W	0.3860	0.3105	1.3/4	7	6	...300-810
X	0.3970	0.3105	1.3/4	7	6	...300-815
Y	0.4040	0.3105	1.3/4	7	6	...300-820
Z	0.4130	0.3730	1.3/4	7	6	...300-825

Ordering example: Reamer ARDa G or Code No. 0641-413-300-730

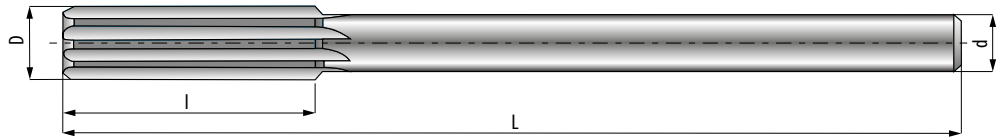
Ejemplo de pedido: Rima ARDa G o Número de Código 0641-413-300-730

**Chucking reamers straight flutes with straight shank**  
**Rimas para máquina, filo recto con mango recto**

- Straight shank  
Mango recto
- Straight flute  
Filo recto
- Right hand cut  
Corte a la derecha

ARDa

HSS



**Tolerances • Tolerancias**

Tool part Elemento	Range Límites	Direction Dirección	Tolerance Tolerancia
Diameter of reamer (D) Diámetro rima (D)	#32 ÷ #1 incl. • #32 ÷ #1 incluido	Plus • Más	0.0001 ÷ 0.0004
Overall length (L) Largo total (L)	#32 ÷ #1 incl. • #32 ÷ #1 incluido	Plus or minus • Más o menos	1/16
Length of flute (l) Largo filo (l)	#32 ÷ #1 incl. • #32 ÷ #1 incluido	Plus or minus • Más o menos	1/16

**Wire gage sizes No. 1 ÷ 32 • Medidas numericas 1 ÷ 32**

Wire Gage No. Numérica tamaños	D	d	l	L	No. of flutes No. de filos	Code No. 0641-413-...
1	0.2280	0.2173	1.1/2	6	6	...300-500
2	0.2210	0.2173	1.1/2	6	6	...300-505
3	0.2130	0.2075	1.1/4	5	6	...300-510
4	0.2090	0.2016	1.1/4	5	6	...300-515
5	0.2055	0.2016	1.1/4	5	6	...300-520
6	0.2040	0.1945	1.1/4	5	6	...300-525
7	0.2010	0.1945	1.1/4	5	6	...300-530
8	0.1990	0.1895	1.1/4	5	6	...300-535
9	0.1960	0.1895	1.1/4	5	6	...300-540
10	0.1935	0.1860	1.1/4	5	6	...300-545
11	0.1910	0.1860	1.1/4	5	6	...300-550
12	0.1890	0.1805	1.1/8	4.1/2	6	...300-555
13	0.1850	0.1805	1.1/8	4.1/2	6	...300-560
14	0.1820	0.1755	1.1/8	4.1/2	6	...300-565
15	0.1800	0.1755	1.1/8	4.1/2	6	...300-570
16	0.1770	0.1704	1.1/8	4.1/2	6	...300-575
17	0.1730	0.1645	1.1/8	4.1/2	6	...300-580
18	0.1695	0.1595	1.1/8	4.1/2	6	...300-585
19	0.1660	0.1595	1.1/8	4.1/2	6	...300-590
20	0.1610	0.1530	1.1/8	4.1/2	6	...300-595
21	0.1590	0.1530	1.1/8	4.1/2	6	...300-600
22	0.1570	0.1510	1	4	6	...300-605
23	0.1540	0.1460	1	4	6	...300-610
24	0.1520	0.1460	1	4	6	...300-615
25	0.1495	0.1430	1	4	6	...300-620
26	0.1470	0.1430	1	4	6	...300-625
27	0.1440	0.1350	1	4	6	...300-630
28	0.1405	0.1350	1	4	6	...300-635
29	0.1360	0.1275	1	4	6	...300-640
30	0.1285	0.1190	7/8	3.1/2	6	...300-645
31	0.1200	0.1120	7/8	3.1/2	6	...300-650
32	0.1160	0.1120	7/8	3.1/2	6	...300-655



**Ordering example:** Reamer ARDa No. 11 or **Code No.** 0641-413-300-550  
**Ejemplo de pedido:** Rima ARDa No. 11 o **Número de Código** 0641-413-300-550

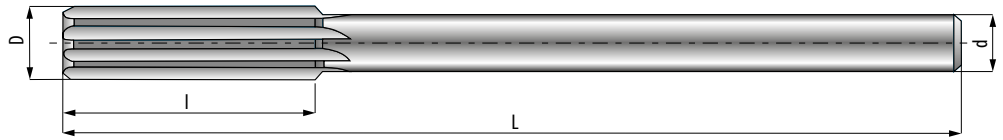
**Chucking reamers straight flutes with straight shank**

**Rimas para máquina, filo recto con mango recto**

- Straight shank
Straight flute
Right hand cut
- Mango recto
Filo recto
Corte a la derecha

ARDa

HSS



**Decimal sizes • Medidas decimales**

D	d	l	L
0.1180 ÷ 0.1230	0.1120	7/8	3.1/2
0.1235 ÷ 0.1300	0.1190	7/8	3.1/2
0.1305 ÷ 0.1340	0.1275	7/8	3.1/2
0.1345 ÷ 0.1390	0.1275	1	4
0.1395 ÷ 0.1460	0.1350	1	4
0.1465 ÷ 0.1510	0.1430	1	4
0.1515 ÷ 0.1550	0.1460	1	4
0.1555 ÷ 0.1580	0.1510	1	4
0.1585 ÷ 0.1640	0.1530	1.1/8	4.1/2
0.1645 ÷ 0.1695	0.1595	1.1/8	4.1/2
0.1700 ÷ 0.1755	0.1645	1.1/8	4.1/2
0.1760 ÷ 0.1780	0.1704	1.1/8	4.1/2
0.1785 ÷ 0.1840	0.1755	1.1/8	4.1/2
0.1845 ÷ 0.1890	0.1805	1.1/8	4.1/2
0.1895 ÷ 0.1950	0.1860	1.1/4	5
0.1955 ÷ 0.2000	0.1895	1.1/4	5
0.2005 ÷ 0.2040	0.1945	1.1/4	5
0.2045 ÷ 0.2110	0.2016	1.1/4	5
0.2115 ÷ 0.2200	0.2075	1.1/4	5
0.2205 ÷ 0.2290	0.2173	1.1/2	6
0.2295 ÷ 0.2360	0.2265	1.1/2	6
0.2365 ÷ 0.2460	0.2329	1.1/2	6
0.2465 ÷ 0.2515	0.2405	1.1/2	6
0.2520 ÷ 0.2840	0.2485	1.1/2	6
0.2850 ÷ 0.3470	0.2792	1.1/2	6
0.3480 ÷ 0.4070	0.3105	1.3/4	7
0.4080 ÷ 0.4740	0.3730	1.3/4	7
0.4750 ÷ 0.5990	0.4355	2	8
0.6000 ÷ 0.7187	0.5620	2.1/4	9
0.7344 ÷ 0.8437	0.6245	2.1/2	9.1/2
0.8750 ÷ 0.9687	0.7495	2.5/8	10
0.9844 ÷ 1.0020	0.8745	2.3/4	10.1/2

Code No. 0641-413-6(Size)  
 Example: ARDa 0.2510 - Code No. 0641-413-602-510



**Ordering example:** Reamer ARDa 0.2510 or **Code No.** 0641-413-602-510  
**Ejemplo de pedido:** Rima ARDa 0.2510 o **Número de Código** 0641-413-602-510

D		D		D		D		D		D		D		D			
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm		
pulgada		pulgada		pulgada		pulgada		pulgada		pulgada		pulgada		pulgada			
0.1180	3.007	0.1570	3.997	0.1965	5.001	0.2345	5.966	0.2950	7.505	0.3660	9.309	0.4380	11.137	0.5130	13.042	0.5900	14.998
0.1185	3.020	0.1575	4.010	0.1970	5.013	0.2350	5.979	0.2960	7.531	0.3670	9.334	0.4385	11.150	0.5140	13.068	0.5910	15.024
0.1190	3.032	0.1580	4.023	0.1975	5.026	0.2355	5.991	0.2968	7.550	0.3680	9.359	0.4390	11.163	0.5156	13.109	0.5920	15.049
0.1195	3.045	0.1585	4.036	0.1980	5.039	0.2360	6.004	0.2970	7.556	0.3690	9.385	0.4400	11.188	0.5160	13.119	0.5937	15.092
0.1200	3.058	0.1590	4.048	0.1985	5.052	0.2365	6.017	0.2980	7.581	0.3700	9.410	0.4410	11.214	0.5170	13.144	0.5940	15.100
0.1205	3.070	0.1595	4.061	0.1990	5.064	0.2370	6.029	0.2990	7.607	0.3710	9.436	0.4420	11.239	0.5180	13.169	0.5950	15.125
0.1210	3.083	0.1600	4.074	0.1995	5.077	0.2375	6.042	0.3000	7.632	0.3720	9.461	0.4430	11.264	0.5190	13.195	0.5960	15.151
0.1215	3.096	0.1605	4.086	0.2000	5.090	0.2380	6.055	0.3010	7.658	0.3730	9.486	0.4440	11.290	0.5200	13.220	0.5970	15.176
0.1220	3.108	0.1610	4.099	0.2005	5.102	0.2385	6.067	0.3020	7.683	0.3740	9.512	0.4450	11.315	0.5210	13.246	0.5980	15.201
0.1225	3.121	0.1615	4.112	0.2010	5.115	0.2390	6.080	0.3030	7.708	0.3745	9.525	0.4460	11.341	0.5220	13.271	0.5990	15.227
0.1230	3.134	0.1620	4.124	0.2015	5.128	0.2395	6.093	0.3040	7.734	0.3750	9.537	0.4470	11.366	0.5230	13.296	0.6000	15.252
0.1235	3.147	0.1625	4.137	0.2020	5.140	0.2400	6.106	0.3050	7.759	0.3755	9.550	0.4480	11.391	0.5240	13.322	0.6010	15.278
0.1240	3.159	0.1630	4.150	0.2024	5.150	0.2405	6.118	0.3060	7.785	0.3760	9.563	0.4490	11.442	0.5250	13.347	0.6020	15.303
0.1245	3.172	0.1635	4.163	0.2025	5.153	0.2410	6.131	0.3070	7.810	0.3765	9.576	0.4500	11.442	0.5260	13.373	0.6030	15.328
0.1250	3.185	0.1640	4.175	0.2030	5.166	0.2415	6.144	0.3080	7.835	0.3770	9.588	0.4510	11.468	0.5270	13.398	0.6040	15.354
0.1255	3.197	0.1645	4.188	0.2035	5.179	0.2420	6.156	0.3090	7.861	0.3780	9.613	0.4520	11.493	0.5280	13.423	0.6050	15.379
0.1260	3.210	0.1650	4.201	0.2040	5.191	0.2425	6.169	0.3100	7.886	0.3790	9.639	0.4530	11.518	0.5290	13.449	0.6060	15.405
0.1265	3.223	0.1655	4.213	0.2045	5.204	0.2430	6.182	0.3105	7.899	0.3800	9.664	0.4540	11.544	0.5300	13.474	0.6070	15.430
0.1270	3.235	0.1660	4.226	0.2050	5.217	0.2435	6.195	0.3110	7.912	0.3810	9.690	0.4550	11.569	0.5313	13.508	0.6080	15.455
0.1275	3.248	0.1665	4.239	0.2055	5.229	0.2440	6.207	0.3115	7.925	0.3820	9.715	0.4560	11.595	0.5320	13.525	0.6094	15.490
0.1280	3.261	0.1670	4.251	0.2060	5.242	0.2445	6.220	0.3120	7.937	0.3830	9.740	0.4570	11.620	0.5330	13.550	0.6100	15.505
0.1285	3.274	0.1675	4.264	0.2065	5.255	0.2450	6.233	0.3130	7.962	0.3840	9.766	0.4580	11.645	0.5340	13.576	0.6110	15.532
0.1290	3.286	0.1680	4.277	0.2070	5.267	0.2455	6.245	0.3135	7.976	0.3850	9.791	0.4590	11.671	0.5350	13.601	0.6120	15.557
0.1295	3.299	0.1685	4.290	0.2075	5.280	0.2460	6.258	0.3140	7.988	0.3860	9.817	0.4600	11.696	0.5360	13.627	0.6130	15.582
0.1300	3.312	0.1690	4.302	0.2080	5.293	0.2465	6.271	0.3145	8.001	0.3870	9.842	0.4610	11.722	0.5370	13.652	0.6140	15.608
0.1305	3.325	0.1695	4.313	0.2085	5.305	0.2470	6.283	0.3150	8.013	0.3880	9.867	0.4620	11.747	0.5380	13.677	0.6150	15.633
0.1310	3.337	0.1700	4.328	0.2090	5.318	0.2475	6.296	0.3160	8.039	0.3890	9.893	0.4630	11.772	0.5390	13.703	0.6160	15.659
0.1315	3.350	0.1705	4.340	0.2095	5.331	0.2480	6.309	0.3165	8.052	0.3900	9.918	0.4640	11.798	0.5400	13.728	0.6170	15.684
0.1320	3.362	0.1710	4.353	0.2100	5.344	0.2485	6.322	0.3170	8.064	0.3906	9.933	0.4650	11.823	0.5410	13.754	0.6180	15.709
0.1325	3.375	0.1715	4.366	0.2105	5.356	0.2490	6.334	0.3180	8.089	0.3910	9.944	0.4660	11.849	0.5420	13.779	0.6190	15.735
0.1330	3.388	0.1719	4.376	0.2110	5.369	0.2495	6.347	0.3190	8.115	0.3920	9.969	0.4670	11.874	0.5430	13.804	0.6200	15.760
0.1335	3.400	0.1720	4.378	0.2115	5.382	0.2500	6.360	0.3200	8.140	0.3930	9.994	0.4680	11.899	0.5440	13.830	0.6210	15.786
0.1340	3.413	0.1725	4.391	0.2120	5.394	0.2505	6.375	0.3210	8.166	0.3940	10.020	0.4689	11.922	0.5450	13.855	0.6220	15.811
0.1345	3.426	0.1730	4.404	0.2125	5.407	0.2510	6.388	0.3220	8.191	0.3950	10.045	0.4690	11.925	0.5467	13.898	0.6230	15.836
0.1350	3.439	0.1735	4.416	0.2130	5.420	0.2515	6.400	0.3230	8.216	0.3960	10.071	0.4700	11.950	0.5470	13.906	0.6240	15.862
0.1355	3.452	0.1740	4.429	0.2135	5.432	0.2520	6.413	0.3240	8.242	0.3970	10.096	0.4710	11.976	0.5480	13.931	0.6245	15.875
0.1360	3.464	0.1745	4.442	0.2140	5.445	0.2530	6.438	0.3250	8.267	0.3980	10.121	0.4720	12.001	0.5490	13.957	0.6250	15.887
0.1365	3.477	0.1750	4.455	0.2145	5.458	0.2540	6.464	0.3260	8.293	0.3990	10.147	0.4730	12.026	0.5500	13.982	0.6255	15.900
0.1370	3.489	0.1755	4.467	0.2150	5.471	0.2550	6.489	0.3270	8.318	0.4000	10.172	0.4740	12.052	0.5510	14.008	0.6260	15.913
0.1375	3.502	0.1760	4.480	0.2155	5.483	0.2560	6.515	0.3280	8.343	0.4010	10.198	0.4750	12.077	0.5520	14.033	0.6290	15.989
0.1380	3.515	0.1765	4.493	0.2160	5.496	0.2570	6.540	0.3281	8.344	0.4020	10.223	0.4760	12.103	0.5530	14.058	0.6300	16.015
0.1385	3.528	0.1770	4.505	0.2165	5.509	0.2580	6.565	0.3290	8.369	0.4030	10.248	0.4770	12.128	0.5540	14.084	0.6406	16.284
0.1390	3.540	0.1775	4.518	0.2170	5.521	0.2590	6.591	0.3300	8.394	0.4040	10.274	0.4780	12.153	0.5550	14.109	0.6562	16.680
0.1395	3.553	0.1780	4.531	0.2175	5.534	0.2600	6.616	0.3310	8.420	0.4050	10.299	0.4790	12.179	0.5560	14.135	0.6719	17.079
0.1400	3.566	0.1785	4.544	0.2180	5.547	0.2610	6.642	0.3320	8.445	0.4060	10.325	0.4800	12.204	0.5570	14.160	0.6875	17.475
0.1405	3.578	0.1790	4.556	0.2185	5.560	0.2620	6.667	0.3330	8.470	0.4062	10.330	0.4810	12.230	0.5580	14.185	0.7031	17.871
0.1406	3.581	0.1795	4.569	0.2187	5.564	0.2630	6.692	0.3340	8.496	0.4070	10.350	0.4820	12.255	0.5590	14.211	0.7187	18.267
0.1410	3.591	0.1800	4.582	0.2190	5.572	0.2640	6.718	0.3350	8.521	0.4080	10.375	0.4830	12.280	0.5600	14.236	0.7344	18.666
0.1415	3.604	0.1805	4.594	0.2195	5.585	0.2650	6.743	0.3360	8.547	0.4090	10.401	0.4840	12.306	0.5610	14.262	0.7480	19.012
0.1420	3.616	0.1810	4.607	0.2200	5.598	0.2656	6.758	0.3370	8.572	0.4100	10.426	0.4843	12.312	0.5615	14.274	0.7490	19.037
0.1425	3.629	0.1815	4.620	0.2205	5.610	0.2660	6.769	0.3380	8.597	0.4110	10.452	0.4850	12.331	0.5620	14.287	0.7500	19.063
0.1430	3.642	0.1820	4.632	0.2210	5.623	0.2670	6.794	0.3390	8.623	0.4120	10.477	0.4860	12.357	0.5625	14.299	0.7510	19.088
0.1435	3.654	0.1825	4.645	0.2211	5.626	0.2680	6.819	0.3400	8.648	0.4130	10.502	0.4870	12.382	0.5630	14.312	0.7520	19.114
0.1440	3.667	0.1830	4.658	0.2215	5.636	0.2690	6.845	0.3410	8.674	0.4140	10.528	0.4880	12.407	0.5635	14.325	0.7530	19.139
0.1445	3.680	0.1835	4.670	0.2220	5.648	0.2700	6.870	0.3420	8.699	0.4150	10.553	0.4890	12.433	0.5640	14.338	0.7540	19.165
0.1450	3.693	0.1840	4.683	0.2225	5.661	0.2710	6.896	0.3430	8.724	0.4160	10.579	0.4900	12.458	0.5650	14.363	0.7580	19.266
0.1455	3.706	0.1845	4.696	0.2230	5.674	0.2720	6.921	0.3432	8.729	0.4170	10.604	0.4910	12.484	0.5660	14.389	0.7656	19.459
0.1460	3.718	0.1850	4.709	0.2235	5.686	0.2730	6.946	0.3440	8.750	0.4180	10.629	0.4920	12.509	0.5670	14.414	0.7812	19.855
0.1465	3.731	0.1855	4.722	0.2240	5.699	0.2740	6.972	0.3450	8.775	0.4190	10.655	0.4930	12.534	0.5680	14.439	0.7969	20.254
0.1470	3.743	0.1860	4.734	0.2245	5.712	0.2750	6.997	0.3460	8.801	0.4200	10.680	0.4940	12.559	0.5690	14.465	0.8125	20.650
0.1475	3.756	0.1865	4.747	0.2250	5.725	0.2760	7.02										

**Chucking reamers helical flutes with straight shank**

***Rimas para máquina, filo espiral con mango recto***

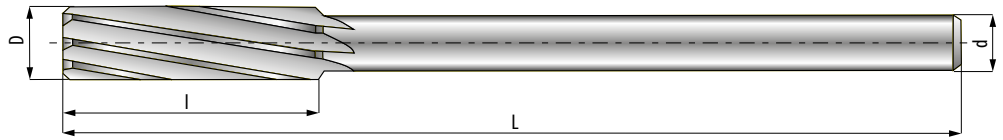
Straight shank  
Mango recto

Helical flute  
Filo espiral

Right hand cut  
Corte a la derecha

ARDp

HSS



D	d	l	L	No. of flutes No. de filos	Code No. 0641-413-...
5/32	0.1510	1	4	6	...310-015
11/64	0.1645	1.1/8	4.1/2	6	...310-020
3/16	0.1805	1.1/8	4.1/2	6	...310-025
13/64	0.1945	1.1/4	5	6	...310-030
7/32	0.2075	1.1/4	5	6	...310-035
15/64	0.2265	1.1/2	6	6	...310-040
1/4	0.2405	1.1/2	6	6	...310-045
17/64	0.2485	1.1/2	6	6	...310-050
9/32	0.2485	1.1/2	6	6	...310-055
19/64	0.2792	1.1/2	6	6	...310-060
5/16	0.2792	1.1/2	6	6	...310-065
21/64	0.2792	1.1/2	6	6	...310-070
11/32	0.2792	1.1/2	6	6	...310-075
23/64	0.3105	1.3/4	7	6	...310-080
3/8	0.3105	1.3/4	7	6	...310-085
25/64	0.3105	1.3/4	7	6	...310-090
13/32	0.3105	1.3/4	7	6	...310-095
27/64	0.3730	1.3/4	7	8	...310-100
7/16	0.3730	1.3/4	7	8	...310-105
29/64	0.3730	1.3/4	7	8	...310-110
15/32	0.3730	1.3/4	7	8	...310-115
31/64	0.4355	2	8	8	...310-120
1/2	0.4355	2	8	8	...310-125
33/64	0.4355	2	8	8	...310-130
17/32	0.4355	2	8	8	...310-135
35/64	0.4355	2	8	8	...310-140
9/16	0.4355	2	8	8	...310-145
37/64	0.4355	2	8	8	...310-150
19/32	0.4355	2	8	8	...310-155
39/64	0.5620	2.1/4	9	8	...310-160
5/8	0.5620	2.1/4	9	8	...310-165
41/64	0.5620	2.1/4	9	8	...310-170
21/32	0.5620	2.1/4	9	8	...310-175
43/64	0.5620	2.1/4	9	8	...310-176
11/16	0.5620	2.1/4	9	8	...310-180
45/64	0.5620	2.1/4	9	8	...310-181
23/32	0.5620	2.1/4	9	8	...310-185
47/64	0.6245	2.1/2	9.1/2	8	...310-186







## Tolerances • Tolerancias

Tool part Elemento	Range Límites	Direction Dirección	Tolerance Tolerancia
Diameter of reamer (D) Diámetro rima (D)	up to ¼ incl. • hasta ¼ incluido	Plus • Más	0.0001 ÷ 0.0004
	over ¼ to 1 incl. • encima de 1 incluido	Plus • Más	0.0001 ÷ 0.0005
	over 1 • encima de 1	Plus • Más	0.0002 ÷ 0.0006
Overall length (L) Largo total (L)	½ ÷ 1 incl. • ½ ÷ 1 incluido	Plus or minus • Más o menos	⅓
	1 ½ ÷ 2 incl. • 1 ½ ÷ 2 incluido	Plus or minus • Más o menos	⅓
Length of flute (l) Largo filo (l)	½ ÷ 1 incl. • ½ ÷ 1 incluido	Plus or minus • Más o menos	⅓
	1 ½ ÷ 2 incl. • 1 ½ ÷ 2 incluido	Plus or minus • Más o menos	⅓

D	d	l	L	No. of flutes No. de filos	Code No. 0641-413-...
3/4	0.6245	2.1/2	9.1/2	8	...310-190
49/64	0.6245	2.1/2	9.1/2	10	...310-191
25/32	0.6245	2.1/2	9.1/2	10	...310-195
51/64	0.6245	2.1/2	9.1/2	10	...310-196
13/16	0.6245	2.1/2	9.1/2	10	...310-200
53/64	0.6245	2.1/2	9.1/2	10	...310-201
27/32	0.6245	2.1/2	9.1/2	10	...310-205
55/64	0.7495	2.5/8	10	10	...310-206
7/8	0.7495	2.5/8	10	10	...310-210
57/64	0.7495	2.5/8	10	10	...310-211
29/32	0.7495	2.5/8	10	10	...310-215
59/64	0.7495	2.5/8	10	10	...310-216
15/16	0.7495	2.5/8	10	10	...310-220
61/64	0.7495	2.5/8	10	10	...310-221
31/32	0.7495	2.5/8	10	10	...310-225
63/64	0.8745	2.3/4	10.1/2	10	...310-226
1	0.8745	2.3/4	10.1/2	10	...310-230
1.1/32	0.8745	2.3/4	10.1/2	10	...310-231
1.1/16	0.8745	2.3/4	10.1/2	10	...310-235
1.3/32	0.8745	2.7/8	11	10	...310-236
1.1/8	0.8745	2.7/8	11	10	...310-240
1.5/32	0.9995	2.7/8	11	12	...310-241
1.3/16	0.9995	2.7/8	11	12	...310-245
1.1/4	0.9995	3	11.1/2	12	...310-250
1.5/16	0.9995	3	11.1/2	12	...310-255
1.3/8	0.9995	3.1/4	12	12	...310-260
1.7/16	1.2495	3.1/4	12	12	...310-265
1.1/2	1.2495	3.1/2	12.1/2	12	...310-270
1.9/16	1.2495	3.1/2	12.1/2	12	...310-275
1.5/8	1.2495	3.1/2	13	12	...310-280
1.11/16	1.2495	3.1/2	13	12	...310-285
1.3/4	1.2495	4	13.1/2	12	...310-290
1.7/8	1.5000	4	14	12	...310-295
2	1.5000	4	14	14	...310-300



**Ordering example:** Reamer ARDp 1/2 or **Code No.** 0641-413-310-125

**Ejemplo de pedido:** Rima ARDp 1/2 o **Número de Código** 0641-413-310-125

## Chucking reamers with Morse taper shank

### Rimas para máquina con mango cónico

Taper shank  
Mango cónico

Straight flute/helical flute  
Filo recto/filo espiral

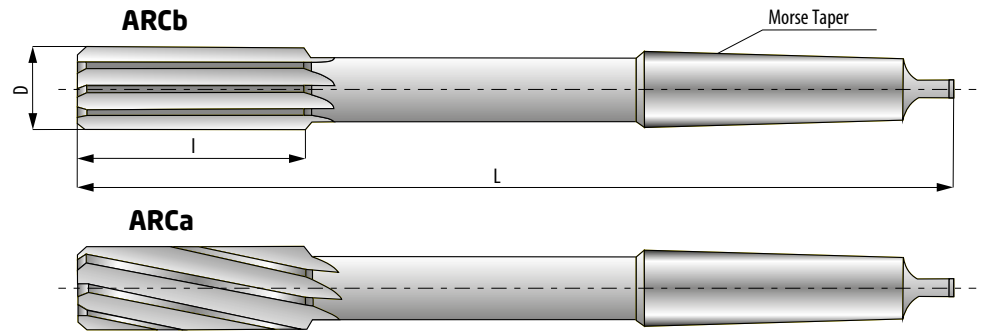
Right hand cut  
Corte a la derecha

Fractional sizes  
Tamaños fraccionales

ARCa

ARCb

HSS



D	I	L	No. of flutes No. de filos	Morse Taper No. Mango Cónico No.	Code No.	
					ARCb 0641-414-...	ARCa 0641-414-...
1/4	1.1/2	6	6	1	...300-010	...301-010
9/32	1.1/2	6	6	1	...300-015	...301-015
5/16	1.1/2	6	6	1	...300-020	...301-020
11/32	1.1/2	6	6	1	...300-025	...301-025
3/8	1.3/4	7	6	1	...300-030	...301-030
13/32	1.3/4	7	6	1	...300-035	...301-035
7/16	1.3/4	7	8	1	...300-040	...301-040
15/32	1.3/4	7	8	1	...300-045	...301-045
1/2	2	8	8	1	...300-050	...301-050
17/32	2	8	8	1	...300-055	...301-055
9/16	2	8	8	1	...300-060	...301-060
19/32	2	8	8	1	...300-065	...301-065
5/8	2.1/4	9	8	2	...300-070	...301-070
21/32	2.1/4	9	8	2	...300-075	...301-075
11/16	2.1/4	9	8	2	...300-080	...301-080
23/32	2.1/4	9	8	2	...300-085	...301-085
3/4	2.1/2	9.1/2	8	2	...300-090	...301-090
25/32	2.1/2	9.1/2	10	2	...300-095	...301-095
13/16	2.1/2	9.1/2	10	2	...300-100	...301-100
27/32	2.1/2	9.1/2	10	2	...300-105	...301-105
7/8	2.5/8	10	10	2	...300-110	...301-110
29/32	2.5/8	10	10	2	...300-115	...301-115
15/16	2.5/8	10	10	3	...300-120	...301-120
31/32	2.5/8	10	10	3	...300-125	...301-125





## Tolerances • Tolerancias

Tool part Elemento	Range Límites	Direction Dirección	Tolerance Tolerancia
Diameter of reamer (D) Diámetro rima (D)	$\frac{1}{4}$ incl. • $\frac{1}{4}$ incluido	Plus • Más	0.0001 ÷ 0.0004
	over $\frac{1}{4}$ ÷ 1 incl. • encima de $\frac{1}{4}$ ÷ 1 incluido	Plus • Más	0.0001 ÷ 0.0005
	over 1 • encima de 1	Plus • Más	0.0002 ÷ 0.0006
Overall length (L) Largo total (L)	$\frac{1}{4}$ ÷ 1 incl. • $\frac{1}{4}$ ÷ 1 incluido	Plus or minus • Más o menos	$\frac{1}{16}$
	$1\frac{1}{32}$ ÷ 2 incl. • $1\frac{1}{32}$ ÷ 2 incluido	Plus or minus • Más o menos	$\frac{3}{32}$
Length of flute (l) Largo filo (l)	$\frac{1}{4}$ ÷ 1 incl. • $\frac{1}{4}$ ÷ 1 incluido	Plus or minus • Más o menos	$\frac{1}{16}$
	$1\frac{1}{32}$ ÷ 2 incl. • $1\frac{1}{32}$ ÷ 2 incluido	Plus or minus • Más o menos	$\frac{3}{32}$



D	l	L	No. of flutes No. de filos	Morse Taper No. Mango Cónico No.	Code No.	
					ARCb 0641-414-...	ARCa 0641-414-...
1	2.3/4	10.1/2	10	3	...300-130	...301-130
1.1/32	2.3/4	10.1/2	10	3	...300-135	...301-135
1.1/16	2.3/4	10.1/2	10	3	...300-140	...301-140
1.3/32	2.3/4	10.1/2	10	3	...300-145	...301-145
1.1/8	2.7/8	11	10	3	...300-150	...301-150
1.5/32	2.7/8	11	10	3	...300-155	...301-155
1.3/16	2.7/8	11	10	3	...300-160	...301-160
1.1/4	3	11.1/2	12	4	...300-165	...301-165
1.9/32	3	11.1/2	12	4	...300-170	...301-170
1.5/16	3	11.1/2	12	4	...300-175	...301-175
1.3/8	3.1/4	12	12	4	...300-180	...301-180
1.7/16	3.1/4	12	12	4	...300-185	...301-185
1.1/2	3.1/2	12.1/2	12	4	...300-190	...301-190
1.9/16	3.1/2	12.1/2	12	4	...300-195	...301-195
1.5/8	3.1/2	13	12	4	...300-200	...301-200
1.11/16	4	13.1/2	12	4	...300-205	...301-205
1.3/4	4	13.1/2	12	4	...300-210	...301-210
1.7/8	4	14	12	4	...300-215	...301-215
2	4	14.1/2	14	4	...300-220	...301-220

**Ordering example:** Reamer ARCb 1/2 or **Code No.** 0641-414-300-050

**Ejemplo de pedido:** Rima ARCb 1/2 o **Número de Código** 0641-414-300-050

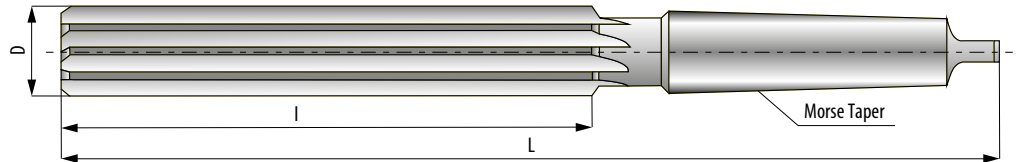
## Jobber reamers with Morse taper shank Rimas de trabajo "Jobber" con mango cónico

Taper shank  
Mango cónico

Straight flute  
Filo recto

ARCc

HSS



### Tolerances • Tolerancias

Tool part Elemento	Range Límites	Direction Dirección	Tolerance Tolerancia
Diameter of reamer (D) Diámetro rima (D)	$\frac{1}{4}$ incl. • $\frac{1}{4}$ incluido	Plus • Más	0.0001 ÷ 0.0004
	over $\frac{1}{4}$ ÷ 1 incl. • encima de $\frac{1}{4}$ ÷ 1 incluido	Plus • Más	0.0001 ÷ 0.0005
	over 1 • encima de 1	Plus • Más	0.0002 ÷ 0.0006
Overall length (L) Largo total (L)	$\frac{1}{4}$ ÷ 1 incl. • $\frac{1}{4}$ ÷ 1 incluido	Plus or minus • Más o menos	$\frac{1}{16}$
	$1\frac{1}{16}$ ÷ $1\frac{1}{2}$ incl. • $1\frac{1}{16}$ ÷ $1\frac{1}{2}$ incluido	Plus or minus • Más o menos	$\frac{3}{32}$
Length of flute (I) Largo filo (I)	$\frac{1}{4}$ ÷ 1 incl. • $\frac{1}{4}$ ÷ 1 incluido	Plus or minus • Más o menos	$\frac{1}{16}$
	$1\frac{1}{16}$ ÷ $1\frac{1}{2}$ incl. • $1\frac{1}{16}$ ÷ $1\frac{1}{2}$ incluido	Plus or minus • Más o menos	$\frac{3}{32}$

D	I	L	No. of flutes No. de filos	Morse Taper No. Mango Cónico No.	Code No. 0641-414-...
1/4	2	5.3/16	6	1	...310-010
9/32	2	5.3/16	6	1	...310-015
5/16	2.1/4	5.1/2	6	1	...310-020
11/32	2.1/4	5.1/2	6	1	...310-025
3/8	2.1/2	5.13/16	6	1	...310-030
13/32	2.1/2	5.13/16	6	1	...310-035
7/16	2.3/4	6.1/8	8	1	...310-040
15/32	2.3/4	6.1/8	8	1	...310-045
1/2	3	6.7/16	8	1	...310-050
17/32	3	6.7/16	8	1	...310-055
9/16	3.1/4	6.3/4	8	1	...310-060
19/32	3.1/4	6.3/4	8	1	...310-065
5/8	3.1/2	7.9/16	8	2	...310-070
21/32	3.1/2	7.9/16	8	2	...310-075
11/16	3.7/8	8	8	2	...310-080
23/32	3.7/8	8	8	2	...310-085
3/4	4.3/16	8.3/8	8	2	...310-090
25/32	4.3/16	8.3/8	8	2	...310-095
13/16	4.9/16	8.13/16	10	2	...310-100
27/32	4.7/8	9.3/16	10	2	...310-105
7/8	4.7/8	9.3/16	10	2	...310-110
15/16	5.1/8	10	10	3	...310-115
1	5.7/16	10.3/8	10	3	...310-120
1.1/16	5.5/8	10.5/8	10	3	...310-125
1.1/8	5.13/16	10.7/8	10	3	...310-130
1.3/16	6	11.1/8	10	3	...310-135
1.1/4	6.1/8	12.9/16	12	4	...310-140
1.5/16	6.1/4	12.11/16	12	4	...310-145
1.3/8	6.5/16	12.13/16	12	4	...310-150
1.7/16	6.7/16	13	12	4	...310-155
1.1/2	6.1/2	13.1/8	12	4	...310-160



Ordering example: Reamer ARCc 1/2 or Code No. 0641-414-310-050

Ejemplo de pedido: Rima ARCc 1/2 o Número de Código 0641-414-310-050

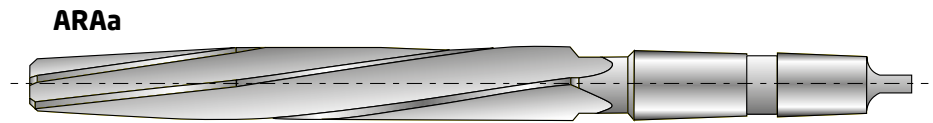
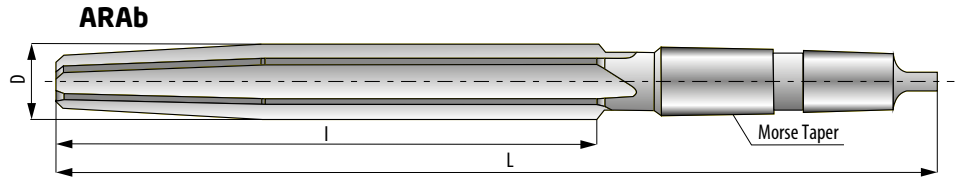
**Bridge reamers 5 flutes with Morse taper shank**  
**Rimas tipo puente "Bridge" con mango cónico**

- | Taper shank | Straight flute | Helical right hand cut
- | Mango cónico | Filo recto | Corte espiral a la derecha

ARAb

ARAA

HSS



**Tolerances • Tolerancias**

Tool part Elemento	Range Límites	Direction Dirección	Tolerance Tolerancia
Diameter of reamer (D) Diámetro rima (D)	$\pm \frac{5}{16} \div 2$ incl. • $\pm \frac{5}{16} \div 2$ incluido	Plus • Más	0.000 ÷ 0.010
Overall length (L) Largo total (L)	$\pm \frac{5}{16} \div 2$ incl. • $\pm \frac{5}{16} \div 2$ incluido	Plus or minus • Más o menos	$\frac{1}{8}$
Length of flute (l) Largo filo (l)	$\pm \frac{5}{16} \div 2$ incl. • $\pm \frac{5}{16} \div 2$ incluido	Plus or minus • Más o menos	$\frac{1}{4}$

D	l	L	Morse Taper No. Mango Cónico No.	Code No.	
				ARAb 0641-491-...	ARAA 0641-491-...
5/16	4.3/8	8.1/4	2	-	...310-010
13/32	4.3/8	8.1/4	2	...300-015	...310-015
7/16	4.3/8	8.1/4	2	...300-020	...310-020
15/32	5.1/8	9	2	...300-025	...310-025
1/2	5.1/8	9	2	...300-030	...310-030
17/32	5.1/8	9	2	...300-035	...310-035
9/16	5.1/8	9	2	...300-040	...310-040
5/8	6.1/8	10	2	...300-045	...310-045
11/16	7.1/8	11.3/4	3	...300-050	...310-050
3/4	7.3/8	12	3	...300-055	...310-055
13/16	7.3/8	12	3	...300-060	...310-060
7/8	7.3/8	12	3	...300-065	...310-065
15/16	7.3/8	12	3	...300-070	...310-070
1	7.3/8	12	3	...300-075	...310-075
1.1/16	7.3/8	12	3	...300-080	...310-080
1.1/8	7.3/8	12	3	...300-085	...310-085
1.3/16	7.3/8	12	3	...300-090	...310-090
1.1/4	7.3/8	13	4	...300-095	...310-095
1.5/16	7.3/8	13	4	...300-100	...310-100
1.3/8	7.3/8	13	4	...300-105	...310-105
1.7/16	7.3/8	13	4	...300-110	...310-110
1.1/2	7.3/8	13	4	...300-115	...310-115
1.9/16	7.3/8	13	4	...300-120	...310-120
1.5/8	7.3/8	13	4	...300-125	...310-125
1.11/16	7.3/8	13	4	-	...310-130
1.3/4	7.3/8	13	4	-	...310-135
1.13/16	7.3/8	13	4	-	...310-140
1.7/8	7.3/8	13	4	-	...310-145
1.15/16	7.3/8	13	4	-	...310-150
2	7.3/8	13	4	-	...310-155



**Ordering example:** Reamer ARAb 1/2 or **Code No.** 0641-491-300-030  
**Ejemplo de pedido:** Rima ARAb 1/2 o **Número de Código** 0641-491-300-030

## Taper car reamers 5 flutes with Morse taper shank Rimas cónicas automotrices, 5 filos con mango cónico

Taper shank  
Mango cónico

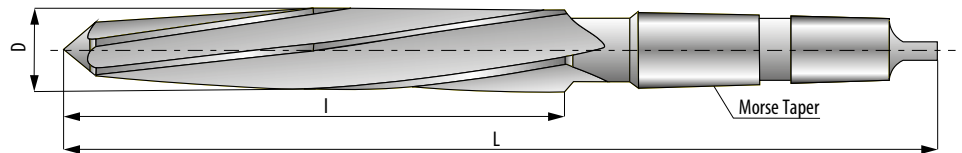
5 flute  
5 filos

Left-hand helical  
Espiral a la izquierda

Right hand cut  
Corte a la derecha

ARAE

HSS



### Tolerances • Tolerancias

Tool part Elemento	Range Límites	Direction Dirección	Tolerance Tolerancia
Diameter of reamer (D) Diámetro rima (D)	$\frac{5}{16} \div 1\frac{1}{16}$ incl. • $\frac{5}{16} \div 1\frac{1}{16}$ incluido	Plus • Más	0.000 ÷ 0.010
Overall length (L) Largo total (L)	$\frac{5}{16} \div 1\frac{1}{16}$ incl. • $\frac{5}{16} \div 1\frac{1}{16}$ incluido	Plus or minus • Más o menos	$\frac{1}{8}$
Length of flute (l) Largo filo (l)	$\frac{5}{16} \div 1\frac{1}{16}$ incl. • $\frac{5}{16} \div 1\frac{1}{16}$ incluido	Plus or minus • Más o menos	$\frac{1}{4}$

D	l	L	Morse Taper No. Mango Cónico No.	Code No. 0641-419-...
5/16	2.3/4	5.11/16	1	...301-005
3/8	2.3/4	5.11/16	1	...301-010
7/16	3.1/2	6.15/16	2	...301-015
1/2	4	7.9/16	2	...301-020
9/16	4	7.9/16	2	...301-025
5/8	4.1/2	8.1/16	2	...301-030
11/16	4.1/2	8.13/16	3	...301-035
3/4	5	9.1/2	3	...301-040
13/16	5	9.1/2	3	...301-045
15/16	5	9.1/2	3	...301-050
1	5	9.1/2	3	...301-055
1.1/32	5	9.1/2	3	...301-057
1.1/16	5	9.1/2	3	...301-060

Ordering example: Car Reamer ARAE 1/2 or Code No. 0641-419-301-020

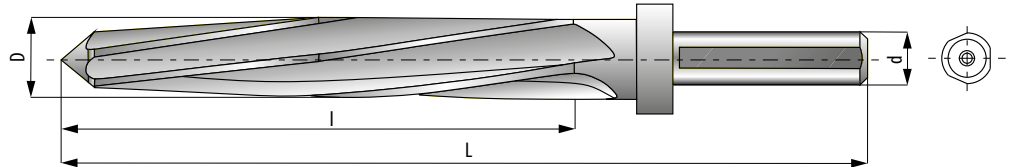
Ejemplo de pedido: Rima automotriz ARAE 1/2 o Número de Código 0641-419-301-020



**Taper car reamers 5 flutes with straight (3-equal-flat) shank*****Rimas cónicas automotrices, 5 filos con mango de 3 chaflanes iguales***3-equal-flat straight shank  
Mango de 3 chaflanes iguales5 flute  
5 filosLeft-hand helical  
Espiral a la izquierdaRight hand cut  
Corte a la derecha

ARAF

HSS



D	d	l	L	Code No. 0641-419-...
5/16	5/16	2.3/4	4.5/8	...302-005
3/8	3/8	2.3/4	4.5/8	...302-010
7/16	7/16	3.1/2	5.3/8	...302-015
1/2	1/2	4	5.7/8	...302-020
9/16	1/2	4	5.7/8	...302-025
5/8	1/2	4.1/2	6.3/8	...302-030
11/16	1/2	4.1/2	6.3/8	...302-035
3/4	1/2	5	6.7/8	...302-040
13/16	1/2	5	6.7/8	...302-045
7/8	1/2	5	6.7/8	...302-050
15/16	1/2	5	6.7/8	...302-055
1	1/2	5	6.7/8	...302-060
1.1/16	1/2	5	6.7/8	...302-065

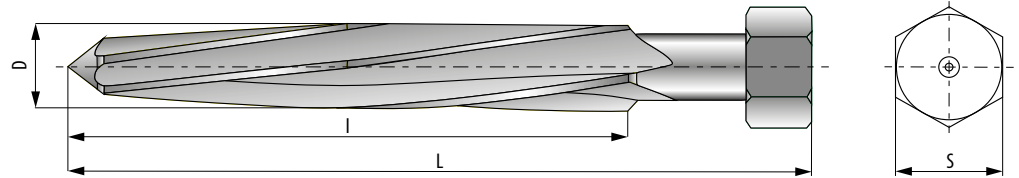
**Ordering example:** Car Reamer ARAf 1/2 or **Code No.** 0641-419-302-020**Ejemplo de pedido:** Rima automotriz ARAf 1/2 o **Número de Código** 0641-419-302-020

**Taper car reamers 5 flutes with hexagonal shank**  
**Rimas cónicas automotrices, 5 filos con mango hexagonal**

- Hexagonal shank / Mango hexagonal
- 5 flute / 5 filos
- Left-hand helical / Espiral a la izquierda
- Right hand cut / Corte a la derecha

ARAg

HSS



D [inch] [pulgada]	S	I	L	Code No. 0641-419-...
11/16	1.1/16	4.1/2	6.21/32	...303-030
13/16	1.1/16	5	7.9/32	...303-032
13/16	1.1/4	5	7.9/32	...303-035
15/16	1.7/16	5	7.9/32	...303-045
1.1/16	1.5/8	5	7.9/32	...303-055

**Ordering example:** Car Reamer ARAg 1 1/16 or **Code No.** 0641-419-303-030

**Ejemplo de pedido:** Rima automotriz ARAg 1 1/16 o **Número de Código** 0641-419-303-030



**Hand reamers**  
**Rimas de mano**

- 
- 

Straight shank  
Mango recto

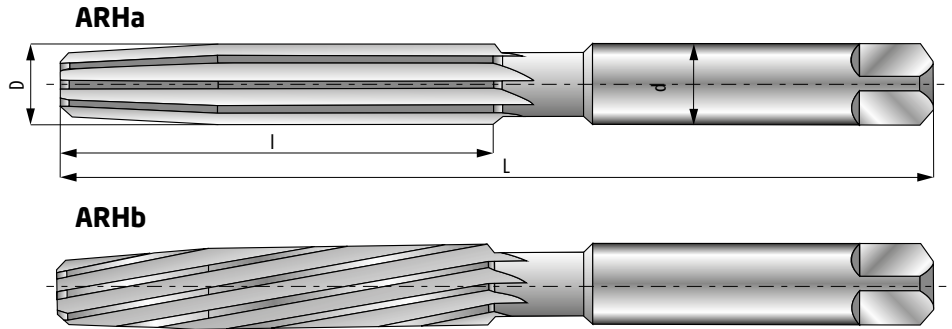
Right hand cut  
Corte a la derecha

Helical and straight flute  
Filo espiral y recto

ARHa

ARHb

HSS



D	I	L	No. of flutes No. de filos	Code No.	
				ARHa 0641-415-...	ARHb 0641-415-...
1/8	1.1/2	3	6	...300-005	...310-005
9/64	1.5/8	3.1/4	6	...300-008	...310-008
5/32	1.5/8	3.1/4	6	...300-010	...310-010
11/64	1.3/4	3.1/2	6	...300-015	...310-015
3/16	1.3/4	3.1/2	6	...300-020	...310-020
13/64	1.7/8	3.3/4	6	...300-022	...310-022
7/32	1.7/8	3.3/4	6	...300-025	...310-025
15/64	2	4	6	...300-027	...310-027
1/4	2	4	6	...300-030	...310-030
17/64	2.1/8	4.1/4	6	...300-032	...310-032
9/32	2.1/8	4.1/4	6	...300-035	...310-035
19/64	2.1/4	4.1/2	6	...300-037	...310-037
5/16	2.1/4	4.1/2	6	...300-040	...310-040
21/64	2.3/8	4.3/4	6	...300-042	...310-042
11/32	2.3/8	4.3/4	6	...300-045	...310-045
23/64	2.1/2	5	6	...300-047	...310-047
3/8	2.1/2	5	6	...300-050	...310-050
25/64	2.5/8	5.1/4	6	...300-055	...310-055
13/32	2.5/8	5.1/4	8	...300-060	...310-060
27/64	2.3/4	5.1/2	8	...300-062	...310-062
7/16	2.3/4	5.1/2	8	...300-065	...310-065
29/64	2.7/8	5.3/4	8	...300-067	...310-067
15/32	2.7/8	5.3/4	8	...300-070	...310-070
31/64	3	6	8	...300-075	...310-075
1/2	3	6	8	...300-080	...310-080





## Tolerances • Tolerancias

Tool part Elemento	Range Límites	Direction Dirección	Tolerance Tolerancia
Diameter of reamer (D) Diámetro rima (D)	$\frac{1}{4}$ incl. • hasta $\frac{1}{4}$ incluido	Plus • Más	0.0001 ÷ 0.0004
	over $\frac{1}{4}$ ÷ 1 incl. • encima de $\frac{1}{4}$ ÷ 1 incluido	Plus • Más	0.0001 ÷ 0.0005
	over 1 • encima de 1	Plus • Más	0.0002 ÷ 0.0006
Overall length (L) Largo total (L)	$\frac{1}{8}$ ÷ 1 incl. • $\frac{1}{8}$ ÷ 1 incluido	Plus or minus • Más o menos	$\frac{1}{16}$
	$1 \frac{1}{16}$ ÷ $1 \frac{1}{2}$ incl. • $1 \frac{1}{16}$ ÷ $1 \frac{1}{2}$ incluido	Plus or minus • Más o menos	$\frac{3}{32}$
Length of flute (l) Largo filo (l)	$\frac{1}{8}$ ÷ 1 incl. • $\frac{1}{8}$ ÷ 1 incluido	Plus or minus • Más o menos	$\frac{1}{16}$
	$1 \frac{1}{16}$ ÷ $1 \frac{1}{2}$ incl. • $1 \frac{1}{16}$ ÷ $1 \frac{1}{2}$ incluido	Plus or minus • Más o menos	$\frac{3}{32}$

D	l	L	No. of flutes No. de filos	Code No.	
				ARHa 0641-415-...	ARHb 0641-415-...
17/32	3.1/8	6.1/4	8	...300-085	...310-085
9/16	3.1/4	6.1/2	8	...300-090	...310-090
19/32	3.3/8	6.3/4	8	...300-095	...310-095
5/8	3.1/2	7	8	...300-100	...310-100
21/32	3.11/16	7.3/8	8	...300-105	...310-105
11/16	3.7/8	7.3/4	8	...300-110	...310-110
23/32	4.1/16	8.1/8	8	...300-115	...310-115
3/4	4.3/16	8.3/8	8	...300-120	...310-120
25/32	4.3/8	8.3/4	10	...300-125	...310-125
13/16	4.9/16	9.1/8	10	...300-130	...310-130
27/32	4.11/16	9.3/8	10	...300-135	...310-135
7/8	4.7/8	9.3/4	10	...300-140	...310-140
29/32	5	10	10	...300-145	...310-145
15/16	5.1/8	10.1/4	10	...300-150	...310-150
31/32	5.5/16	10.5/8	10	...300-155	...310-155
1	5.7/16	10.7/8	10	...300-160	...310-160
1.1/16	5.5/8	11.1/4	10	...300-165	...310-165
1.1/8	5.13/16	11.5/8	10	...300-170	...310-170
1.3/16	6	12	10	...300-175	...310-175
1.1/4	6.1/8	12.1/4	12	...300-180	...310-180
1.5/16	6.1/4	12.1/2	12	...300-185	...310-185
1.3/8	6.5/16	12.5/8	12	...300-190	...310-190
1.7/16	6.7/16	12.7/8	12	...300-195	...310-195
1.1/2	6.1/2	13	12	...300-200	...310-200

**Ordering example:** Reamer ARHa 1/2 or **Code No.** 0641-415-300-080

**Ejemplo de pedido:** Rima ARHa 1/2 o **Número de Código** 0641-415-300-080



## Expansion hand reamers Rimas manuales de expansión

Helical and straight flute  
Filo espiral y recto

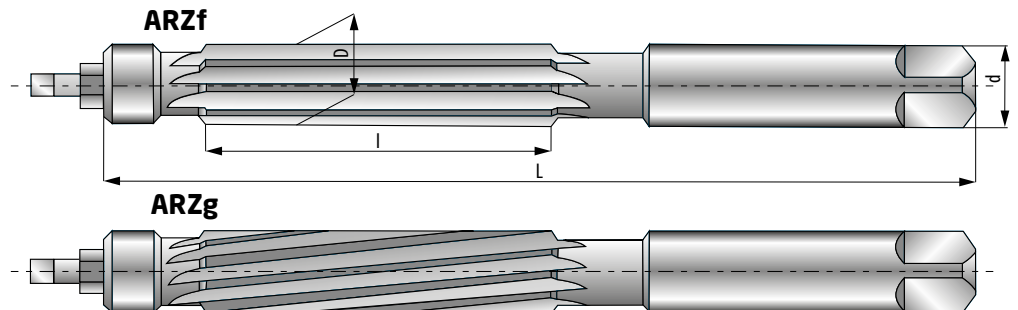
Right hand cut  
Corte a la derecha

Expansion max. 1% D  
Expansión máx. 1% D

ARZf

ARZg

HSS



### Tolerances • Tolerancias

Tool part Elemento	Range Límites	Direction Dirección	Tolerance Tolerancia
Diameter of reamer (D) Diámetro rima (D)	$\frac{5}{16} \div 1$ incl. • $\frac{5}{16} \div 1$ incluido $1 \frac{1}{16} \div 2$ incl. • $1 \frac{1}{16} \div 2$ incluido	Minus • Menos Minus • Menos	0.01 ÷ 0.0004 0.0015 ÷ 0.006
Overall length (L) Largo total (L)	$\frac{5}{16} \div 1$ incl. • $\frac{5}{16} \div 1$ incluido $1 \frac{1}{16} \div 2$ incl. • $1 \frac{1}{16} \div 2$ incluido	Plus or minus • Más o menos Plus or minus • Más o menos	$\frac{1}{16}$ $\frac{3}{32}$
Length of flute (l) Largo filo (l)	$\frac{5}{16} \div 1$ incl. • $\frac{5}{16} \div 1$ incluido $1 \frac{1}{16} \div 2$ incl. • $1 \frac{1}{16} \div 2$ incluido	Plus or minus • Más o menos Plus or minus • Más o menos	$\frac{1}{16}$ $\frac{3}{32}$



D	d	l	L	No. of flutes No. de filos	Code No.	
					ARZf 0641-429-...	ARZg 0641-429-...
1/2	1/2	2	5.1/2	6	...300-045	...310-045
17/32	17/32	2	5.1/2	6	...300-050	...310-050
9/16	9/16	2.1/2	6	6	...300-055	...310-055
19/32	19/32	2.1/2	6	6	...300-060	...310-060
5/8	5/8	3	7	6	...300-065	...310-065
21/32	21/32	3	7	6	...300-070	...310-070
11/16	11/16	3	7	6	...300-075	...310-075
23/32	23/32	3	7	6	...300-080	...310-080
3/4	3/4	3.1/2	8	8	...300-085	...310-085
25/32	25/32	3.1/2	8	8	...300-090	...310-090
13/16	13/16	3.1/2	8	8	...300-095	...310-095
27/32	27/32	3.1/2	8	8	...300-100	...310-100
7/8	7/8	4	9	8	...300-105	...310-105
29/32	29/32	4	9	8	...300-110	...310-110
15/16	15/16	4	9	8	...300-115	...310-115
31/32	31/32	4	9	8	...300-120	...310-120
1	1	4.1/2	10	8	...300-125	...310-125
1.1/16	1.1/16	4.1/2	10	8	...300-130	...310-130
1.1/8	1.1/8	4.3/4	10.1/2	8	...300-135	...310-135
1.3/16	1.3/16	4.3/4	10.1/2	8	...300-140	...310-140
1.1/4	1.1/4	5	11	8	...300-145	...310-145
1.5/16	1.5/16	5	11	10	...300-150	...310-150
1.3/8	1.3/8	5.1/4	11.1/2	10	...300-155	...310-155
1.7/16	1.7/16	5.1/4	11.1/2	10	...300-160	...310-160
1.1/2	1.1/2	5.1/2	12	10	...300-165	...310-165
1.3/4	1.3/4	5.1/2	12.3/8	12	...300-185	...310-185
1.7/8	1.7/8	5.1/2	12.3/8	12	...300-195	...310-195
2	2	5.1/2	12.3/8	12	...300-200	...310-200

Ordering example: Reamer ARZf 1/2 or Code No. 0641-429-300-045

Ejemplo de pedido: Rima ARZf 1/2 o Número de Código 0641-429-300-045

**Taper pipe reamers included taper 3/4 In/Ft**  
**Rimas cónicas para tubo**

Helical and straight flute  
 Filo espiral y recto

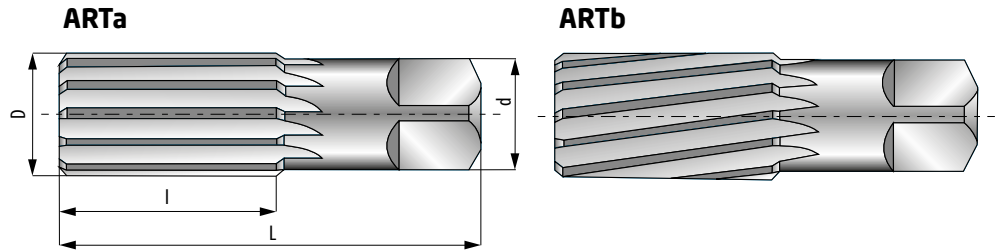
Taper 3/4 In/Ft  
 Conicidad 3/4 Pulg./Pie

Right hand cut  
 Corte a la derecha

ARTa

ARTb

HSS



**Tolerances • Tolerancias**

Tool part Elemento	Range Límites	Direction Dirección	Tolerance Tolerancia
Diameter of shank (D) Diámetro mango (D)	up to 1/8 • hasta 1/8	Minus • Menos	0.0015
	1/4 ÷ 1 incl. • 1/4 ÷ 1 incluido	Minus • Menos	0.002
	1 1/4 ÷ 3 incl. • 1 1/4 ÷ 3 incluido	Minus • Menos	0.003
Overall length (L) Largo total (L)	1/16 ÷ 3/4 incl. • 1/16 ÷ 3/4 incluido	Plus or minus • Más o menos	1/16
	1 ÷ 1 1/2 incl. • 1 ÷ 1 1/2 incluido	Plus or minus • Más o menos	3/32
	over 2 incl. • encima de 2 incluido	Plus or minus • Más o menos	1/8
Length of flute (l) Largo filo (l)	1/16 ÷ 3/4 incl. • 1/16 ÷ 3/4 incluido	Plus or minus • Más o menos	1/16
	1 ÷ 1 1/2 incl. • 1 ÷ 1 1/2 incluido	Plus or minus • Más o menos	3/32
	over 2 incl. • encima de 2 incluido	Plus or minus • Más o menos	1/8

Size Tamaño	D	d	l	L [inch]	No. of flutes No. de filos	Code No.	
						ARTa 0641-493-...	ARTb 0641-493-...
1/16	0.291	0.3750	3/4	2	6	...300-005	...301-005
1/8	0.362	0.4375	3/4	2.1/8	6	...300-010	...301-010
1/4	0.472	0.5625	1.1/16	2.7/16	6	...300-015	...301-015
3/8	0.606	0.7000	1.1/16	2.9/16	6	...300-020	...301-020
1/2	0.751	0.6875	1.3/8	3.1/8	6	...300-025	...301-025
3/4	0.962	0.9063	1.3/8	3.1/4	8	...300-030	...301-030
1	1.212	1.1250	1.3/4	3.3/4	10	...300-035	...301-035
1.1/4	1.553	1.3125	1.3/4	4	10	...300-040	...301-040
1.1/2	1.793	1.5000	1.3/4	4.1/4	10	...300-045	...301-045
2	2.268	1.8750	1.3/4	4.1/2	12	...300-050	...301-050
2.1/2	2.772	2.2500	2.5/8	5.1/2	12	...300-055	...301-055
3	2.380	2.6250	2.3/4	6	12	...300-060	...301-060



**Ordering example:** Reamer ARTa 1/2 or **Code No.** 0641-493-300-025

**Ejemplo de pedido:** Rima ARTa 1/2 o **Número de Código** 0641-493-300-025

**Taper pin reamers**  
**Rimas cónicas**

Helical and straight flute  
Filo espiral y recto

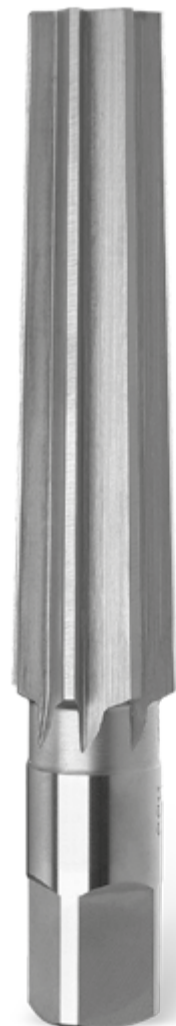
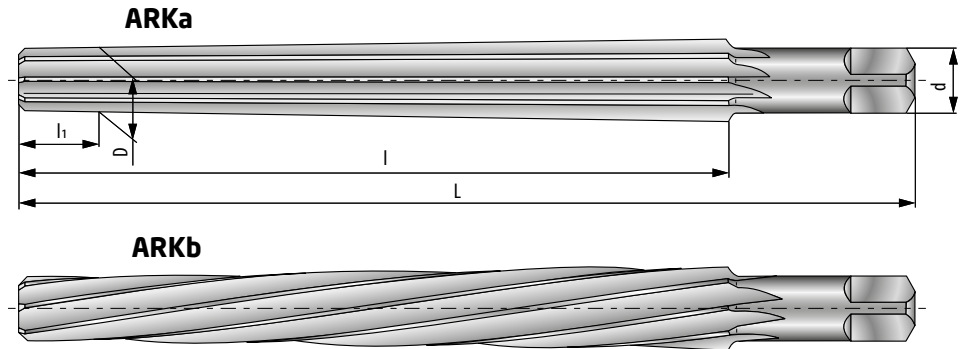
Right hand cut  
Corte a la derecha

Taper 1/4 In/Ft  
Conicidad 1/4 Pulg./Pie

ARKa

ARKb

HSS



Size Tamaño	d	D	l	L	Code No.	
					ARKa 0641-449-...	ARKb 0641-449-...
#1	.1447	.1798	1-11/16	2-15/16	...300-020	...305-020
#2	.1605	.2008	1-15/16	3-3/16	...300-025	...305-025
#3	.1813	.2294	2-5/16	3-11/16	...300-030	...305-030
#4	.2071	.2604	2-9/16	4-1/16	...300-035	...305-035
#5	.2409	.2994	2-13/16	4-5/16	...300-040	...305-040
#6	.2773	.3540	3-11/16	5-7/16	...300-045	...305-045
#7	.3297	.4220	4-7/16	6-5/16	...300-050	...305-050
#8	.3971	.5050	5-3/16	7-3/16	...300-055	...305-055
#9	.4805	.6066	6-1/16	8-5/16	...300-060	...305-060
#10	.5799	.7216	6-13/16	9-5/16	...300-065	...305-065

**Ordering example:** Reamer ARKa 1 or **Code No.** 0641-449-300-020

**Ejemplo de pedido:** Rima ARKa 1 o **Número de Código** 0641-449-300-020

## Expansion chucking reamers

### Rimas de expansión para máquinas

Straight flute  
Filo recto

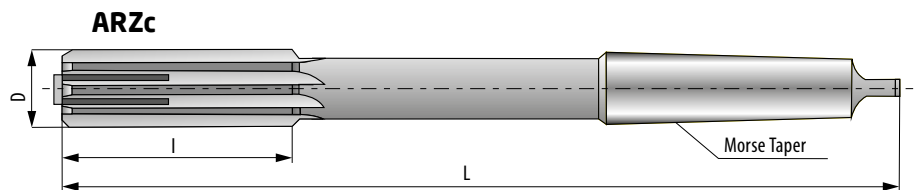
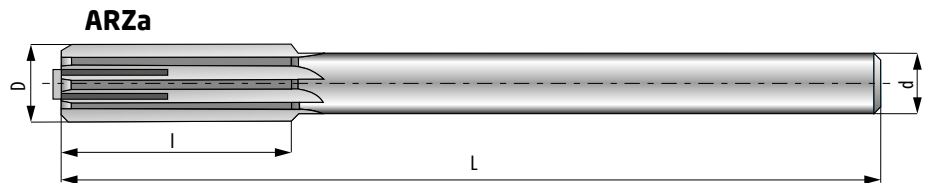
Right hand cut  
Corte a la derecha

Straight and Morse taper shank  
Rectas y con mango cónico

ARZa

ARZc

HSS



Diameter [inches] Diámetro [pulgada]		I	L	No. of flutes No. de filos	ARZc		ARZa	
Fractional Fraccional	Decimal Decimal				No.	Code No. 0641-429-...	Diameter Diámetro	Code No. 0641-429-...
3/8	.3750	3/4	7	6	1	...340-025	5/16	...320-025
13/32	.4060	3/4	7	6	1	...340-030	5/16	...320-030
7/16	.4375	7/8	7	6	1	...340-035	3/8	...320-035
15/32	.4688	7/8	7	6	1	...340-040	3/8	...320-040
1/2	.5000	1	8	6	1	...340-045	7/16	...320-045
17/32	.5312	1	8	6	1	...340-050	7/16	...320-050
9/16	.5625	1-1/8	8	6	1	...340-055	7/16	...320-055
19/32	.5938	1-1/8	8	6	1	...340-060	7/16	...320-060
5/8	.6250	1-1/4	9	6	2	...340-065	9/16	...320-065
21/32	.6562	1-1/4	9	6	2	...340-070	9/16	...320-070
11/16	.6875	1-1/4	9	6	2	...340-075	9/16	...320-075
23/32	.7188	1-1/4	9	6	2	...340-080	9/16	...320-080
3/4	.7500	1-3/8	9-1/2	6	2	...340-085	5/8	...320-085
25/32	.7812	1-3/8	9-1/2	6	2	...340-090	5/8	...320-090
13/16	.8125	1-3/8	9-1/2	6	2	...340-095	5/8	...320-095
27/32	.8348	1-3/8	9-1/2	6	2	...340-100	5/8	...320-100
7/8	.8750	1-1/2	10	6	2	...340-105	3/4	...320-105
29/32	.9062	1-1/2	10	6	2	...340-110	3/4	...320-110
15/16	.9375	1-1/2	10	6	3	...340-115	3/4	...320-115
31/32	.9688	1-1/2	10	6	3	...340-120	3/4	...320-120





Diameter [inches] Diámetro [pulgada]		I	L	No. of flutes No. de filos	ARZc		ARZa	
Fractional Fraccional	Decimal Decimal				No.	Code No. 0641-429-...	Diameter Diámetro	Code No. 0641-429-...
1	1.0000	1-5/8	10-1/2	8	3	...340-125	7/8	...320-125
1-1/32	1.0312	1-5/8	10-1/2	8	3	...340-130	7/8	...320-130
1-1/16	1.0625	1-5/8	10-1/2	8	3	...340-135	7/8	...320-135
1-3/32	1.0938	1-5/8	10-1/2	8	3	...340-140	7/8	...320-140
1-1/8	1.1250	1-3/4	11	8	3	...340-145	7/8	...320-145
1-5/32	1.1563	1-3/4	11	8	3	...340-150	7/8	...320-150
1-3/16	1.1875	1-3/4	11	8	3	...340-155	1	...320-155
1-7/32	1.2188	1-3/4	11	8	3	...340-160	1	...320-160
1-1/4	1.2500	1-7/8	11-1/2	8	4	...340-165	1	...320-165
1-5/16	1.3125	1-7/8	11-1/2	8	4	...340-170	1	...320-170
1-3/8	1.3750	2	12	8	4	...340-175	1-1/4	...320-175
1-7/16	1.4375	2	12	8	4	...340-180	1-1/4	...320-180
1-1/2	1.5000	2-1/8	12-1/2	10	4	...340-185	1-1/4	...320-185
1-9/16	1.5625	2-1/8	12-1/2	10	4	...340-190	1-1/4	...320-190
1-5/8	1.6220	2-1/4	13	10	4	...340-195	1-1/4	...320-195
1-11/16	1.6875	2-1/4	13	10	4	...340-200	1-1/4	...320-200
1-3/4	1.7500	2-3/8	13-1/2	10	5	...340-205	1-1/2	...320-205
1-13/16	1.8125	2-3/8	13-1/2	10	5	...340-210	1-1/2	...320-210
1-7/8	1.8750	2-1/2	14	10	5	...340-215	1-1/2	...320-215
1-15/16	1.9375	2-1/2	14	10	5	...340-220	1-1/2	...320-220
2	2.0000	2-1/2	14	12	5	...340-225	1-1/2	...320-225
2-1/16	2.0625	2-3/4	14-1/2	12	5	...340-230	-	-
2-1/8	2.1250	2-3/4	14-1/2	12	5	...340-235	-	-
2-3/16	2.1875	2-3/4	14-1/2	12	5	...340-240	-	-
2-1/4	2.2500	2-3/4	14-1/2	12	5	...340-245	-	-
2-5/16	2.3125	3	15	12	5	...340-250	-	-
2-3/8	2.3750	3	15	14	5	...340-255	-	-
2-7/16	2.4375	3	15	14	5	...340-260	-	-
2-1/2	2.5000	3	15	14	5	...340-265	-	-
2-3/4	2.7500	3-1/4	15-1/2	14	5	...340-270	-	-
3	3.0000	3-1/2	16	14	5	...340-275	-	-

**Ordering example:** Reamer ARZa 1/2 or **Code No.** 0641-429-320-045  
**Ejemplo de pedido:** Rima ARZa 1/2 o **Número de Código** 0641-429-320-045

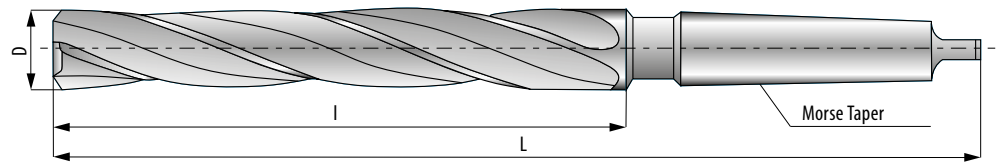
**Core drills long 4 flutes with Morse taper shank**

**Rimas "Core drills" con mango cónico**

- 4 flute | Morse taper shank
- 4 filos | Mango cónico

ARBb

HSS



D	I	L	Morse Taper No. Mango Cónico No.	Code No. 0641-412-...
13/32	3.5/8	7	1	...311-010
7/16	3.7/8	7.1/4	1	...311-015
15/32	4.1/8	7.1/2	1	...311-020
31/64	4.3/8	8.1/4	2	...311-025
1/2	4.3/8	8.1/4	2	...311-030
33/64	4.5/8	8.1/2	2	...311-035
17/32	4.5/8	8.1/2	2	...311-040
9/16	4.7/8	8.3/4	2	...311-045
19/32	4.7/8	8.3/4	2	...311-050
39/64	4.7/8	8.3/4	2	...311-053
5/8	4.7/8	8.3/4	2	...311-055
41/64	5.1/8	9	2	...311-060
21/32	5.1/8	9	2	...311-065
11/16	5.3/8	9.1/4	2	...311-070
45/64	5.5/8	9.1/2	2	...311-075
23/32	5.5/8	9.1/2	2	...311-080
47/64	5.7/8	9.3/4	2	...311-083
3/4	5.7/8	9.3/4	2	...311-085
49/64	6	9.7/8	2	...311-090
25/32	6	9.7/8	2	...311-095
51/64	6.1/8	10.3/4	3	...311-100
13/16	6.1/8	10.3/4	3	...311-105
27/32	6.1/8	10.3/4	3	...311-110
55/64	6.1/8	10.3/4	3	...311-115
7/8	6.1/8	10.3/4	3	...311-120
29/32	6.1/8	10.3/4	3	...311-125
59/64	6.1/8	10.3/4	3	...311-130
15/16	6.1/8	10.3/4	3	...311-135
61/64	6.3/8	11	3	...311-140
31/32	6.3/8	11	3	...311-145
63/64	6.3/8	11	3	...311-150
1	6.3/8	11	3	...311-165
1.1/32	6.1/2	11.1/8	3	...311-170
1.3/64	6.5/8	11.1/4	3	...311-175
1.1/16	6.5/8	11.1/4	3	...311-180
1.5/64	6.7/8	12.1/2	4	...311-185
1.3/32	6.7/8	12.1/2	4	...311-190
1.1/8	7.1/8	12.3/4	4	...311-195
1.5/32	7.1/4	12.7/8	4	...311-200
1.11/64	7.3/8	13	4	...311-205
1.3/16	7.3/8	13	4	...311-210
1.13/64	7.1/2	13.1/8	4	...311-215
1.7/32	7.1/2	13.1/8	4	...311-220
1.15/64	7.7/8	13.1/2	4	...311-225
1.1/4	7.7/8	13.1/2	4	...311-230
1.17/64	8.1/2	14.1/8	4	...311-235
1.9/32	8.1/2	14.1/8	4	...311-240
1.5/16	8.5/8	14.1/4	4	...311-245







## Tolerances • Tolerancias

Tool part Elemento	Range Límites	Direction Dirección	Tolerance Tolerancia
Diameter of drill (D) Diámetro core drill (D)	up to 1/2 incl. • hasta 1/2 incluido	Minus • Menos	0.001
	over 1/2 ÷ 1 incl. • encima de 1/2 ÷ 1 incluido	Minus • Menos	0.0012
	over 1 ÷ 2 incl. • encima de 1 ÷ 2 incluido	Minus • Menos	0.0015
	over 2 ÷ 3 incl. • encima de 2 ÷ 3 incluido	Minus • Menos	0.002
Overall length (L) Largo total (L)	up to 1/2 incl. • hasta 1/2 incluido	Plus or minus • Más o menos	1/8
	over 1/2 ÷ 1 incl. • encima de 1/2 ÷ 1 incluido	Plus or minus • Más o menos	1/4 to 1/8
	over 1 ÷ 2 incl. • encima de 1 ÷ 2 incluido	Plus or minus • Más o menos	1/4
	over 2 ÷ 3 incl. • encima de 2 ÷ 3 incluido	Plus or minus • Más o menos	3/8
Length of flute (l) Largo filo (l)	up to 1/2 incl. • hasta 1/2 incluido	Plus or minus • Más o menos	1/8
	over 1/2 ÷ 1 incl. • encima de 1/2 ÷ 1 incluido	Plus or minus • Más o menos	1/8 to 1/4
	over 1 ÷ 2 incl. • encima de 1 ÷ 2 incluido	Plus or minus • Más o menos	1/4
	over 2 ÷ 3 incl. • encima de 2 ÷ 3 incluido	Plus or minus • Más o menos	3/8

D	l	L	Morse Taper No. Mango Cónico No.	Code No. 0641-412-...
1.11/32	8.3/4	14.3/8	4	...311-250
1.3/8	8.7/8	14.1/2	4	...311-255
1.13/32	9	14.5/8	4	...311-260
1.7/16	9.1/8	14.3/4	4	...311-265
1.15/32	9.1/4	14.7/8	4	...311-270
1.1/2	9.3/8	15	4	...311-275
1.17/32	9.3/8	16.3/8	5	...311-280
1.35/64	9.5/8	16.5/8	5	...311-285
1.9/16	9.5/8	16.5/8	5	...311-290
1.37/64	9.7/8	16.7/8	5	...311-295
1.19/32	9.7/8	16.7/8	5	...311-300
1.39/64	10	17	5	...311-305
1.5/8	10	17	5	...311-310
1.21/32	10.1/8	17.1/8	5	...311-315
1.11/16	10.1/8	17.1/8	5	...311-320
1.23/32	10.1/8	17.1/8	5	...311-325
1.3/4	10.1/8	17.1/8	5	...311-330
1.25/32	10.1/8	17.1/8	5	...311-335
1.13/16	10.1/8	17.1/8	5	...311-340
1.27/32	10.1/8	17.1/8	5	...311-345
1.7/8	10.3/8	17.3/8	5	...311-350
1.29/32	10.3/8	17.3/8	5	...311-355
1.15/16	10.3/8	17.3/8	5	...311-360
1.31/32	10.3/8	17.3/8	5	...311-365
2	10.3/8	17.3/8	5	...311-370
2.1/32	10.3/8	17.3/8	5	...311-375
2.1/16	10.1/4	17.3/8	5	...311-380
2.1/8	10.1/4	17.3/8	5	...311-385
2.3/16	10.1/4	17.3/8	5	...311-390
2.1/4	10.1/8	17.3/8	5	...311-395
2.5/16	10.1/8	17.3/8	5	...311-400
2.3/8	10.1/8	17.3/8	5	...311-405
2.7/16	11.1/4	18.3/4	5	...311-410
2.1/2	11.1/4	18.3/4	5	...311-415
2.9/16	11.7/8	19.1/2	5	...311-420
2.5/8	11.7/8	19.1/2	5	...311-425
2.11/16	12.3/4	20.3/8	5	...311-430
2.3/4	12.3/4	20.3/8	5	...311-435
2.13/16	13.3/8	21.1/8	5	...311-440
2.7/8	13.3/8	21.1/8	5	...311-445
2.15/16	14	21.3/4	5	...311-450
3	14	21.3/4	5	...311-455



**Ordering example:** Core drill ARBb 1/2 or **Code No.** 0641-412-311-030

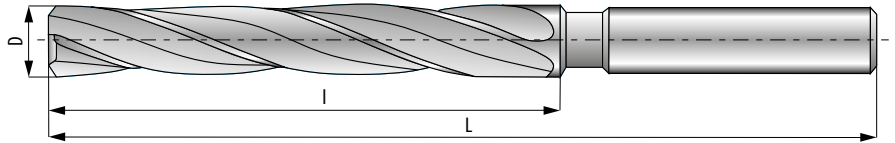
**Ejemplo de pedido:** Core drill ARBb 1/2 o **Número de Código** 0641-412-311-030

**Core drills long 4 flutes with straight shank**  
**Rimas "Core drills", 4 filos con mango recto**

- 4 flute  
4 filos
- Straight shank  
Mango recto

ARBd

HSS



**Tolerances • Tolerancias**

Tool part • Elemento	Range • Límites	Direction • Dirección	Tolerance • Tolerancia
Diameter of drill (D) Diámetro "Core drill" (D)	up to 1/2 incl. • hasta 1/2 incluido	Minus • Menos	0.001
	over 1/2 ÷ 1 incl. • encima de 1/2 ÷ 1 incluido	Minus • Menos	0.0012
	over 1 ÷ 2 incl. • encima de 1 ÷ 2 incluido	Minus • Menos	0.0015
Diameter of shank (D) Diámetro mango (D)	1/4	Plus or Minus • Más o menos	0.0005 ÷ 0.0030
	over 1/4 ÷ 1/2 incl. • encima de 1/4 ÷ 1/2 incluido	Minus • Menos	0.0005 ÷ 0.0045
	over 1/2 ÷ 2 incl. • encima de 1/2 ÷ 2 incluido	Minus • Menos	0.0005 ÷ 0.0060
Overall length (L) Largo total (L)	up to 1/2 incl. • hasta 1/2 incluido	Plus or Minus • Más o menos	1/8
	over 1/2 ÷ 1 incl. • encima de 1/2 ÷ 1 incluido	Plus or Minus • Más o menos	1/8 ÷ 1/4
	over 1 ÷ 2 incl. • encima de 1 ÷ 2 incluido	Plus or Minus • Más o menos	1/4
Length of flute (l) Largo filo (l)	up to 1/2 incl. • hasta 1/2 incluido	Plus or Minus • Más o menos	1/8
	over 1/2 ÷ 1 incl. • encima de 1/2 ÷ 1 incluido	Plus or Minus • Más o menos	1/8 ÷ 1/4
	over 1 ÷ 2 incl. • encima de 1 ÷ 2 incluido	Plus or Minus • Más o menos	1/4

D	l	L	Code No. 0641-412-
1/4	3.3/4	6.1/8	...310-005
17/64	3.3/4	6.1/8	...310-010
9/32	3.7/8	6.1/4	...310-011
5/16	4	6.3/8	...310-012
21/64	4.1/8	6.1/2	...310-015
11/32	4.1/8	6.1/2	...310-016
3/8	4.1/8	6.3/4	...310-020
13/32	4.3/8	7	...310-021
27/64	4.5/8	7.1/4	...310-025
7/16	4.5/8	7.1/4	...310-030
15/32	4.3/4	7.1/2	...310-031
1/2	4.3/4	7.3/4	...310-035
33/64	4.3/4	8	...310-036
17/32	4.3/4	8	...310-040
9/16	4.7/8	8.1/4	...310-045
19/32	4.7/8	8.3/4	...310-050
5/8	4.7/8	8.3/4	...310-055
41/64	5	9	...310-056
21/32	5.1/8	9	...310-060
11/16	5.3/8	9.1/4	...310-065
23/32	5.5/8	9.1/2	...310-070
3/4	5.7/8	9.3/4	...310-075
49/64	6	9.7/8	...310-080
25/32	6	9.7/8	...310-085
13/16	6.1/8	10	...310-090
27/32	6.1/8	10	...310-095
7/8	6.1/8	10	...310-100
29/32	6.1/8	10	...310-105

D	l	L	Code No. 0641-412-...
15/16	6.1/8	10.3/4	...310-110
31/32	6.3/8	11	...310-115
1	6.3/8	11	...310-120
1.1/32	6.1/2	11.1/8	...310-125
1.1/16	6.5/8	11.1/4	...310-130
1.3/32	6.7/8	11.1/2	...310-135
1.1/8	7.1/8	11.3/4	...310-140
1.5/32	7.1/4	11.7/8	...310-145
1.3/16	7.3/8	12	...310-150
1.7/32	7.1/2	12.1/8	...310-155
1.1/4	7.7/8	12.1/2	...310-160
1.9/32	8.1/2	14.1/8	...310-165
1.5/16	8.5/8	14.1/4	...310-170
1.11/32	8.3/4	14.3/8	...310-175
1.3/8	8.7/8	14.1/2	...310-180
1.13/32	9	14.5/8	...310-185
1.7/16	9.1/8	14.3/4	...310-190
1.15/32	9.1/4	14.7/8	...310-195
1.1/2	9.3/8	15	...310-200
1.9/16	9.5/8	15.1/4	...310-205
1.5/8	9.7/8	15.5/8	...310-210
1.11/16	10	15.3/4	...310-215
1.3/4	10.1/2	16.1/4	...310-220
1.13/16	10.1/2	16.1/4	...310-225
1.7/8	10.3/4	16.1/2	...310-230
1.15/16	10.3/4	16.5/8	...310-235
2	10.3/4	16.5/8	...310-240



**Ordering example:** Reamer ARBd 1/2 or **Code No.** 0641-412-310-035

**Ejemplo de pedido:** Core drill ARBd 1/2 o **Número de Código** 0641-412-310-035

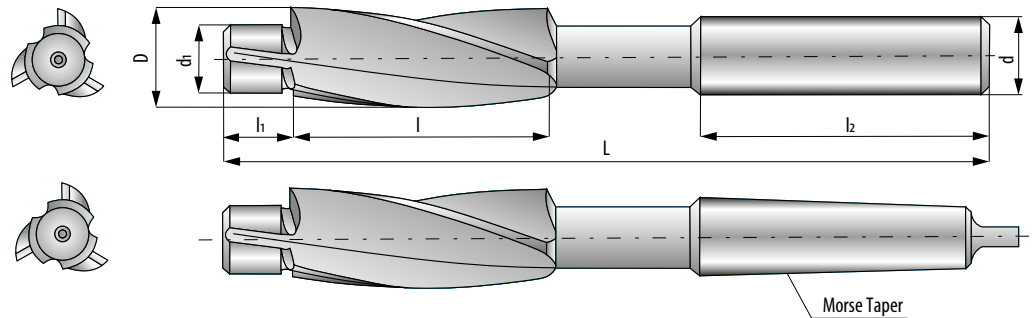
**Capscrew counterbores 3 flute - inch and metric sizes;  
Brocaladores, broca piloto para caja de tornillo "Allen"  
- medidas fraccionales y métricas**

Straight and Morse taper shank  
Mango recto y cónico

3 flute  
3 filos

Inch and metric sizes  
Pulgadas y métricos tamaños

AWCe AWCf  
AWCg HSS



**AWCe**  
with straight shank | con mango recto

Screw size Tamaño cabeza tornillo	d <sub>1</sub> [inch] [pulgada]	D [inch] [pulgada]	d [inch] [pulgada]	L [inch] [pulgada]	Code No. 0641-262-...
#5	.141	.221	3/16	3	...300-005
#6	.150	.242	7/32	3	...300-010
#8	11/64	19/64	1/4	3	...300-015
#10	13/64	21/64	5/16	3.1/2	...300-020
1/4	9/32	13/32	3/8	5	...300-025
5/16	11/32	1/2	7/16	5	...300-030
3/8	13/32	19/32	1/2	6	...300-035
7/16	15/32	11/16	1/2	7	...300-040
1/2	17/32	25/32	1/2	7.1/2	...300-043
1/2	17/32	25/32	3/4	7.1/2	...300-045
1/2	9/16	13/16	3/4	7.1/2	...300-050
5/8	21/32	31/32	3/4	7.1/2	...300-055
5/8	11/16	1	3/4	7.1/2	...300-060
3/4	13/16	1.3/16	1	8	...300-065
7/8	15/16	1.3/8	1	8	...300-070
1	1.1/16	1.9/16	1	10	...300-075

**AWCf**  
with Morse taper shank | con mango cónico

Screw size Tamaño cabeza tornillo	d <sub>1</sub> [inch] [pulgada]	D [inch] [pulgada]	L [inch] [pulgada]	Morse Taper No. Mango Cónico No.	Code No. 0641-262-...
1/4	9/32	13/32	5.3/4	2	...310-005
5/16	11/32	1/2	6	2	...310-010
3/8	13/32	19/32	6.1/2	2	...310-015
7/16	15/32	11/16	7	2	...310-020
1/2	17/32	25/32	7.1/4	2	...310-025
5/8	21/32	31/32	7.1/2	2	...310-030
5/8	11/16	1	7.1/2	2	...310-035
3/4	13/16	1.3/16	9	3	...310-040
7/8	15/16	1.3/8	9	3	...310-045
1	1.1/16	1.9/16	10	3	...310-050

**AWCg**  
metric sizes | medidas métricas

Screw size Tamaño cabeza tornillo	d <sub>1</sub> [mm]	D [mm]	d [mm]	L [mm]	Morse Taper No. Mango Cónico No.	Code No. 0641-262-...
M3	3.4	6	5.556	25.4	76	...330-005
M4	4.5	8	7.938	25.4	89	...330-010
M5	5.5	10	9.525	31.75	127	...330-015
M6	6.6	11	11.112	35	127	...330-020
M8	9	15	12.700	39	152	...330-025
M10	11	18	12.700	44.5	178	...330-030
M12	14	20	12.700	50.8	191	...330-035
M14	15	24	-	60.3	210	...330-040
M16	17	26	-	79.4	229	...330-045
M20	21	33	-	79.4	254	...330-050



Ordering example: Counterbore AWCf 5/16-11/32x1/2 3F or Code No. 0641-262-310-010  
Ejemplo de pedido: Brocalador AWCf 5/16-11/32x1/2 3F o Número de Código 0641-262-310-010

**Capscrew counterbores 2 flute with straight shank**  
**Brocaladores, 2 filos con mango recto**

Straight shank  
Mango recto

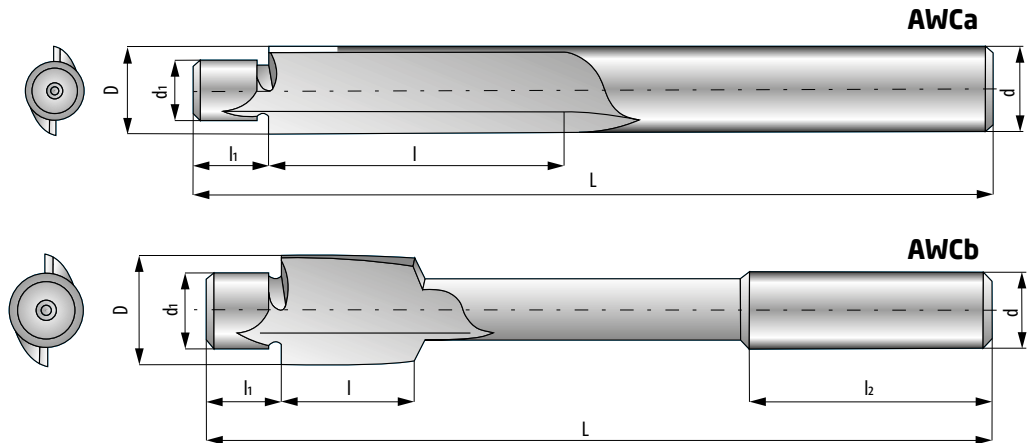
2 flute  
2 filos

Inch and metric sizes  
Medidas fraccionales y métricas

AWCa

AWCb

HSS



**AWCa**

Screw size Tamaño cabeza tornillo	di	D	L	Code No. 0641-262-...
#4	.111	.198	2.1/2	...301-020
#5	.124	.220	2.1/2	...301-025
#6	.137	.241	2.1/2	...301-030
#8	.163	.285	2.3/4	...301-035
#10	.189	.328	2.3/4	...301-040
#12	.215	.372	3	...301-045

**Ordering example:** Counterbore AWCa #10 or **Code No.** 0641-262-301-040  
**Ejemplo de pedido:** Brocalador AWCa #10 o **Número de Código** 0641-262-301-040

**AWCb**

di	D	d	l	L	Code No. 0641-262-...
1/4	13/32	5/16	31/64	3.5/8	...301-105
5/16	15/32	3/8	5/8	4	...301-110
3/8	19/32	7/16	25/32	4.3/8	...301-115
7/16	21/32	1/2	55/64	4.3/4	...301-120
1/2	25/32	9/16	15/16	5.1/8	...301-125

**Ordering example:** Counterbore AWCb 5/16 x 15/32 or **Code No.** 0641-262-301-110  
**Ejemplo de pedido:** Brocalador AWCb 5/16 x 15/32 o **Número de Código** 0641-262-301-110



**Center countersinks 3 flute**  
**Avellanadores de 3 filos**

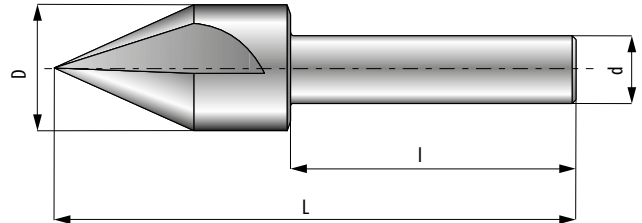
Straight shank  
Mango recto

3 flute  
3 filos

Fractional sizes  
Medidas fraccionales

AWSc

HSS



D	d [inch] [pulgada]	l	L	60° Code No. 0641-261-...	82° Code No. 0641-261-...	90° Code No. 0641-261-...	100° Code No. 0641-261-...
1/4	3/16	3/4	1-1/2	...305-010	...305-110	...305-210	...305-310
3/8	1/4	7/8	1-3/4	...305-015	...305-115	...305-215	...305-315
1/2	3/8	1	2	...305-020	...305-120	...305-220	...305-320
5/8	3/8	1	2-1/4	...305-025	...305-125	...305-225	...305-325
3/4	1/2	1-1/4	2-5/8	...305-030	...305-130	...305-230	...305-330
1	1/2	1-1/4	2-3/4	-	...305-135	...305-235	...305-335

**Ordering example:** Countersink AWSc 1/2 60° or **Code No.** 0641-261-305-020

**Ejemplo de pedido:** Avellanador AWSc 1/2 60° o **Número de Código** 0641-261-305-020

**Table for changing inches into millimetres**  
**Tabla para el cambio de pulgadas a milímetros**

Inch / Pulgada	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	
0	0.000000	0.000	25.400	50.800	76.200	101.600	127.000	152.400	177.800	203.200	228.600	254.000
1/64	0.015625	0.397	25.797	51.197	76.597	101.997	127.397	152.797	178.197	203.597	228.997	254.397
1/32	0.031250	0.794	26.194	51.594	76.994	102.394	127.794	153.194	178.594	203.994	229.394	254.794
3/64	0.046875	1.191	26.591	51.991	77.391	102.791	128.191	153.591	178.991	204.391	229.791	255.191
1/16	0.062500	1.588	26.988	52.388	77.788	103.188	128.588	153.988	179.388	204.788	230.188	255.588
5/64	0.078125	1.984	27.384	52.784	78.184	103.584	128.984	154.384	179.784	205.184	230.584	255.984
3/32	0.093750	2.381	27.781	53.181	78.581	103.981	129.381	154.781	180.181	205.581	230.981	256.381
7/64	0.109375	2.778	28.178	53.578	78.978	104.378	129.778	155.178	180.578	205.978	231.378	256.778
1/8	0.125000	3.175	28.575	53.975	79.375	104.775	130.175	155.575	180.975	206.375	231.775	257.175
9/64	0.140625	3.572	28.972	54.372	79.772	105.172	130.572	155.972	181.372	206.772	232.172	257.572
5/32	0.156250	3.969	29.369	54.769	80.169	105.569	130.969	156.369	181.769	207.169	232.569	257.969
11/64	0.171875	4.366	29.766	55.166	80.566	105.966	131.366	156.766	182.166	207.566	232.966	258.366
3/16	0.187500	4.763	30.163	55.563	80.963	106.363	131.763	157.163	182.563	207.963	233.363	258.763
13/64	0.203125	5.159	30.559	55.959	81.359	106.759	132.159	157.559	182.959	208.359	233.759	259.159
7/32	0.218750	5.556	30.956	56.356	81.756	107.156	132.556	157.956	183.356	208.756	234.156	259.556
15/64	0.234375	5.953	31.353	56.753	82.153	107.553	132.953	158.353	183.753	209.153	234.553	259.953
1/4	0.250000	6.350	31.750	57.150	82.550	107.950	133.350	158.750	184.150	209.550	234.950	260.350
17/64	0.265625	6.747	32.147	57.547	82.947	108.347	133.747	159.147	184.547	209.947	235.347	260.747
9/32	0.281250	7.144	32.544	57.944	83.344	108.744	134.144	159.544	184.944	210.344	235.744	261.144
19/64	0.296875	7.541	32.941	58.341	83.741	109.141	134.541	159.941	185.341	210.741	236.141	261.541
5/16	0.312500	7.938	33.338	58.738	84.138	109.538	134.938	160.338	185.738	211.138	236.538	261.938
21/64	0.328125	8.334	33.734	59.134	84.534	109.934	135.334	160.734	186.134	211.534	236.934	262.334
11/32	0.343750	8.731	34.131	59.531	84.931	110.331	135.731	161.131	186.531	211.931	237.331	262.731
23/64	0.359375	9.128	34.528	59.928	85.328	110.728	136.128	161.528	186.928	212.328	237.728	263.128
3/8	0.375000	9.525	34.925	60.325	85.725	111.125	136.525	161.925	187.325	212.725	238.125	263.525
25/64	0.390625	9.922	35.322	60.722	86.122	111.522	136.922	162.322	187.722	213.122	238.522	263.922
13/32	0.406250	10.319	35.719	61.119	86.519	111.919	137.319	162.719	188.119	213.519	238.919	264.319
27/64	0.421875	10.716	36.116	61.516	86.916	112.316	137.716	163.116	188.516	213.916	239.316	264.716
7/16	0.437500	11.113	36.513	61.913	87.313	112.713	138.113	163.513	188.913	214.313	239.713	265.113
29/64	0.453125	11.509	36.909	62.309	87.709	113.109	138.509	163.909	189.309	214.709	240.109	265.509
15/32	0.468750	11.906	37.306	62.706	88.106	113.506	138.906	164.306	189.706	215.106	240.506	265.906
31/64	0.484375	12.303	37.703	63.103	88.503	113.903	139.303	164.703	190.103	215.503	240.903	266.303
1/2	0.500000	12.700	38.100	63.500	88.900	114.300	139.700	165.100	190.500	215.900	241.300	266.700
33/64	0.515625	13.097	38.497	63.897	89.297	114.697	140.097	165.497	190.897	216.297	241.697	267.097
17/32	0.531250	13.494	38.894	64.294	89.694	115.094	140.494	165.894	191.294	216.694	242.094	267.494
35/64	0.546875	13.891	39.291	64.691	90.091	115.491	140.891	166.291	191.691	217.091	242.491	267.891
9/16	0.562500	14.288	39.688	65.088	90.488	115.888	141.288	166.688	192.088	217.488	242.888	268.288
37/64	0.578125	14.684	40.084	65.484	90.884	116.284	141.684	167.084	192.484	217.884	243.284	268.684
19/32	0.593750	15.081	40.481	65.881	91.281	116.681	142.081	167.481	192.881	218.281	243.681	269.081
39/64	0.609375	15.478	40.878	66.278	91.678	117.078	142.478	167.878	193.278	218.678	244.078	269.478
5/8	0.625000	15.875	41.275	66.675	92.075	117.475	142.875	168.275	193.675	219.075	244.475	269.875
41/64	0.640625	16.272	41.672	67.072	92.472	117.872	143.272	168.672	194.072	219.472	244.872	270.272
21/32	0.656250	16.669	42.069	67.469	92.869	118.269	143.669	169.069	194.469	219.869	245.269	270.669
43/64	0.671875	17.066	42.466	67.866	93.266	118.666	144.066	169.466	194.866	220.266	245.666	271.066
11/16	0.687500	17.463	42.863	68.263	93.663	119.063	144.463	169.863	195.263	220.663	246.063	271.463
45/64	0.703125	17.859	43.259	68.659	94.059	119.459	144.859	170.259	195.659	221.059	246.459	271.859
23/32	0.718750	18.256	43.656	69.056	94.456	119.856	145.256	170.656	196.056	221.456	246.856	272.256
47/64	0.734375	18.653	44.053	69.453	94.853	120.253	145.653	171.053	196.453	221.853	247.253	272.653
3/4	0.750000	19.050	44.450	69.850	95.250	120.650	146.050	171.450	196.850	222.250	247.650	273.050
49/64	0.765625	19.447	44.847	70.247	95.647	121.047	146.447	171.847	197.247	222.647	248.047	273.447
25/32	0.781250	19.844	45.244	70.644	96.044	121.444	146.844	172.244	197.644	223.044	248.444	273.844
51/64	0.796875	20.241	45.641	71.041	96.441	121.841	147.241	172.641	198.041	223.441	248.841	274.241
13/16	0.812500	20.638	46.038	71.438	96.838	122.238	147.638	173.038	198.438	223.838	249.238	274.638
53/64	0.828125	21.034	46.434	71.834	97.234	122.634	148.034	173.434	198.834	224.234	249.634	275.034
27/32	0.843750	21.431	46.831	72.231	97.631	123.031	148.431	173.831	199.231	224.631	250.031	275.431
55/64	0.859375	21.828	47.228	72.628	98.028	123.428	148.828	174.228	199.628	225.028	250.428	275.828
7/8	0.875000	22.225	47.625	73.025	98.425	123.825	149.225	174.625	200.025	225.425	250.825	276.225
57/64	0.890625	22.622	48.022	73.422	98.822	124.222	149.622	175.022	200.422	225.822	251.222	276.622
29/32	0.906250	23.019	48.419	73.819	99.219	124.619	150.019	175.419	200.819	226.219	251.619	277.019
59/64	0.921875	23.416	48.816	74.216	99.616	125.016	150.416	175.816	201.216	226.616	252.016	277.416
15/16	0.937500	23.813	49.213	74.613	100.013	125.413	150.813	176.213	201.613	227.013	252.413	277.813
61/64	0.953125	24.209	49.609	75.009	100.409	125.809	151.209	176.609	202.009	227.409	252.809	278.209
31/32	0.968750	24.606	50.006	75.406	100.806	126.206	151.606	177.006	202.406	227.806	253.206	278.606
63/64	0.984375	25.003	50.403	75.803	101.203	126.603	152.003	177.403	202.803	228.203	253.603	279.003

## Tolerances for standard end mills *Tolerancias para fresas estándar*

### TOLERANCES FOR STANDARD END MILLS *TOLERANCIAS PARA FRESAS ESTÁNDAR*

#### Outside Diameter Tolerances

##### *Fuera de las tolerancias de diámetro*

#### HELICAL SERIES • SERIE HELICOIDAL

Multiple flute • <i>Filos múltiples</i>	+ 0.005	- 0.000
2 flute, keyway cutting • <i>2 filos, ranura de corte</i>	+ 0.000	- 0.0015

#### MEDIUM HELIX SERIES • SERIE HELIX MEDIO

Double end, 3/16 S.S. • <i>Punta doble, 3/16 S.S.</i>		
4 flute • <i>4 filos</i>	+ 0.003	- 0.000
2 flute, stub and regular length • <i>2 filos, talón y longitud normal</i>	+ 0.000	- 0.0015
2 flute, long length • <i>2 filos, longitud larga</i>	+ 0.003	- 0.000
Single end, Weldon shank • <i>Punta sencilla, mango Weldon</i>		
Multiple flute • <i>Filos múltiples</i>	+ 0.003	- 0.000
2 flute, stub length • <i>2 filos, talón de longitud</i>	+ 0.000	- 0.0015
2 flute, regular and long length • <i>2 filos, longitud normal y larga</i>	+ 0.003	- 0.000
Double end, Weldon shank • <i>Punta doble, mango Weldon</i>		
4 flute • <i>4 filos</i>	+ 0.003	- 0.000
2 flute • <i>2 filos</i>	+ 0.000	- 0.0015
Center cutting, single end, Weldon shank • <i>Centro de corte, punta sencilla, mango Weldon</i>		
3 and 4 flute • <i>3 y 4 filos</i>	+ 0.003	- 0.000
Center cutting, double end, Weldon shank • <i>Centro de corte, punta doble, mango Weldon</i>		
3 and 4 flute • <i>3 y 4 filos</i>	+ 0.000	- 0.0015
Heavy duty, single end, 2 inch & 2-1/2 inch shank • <i>Para trabajo pesado, punta sencilla, 2 pulgada &amp; 2-1/2 pulgada mango</i>		
2, 3, 4, and 6 flute • <i>2, 3, 4, y 6 filos</i>	+ 0.005	- 0.000

#### HIGH HELIX SERIES • SERIE DE HÉLICE

Single end, Weldon shank • <i>Punta sencilla, mango Weldon</i>		
2 flute • <i>2 filos</i>	+ 0.003	- 0.000

#### Shank Diameter Tolerances

##### *Tolerancias del diámetro del mango*

Straight shank • <i>Mango recto</i>	- 0.0001	- 0.0005
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#### Length of Cut Tolerances

##### *Duración de las tolerancias de corte*

All except miniature and heavy duty • <i>Todos, excepto para el trabajo pesado y en miniatura</i>	+ 1/32	- 1/32
Miniature; En miniatura	+ 1/32	- 1/64
Heavy duty, 2 inch & 2-1/2 inch shank • <i>Para trabajo pesado, 2 pulgada &amp; 2-1/2 pulgada mango</i>	+ 1/16	- 1/16

#### Length Overall Tolerances

##### *Longitud total tolerancias*

HSS except heavy duty 3 in. O. D. • <i>HSS excepto para trabajo pesado 3 en O.D.</i>	+ 1/16	- 1/16
HSS heavy duty 3 in. O. D. • <i>HSS para trabajo pesado 3 en O.D.</i>	+ 1/8	- 1/8

[www.fenes.com.pl](http://www.fenes.com.pl)



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