

DIMENSÕES		TOLERÂNCIA DE VEIOS																μ mm			
De	a <	e7	e8	e9	f6	f7	f8	g5	g6	h5	h6	h7	h8	h9	js5	js6	js7	k5	k6	m5	m6
-----	3	-14 -24	-14 -28	-14 -39	-6 -12	-6 -16	-6 -20	-2 -6	-2 -8	0 -4	0 -6	0 -10	0 -14	0 -25	± 2	± 3	± 5	+4 0	+6 0	+6 +2	+8 +2
3	6	-20 -32	-20 -38	-20 -50	-10 -18	-10 -22	-10 -28	-4 -9	-4 -12	0 -5	0 -8	0 -12	0 -18	0 -30	± 2.5	± 4	+6	+6 +1	+9 +1	+9 +4	+12 +4
6	10	-25 -40	-25 -47	-25 -61	-13 -22	-13 -28	-13 -35	-5 -11	-5 -14	0 -6	0 -9	0 -15	0 -22	0 -36	± 3	± 4.5	± 7.5	+7 +1	+10 +1	+12 +6	+15 +6
10	18	-32 -50	-32 -59	-32 -75	-16 -27	-16 -34	-16 -43	-6 -14	-6 -17	0 -8	0 -11	0 -18	0 -27	0 -43	± 4	± 5.5	± 9	+9 +1	+12 +1	+15 +7	+18 +7
18	30	-40 -61	-40 -73	-40 -92	-20 -33	-20 -41	-20 -53	-7 -16	-7 -20	0 -9	0 -13	0 -21	0 -33	0 -52	± 4.5	± 6.5	± 10.5	+11 +2	+15 +2	+17 +8	+21 +8
30	50	-50 -75	-50 -89	-50 -112	-25 -41	-25 -50	-25 -64	-9 -20	-9 -25	0 -11	0 -16	0 -25	0 -39	0 -62	± 5.5	± 8	± 12.5	+13 +2	+18 +2	+20 +9	+25 +9
50	80	-60 -90	-60 -106	-60 -134	-30 -49	-30 -60	-30 -76	-10 -23	-10 -29	0 -13	0 -19	0 -30	0 -46	0 -74	± 6.5	± 9.5	± 15	+15 +2	+21 +2	+24 +11	+30 +11
80	120	-72 -107	-72 -126	-72 -159	-36 -58	-36 -71	-36 -90	-12 -27	-12 -34	0 -15	0 -22	0 -35	0 -54	0 -87	± 7.5	± 11	± 17.5	+18 +3	+25 +3	+28 +13	+35 +13
120	180	-85 -125	-85 -148	-85 -185	-43 -68	-43 -83	-43 -106	-14 -32	-14 -39	0 -18	0 -25	0 -40	0 -63	0 -100	± 9	± 12.5	± 20	+21 +3	+28 +3	+33 +15	+40 +15
180	250	-100 -146	-100 -172	-100 -215	-50 -79	-50 -96	-50 -122	-15 -35	-15 -44	0 -20	0 -29	0 -46	0 -72	0 -115	± 10	± 14.5	± 23	+24 +4	+33 +4	+37 +17	+46 +17
250	315	-110 -162	-110 -191	-110 -240	-56 -88	-56 -108	-56 -137	-17 -40	-17 -49	0 -23	0 -32	0 -52	0 -81	0 -130	± 11.5	± 16	± 26	+27 +4	+36 +4	+43 +20	+52 +20
315	400	-125 -182	-125 -214	-125 -265	-62 -98	-62 -119	-62 -151	-18 -43	-18 -54	0 -25	0 -36	0 -57	0 -89	0 -140	± 12.5	± 18	± 28.5	+29 +4	+40 +4	+46 +21	+57 +21
400	500	-135 -198	-135 -232	-135 -290	-68 -108	-68 -131	-68 -165	-20 -47	-20 -60	0 -27	0 -40	0 -63	0 -97	0 -155	± 13.5	± 20	± 31.5	+32 +5	+45 +5	+50 +23	+63 +23

ENCAVILHAMENTO FIRME										ENCAVILHAMENTO RELATIVO				
Ajuste Interferência					Ajuste Transição					Ajuste Folga				
Carga Elevada Prensa			Ajuste Prensa		A. Leve Prensa	Ajuste Guiado		Ajuste Forçado	Ajuste Deslize	Ajuste Ligeiro	Ajuste Leve	Ajuste Ligeiro		Ajuste Folga
H6	r5		p5	n6 n5	m5	k5	js5	h6 h5	h5	g5	f6			
H7	x6	u6 t6 s6	r6	p6	n6	m6	k6	js6	h6	g6	f7	e7		
H8									h8 h7		f8 f7	e8	d9	
H9									h9		e9	d9	c9	

DIMENSÕES		TOLERÂNCIA DE VEIOS																			μ mm			
De	a <	E7	E8	E9	F6	F7	F8	G6	G7	H6	H7	H8	H9	H10	JS6	JS7	H6	H7	M6	M7	N6	N7	P6	P7
-----	3	+24 +14	+28 +14	+39 +14	+12 +6	+16 +6	+20 +6	+8 +2	+12 +2	+6 0	+10 0	+14 0	+25 0	+40 0	±3	±5	0 -6	0 -10	-2 -12	-4 -10	-4 -14	-6 -12	-6 -16	
3	6	+32 +20	+38 +20	+50 +20	+18 +10	+22 +10	+28 +10	+12 +4	+16 +4	+8 0	+12 0	+18 0	+30 0	+48 0	±4	±6	+2 -6	+3 -9	-1 -9	0 -12	-5 -13	-4 -16	-9 -17	-8 -20
6	10	+40 +25	+47 +25	+61 +25	+22 +13	+28 +13	+35 +13	+14 +5	+20 +5	+9 0	+15 0	+22 0	+36 0	+58 0	±4.5	±7.5	+2 -7	+5 -10	-3 -12	0 -15	-7 -16	-4 -19	-12 -21	-9 -24
10	18	+50 +32	+59 +32	+75 +32	+27 +16	+34 +16	+43 +16	+17 +6	+24 +6	+11 0	+18 0	+27 0	+43 0	+70 0	±5.5	±9	+2 -9	+6 -12	-4 -15	0 -18	-9 -20	-5 -23	-15 -26	-11 -29
18	30	+61 +40	+73 +40	+92 +40	+33 +20	+41 +20	+53 +20	+20 +7	+28 +7	+13 0	+21 0	+33 0	+52 0	+84 0	±6.5	±10.5	+2 -11	+6 -15	-4 -17	0 -21	-11 -24	-7 -28	-18 -31	-14 -35
30	50	+75 +50	+89 +50	+112 +50	+41 +25	+50 +25	+64 +25	+25 +9	+34 +9	+16 0	+25 0	+39 0	+62 0	+100 0	±8	±12.5	+3 -13	+7 -18	-4 -20	0 -25	-12 -28	-8 -33	-21 -37	-17 -42
50	80	+90 +60	+106 +60	+134 +60	+49 +30	+60 +30	+76 +30	+29 +10	+40 +10	+19 0	+30 0	+46 0	+74 0	+120 0	±9.5	±15	+4 -15	+9 -21	-5 -24	0 -30	-14 -33	-9 -39	-26 -45	-21 -51
80	120	+107 +72	+126 +72	+159 +72	+58 +36	+71 +36	+90 +36	+34 +12	+47 +12	+22 0	+35 0	+54 0	+87 0	+140 0	±11	±17.5	+4 -18	+10 -25	-6 -28	0 -35	-16 -38	-10 -45	-30 -52	-24 -59
120	180	+125 +85	+148 +85	+185 +85	+68 +43	+83 +43	+106 +43	+39 +14	+54 +14	+25 0	+40 0	+63 0	+100 0	+160 0	±12.5	±20	+4 -21	+12 -28	-8 -33	0 -40	-20 -45	-12 -52	-36 -61	-28 -68
180	250	+146 +100	+172 +100	+215 +100	+79 +50	+96 +50	+122 +50	+44 +15	+61 +15	+29 0	+46 0	+72 0	+115 0	+185 0	±14.5	±23	+5 -24	+13 -33	-8 -37	0 -46	-22 -51	-14 -60	-41 -70	-33 -79
250	315	+162 +110	+191 +110	+240 +110	+88 +56	+108 +56	+137 +56	+49 +17	+69 +17	+32 0	+52 0	+81 0	+130 0	+210 0	±16	±26	+5 -27	+16 -36	-9 -41	0 -52	-25 -57	-14 -66	-47 -79	-36 -88
315	400	+182 +125	+214 +125	+265 +125	+98 +62	+119 +62	+151 +62	+54 +18	+75 +18	+36 0	+57 0	+89 0	+140 0	+230 0	±18	±28.5	+7 -29	+17 -40	-10 -46	0 -57	-26 -62	-16 -73	-51 -87	-41 -98
400	500	+198 +135	+232 +135	+290 +135	+108 +68	+131 +68	+165 +68	+60 +20	+83 +20	+40 0	+63 0	+97 0	+155 0	+250 0	±20	±31.5	+8 -32	+18 -45	-10 -50	0 -63	-27 -67	-17 -80	-55 -95	-45 -108

TABELA m/m POLC



POLEGADAS		mm
Nº Fraccion.	Nº Decimal	
15	0,1800	4,572
14	0,1820	4,623
13	0,1850	4,699
3/16	0,1875	4,763
12	0,1890	4,801
11	0,1910	4,851
10	0,1935	4,915
9	0,1960	4,978
	0,1969	5,001
8	0,1990	5,055
7	0,2010	5,105
13/64	0,2031	5,159
6	0,2040	5,182
5	0,2055	5,220
4	0,2090	5,309
3	0,2130	5,410
7/32	0,2188	5,558
2	0,2210	5,613
1	0,2280	5,791
A	0,2340	5,944
15/64	0,2344	5,954
	0,2362	5,999
B	0,2380	6,045
C	0,2420	6,147
D	0,2460	6,248
E - 1/4	0,2500	6,350
F	0,2570	6,528
G	0,2610	6,629
17/64	0,2656	6,746
H	0,2660	6,756
I	0,2720	6,909
	0,2756	7,000
J	0,2770	7,036
K	0,2810	7,137
9/32	0,2812	7,142
L	0,2900	7,366
M	0,2950	7,493
19/64	0,2969	7,541
N	0,3020	7,671
5/16	0,3125	7,938
	0,3150	8,001
O	0,3160	8,026
P	0,3230	8,204
21/64	0,3281	8,334
	0,3307	8,400
Q	0,3320	8,433
R	0,3390	8,611
11/32	0,3438	8,733
S	0,3480	8,839
	0,3543	8,999
T	0,3580	9,093
23/64	0,3594	9,129
U	0,3680	9,347
3/8	0,3750	9,525
V	0,3770	9,576
W	0,3860	9,804
25/64	0,3906	9,921
	0,3937	10,000

POLEGADAS		mm
Nº Fraccion.	Nº Decimal	
X	0,3970	10,084
Y	0,4040	10,262
13/32	0,4062	10,317
Z	0,4130	10,490
27/64	0,4219	10,716
	0,4331	11,001
7/16	0,4375	11,113
29/64	0,4531	11,509
15/32	0,4688	11,908
	0,4724	11,999
31/64	0,4844	12,304
1/2	0,5000	12,700
	0,5118	13,000
33/64	0,5156	13,096
17/32	0,5312	13,496
35/64	0,5469	13,891
	0,5512	14,000
9/16	0,5625	14,288
37/64	0,5781	14,684
	0,5906	15,001
19/32	0,5938	15,083
39/64	0,6094	15,479
5/8	0,6250	15,875
	0,6299	15,999
41/64	0,6406	16,271
21/32	0,6562	16,667
	0,6693	17,000
43/64	0,6719	17,066
11/16	0,6875	17,463
45/64	0,7031	17,859
	0,7087	18,001
23/32	0,7188	18,258
47/64	0,7344	18,654
	0,7480	18,999
3/4	0,7500	19,050
49/64	0,7656	19,446
25/32	0,7812	19,842
	0,7874	20,000
51/64	0,7969	20,241
13/16	0,8125	20,638
	0,8268	21,001
53/64	0,8281	21,034
27/32	0,8438	21,433
55/64	0,8594	21,829
	0,8661	21,999
7/8	0,8750	22,225
57/64	0,8906	22,621
	0,9055	23,000
29/32	0,9062	23,017
59/64	0,9219	23,416
15/16	0,9375	23,813
	0,9449	24,000
61/64	0,9531	24,209
31/32	0,9688	24,608
	0,9843	25,001
63/64	0,9844	25,004
1	1,0000	25,400

CORTE	A	e
	bh	$\frac{h}{2}$
	h^2	$\frac{h}{2}$
	h^2	$\frac{h}{2}\sqrt{2}$
	$\frac{bh}{2}$	$\frac{2}{3}h$
	$\frac{(2b+B)h}{2}$	$\frac{1}{3}x$ $\frac{3b+2B}{2b+B}h$
	$\frac{3\sqrt{3}}{2}r^2$	$\frac{\sqrt{3}}{4}r$ $=0.866r$
	$=2.598r^2$	r
	$2.828r^2$	$0.924r^2$
	$0.8284r^2$	$b = \frac{a}{1+\sqrt{2}}$ $=0.4142a$
	$\pi r^2 \frac{\pi d^2}{4}$	$\frac{d}{2}$
	$r^2(1 - \frac{\pi}{4})$ $=0.2146r^2$	$e_1 = 0.2234r$ $e_2 = 0.7766r$
	πab	a
	$\frac{\pi}{2}r^2$	$e_1 = 0.4244r$ $e_2 = 0.5756r$

CORTE	A	e
	$\frac{\pi}{4}r^2$	$e_1 = 0.4244r$ $e_2 = 0.5756r$
	$b(H-h)$	$\frac{H}{2}$
	$A^2 - a^2$	$\frac{A}{2}$
	$A^2 - a^2$	$\frac{A}{2}\sqrt{2}$
	$\frac{\pi}{2}(d_2^2 - d_1^2)$	$\frac{d_2}{2}$
	$a^2 - \frac{\pi d^2}{4}$	$\frac{a}{2}$
	$2b(h-d) + \frac{\pi}{4}d^2$	$\frac{h}{2}$
	$2b(h-d) + \frac{\pi}{4}(d_1^2 - d_2^2)$	$\frac{h}{2}$

A- Área de secção
e- Distância centro gravidade

SÓLIDO	VOLUME V
	$V = \frac{\pi}{4}d^2h$ $= \frac{\pi}{4}d^2(\frac{h_1+h_2}{2})$
	$V = \frac{h}{3} A = \frac{h}{6} \pi r^2$ A=área da base r=raio do círculo inscrito a=comprimento de um lado n=número de lados
	$V = \frac{\pi h^2}{3}(3r-h)$ $V = \frac{\pi h}{6}(3a^2 - h^2)$ a é o raio
	$V = \frac{4}{3}\pi abc$ Caso seja esférico (b=c) $V = \frac{4}{3}\pi ab^2$

SÓLIDO	VOLUME V
	$V = \frac{\pi^2}{4}d^2\frac{\sqrt{a^2+b^2}}{2}$
	$V = \frac{\pi}{4}d^2(l+l'-\frac{d}{3})$
	$V = \frac{\pi}{4}h(D^2-d^2)$ $= \pi th(D-t)$ $= \pi th(d+t)$
	$V = \frac{h}{3}(A+a+\sqrt{Aa})$ A,a=Área total dos dois lados
	$V = \frac{2}{3}\pi r^2h$ $= 2.0944r^2h$
	$V = 2\pi^2Rr^2$ $= 19.739Rr^2$ $= \frac{\pi^2}{4}Dd^2$ $= 2.4674Dd^2$
	$V = \frac{\pi}{3}r^2h$ $= 1.0472r^2h$
	$V = \frac{4}{3}\pi r^3 = 4.1888r^3$ $= \frac{\pi}{6}d^3 = 0.5236d^3$
	$V = \frac{\pi h}{6}(3a^2+3b^2+h^2)$
	Curva idêntica a arco circular $V = \frac{\pi l}{12}(2D^2+d^2)$ Curva idêntica a linha parabólica $V = 0.209l(2D^2Dd+1/4d^3)$

COMO CALCULAR O PESO

Peso W [g] = Volume [cm³] x Peso Específico

[Ex.] Material: Aço
Ø D=16 L=50mm o peso é:
 $W = \frac{\pi}{4}D^2L \times \text{Peso Específico}$
 $= \frac{\pi}{4} \times 1.6^2 \times 5 \times 7.85$
 $\approx 79(g)$

N/mm ²	HB Esf.=10mm	HV >50 N	HRB 98 N	HRC 1471 N
255	76,0	80	-	
270	80,7	85	41,0	
285	85,5	90	48,0	
305	90,2	95	52,0	
320	95,0	100	56,2	
335	99,8	105	-	
350	105	110	62,3	
370	109	115	-	
385	114	120	66,7	
400	119	125	-	
415	124	130	71,2	
430	128	135	-	
450	133	140	75,0	
465	138	145	-	
480	143	150	78,7	
495	147	155	-	
510	152	160	81,7	
530	156	165	-	
545	162	170	85,0	
560	166	175	-	
575	171	180	87,1	
595	176	185	-	
610	181	190	89,5	
625	185	195	-	
640	190	200	91,5	
660	195	205	92,5	
675	199	210	93,5	
690	204	215	94,0	
705	209	220	95,0	
720	214	225	96,0	
740	219	230	96,7	
755	223	235	-	
770	228	240	98,1	20,3
785	233	245	-	21,3
800	238	250	99,5	22,2
820	242	255	-	23,1
835	247	260	(101)	24,0
850	252	265		24,8
865	257	270	(102)	25,6
880	261	275		26,4
900	266	280	(104)	27,1
915	271	285		27,8
930	276	290	(105)	28,5
950	280	295		29,2
965	285	300		29,8
995	295	310		31,0
1030	304	320		32,2
1060	314	330		33,3
1095	323	340		34,4
1125	333	350		35,5
1155	342	360		36,6
1190	352	370		37,7
1220	361	380		38,8
1255	371	390		39,8
1290	380	400		40,8
1320	390	410		41,8
1350	399	420		42,7
1385	409	430		43,6
1420	418	440		44,5
1455	428	450		45,3
1485	437	460		46,1
1520	447	470		46,9

N/mm ²	HB Esf.=10mm	HV >50 N	HRB 98 N	HRC 1471 N
1555	(456)	480		47,7
1595	(466)	490		48,4
1630	(475)	500		49,1
1665	(485)	510		49,8
1700	(494)	520		50,5
1740	(504)	530		51,1
1775	(513)	540		51,7
1810	(523)	550		52,3
1845	(532)	560		53,0
1880	(542)	570		53,6
1920	(551)	580		54,1
1955	(561)	590		54,7
1995	(570)	600		55,2
2030	(580)	610		55,7
2070	(589)	620		56,3
2105	(599)	630		56,8
2145	(608)	640		57,3
2180	(618)	650		57,8
		660		58,3
		670		58,8
		680		59,2
		690		59,7
		700		60,1
		720		61,0
		740		61,8
		760		62,5
		780		63,3
		800		64,0
		820		64,7
		840		65,3
		860		65,9
		880		66,4
		900		67,0
		920		67,5
		940		68,0

FÓRMULAS VELOCIDADE CORTE

Rotação n [min⁻¹]

$$n = v_c \cdot 1000 / d / \pi$$

Velocidade corte v_c [m/min]

$$v_c = d \cdot \pi \cdot n / 1000$$

Avanço por navalha f_z [mm]

$$f_z = v_f / z / n$$

Avanço por rotação f [mm]

$$f = f_z \cdot z$$

Avanço v [mm/min]

$$v_f = f_z \cdot z \cdot n$$

Taxa de remoção Q [mm³/min]

$$Q = a_e \cdot a_p \cdot v_f$$

Diâmetro Efectivo

$$d_{eff} = 2 \cdot \sqrt{(d \cdot a_p - a_p \cdot a_p)}$$

M

ROSCA MACHO	PASO	BROCA	
		Standard	Máximo
1,0	0,25	0,75	0,80
1,2	0,25	0,95	1,00
1,4	0,30	1,10	1,15
1,6	0,35	1,25	1,30
1,7	0,35	1,35	1,40
1,8	0,35	1,45	1,50
2,0	0,40	1,60	1,70
2,2	0,45	1,75	1,85
2,3	0,40	1,90	1,95
2,5	0,45	2,05	2,10
2,6	0,45	2,15	2,20
3,0	0,50	2,50	2,60
3,5	0,60	2,90	3,00
4,0	0,70	3,30	3,40
4,5	0,75	3,75	3,90
5,0	0,80	4,20	4,30
6,0	1,00	5,00	5,10
7,0	1,00	6,00	6,10
8,0	1,25	6,80	6,90
10,0	1,50	8,50	8,60
12,0	1,75	10,20	10,40
14,0	2,00	12,00	12,20
16,0	2,00	14,00	14,20
18,0	2,50	15,50	15,70
20,0	2,50	17,50	17,70
22,0	2,50	19,50	19,70
24,0	3,00	21,00	21,20
27,0	3,00	24,00	24,20
30,0	3,50	26,50	26,70
33,0	3,50	29,50	29,70
36,0	4,00	32,00	32,20
39,0	4,00	35,00	35,20
42,0	4,50	37,50	37,70

MF

ROSCA MACHO	PASO	BROCA	
		Standard	Máximo
2,5	0,35	2,15	2,20
3,0	0,35	2,65	2,70
3,5	0,35	3,15	3,20
4,0	0,50	3,50	3,60
5,0	0,50	4,50	4,60
6,0	0,50	5,50	5,60
8,0	0,50	7,50	7,60
10,0	0,50	9,50	9,60
6,0	0,75	5,20	5,30
7,0	0,75	6,25	6,30
8,0	0,75	7,20	7,30
10,0	0,75	9,20	9,30
12,0	0,75	11,30	11,40
14,0	0,75	13,30	13,40
16,0	0,75	15,30	15,40
8,0	1,00	7,00	7,10
9,0	1,00	8,00	8,10
10,0	1,00	9,00	9,10
12,0	1,00	11,00	11,10
13,0	1,00	12,00	12,10
14,0	1,00	13,00	13,10
15,0	1,00	14,00	14,10
16,0	1,00	15,00	15,10
17,0	1,00	16,00	16,10
18,0	1,00	17,00	17,10
20,0	1,00	19,00	19,10
10,0	1,25	8,80	8,90
12,0	1,25	10,80	10,90
14,0	1,25	12,80	12,90
16,0	1,25	14,80	14,90
12,0	1,50	10,50	10,70
14,0	1,50	12,50	12,70
16,0	1,50	14,50	14,70
18,0	1,50	16,50	16,70
20,0	1,50	18,50	18,70
22,0	1,50	20,50	20,70
24,0	1,50	22,50	22,70

UNC

ROSCA MACHO	PASSO	BROCA	
		Standard	Máximo
1	64	1,55	1,60
2	56	1,85	1,90
3	48	2,10	2,15
4	40	2,35	2,40
5	40	2,65	2,70
6	32	2,85	2,90
8	32	3,50	3,50
10	24	3,90	4,00
12	24	4,50	4,60
1/4	20	5,10	5,20
5/16	18	6,60	6,70
3/8	16	8,00	8,10
7/16	14	9,40	9,50
1/2	13	10,80	11,00
9/16	12	12,20	12,40
5/8	11	13,50	13,80
3/4	10	16,50	16,80
7/8	9	19,50	19,70
1	8	22,30	22,60

UNF

ROSCA MACHO	PASSO	BROCA	
		Standard	Máximo
0	80	1,25	1,30
1	72	1,55	1,60
2	64	1,85	1,90
3	56	2,15	2,20
4	48	2,40	2,45
5	44	2,70	2,75
6	40	2,95	3,00
8	36	3,50	3,60
10	32	4,10	4,20
12	28	4,60	4,70
1/4	28	5,50	5,60
5/16	24	6,90	7,00
3/8	24	8,50	8,60
7/16	20	9,90	10,00
1/2	20	11,50	11,60
9/16	18	12,90	13,00
5/8	18	14,50	14,70
3/4	16	17,50	17,70
7/8	14	20,50	20,70
1	12	23,30	23,50

RC

Recomenda-se o uso de mandril cónico 1:16

Ø	P(TPI)	Ø	D máx.	D mín.	L mín.
1/16	28	6,10	6,605	6,515	11,90
1/8	28	8,10	8,615	8,525	11,90
1/4	19	10,80	11,505	11,395	17,70
3/8	19	14,30	15,005	14,895	18,10
1/2	14	17,80	18,695	18,565	24,00
3/4	14	23,00	24,185	24,055	25,30

BSW

ROSCA MACHO	PASSO	BROCA	
		Standard	Máximo
1/8	40	2,50	2,60
3/16	24	3,60	3,70
1/4	20	5,10	5,10
5/16	18	6,50	6,60
3/8	16	7,90	8,00
7/16	14	9,20	9,30
1/2	12	10,50	10,60
5/8	11	13,50	13,50
3/4	10	16,20	16,50
7/8	9	19,20	19,30
1	8	22,00	22,10

G

ROSCA MACHO	PASSO	BROCA	
		Standard	Máximo
1/8	28	8,80	8,85
1/4	19	11,80	11,90
3/8	19	15,25	15,40
1/2	14	19,00	19,20
5/8	14	21,00	21,10
3/4	14	24,50	24,60

NPT

Recomenda-se o uso de mandril cónico 1:16

Ø	P(TPI)	Ø	D máx.	D min.	L min.
1/16	27	6,00	6,440	6,390	12,00
1/8	27	8,30	8,790	8,740	12,00
1/4	18	10,80	11,410	11,360	17,50
3/8	18	14,20	14,850	14,800	17,60
1/2	14	17,50	18,370	18,320	22,90
3/4	14	22,80	23,720	23,670	23,00
1	11.5	28,60	29,740	29,690	27,40