

# Tipos de Engrenagens

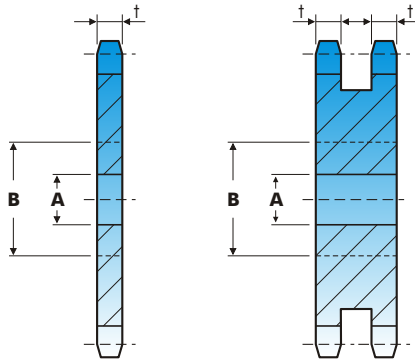
A = Furo Piloto  
 B = Furo Máximo Recomendável  
 D = Diâmetro do Cubo  
 L = Comprimento  
 t = Espessura do Dentado

ASA = A  
 DIN = B

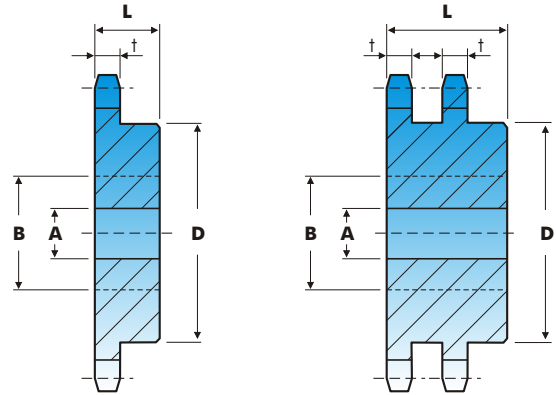
## Exemplo:

Engrenagem → 2.60.35 BT5  
 2 = duas carreiras  
 60 = passo 19.05 (3/4")  
 35 = n° de dentes  
 B = Norma DIN  
 T5 = tipo 5

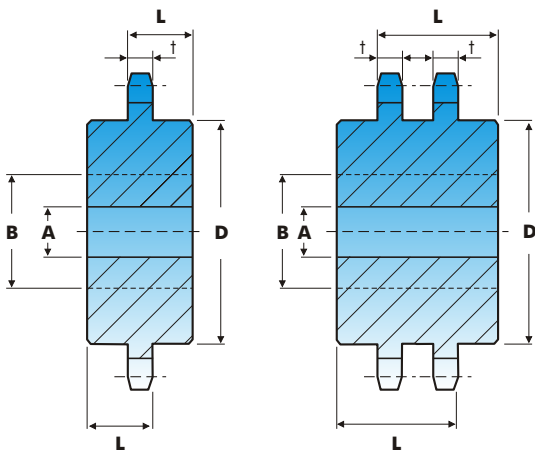
### Tipo 1



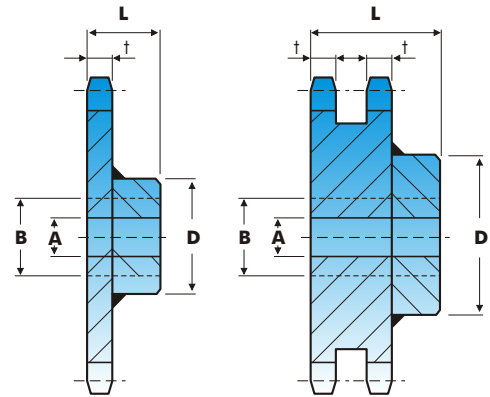
### Tipo 2



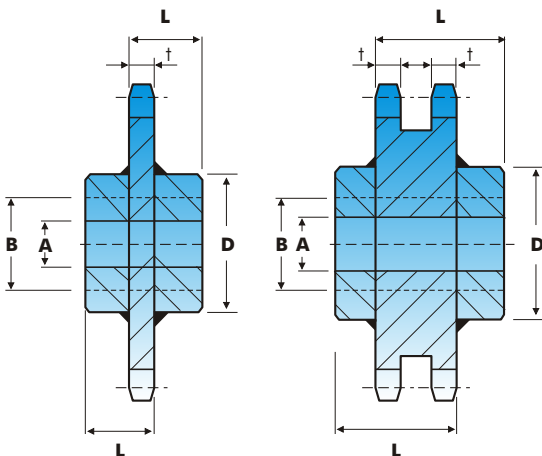
### Tipo 3



### Tipo 4



### Tipo 5



## NÚMERO DE CARREIRAS

Simples ..... = 1  
 Dupla ..... = 2  
 Tripla ..... = 3  
 Quádrupla ..... = 4

## PASSOS

9,525 = 35  
 12,700 = 40  
 15,875 = 50  
 19,050 = 60  
 25,400 = 80  
 31,750 = 100  
 38,100 = 120

# Engrenagens Passo 9,525mm - 3/8"

Norma ASA

Norma DIN

Corrente:

Largura interna: 4,77

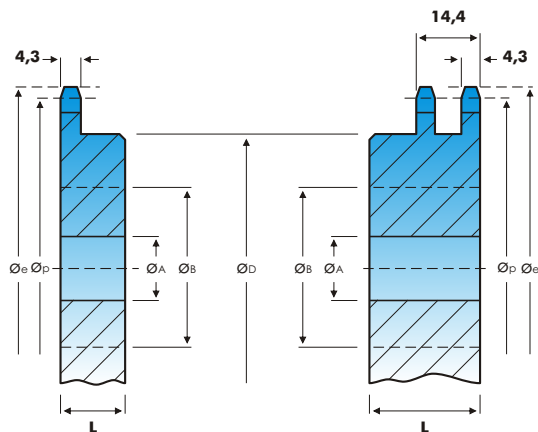
Diâmetro do rolo: 5,08

Corrente:

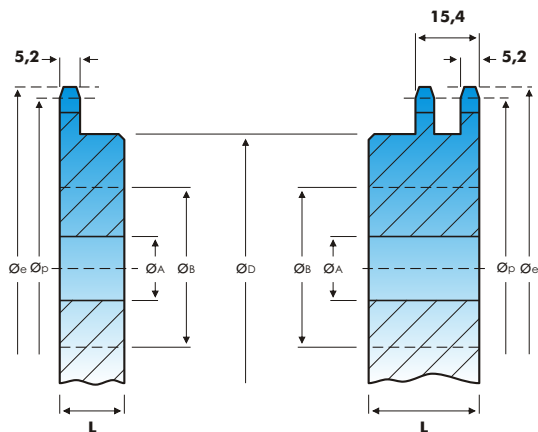
Largura interna: 5,72

Diâmetro do rolo: 6,35

## Engrenagens:



## Engrenagens:



N.º de dentes Z	Diâmetro Primitivo Ø <sub>p</sub>	Diâmetro Externo Ø <sub>e</sub>	Ø <sub>A</sub>	Ø <sub>B</sub>	Ø <sub>D</sub>	Simples		Dupla		N.º de dentes Z	Diâmetro Primitivo Ø <sub>p</sub>	Diâmetro Externo Ø <sub>e</sub>	Ø <sub>A</sub>	Ø <sub>B</sub>	Ø <sub>D</sub>	Simples		Dupla	
						L	Tipos	L	Tipos							L	Tipos	L	Tipos
010	30,82	34,0	12	13	20	16	2-3	22	2-3	050	151,69	157,0	20	90	135	25	2-3	30	2-3
011	33,81	37,0	12	15	23	16	2-3	22	2-3	051	154,72	160,0	20	90	135	25	2-3	30	2-3
012	36,80	40,0	12	17	26	16	2-3	22	2-3	052	157,75	163,0	20	90	135	25	2-3	30	2-3
013	39,80	44,0	12	19	29	16	2-3	22	2-3	053	160,78	166,0	20	90	135	25	2-3	30	2-3
014	42,81	47,0	12	21	32	16	2-3	22	2-3	054	163,81	169,0	20	48	72	30	4-5	35	4-5
015	45,81	50,0	12	23	35	20	2-3	25	2-3	055	166,84	172,0	20	48	72	30	4-5	35	4-5
016	48,82	53,0	12	25	38	20	2-3	25	2-3	056	169,88	175,0	20	48	72	30	4-5	35	4-5
017	51,84	56,0	12	27	41	20	2-3	25	2-3	057	172,91	178,0	20	48	72	30	4-5	35	4-5
018	54,85	59,0	12	29	44	20	2-3	25	2-3	058	175,94	181,0	20	48	72	30	4-5	35	4-5
019	57,87	62,0	12	31	47	22	2-3	25	2-3	059	178,97	184,0	20	48	72	30	4-5	35	4-5
020	60,89	65,0	12	33	50	22	2-3	25	2-3	060	182,00	187,0	20	57	80	30	4-5	35	4-5
021	63,91	68,0	12	35	53	22	2-3	25	2-3	061	185,03	190,0	20	57	80	30	4-5	35	4-5
022	66,93	71,0	12	37	56	22	2-3	25	2-3	062	188,06	193,0	20	57	80	30	4-5	35	4-5
023	69,95	74,0	12	39	59	22	2-3	25	2-3	063	191,09	196,0	20	57	80	30	4-5	35	4-5
024	72,97	77,0	15	41	62	22	2-3	25	2-3	064	194,12	199,0	20	57	80	30	4-5	35	4-5
025	76,00	80,0	15	43	65	22	2-3	25	2-3	065	197,15	202,0	20	57	80	30	4-5	35	4-5
026	79,02	84,0	15	45	68	22	2-3	25	2-3	066	200,18	205,0	20	57	80	30	4-5	35	4-5
027	82,05	87,0	15	47	70	22	2-3	25	2-3	067	203,21	208,0	20	57	80	30	4-5	35	4-5
028	85,07	90,0	15	48	72	22	2-3	25	2-3	068	206,24	211,0	20	57	80	30	4-5	35	4-5
029	88,10	93,0	15	50	75	22	2-3	25	2-3	069	209,27	214,0	20	57	80	30	4-5	35	4-5
030	91,12	96,0	15	52	78	25	2-3	30	2-3	070	212,30	217,0	20	57	80	30	4-5	35	4-5
031	94,15	99,0	15	54	80	25	2-3	30	2-3	071	215,33	220,0	20	57	80	30	4-5	35	4-5
032	97,18	102,0	15	56	84	25	2-3	30	2-3	072	218,37	223,0	20	57	80	30	4-5	35	4-5
033	100,20	105,0	15	58	87	25	2-3	30	2-3	073	221,40	226,0	20	57	80	30	4-5	35	4-5
034	103,23	108,0	15	60	90	25	2-3	30	2-3	074	224,43	229,0	20	57	80	30	4-5	35	4-5
035	106,26	111,0	15	62	93	25	2-3	30	2-3	075	227,46	232,0	20	57	80	30	4-5	35	4-5
036	109,29	114,0	15	64	96	25	2-3	30	2-3	076	230,49	235,0	20	57	80	30	4-5	35	4-5
037	112,32	117,0	15	67	100	25	2-3	30	2-3	077	233,52	238,0	20	57	80	30	4-5	35	4-5
038	115,34	120,0	15	69	103	25	2-3	30	2-3	078	236,55	241,0	20	57	80	30	4-5	35	4-5
039	118,37	123,0	15	71	107	25	2-3	30	2-3	079	239,58	244,0	20	57	80	30	4-5	35	4-5
040	121,40	126,0	15	73	110	25	2-3	30	2-3	080	242,61	247,0	20	57	80	30	4-5	35	4-5
041	124,43	129,0	15	75	113	25	2-3	30	2-3	081	245,65	250,0	20	57	80	30	4-5	35	4-5
042	127,46	132,0	15	77	116	25	2-3	30	2-3	082	248,68	254,0	20	57	80	30	4-5	35	4-5
043	130,49	135,0	15	80	120	25	2-3	30	2-3	083	251,71	257,0	20	57	80	30	4-5	35	4-5
044	133,52	138,0	15	82	123	25	2-3	30	2-3	084	254,74	260,0	20	57	80	30	4-5	35	4-5
045	136,55	141,0	20	82	126	25	2-3	30	2-3	085	257,77	263,0	20	57	80	30	4-5	35	4-5
046	139,58	144,0	20	82	126	25	2-3	30	2-3	090	272,93	278,0	20	57	80	30	4-5	35	4-5
047	142,61	147,0	20	82	126	25	2-3	30	2-3	095	288,08	293,0	20	57	80	30	4-5	35	4-5
048	145,63	150,0	20	87	130	25	2-3	30	2-3	100	303,24	308,0	20	57	80	30	4-5	35	4-5
049	148,66	154,0	20	87	130	25	2-3	30	2-3	114	345,68	351,0	20	65	98	30	4-5	35	4-5

# Engrenagens Passo 12,70mm - 1/2"

Norma ASA

Norma DIN

Corrente:

Largura interna: 7,95

Diâmetro do rolo: 7,94

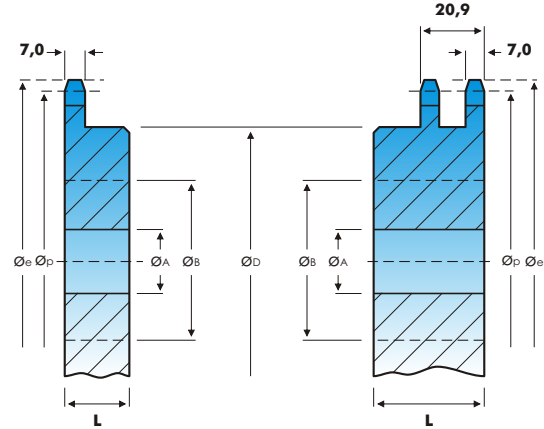
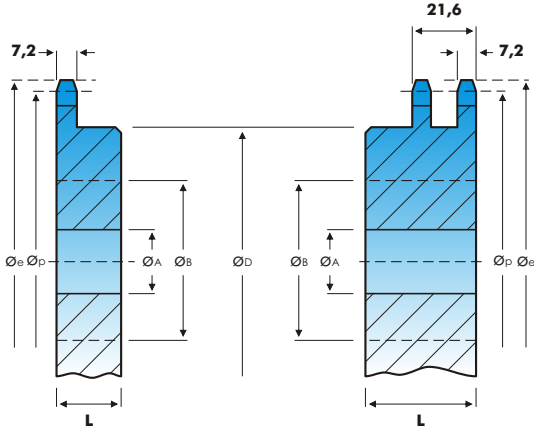
Corrente:

Largura interna: 7,75

Diâmetro do rolo: 8,51

## Engrenagens:

## Engrenagens:



N.º de dentes	Diâmetro Primitivo	Diâmetro Externo						Simples		Dupla		N.º de dentes	Diâmetro Primitivo	Diâmetro Externo						Simples		Dupla	
			Ø <sub>A</sub>	Ø <sub>B</sub>	Ø <sub>D</sub>	L	Tipos	L	Tipos	Z	Ø <sub>p</sub>				Ø <sub>e</sub>	Ø <sub>A</sub>	Ø <sub>B</sub>	Ø <sub>D</sub>	L	Tipos	L	Tipos	
009	37,13	42,0	12	15	22	25	2-3	30	2-3	048	194,18	200,0	25	57	86	36	4-5	46	4-5				
010	41,10	46,0	12	17	26	25	2-3	30	2-3	049	198,22	204,0	25	57	86	36	4-5	46	4-5				
011	45,08	50,0	12	20	30	25	2-3	30	2-3	050	202,26	208,0	25	57	86	36	4-5	46	4-5				
012	49,07	54,0	12	23	34	25	2-3	30	2-3	051	206,30	213,0	25	57	86	36	4-5	46	4-5				
013	53,07	58,0	12	26	39	25	2-3	30	2-3	052	210,34	217,0	25	57	86	36	4-5	46	4-5				
014	57,07	62,0	12	29	43	25	2-3	30	2-3	053	214,38	221,0	25	57	86	36	4-5	46	4-5				
015	61,08	66,0	12	31	47	25	2-3	30	2-3	054	218,42	225,0	25	57	86	36	4-5	46	4-5				
016	65,10	71,0	17	34	51	25	2-3	30	2-3	055	222,46	229,0	25	57	86	36	4-5	46	4-5				
017	69,12	75,0	17	37	55	25	2-3	30	2-3	056	226,50	233,0	25	57	86	36	4-5	46	4-5				
018	73,14	79,0	17	39	59	25	2-3	30	2-3	057	230,54	237,0	25	65	98	36	4-5	46	4-5				
019	77,16	83,0	17	42	63	25	2-3	30	2-3	058	234,58	241,0	25	65	98	36	4-5	46	4-5				
020	81,18	87,0	17	45	67	25	2-3	30	2-3	059	238,62	245,0	25	65	98	36	4-5	46	4-5				
021	85,21	91,0	17	47	71	25	2-3	30	2-3	060	242,66	249,0	25	65	98	36	4-5	50	4-5				
022	89,24	95,0	17	50	75	30	2-3	36	2-3	061	246,70	253,0	25	65	98	36	4-5	50	4-5				
023	93,27	99,0	17	53	79	30	2-3	36	2-3	062	250,74	257,0	25	65	98	36	4-5	50	4-5				
024	97,30	103,0	17	55	83	30	2-3	36	2-3	063	254,78	261,0	25	65	98	36	4-5	50	4-5				
025	101,33	107,0	17	58	87	30	2-3	36	2-3	064	258,83	265,0	25	65	98	36	4-5	50	4-5				
026	105,36	112,0	17	61	92	30	2-3	36	2-3	065	262,87	269,0	25	65	98	36	4-5	50	4-5				
027	109,40	116,0	17	63	95	30	2-3	36	2-3	066	266,91	273,0	25	65	98	36	4-5	50	4-5				
028	113,43	120,0	17	63	95	30	2-3	36	2-3	067	270,95	277,0	25	65	98	36	4-5	50	4-5				
029	117,46	124,0	17	63	95	30	2-3	36	2-3	068	274,99	281,0	25	65	98	36	4-5	50	4-5				
030	121,50	128,0	17	67	100	30	2-3	36	2-3	069	279,03	285,0	25	65	98	36	4-5	50	4-5				
031	125,53	132,0	20	67	100	30	2-3	36	2-3	070	283,07	289,0	25	65	98	36	4-5	50	4-5				
032	129,57	136,0	20	67	100	30	2-3	36	2-3	071	287,11	293,0	25	65	98	36	4-5	50	4-5				
033	133,61	140,0	20	67	100	30	2-3	36	2-3	072	291,15	297,0	25	65	98	36	4-5	50	4-5				
034	137,64	144,0	20	67	100	30	2-3	36	2-3	073	295,20	301,0	25	65	98	36	4-5	50	4-5				
035	141,68	148,0	20	57	86	32	4-5	-	-	074	299,24	305,0	25	65	98	36	4-5	50	4-5				
035	141,68	148,0	20	67	100	-	-	36	2-3	075	303,28	310,0	25	65	98	36	4-5	50	4-5				
036	145,72	152,0	20	57	86	32	4-5	41	4-5	076	307,32	314,0	25	65	98	36	4-5	50	4-5				
037	149,75	156,0	20	57	86	32	4-5	41	4-5	077	311,36	318,0	25	65	98	36	4-5	50	4-5				
038	153,79	160,0	20	57	86	32	4-5	41	4-5	078	315,40	322,0	25	65	98	36	4-5	50	4-5				
039	157,83	164,0	20	57	86	32	4-5	41	4-5	079	319,40	326,0	25	65	98	36	4-5	50	4-5				
040	161,87	168,0	20	57	86	36	4-5	46	4-5	080	323,49	330,0	25	65	98	36	4-5	50	4-5				
041	165,91	172,0	20	57	86	36	4-5	46	4-5	081	327,53	334,0	25	65	98	36	4-5	50	4-5				
042	169,94	176,0	20	57	86	36	4-5	46	4-5	082	331,57	338,0	25	65	98	36	4-5	50	4-5				
043	173,98	180,0	20	57	86	36	4-5	46	4-5	085	343,69	350,0	25	65	98	36	4-5	50	4-5				
044	178,02	184,0	20	57	86	36	4-5	46	4-5	090	363,90	370,0	25	65	98	36	4-5	50	4-5				
045	182,06	188,0	20	57	86	36	4-5	46	4-5	095	384,11	390,0	25	65	98	36	4-5	50	4-5				
046	186,10	192,0	20	57	86	36	4-5	46	4-5	100	404,32	411,0	25	65	98	36	4-5	50	4-5				
047	190,14	196,0	20	57	86	36	4-5	46	4-5	114	460,91	467,0	25	73	110	36	4-5	50	4-5				

# Engrenagens Passo 15,875mm - 5/8"

Norma ASA

Norma DIN

Corrente:

Largura interna: 9,53

Diâmetro do rolo: 10,16

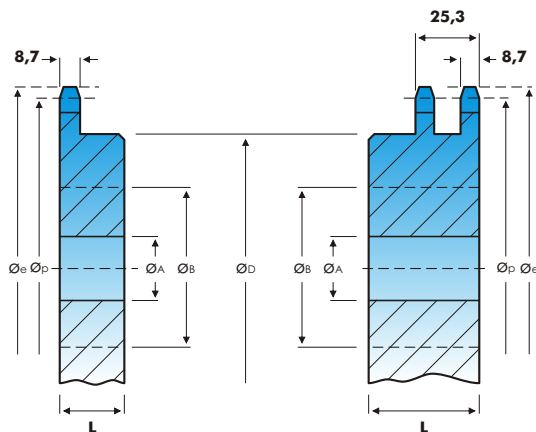
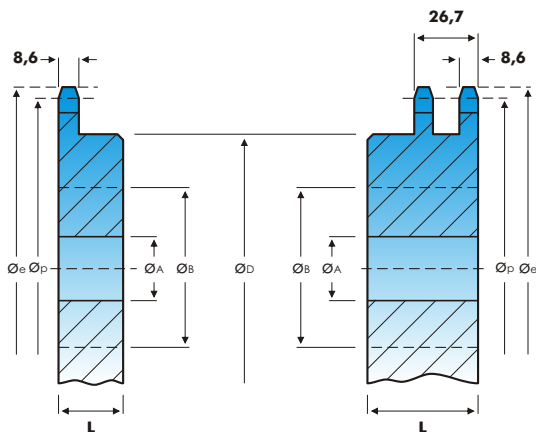
Corrente:

Largura interna: 9,65

Diâmetro do rolo: 10,16

## Engrenagens:

## Engrenagens:



N.º de dentes	Diâmetro Primitivo	Diâmetro Externo						Simples		Dupla		N.º de dentes	Diâmetro Primitivo	Diâmetro Externo						Simples		Dupla	
			Ø <sub>A</sub>	Ø <sub>B</sub>	Ø <sub>D</sub>	L	Tipos	L	Tipos	Z	Ø <sub>p</sub>				Ø <sub>e</sub>	Ø <sub>A</sub>	Ø <sub>B</sub>	Ø <sub>D</sub>	L	Tipos	L	Tipos	
008	41,48	47,0	12	14	21	25	2-3	45	2-3	042	212,43	220,0	25	57	86	40	4-5	55	4-5				
009	46,42	52,0	15	19	28	25	2-3	45	2-3	043	217,48	225,0	25	57	86	40	4-5	55	4-5				
010	51,37	57,0	15	22	33	25	2-3	45	2-3	044	222,53	230,0	25	57	86	40	4-5	55	4-5				
011	56,35	62,0	15	25	38	25	2-3	45	2-3	045	227,58	235,0	25	57	86	40	4-5	55	4-5				
012	61,34	67,0	15	29	44	25	2-3	45	2-3	046	232,63	240,0	25	57	86	40	4-5	55	4-5				
013	66,34	73,0	15	32	48	25	2-3	45	2-3	047	237,68	245,0	25	57	86	40	4-5	55	4-5				
014	71,34	78,0	17	35	53	25	2-3	45	2-3	048	242,73	250,0	25	65	98	40	4-5	55	4-5				
015	76,36	83,0	17	39	59	25	2-3	45	2-3	049	247,77	255,0	25	65	98	40	4-5	55	4-5				
016	81,37	88,0	17	43	64	25	2-3	45	2-3	050	252,82	260,0	25	65	98	40	4-5	55	4-5				
017	86,40	93,0	17	46	69	25	2-3	45	2-3	051	257,87	265,0	25	65	98	40	4-5	55	4-5				
018	91,42	98,0	17	49	74	25	2-3	45	2-3	052	262,92	270,0	25	65	98	40	4-5	55	4-5				
019	96,45	103,0	17	53	79	30	2-3	45	2-3	053	267,97	275,0	25	65	98	40	4-5	55	4-5				
020	101,48	108,0	20	56	84	30	2-3	45	2-3	054	273,03	280,0	25	65	98	40	4-5	55	4-5				
021	106,51	113,0	20	59	89	30	2-3	45	2-3	055	278,08	286,0	25	65	98	40	4-5	55	4-5				
022	111,55	118,0	20	63	94	30	2-3	45	2-3	056	283,13	291,0	25	65	98	40	4-5	55	4-5				
023	116,59	123,0	20	66	99	30	2-3	45	2-3	057	288,18	296,0	25	65	98	40	4-5	55	4-5				
024	121,62	128,0	20	67	100	34	2-3	45	2-3	058	293,23	301,0	25	65	98	40	4-5	55	4-5				
025	126,66	133,0	20	67	100	34	2-3	45	2-3	059	298,28	306,0	25	65	98	40	4-5	55	4-5				
026	131,70	139,0	20	73	110	34	2-3	45	2-3	060	303,33	311,0	25	65	98	40	4-5	55	4-5				
027	136,74	144,0	20	73	110	34	2-3	45	2-3	061	308,33	316,0	25	65	98	40	4-5	55	4-5				
028	141,79	149,0	20	57	86	37	4-5	-	-	062	313,43	321,0	25	65	98	40	4-5	55	4-5				
028	141,79	149,0	20	73	110	-	-	51	2-3	063	318,48	326,0	25	65	98	40	4-5	55	4-5				
029	146,83	154,0	20	57	86	37	4-5	-	-	064	323,53	331,0	25	65	98	40	4-5	55	4-5				
029	146,83	154,0	20	73	110	-	-	51	2-3	065	328,58	336,0	25	65	98	40	4-5	55	4-5				
030	151,87	159,0	20	57	86	37	4-5	-	-	066	333,63	341,0	25	65	98	40	4-5	55	4-5				
030	151,87	159,0	20	73	110	-	-	51	2-3	067	338,69	346,0	25	65	98	40	4-5	55	4-5				
031	156,92	164,0	20	57	86	37	4-5	-	-	068	343,74	351,0	25	65	98	40	4-5	55	4-5				
031	156,92	164,0	20	73	110	-	-	51	2-3	069	348,79	356,0	25	65	98	40	4-5	55	4-5				
032	161,96	169,0	20	57	86	37	4-5	-	-	070	353,84	361,0	25	65	98	40	4-5	55	4-5				
032	161,96	169,0	20	73	110	-	-	51	2-3	071	358,89	366,0	25	65	98	40	4-5	55	4-5				
033	167,01	175,0	20	57	86	37	4-5	-	-	072	363,94	371,0	25	65	98	40	4-5	55	4-5				
033	167,01	175,0	20	73	110	-	-	51	2-3	073	368,99	376,0	25	65	98	40	4-5	55	4-5				
034	172,05	180,0	20	57	86	37	4-5	51	4-5	074	374,05	382,0	25	65	98	40	4-5	55	4-5				
035	177,10	185,0	20	57	86	37	4-5	51	4-5	075	379,10	387,0	25	65	98	40	4-5	55	4-5				
036	182,14	190,0	20	57	86	37	4-5	51	4-5	076	384,15	392,0	30	65	98	40	4-5	55	4-5				
037	187,19	195,0	20	57	86	37	4-5	51	4-5	080	404,36	412,0	30	65	98	40	4-5	55	4-5				
038	192,24	200,0	25	57	86	37	4-5	51	4-5	085	429,62	437,0	30	65	98	40	4-5	55	4-5				
039	197,29	205,0	25	57	86	37	4-5	51	4-5	090	454,88	462,0	30	65	98	40	4-5	55	4-5				
040	202,33	210,0	25	57	86	40	4-5	55	4-5	095	480,14	488,0	30	73	110	40	4-5	55	4-5				
041	207,38	215,0	25	57	86	40	4-5	55	4-5	114	576,13	584,0	30	73	110	40	4-5	55	4-5				

# Engrenagens Passo 19,05mm - 3/4"

Norma ASA

Norma DIN

Corrente:

Largura interna: 12,70

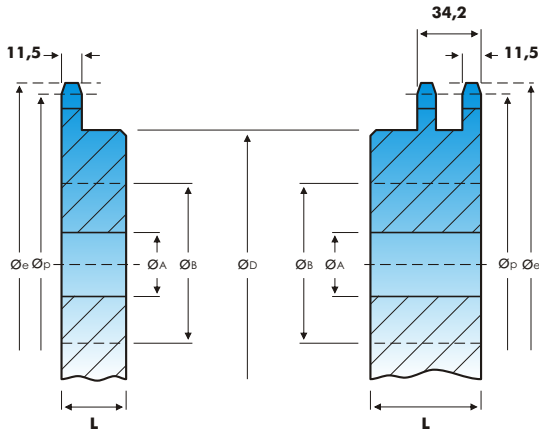
Diâmetro do rolo: 11,90

Corrente:

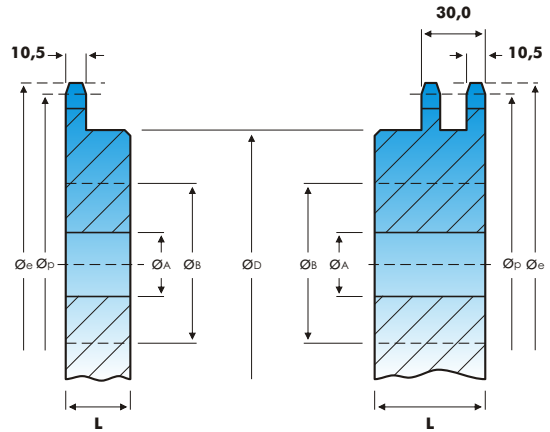
Largura interna: 11,68

Diâmetro do rolo: 12,07

## Engrenagens:



## Engrenagens:



N.º de dentes	Diâmetro Primitivo	Diâmetro Externo	Ø <sub>A</sub>	Ø <sub>B</sub>	Ø <sub>D</sub>	Simplex		Dupla		N.º de dentes	Diâmetro Primitivo	Diâmetro Externo	Ø <sub>A</sub>	Ø <sub>B</sub>	Ø <sub>D</sub>	Simplex		Dupla	
						L	Tipos	L	Tipos							L	Tipos	L	Tipos
008	49,78	56,0	15	17	26	30	2-3	45	2-3	041	248,86	258,0	30	65	98	45	4-5	-	-
009	55,70	62,0	15	22	33	30	2-3	45	2-3	041	248,86	258,0	30	73	110	-	-	65	4-5
010	61,65	68,0	15	26	39	30	2-3	45	2-3	042	254,96	264,0	30	65	98	45	4-5	-	-
011	67,62	74,0	20	31	46	30	2-3	45	2-3	042	254,96	264,0	30	73	110	-	-	65	4-5
012	73,60	80,0	20	35	52	30	2-3	45	2-3	043	260,98	270,0	30	65	98	45	4-5	-	-
013	79,60	87,0	20	39	58	30	2-3	45	2-3	043	260,98	270,0	30	73	110	-	-	65	4-5
014	85,61	93,0	20	43	64	30	2-3	45	2-3	044	267,03	276,0	30	65	98	45	4-5	-	-
015	91,63	99,0	20	47	70	30	2-3	45	2-3	044	267,03	276,0	30	73	110	-	-	65	4-5
016	97,65	105,0	20	51	77	30	2-3	45	2-3	045	273,09	282,0	30	73	110	45	4-5	65	4-5
017	103,67	111,0	20	56	83	30	2-3	45	2-3	046	279,15	288,0	30	73	110	45	4-5	65	4-5
018	109,71	117,0	20	60	90	30	2-3	45	2-3	047	285,21	294,0	30	73	110	45	4-5	65	4-5
019	115,74	123,0	20	64	96	36	2-3	50	2-3	048	291,27	300,0	30	83	124	45	4-5	65	4-5
020	121,78	129,0	20	67	100	36	2-3	50	2-3	049	297,33	306,0	30	83	124	45	4-5	65	4-5
021	127,82	135,0	25	71	107	36	2-3	50	2-3	050	303,39	312,0	30	83	124	45	4-5	65	4-5
022	133,86	141,0	25	75	113	36	2-3	50	2-3	051	309,45	318,0	30	83	124	45	4-5	65	4-5
023	139,90	147,0	25	75	113	36	2-3	50	2-3	052	315,51	324,0	30	83	124	45	4-5	65	4-5
024	145,95	153,0	25	65	98	39	4-5	-	-	053	321,57	330,0	30	83	124	45	4-5	65	4-5
024	145,95	153,0	25	77	115	-	-	58	2-3	054	327,63	336,0	30	83	124	45	4-5	65	4-5
025	151,99	160,0	25	65	98	39	4-5	-	-	055	333,69	342,0	30	83	124	45	4-5	65	4-5
025	151,99	160,0	25	77	115	-	-	58	2-3	056	339,75	348,0	30	83	124	45	4-5	65	4-5
026	158,04	167,0	25	65	98	39	4-5	-	-	057	345,81	355,0	30	83	124	45	4-5	65	4-5
026	158,04	167,0	25	80	120	-	-	58	2-3	058	351,87	361,0	30	83	124	45	4-5	65	4-5
027	164,09	173,0	25	65	98	39	4-5	-	-	059	357,93	367,0	30	83	124	45	4-5	65	4-5
027	164,09	173,0	25	80	120	-	-	58	2-3	060	363,99	373,0	30	83	124	45	4-5	65	4-5
028	170,14	179,0	25	65	98	39	4-5	58	4-5	061	370,05	379,0	30	83	124	45	4-5	65	4-5
029	176,19	185,0	25	65	98	39	4-5	58	4-5	062	376,12	385,0	30	83	124	45	4-5	65	4-5
030	182,25	191,0	25	65	98	39	4-5	58	4-5	063	382,18	391,0	30	83	124	45	4-5	65	4-5
031	188,30	197,0	25	65	98	39	4-5	58	4-5	064	388,24	397,0	30	83	124	45	4-5	65	4-5
032	194,35	203,0	25	65	98	39	4-5	58	4-5	065	394,30	403,0	30	83	124	45	4-5	65	4-5
033	200,41	209,0	25	65	98	39	4-5	58	4-5	066	400,36	409,0	30	83	124	45	4-5	65	4-5
034	206,46	215,0	25	65	98	39	4-5	58	4-5	067	406,42	415,0	30	83	124	45	4-5	65	4-5
035	212,52	221,0	25	65	98	39	4-5	58	4-5	068	412,48	421,0	30	83	124	45	4-5	65	4-5
036	218,57	227,0	25	65	98	39	4-5	58	4-5	069	418,55	427,0	30	83	124	45	4-5	65	4-5
037	224,63	233,0	25	65	98	39	4-5	58	4-5	070	424,61	433,0	30	83	124	45	4-5	65	4-5
038	230,69	239,0	30	65	98	45	4-5	-	-	076	460,98	470,0	30	83	124	45	4-5	65	4-5
038	230,69	239,0	30	73	110	-	-	65	4-5	080	485,23	494,0	30	83	124	45	4-5	65	4-5
039	236,74	246,0	30	65	98	45	4-5	-	-	085	515,54	524,0	30	83	124	45	4-5	65	4-5
039	236,74	246,0	30	73	110	-	-	65	4-5	090	545,85	555,0	30	83	124	45	4-5	65	4-5
040	242,80	252,0	30	65	98	45	4-5	-	-	095	576,16	585,0	30	90	136	45	4-5	65	4-5
040	242,80	252,0	30	73	110	-	-	65	4-5	114	691,36	700,0	30	100	150	45	4-5	65	4-5

# Engrenagens Passo 25,40mm - 1"

Norma ASA

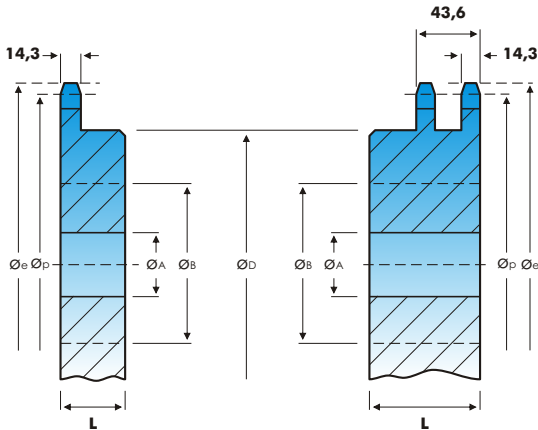
Norma DIN

Corrente:

Largura interna: 15,88

Diâmetro do rolo: 15,87

## Engrenagens:

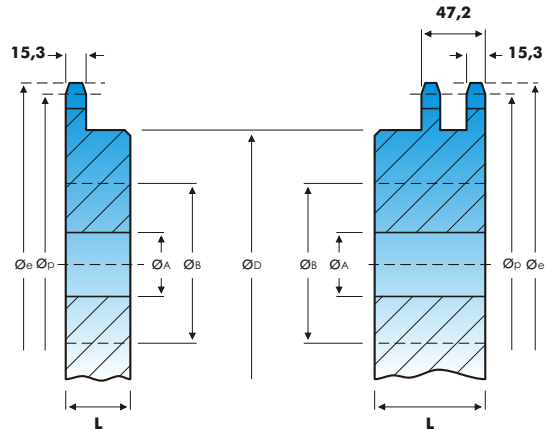


Corrente:

Largura interna: 17,02

Diâmetro do rolo: 15,88

## Engrenagens:



N.º de dentes	Diâmetro Primitivo	Diâmetro Externo							Simples		Dupla		N.º de dentes	Diâmetro Primitivo	Diâmetro Externo							Simples		Dupla	
			Ø <sub>A</sub>	Ø <sub>B</sub>	Ø <sub>D</sub>	L	Tipos	L	Tipos	Z	Ø <sub>p</sub>	Ø <sub>e</sub>				Ø <sub>A</sub>	Ø <sub>B</sub>	Ø <sub>D</sub>	L	Tipos	L	Tipos			
008	66,37	75,0	20	24	36	35	2-3	60	2-3	039	315,66	327,0	30	73	110	45	4-5	72	4-5						
009	74,26	83,0	20	30	45	35	2-3	60	2-3	040	323,73	335,0	30	73	110	50	4-5	75	4-5						
010	82,20	91,0	20	35	53	35	2-3	60	2-3	041	331,81	343,0	30	73	110	50	4-5	75	4-5						
011	90,16	99,0	20	40	61	35	2-3	60	2-3	042	339,89	351,0	30	73	110	50	4-5	75	4-5						
012	98,14	106,0	20	45	68	35	2-3	60	2-3	043	347,97	360,0	30	73	110	50	4-5	75	4-5						
013	106,14	116,0	20	50	76	35	2-3	60	2-3	044	356,04	368,0	30	73	110	50	4-5	75	4-5						
014	114,15	124,0	25	56	84	35	2-3	60	2-3	045	364,12	376,0	30	73	110	50	4-5	75	4-5						
015	122,17	132,0	25	61	92	35	2-3	60	2-3	046	372,20	384,0	30	73	110	50	4-5	75	4-5						
016	130,20	140,0	25	67	100	35	2-3	60	2-3	047	380,28	392,0	30	73	110	50	4-5	75	4-5						
017	138,23	148,0	25	73	110	35	2-3	60	2-3	048	388,36	400,0	30	73	110	50	4-5	75	4-5						
018	146,27	156,0	25	65	98	45	4-5	-	-	049	396,44	408,0	30	73	110	50	4-5	75	4-5						
018	146,27	156,0	25	77	115	-	-	64	2-3	050	404,52	416,0	30	73	110	50	4-5	75	4-5						
019	154,32	164,0	25	65	98	45	4-5	-	-	051	412,60	424,0	30	73	110	50	4-5	75	4-5						
019	154,32	164,0	25	77	115	-	-	64	2-3	052	420,68	432,0	30	73	110	50	4-5	75	4-5						
020	162,37	172,0	30	65	98	45	4-5	-	-	053	428,76	440,0	30	73	110	50	4-5	75	4-5						
020	162,37	172,0	30	80	120	-	-	64	2-3	054	436,84	448,0	30	73	110	50	4-5	75	4-5						
021	170,42	180,0	30	65	98	45	4-5	-	-	055	444,92	456,0	30	73	110	50	4-5	75	4-5						
021	170,42	180,0	30	80	120	-	-	64	2-3	056	453,00	465,0	30	73	110	50	4-5	75	4-5						
022	178,48	188,0	30	73	110	45	4-5	-	-	057	461,08	473,0	35	83	124	50	4-5	75	4-5						
022	178,48	188,0	30	80	120	-	-	64	2-3	058	469,16	481,0	35	83	124	50	4-5	75	4-5						
023	186,54	197,0	30	73	110	45	4-5	-	-	059	477,24	489,0	35	83	124	50	4-5	75	4-5						
023	186,54	197,0	30	80	120	-	-	64	2-3	060	485,32	497,0	35	90	136	50	4-5	75	4-5						
024	194,60	205,0	30	73	110	45	4-5	-	-	061	493,41	505,0	35	90	136	50	4-5	75	4-5						
024	194,60	205,0	30	83	125	-	-	66	2-3	062	501,49	513,0	35	90	136	50	4-5	75	4-5						
025	202,66	213,0	30	73	110	45	4-5	-	-	063	509,57	521,0	35	90	136	50	4-5	75	4-5						
025	202,66	213,0	30	83	125	-	-	66	2-3	064	517,65	529,0	35	90	136	50	4-5	75	4-5						
026	210,72	222,0	30	73	110	45	4-5	-	-	065	525,73	537,0	35	90	136	50	4-5	75	4-5						
026	210,72	222,0	30	83	125	-	-	66	2-3	066	533,82	545,0	35	90	136	50	4-5	75	4-5						
027	218,79	230,0	30	73	110	45	4-5	68	4-5	067	541,90	553,0	35	90	136	50	4-5	75	4-5						
028	226,86	238,0	30	73	110	45	4-5	68	4-5	068	549,98	562,0	35	90	136	50	4-5	75	4-5						
029	234,93	246,0	30	73	110	45	4-5	68	4-5	069	558,06	570,0	35	90	136	50	4-5	75	4-5						
030	243,00	255,0	30	73	110	45	4-5	72	4-5	070	566,14	578,0	35	90	136	50	4-5	75	4-5						
031	251,07	263,0	30	73	110	45	4-5	72	4-5	071	574,23	586,0	35	90	136	50	4-5	75	4-5						
032	259,14	271,0	30	73	110	45	4-5	72	4-5	072	582,31	594,0	35	90	136	50	4-5	75	4-5						
033	267,21	279,0	30	73	110	45	4-5	72	4-5	073	590,39	602,0	35	90	136	50	4-5	75	4-5						
034	275,28	287,0	30	73	110	45	4-5	72	4-5	074	598,47	610,0	35	90	136	50	4-5	75	4-5						
035	283,36	295,0	30	73	110	45	4-5	72	4-5	075	606,56	618,0	35	90	136	50	4-5	75	4-5						
036	291,43	303,0	30	73	110	45	4-5	72	4-5	076	614,64	626,0	35	90	136	50	4-5	75	4-5						
037	299,51	311,0	30	73	110	45	4-5	72	4-5	090	727,80	739,0	35	90	136	50	4-5	75	4-5						
038	307,58	319,0	30	73	110	45	4-5	72	4-5	095	768,22	780,0	35	100	150	50	4-5	75	4-5						

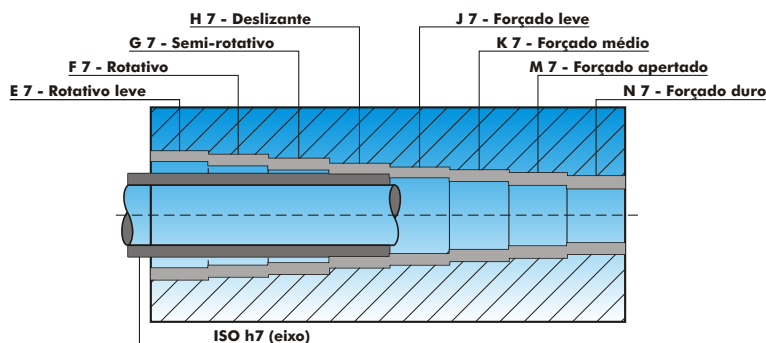






# Tolerâncias "ISO" para furos

## Eixo Padrão

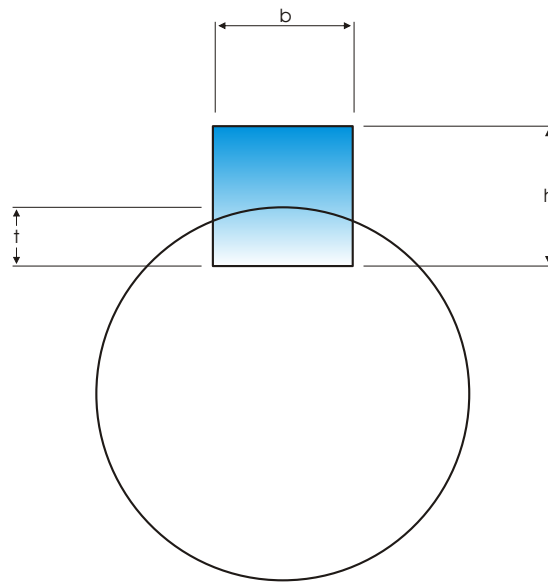


Ø em mm	Qualidade 6						Qualidade 7									
	G 6	H 6	J 6	K 6	M 6	N 6	E 7	F 7	G 7	H 7	J 7	K 7	M 7	N 7	P 7	
até 3	+3	0	-4		-7	-11	+14	+7	+3	0	-6		-9	-13	-16	
	+10	+7	+3		0	-4	+23	+16	+12	+9	+3		0	-4	-7	
acima de 3	+4	0	-4		-9	-13	+20	+10	+4	0	-7		-12	-16	-20	
	+12	+8	+4		-1	-5	+32	+22	+16	+12	+5		0	-4	-8	
acima de 6	+5	0	-4	-7	-12	-16	+25	+13	+5	0	-7	-10	-15	-19	-24	
	+14	+9	+5	+2	-3	-7	+40	+28	+20	+15	+8	+5	0	-4	-9	
acima de 10	+6	0	-5	-9	-15	-20	+32	+16	+6	0	-8	-12	-18	-23	-29	
	+17	+11	+6	+2	-4	-9	+50	+34	+24	+18	+10	+6	0	-5	-11	
acima de 18	+7	0	-5	-11	-17	-24	+40	+20	+7	0	-9	-15	-21	-28	-35	
	+20	+13	+8	+2	-4	-11	+61	+41	+28	+21	+12	+6	0	-7	-14	
acima de 30	+9	0	-6	-13	-20	-28	+50	+25	+9	0	-11	-18	-25	-33	-42	
	+25	+16	+10	+3	-4	-12	+75	+50	+34	+25	+14	+7	0	-8	-17	
acima de 50	+10	0	-6	-15	-24	-33	+60	+30	+10	0	-12	-21	-30	-39	-51	
	+29	+19	+13	+4	-5	-14	+90	+60	+40	+30	+18	+9	0	-9	-21	
acima de 80	+12	0	-6	-18	-28	-38	+72	+36	+12	0	-13	-25	-35	-45	-59	
	+34	+22	+16	+4	-6	-16	+107	+71	+47	+35	+22	+10	0	-10	-24	
acima de 120	+14	0	-7	-21	-33	-45	+85	+43	+14	0	-14	-28	-40	-52	-68	
	+39	+25	+18	+4	-8	-20	+125	+83	+54	+40	+26	+12	0	-12	-28	

Ø em mm	Qualidade 8								Qualidade 9				Qualidade 10			Qualidade 11		
	D 8	E 8	F 8	H 8	J 8	K 8	M 8	N 8	D 9	E 9	H 9	J 9	D 10	H 10	J 10	D 11	H 11	J 11
até 3	+20	+14	+7	0	-7			-15	+20	+14	0	-13	+20	0	-20	+20	0	-30
	+34	+28	+21	+14	+7			-1	+45	+39	+25	+12	+60	+40	+20	+80	+60	+30
acima de 3	+30	+20	+10	0	-9			-20	+30	+20	0	-15	+30	0	-24	+30	0	-38
	+48	+38	+28	+18	+9			-2	+60	+50	+30	+15	+78	+48	+24	+105	+75	+37
acima de 6	+40	+25	+13	0	-10	-16	-21	-25	+40	+25	0	-18	+40	0	-29	+40	0	-45
	+62	+47	+35	+22	+12	+6	+1	-3	+76	+61	+36	+18	+98	+58	+29	+130	+90	+45
acima de 10	+50	+32	+16	0	-12	-19	-25	-30	+50	+32	0	-22	+50	0	-35	+50	0	-55
	+77	+59	+43	+27	+15	+8	+2	-3	+93	+75	+43	+21	+120	+70	+35	+160	+110	+55
acima de 18	+65	+40	+20	0	-13	-23	-29	-36	+65	+40	0	-26	+65	0	-42	+65	0	-65
	+98	+73	+53	+33	+20	+10	+4	-3	+117	+92	+52	+26	+149	+84	+42	+195	+130	+65
acima de 30	+80	+50	+25	0	-15	-27	-34	-42	+80	+50	0	-31	+80	0	-50	+80	0	-80
	+119	+89	+64	+39	+24	+12	+5	-3	+142	+112	+62	+31	+180	+100	+50	+240	+160	+80
acima de 50	+100	+60	+30	0	-18	-32	-41	-50	+100	+60	0	-37	+100	0	-60	+100	0	-95
	+146	+106	+76	+46	+28	+14	+5	-4	+174	+134	+74	+37	+220	+120	+60	+290	+190	+95
acima de 80	+120	+72	+36	0	-20	-38	-48	-58	+120	+72	0	-44	+120	0	-70	+120	0	-110
	+174	+125	+90	+54	+34	+16	+6	-4	+207	+159	+87	+43	+260	+140	+70	+340	+220	+110
acima de 120	+145	+85	+43	0	-22	-43	-55	-67	+145	+85	0	-50	+145	0	-80	+145	0	-125
	+208	+148	+106	+63	+41	+20	+8	-4	+245	+185	+100	+50	+305	+160	+80	+395	+250	+125

Tolerâncias em  $\mu$  (micron)

# Normas para Chavetas



Diâmetro do Eixo	Largura	Altura	Profundidade no Eixo	Profundidade na Engrenagem
d	b	h	t	t
10 - 12	4	4	2,5	1,7
13 - 17	5	5	3	2,2
18 - 22	6	6	3,5	2,7
23 - 30	8	7	4	3,2
31 - 38	10	8	4,5	3,7
39 - 44	12	8	4,5	3,7
45 - 50	14	9	5	4,2
51 - 58	16	10	5	5,2
59 - 68	18	11	6	5,3
69 - 78	20	12	6	6,3
79 - 92	24	14	7	7,3
93 - 110	28	16	8	8,3
111 - 130	32	18	9	9,3
131 - 150	36	20	10	10,3