

DIMENSIONAL CONF.  
ASME B18.2.2 - 1987

**PORCA  
SEXTAVADA**

**TIPO  
PESADA**

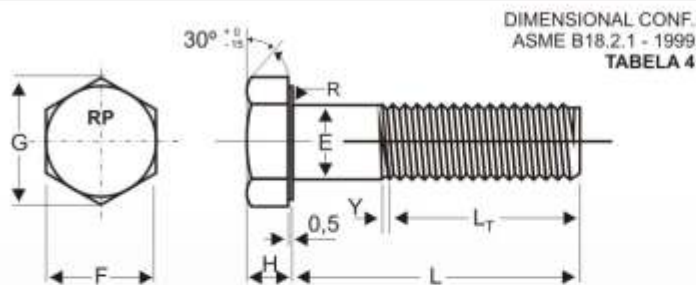
**2H**



# Índice

BITOLAS	FIOS - ROSCAS	BÁSICO	"F" chave		"H" altura	
			MÍNIMO mm.	MÁXIMO mm.	MÍNIMO mm.	MÁXIMO mm.
3/8"	16 - UNC	11/16"	17,00	17,47	8,66	9,58
7/16"	14 - BSW UNC	3/4"	18,49	19,05	10,23	11,20
1/2"	12 - BSW 13 - UNC	7/8"	21,59	22,23	11,79	12,80
5/8"	11 - UNC	1.1/16"	26,18	26,99	14,91	16,03
3/4"	10 - UNC	1.1/4"	30,78	31,75	18,03	19,25
7/8"	9 - UNC	1.7/16"	35,40	36,52	21,16	22,48
1"	8 - UNC	1.5/8"	40,00	41,27	24,28	25,70
1.1/8"	7 - UNC 8 - UN	1.13/16"	44,60	46,03	27,40	28,93
1.1/4"	7 - UNC 8 - UN	2"	49,22	50,80	30,15	31,78
1.3/8"	6 - UNC 8 - UN	2.3/16"	53,82	55,57	33,27	35,00
1.1/2"	6 - UNC 8 - UN	2.3/8"	58,42	60,32	36,40	38,23
1.5/8"	5 - BSW 8 - UN	2.9/16"	63,01	65,08	39,52	41,45
1.3/4"	5 - UNC 8 - UN	2.3/4"	67,61	69,85	42,65	44,68
1.7/8"	4.5 - BSW 8 - UN	2.15/16"	72,24	74,62	45,77	47,90
2"	4.5 - UNC 8 - UN	3.1/8"	76,83	79,37	48,89	51,13
2.1/4"	4 - UNC 8 - UN	3.1/2"	86,06	88,90	54,74	57,17
2.1/2"	4 - UNC 8 - UN	3.7/8"	95,25	98,42	60,98	63,62
2.3/4"	4 - UNC 8 - UN	4.1/4"	104,45	107,95	67,25	70,00
3"	4 - UNC 8 - UN	4.5/8"	113,68	117,47	73,50	76,50
3.1/4"	4 - UNC 8 - UN	5"	122,90	127,00	79,35	82,60
3.1/2"	4 - UNC 8 - UN	5.3/8"	132,20	136,53	85,60	89,00
3.3/4"	4 - UNC 8 - UN	5.3/4"	141,40	146,05	91,85	95,45
4"	4 - UNC 8 - UN	6.1/8"	150,60	155,58	98,10	101,90

<i>Parafuso Sextavado: Normal - Leve-Regular - SAE GRAUS: 2, 5 E 8</i>	<b>02</b>
<i>Parafuso Sextavado Pesado - ASTM-A113 ASTM-A193 ASTM-A320</i>	<b>03</b>
<i>Parafuso Sextavado - ASTM-A307 GRAU A</i>	<b>04</b>
<i>Parafuso Sextavado Pesado - ASTM-A307 GRAU B</i>	<b>05</b>
<i>Parafuso Sextavado com Rosca Parcial - Série Métrica</i>	<b>06</b>
<i>Parafuso Sextavado com Rosca Total - Série Métrica</i>	<b>07</b>
<i>Parafuso de Cabeça Cilíndrica com Sextavado Interno - Série Polegada</i>	<b>08</b>
<i>Parafuso de Cabeça Cilíndrica com Sextavado Interno - Série Métrica</i>	<b>09</b>
<i>Parafuso de Cabeça Escareada com Sextavado Interno - Série Polegada</i>	<b>10</b>
<i>Parafuso de Cabeça Escareada com Sextavado Interno - Série Métrica</i>	<b>11</b>
<i>Prisioneiro com Roscas Parciais - Série Métrico</i>	<b>12</b>
<i>Parafuso Sextavado Pesado Estrutural - ASTM-A 325</i>	<b>13</b>
<i>Porca Sextavada - Série Métrica</i>	<b>14</b>
<i>Porca Sextavada: Normal - Leve - Regular</i>	<b>15</b>
<i>Porca Sextavada - Pesada 2H</i>	<b>16</b>



DIMENSIONAL CONF.  
ASME B18.2.1 - 1999  
TABELA 4

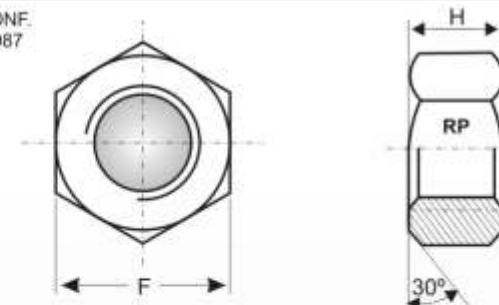
**PARAFUSO  
SEXTAVADO:  
NORMAL-  
LEVE-  
REGULAR**

SAE  
GRAUS: 2, 5 e 8

**PORCA  
SEXTAVADA**

TIPO  
NORMAL-LEVE  
REGULAR

DIMENSIONAL CONF.  
ASME B18.2.2 - 1987



Diâmetro Nominal	E		F		G		H		R		L <sub>T</sub>		Y
	máx.	mín.	máx.	mín.	máx.	mín.	máx.	mín.	máx.	mín.	L ≤ 6" básico	L > 6" básico	
1/4"	6,350	6,223	11,125	10,871	12,827	12,395	4,140	3,810	0,635	0,381	19,050	25,400	6,350
5/16"	7,937	7,785	12,700	12,420	14,655	14,147	5,359	4,953	0,635	0,381	22,250	28,575	7,061
3/8"	9,525	9,372	14,274	13,995	16,510	15,951	6,172	5,740	0,635	0,381	25,400	31,750	7,924
7/16"	11,112	10,934	15,875	15,544	18,338	17,729	7,391	6,908	0,635	0,381	28,575	34,925	9,067
1/2"	12,700	12,522	19,050	18,694	21,996	21,336	8,204	7,670	0,635	0,381	31,750	38,100	9,779
9/16"	14,287	14,084	20,624	20,269	23,825	23,114	9,423	8,839	1,143	0,508	34,925	41,275	10,591
5/8"	15,875	15,671	23,825	23,418	27,508	26,695	10,236	9,601	1,143	0,508	38,100	44,450	11,557
3/4"	19,050	18,821	28,575	27,940	32,994	31,851	12,268	11,557	1,143	0,508	44,450	50,800	12,700
7/8"	22,225	21,996	33,324	32,639	38,506	37,211	14,300	13,487	1,651	1,016	50,800	57,150	14,122
1"	25,400	25,146	38,100	37,312	43,992	42,545	15,925	15,011	2,413	1,524	57,150	63,500	15,875
1.1/8"	28,575	28,295	42,875	41,427	49,504	47,218	18,237	16,713	2,413	1,524	63,500	69,850	18,135
1.1/4"	31,750	31,470	47,625	46,024	54,991	52,476	20,650	19,024	2,413	1,524	69,850	76,200	18,135
1.3/8"	34,925	34,620	52,374	50,647	60,502	57,734	22,301	20,574	2,413	1,524	76,200	82,550	21,158
1.1/2"	38,100	37,795	56,642	55,245	65,989	62,992	24,739	22,910	2,413	1,524	82,550	88,900	21,158
1.3/4"	44,450	44,145	66,675	64,465	76,987	73,482	28,803	26,771	2,413	1,524	95,250	101,600	25,400
2"	50,800	50,945	76,200	73,660	87,985	83,972	32,080	29,845	2,413	1,524	107,950	114,300	28,219
2.1/4"	57,150	56,845	85,725	82,854	98,983	94,462	36,144	33,705	2,413	1,524	120,650	127,000	28,219
2.1/2"	63,500	63,195	95,250	92,075	109,982	104,978	40,208	37,566	2,413	1,524	133,350	139,700	31,750
2.3/4"	69,850	69,545	104,775	101,295	120,980	115,468	44,297	41,452	2,413	1,524	146,050	152,400	31,750
3"	76,200	75,895	114,300	110,490	131,978	125,958	49,149	46,101	2,413	1,524	158,750	165,100	31,750

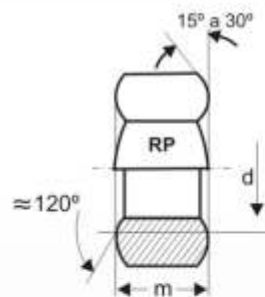
**TOLERÂNCIAS PARA COMPRIMENTOS "L"**

Comprimento Nominal "L"	Diâmetro Nominal					
	1/4" a 3/8"	7/16" e 1/2"	9/16" a 3/4"	7/8" e 1"	1.1/8" a 1.1/2"	Acima de 1.1/2"
Até 1"	-0,762	-0,762	-0,762			
Acima de 1" até 2.1/2"	-1,016	-1,524	-2,032	-2,540	-3,048	-4,572
Acima de 2.1/2" até 4"	-1,524	-2,032	-2,540	-3,556	-4,064	-5,080
Acima de 4" até 6"	-2,540	-2,540	-2,540	-4,064	-4,572	-5,588
Acima de 6"	-4,572	-4,572	-4,572	-5,080	-5,588	-6,096

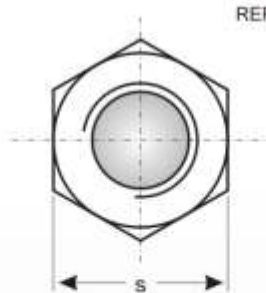
BITOLAS	FIOS - ROSCAS	"F" chave	"H" altura			
			BÁSICO	MINIMO mm.	MÁXIMO mm.	MINIMO mm.
1/2"	12 - WW 13 - UNC 20 - UNF	3/4"	18,70	19,05	10,85	11,38
9/16"	12 - UNC	7/8"	21,87	22,22	12,01	12,60
5/8"	11 - UNC 16 - UNF	15/16"	23,42	23,81	13,59	14,20
3/4"	10 - UNC 16 - UNF	1.1/8"	27,64	28,58	15,67	16,89
7/8"	9 - UNC 14 - UNF	1.5/16"	32,23	33,33	18,39	19,71
1"	8 - UNC 12 - 14 - UNF	1.1/2"	36,83	38,10	21,11	22,53
1.1/8"	7 - UNC	1.11/16"	41,43	42,86	23,85	25,37
1.1/4"	7 - UNC	1.7/8"	46,02	47,63	26,16	27,79
1.3/8"	6 - UNC	2.1/16"	50,65	52,39	28,91	30,63
1.1/2"	6 - UNC	2.1/4"	55,25	57,15	31,62	33,45
1.3/4"	5 - UNC	2.5/8"	64,47	66,67	37,08	39,12
2"	4.5 - UNC	3"	73,66	76,20	42,55	44,78

OBS: 1) Roscas: especificar ➔ UNC/UNF/8UN/BSW/BSF





REFERÊNCIA:  
DIN 934

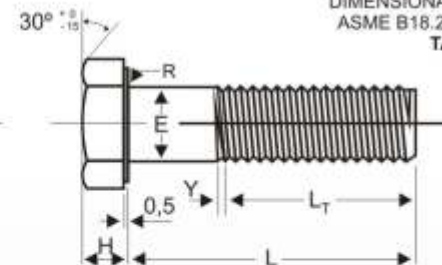
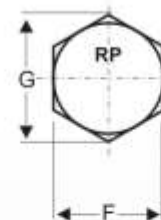


## PORCA SEXTAVADA

SÉRIE MÉTRICA

## PARAFUSO SEXTAVADO PESADO

ASTM-A113  
ASTM-A193  
ASTM-A320



DIMENSIONAL CONF.  
ASME B18.2.1 - 1996  
TABELA 6



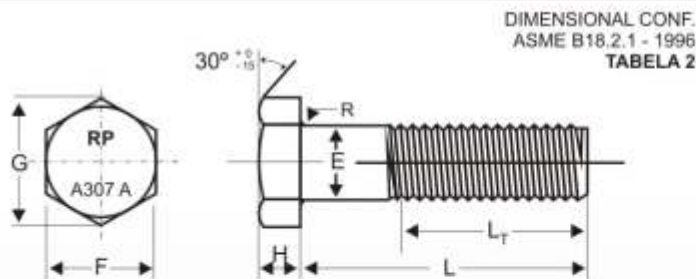
Diâmetro Nominal	s		m	
	máx.	min.	máx.	min.
M8	13,00	12,73	6,50	6,14
M10	17,00	16,73	8,00	7,64
M12	19,00	18,67	10,00	9,64
M14	22,00	21,67	11,00	10,30
M16	24,00	23,67	13,00	12,30
M18	27,00	26,16	15,00	14,30
M20	30,00	29,16	16,00	14,90
M22	32,00	31,00	18,00	16,90
M24	36,00	35,00	19,00	17,70
M27	41,00	40,00	22,00	20,70
M30	46,00	45,00	24,00	22,70
M33	50,00	49,00	26,00	24,70
M36	55,00	53,80	29,00	27,40
M39	60,00	58,80	31,00	29,40
M42	65,00	63,10	34,00	32,40
M45	70,00	68,10	36,00	34,40
M48	75,00	73,10	38,00	36,40
M52	80,00	78,10	42,00	40,40
M56	85,00	82,20	45,00	43,40
M60	90,00	87,20	48,00	46,40
M64	95,00	92,20	51,00	49,40
M72	105,00	102,20	58,00	56,40
M76	110,00	107,20	61,00	59,40
M80	115,00	112,20	64,00	62,40
M90	130,00	127,20	72,00	70,40
M100	145,00	142,20	80,00	78,40

Diâmetro Nominal	E		F		G		H		R		L		Y
	máx.	min.	máx.	min.	máx.	min.	máx.	min.	máx.	min.	básico	básico	
1/2"	13,081	12,242	22,225	21,590	25,654	24,612	8,204	7,670	0,762	0,254	31,750	38,100	9,779
5/8"	16,306	15,367	26,974	26,187	31,165	29,845	10,236	9,601	1,524	0,508	38,100	44,450	11,557
3/4"	19,507	18,516	31,750	30,784	36,652	35,128	12,268	11,557	1,524	0,508	44,450	50,800	12,700
7/8"	22,733	21,640	36,525	35,407	42,164	40,360	14,300	13,487	1,524	0,508	50,800	57,150	14,122
1"	25,958	24,790	41,275	40,005	47,650	45,618	15,925	15,011	2,286	0,762	57,150	63,500	15,875
1.1/8"	29,184	27,889	46,024	44,602	53,162	50,850	18,237	16,713	2,286	0,762	63,500	69,850	18,135
1.1/4"	32,435	31,064	50,800	49,225	58,648	56,108	20,650	19,024	2,286	0,762	69,850	76,200	18,135
1.3/8"	35,661	34,163	55,575	53,822	64,160	61,366	22,301	20,574	2,286	0,762	76,200	82,550	21,158
1.1/2"	38,887	37,338	60,325	58,420	69,646	66,598	24,739	22,910	2,286	0,762	82,550	88,900	21,158
1.3/4"	45,339	43,586	69,850	67,614	80,645	77,089	28,803	26,771	3,048	1,016	95,250	101,600	25,400
2"	51,790	49,885	79,375	76,835	91,643	87,604	32,080	29,845	3,048	1,016	107,950	114,300	28,219
2.1/4"	58,547	56,235	88,900	86,055	102,641	98,094	36,144	33,705	4,826	1,524	120,650	127,000	28,219
2.1/2"	64,998	62,509	98,425	95,250	113,639	108,585	40,208	37,566	4,826	1,524	133,350	139,700	31,750
2.3/4"	71,805	68,859	107,950	104,444	124,637	119,075	44,297	41,452	4,826	1,524	146,050	152,400	31,750
3"	78,257	75,209	117,475	113,665	135,636	129,590	49,149	46,101	4,826	1,524	158,750	165,100	31,750

### TOLERÂNCIAS PARA COMPRIMENTOS "L"

Comprimento Nominal "L"	Diâmetro Nominal					
	1/4" a 3/8"	7/16" e 1/2"	9/16" a 3/4"	7/8" e 1"	1.1/8" a 1.1/2"	Acima de 1.1/2"
Até 1"	-0,762	-0,762	-0,762			
Acima de 1" até 2.1/2"	-1,016	-1,524	-2,032	-2,540	-3,048	-4,572
Acima de 2.1/2" até 4"	-1,524	-2,032	-2,540	-3,556	-4,064	-5,080
Acima de 4" até 6"	-2,540	-2,540	-2,540	-4,064	-4,572	-5,588
Acima de 6"	-4,572	-4,572	-4,572	-5,080	-5,588	-6,096

NOTA: 1) Roscas: Quando não especificado, usar: Para  $\varnothing$  1" e menores  $\Rightarrow$  UNC - 2A  
Para  $\varnothing$  1.1/8" e maiores  $\Rightarrow$  8UN - 2A

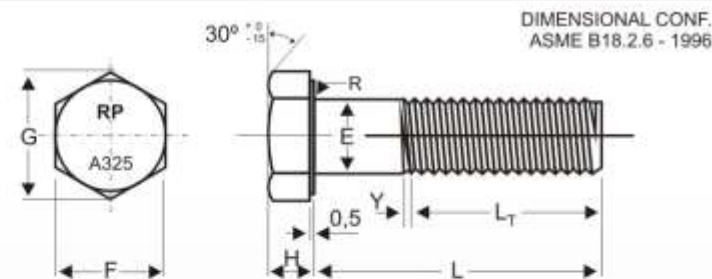


### PARAFUSO SEXTAVADO

ASTM-307  
GRAU A

### PARAFUSO SEXTAVADO PESADO ESTRUTURAL

ASTM-A325



Diâmetro Nominal	E		F		G		H		R		L <sub>T</sub>	
	máx.	min.	máx.	min.	máx.	min.	máx.	min.	máx.	min.	básico	básico
1/4"	6,604	11,125	10,795	12,827	12,293	4,775	3,810	0,762	0,254	19,050	25,400	
5/16"	8,229	12,700	12,293	14,655	14,020	5,969	4,953	0,762	0,254	22,225	28,575	
3/8"	9,855	14,274	13,817	16,510	15,748	6,807	5,740	0,762	0,254	25,400	31,750	
7/16"	11,480	15,875	15,316	18,338	17,449	8,026	6,908	0,762	0,254	28,575	34,925	
1/2"	13,081	19,050	18,415	21,996	20,980	9,245	7,670	0,762	0,254	31,750	38,100	
5/8"	16,306	23,812	23,012	27,508	26,238	11,277	9,601	1,524	0,508	38,100	44,450	
3/4"	19,507	28,575	27,635	32,994	31,496	13,309	11,557	1,524	0,508	44,450	50,800	
7/8"	22,733	33,324	32,232	38,506	36,753	15,341	13,487	1,524	0,508	50,800	57,150	
1"	25,958	38,100	36,830	43,992	41,986	17,780	15,011	2,286	0,762	57,150	63,500	
1.1/8"	29,184	42,875	41,427	49,504	47,218	19,812	16,713	2,286	0,762	63,500	69,850	
1.1/4"	32,435	47,625	46,024	54,991	52,476	22,250	19,024	2,286	0,762	69,850	76,200	
1.3/8"	35,661	52,374	50,647	60,502	57,734	23,876	20,574	2,286	0,762	76,200	82,550	
1.1/2"	38,887	57,150	55,245	65,989	62,992	26,314	22,910	2,286	0,762	82,550	88,900	
1.3/4"	45,339	66,675	64,465	76,987	73,482	30,378	26,771	3,048	1,016	95,250	101,600	
2"	51,790	76,200	73,660	87,985	83,972	35,255	29,845	3,048	1,016	107,950	114,300	
2.1/4"	58,547	85,725	82,854	98,983	94,462	39,319	33,705	4,826	1,524	120,650	127,000	
2.1/2"	64,998	95,250	92,075	109,982	104,978	43,383	37,566	4,826	1,524	133,350	139,700	
2.3/4"	71,805	104,775	101,295	120,980	115,468	47,472	41,452	4,826	1,524	146,050	152,400	
3"	78,257	114,300	110,490	131,978	125,958	52,324	46,101	4,826	1,524	158,750	165,100	
3.1/4"	84,709	123,825	119,684	142,976	136,448	57,175	49,174	4,826	1,524	171,450	177,800	
3.1/2"	91,160	133,350	128,905	153,974	146,964	60,452	52,247	4,826	1,524	184,150	190,500	
3.3/4"	97,993	142,875	138,099	164,973	157,429	65,328	56,921	4,826	1,524	196,850	203,200	
4"	104,419	152,400	147,320	175,971	167,944	70,205	61,569	4,826	1,524	209,550	215,900	

Diâmetro Nominal	E		F		G		H		R		L <sub>T</sub>	Y
	máx.	min.	máx.	min.	máx.	min.	máx.	min.	máx.	min.	básico	máx.
1/2"	13,080	12,240	22,225	21,590	25,654	24,612	8,204	7,670	0,787	0,228	25,400	4,826
5/8"	16,306	15,367	26,974	26,187	31,165	29,845	10,236	9,601	1,574	0,533	31,750	5,588
3/4"	19,507	18,516	31,750	30,784	36,652	35,128	12,268	11,557	1,574	0,533	35,052	6,350
7/8"	22,733	21,640	36,525	35,407	42,164	40,360	14,300	13,487	1,574	0,787	38,100	7,112
1"	25,958	24,790	41,275	40,005	47,650	45,818	15,925	15,011	2,362	1,574	44,450	7,874
1.1/8"	29,184	27,889	46,024	44,602	53,162	50,850	18,237	16,713	2,362	1,574	50,800	8,636
1.1/4"	32,435	31,064	50,800	49,225	58,648	56,108	20,650	19,024	2,362	1,574	50,800	9,652
1.3/8"	35,661	34,163	55,575	53,822	64,160	61,366	22,301	20,574	2,362	1,574	57,150	11,176
1.1/2"	38,887	37,338	60,325	58,420	69,646	66,598	24,739	22,910	2,362	1,574	57,150	11,176

### TOLERÂNCIAS PARA COMPRIMENTOS "L"

Comprimento Nominal "L"	Diâmetro Nominal					
	1/4" a 3/8"	7/16" e 1/2"	9/16" a 3/4"	7/8" e 1"	1.1/8" a 1.1/2"	Acima de 1.1/2"
Até 1"	+0,508 -0,762	+0,508 -0,762	+0,508 -0,762			
Acima de 1" até 2.1/2"	+0,508 -1,016	+1,016 -1,524	+1,524 -2,032	+2,032 -2,540	+3,048 -3,048	+4,572 -4,572
Acima de 2.1/2" até 4"	+1,016 -1,524	+1,524 -2,032	+2,032 -2,540	+2,540 -3,556	+4,064 -4,064	+5,080 -5,080
Acima de 4" até 6"	+1,524 -2,540	+2,032 -2,540	+2,540 -2,540	+3,048 -4,064	+4,572 -4,572	+5,588 -5,588
Acima de 6"	+2,540 -4,572	+3,048 -4,572	+3,556 -4,572	+4,064 -5,080	+5,588 -5,588	+6,096 -6,096

### TOLERÂNCIAS PARA COMPRIMENTOS "L"

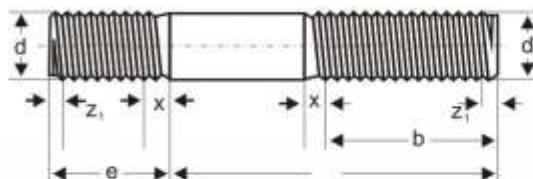
Comprimento Nominal "L"	Diâmetro Nominal			
	1/2"	5/8"	3/4" a 1"	1.1/8" a 1.1/2"
Até 6"	-3,048	-3,048	-4,826	-6,350
Acima de 6"	-4,826	-6,350	-6,350	-6,350

NOTA: 1) Roscas: Quando não especificado, usar: ■ UNC - 2A, para todos os diâmetros

OBS: 1) Roscas: Quando não especificado, usar: ■ UNC - 2A, para todos os diâmetros.



REFERÊNCIAS:  
DIN 938  
DIN 939

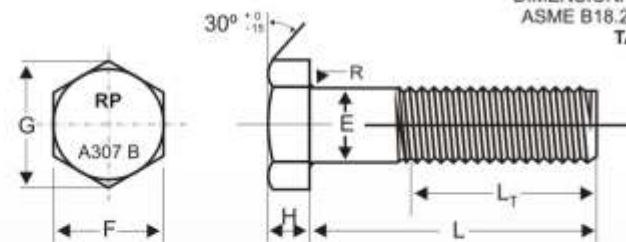


### PRISIONEIRO COM ROSCAS PARCIAIS

SISTEMA  
MÉTRICO

### PARAFUSO SEXTAVADO PESADO

ASTM-A307  
GRAU B



DIMENSIONAL CONF.  
ASME B18.2.1 - 1999  
TABELA 3



Diâmetro Nominal	e		b			x	z <sub>1</sub>
	DIN 938	DIN 939	1	2	3	máx.	mín.
M3	3	—	12	18	—	1,25	0,8
M4	4	5	14	20	—	1,75	1
M5	5	6,5	16	22	—	2	1,2
M6	6	7,5	18	24	—	2,5	1,5
M7	7	9	20	26	—	2,5	1,5
M8	8	10	22	28	—	3,2	1,8
M10	10	12	26	32	45	3,8	2,2
M12	12	15	30	36	49	4,3	2,5
M14	14	18	34	40	53	5	3
M16	16	20	38	44	57	5	3
M18	18	22	42	48	61	6,3	3,5
M20	20	25	46	52	65	6,3	3,5
M22	22	28	50	56	69	6,3	3,5
M24	24	30	54	60	73	7,5	4,5
M27	25	35	60	66	79	7,5	4,5
M30	30	38	66	72	85	9	5
M33	32	42	72	78	91	9	5
M36	35	45	78	84	97	10	6
M39	38	50	84	90	103	10	6
M42	42	52	90	96	109	11	6,5
M45	45	58	96	102	115	11	6,5
M48	48	60	102	108	121	12,5	7,5
M52	52	65	110	116	129	12,5	7,5

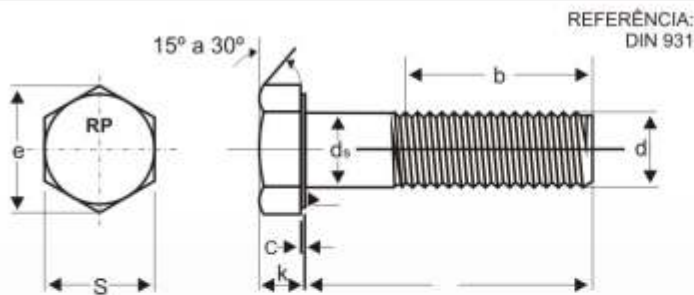
OBS: Para tolerâncias dimensionais vide tabela de ajustes - ISO:  
para cota "e" usar + IT 16, para cota "b" usar + 1.5. passo e para cota "L" usar ± 1/2 IT 15.

Diâmetro Nominal	E		F		G		H		R		L <sub>T</sub>	
	máx.	máx.	mín.	máx.	mín.	máx.	mín.	máx.	mín.	L ≤ 6"	L > 6"	
1/2"	13,081	22,225	21,590	25,654	24,612	9,245	7,670	0,762	0,254	31,750	38,100	
5/8"	16,306	26,974	26,187	31,165	29,845	11,277	9,601	1,524	0,508	38,100	44,450	
3/4"	19,507	31,750	30,784	36,652	35,128	13,309	11,557	1,524	0,508	44,450	50,800	
7/8"	22,733	36,525	35,407	42,164	40,360	15,341	13,487	1,524	0,508	50,800	57,150	
1"	25,958	41,275	40,005	47,650	45,618	17,780	15,011	2,286	0,762	57,150	63,500	
1.1/8"	29,184	46,024	44,602	53,162	50,850	19,812	16,713	2,286	0,762	63,500	69,850	
1.1/4"	32,435	50,800	49,225	58,648	56,108	22,250	19,024	2,286	0,762	69,850	76,200	
1.3/8"	35,661	55,575	53,822	64,160	61,366	23,876	20,574	2,286	0,762	76,200	82,550	
1.1/2"	38,887	60,325	58,420	69,646	66,598	26,314	22,910	2,286	0,762	82,550	88,900	
1.3/4"	45,339	69,850	67,614	80,645	77,089	30,378	26,771	3,048	1,016	95,250	101,600	
2"	51,790	79,375	76,835	91,643	87,604	35,255	29,845	3,048	1,016	107,950	114,300	
2.1/4"	58,547	88,900	86,055	102,641	98,094	39,319	33,705	4,826	1,524	120,650	127,000	
2.1/2"	64,998	98,425	95,250	113,639	108,585	43,383	37,566	4,826	1,524	133,350	139,700	
2.3/4"	71,805	107,950	104,444	124,637	119,075	47,472	41,452	4,826	1,524	146,050	152,400	
3"	78,257	117,475	113,665	135,636	129,590	52,324	46,101	4,826	1,524	158,750	165,100	

### TOLERÂNCIAS PARA COMPRIMENTOS "L"

Comprimento Nominal "L"	Diâmetro Nominal					
	1/4" a 3/8"	7/16" e 1/2"	9/16" a 3/4"	7/8" e 1"	1.1/8" a 1.1/2"	Acima de 1.1/2"
Até 1"	+0,508 -0,762	+0,508 -0,762	+0,508 -0,762	—	—	—
Acima de 1" até 2.1/2"	+0,508 -1,016	+1,016 -1,524	+1,524 -2,032	+2,032 -2,540	+3,048 -3,048	+4,572 -4,572
Acima de 2.1/2" até 4"	+1,016 -1,524	+1,524 -2,032	+2,032 -2,540	+2,540 -3,556	+4,064 -4,064	+5,080 -5,080
Acima de 4" até 5"	+1,524 -2,540	+2,032 -2,540	+2,540 -2,540	+3,048 -4,064	+4,572 -4,572	+5,588 -5,588
Acima de 5"	+2,540 -4,572	+3,048 -4,572	+3,556 -4,572	+4,064 -5,080	+5,588 -5,588	+6,096 -6,096

OBS: Roscas: Quando não especificado, usar ➤ UNC - 2A, para todos os diâmetros.

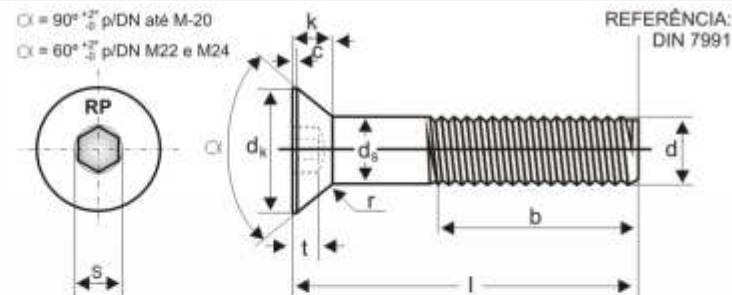


## PARAFUSO SEXTAVADO COM ROSCA PARCIAL

SÉRIE METRICA

## PARAFUSO DE CABEÇA ESCAREADA COM SEXTAVADO INTERNO

SÉRIE METRICA



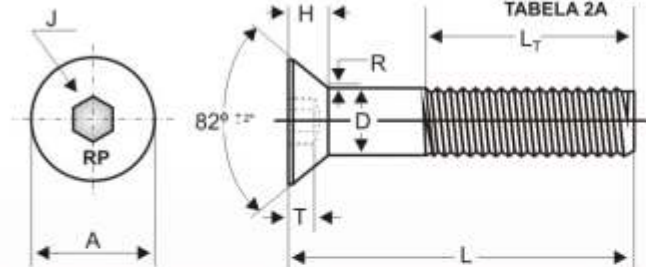
Diâmetro Nominal	d <sub>s</sub>		s		e	k		c		r	b		
	máx.	mín.	máx.	mín.	mín.	máx.	mín.	máx.	mín.	mín.	1	2	3
M3	3,00	2,86	5,50	5,32	6,01	2,12	1,88	0,40	0,15	0,10	12	--	--
M4	4,00	3,82	7,00	6,78	7,66	2,92	2,68	0,40	0,15	0,20	14	--	--
M5	5,00	4,82	8,00	7,78	8,79	3,65	3,35	0,50	0,15	0,20	16	22	--
M6	6,00	5,82	10,00	9,78	11,05	4,15	3,85	0,50	0,15	0,25	18	24	--
M8	8,00	7,78	13,00	12,73	14,38	5,45	5,15	0,60	0,15	0,40	22	28	--
M10	10,00	9,78	17,00	16,73	18,90	6,58	6,22	0,60	0,15	0,40	26	32	45
M12	12,00	11,73	19,00	18,67	21,10	7,68	7,32	0,60	0,15	0,60	30	36	49
M14	14,00	13,73	22,00	21,67	24,49	8,98	8,62	0,60	0,15	0,60	34	40	53
M16	16,00	15,73	24,00	23,67	26,75	10,18	9,82	0,80	0,20	0,60	38	44	57
M18	18,00	17,73	27,00	26,67	30,14	11,72	11,28	0,80	0,20	0,60	42	48	61
M20	20,00	19,67	30,00	29,67	33,53	12,72	12,28	0,80	0,20	0,80	46	52	65
M22	22,00	21,67	32,00	31,61	35,72	14,22	13,78	0,80	0,20	0,80	50	56	69
M24	24,00	23,67	36,00	35,38	39,98	15,22	14,78	0,80	0,20	0,80	54	60	73
M27	27,00	26,48	41,00	40,00	45,20	17,35	16,65	0,80	0,20	1,00	60	66	79
M30	30,00	29,48	46,00	45,00	50,85	19,12	18,28	0,80	0,20	1,00	66	72	85
M33	33,00	32,38	50,00	49,00	55,37	21,42	20,58	0,80	0,20	1,00	72	78	91
M36	36,00	35,38	55,00	53,80	60,79	22,92	22,08	0,80	0,20	1,00	78	84	97
M39	39,00	38,38	60,00	58,80	66,44	25,42	24,58	1,00	0,30	1,00	84	90	103
M42	42,00	41,61	65,00	63,10	71,30	26,42	25,58	1,00	0,30	1,20	90	96	109
M45	45,00	44,38	70,00	68,10	76,95	28,42	27,58	1,00	0,30	1,20	96	102	115
M48	48,00	47,38	75,00	73,10	82,60	30,42	29,58	1,00	0,30	1,60	102	108	121
M52	52,00	51,26	80,00	78,10	88,25	33,50	32,50	1,00	0,30	1,60	--	116	129
M56	56,00	55,26	85,00	82,80	93,56	36,50	34,50	1,00	0,50	2,00	--	124	137
M60	60,00	59,26	90,00	87,80	100,12	38,50	37,50	1,00	0,50	2,00	--	132	145
M64	64,00	63,26	95,00	92,80	105,77	40,50	39,50	1,00	0,50	2,00	--	140	153
M72	72,00	71,26	105,00	102,80	117,07	45,50	44,50	1,00	0,50	2,00	--	156	169
M76	76,00	75,26	110,00	107,80	122,72	48,50	47,50	1,00	0,50	2,00	--	164	177
M80	80,00	79,26	115,00	112,80	128,37	50,50	49,50	1,00	0,50	2,00	--	172	185

Diâmetro Nominal	d <sub>s</sub>		d <sub>k</sub>		k	r	s		t		c	b		
	máx.	mín.	máx.	mín.	máx.	mín.	máx.	mín.	máx.	mín.	~	1	2	3
M3	3,00	2,86	6,00	5,70	1,7	0,1	2,10	2,02	1,20	0,95	0,2	12	--	--
M4	4,00	3,82	8,00	7,64	2,3	0,2	2,60	2,52	1,80	1,55	0,3	14	--	--
M5	5,00	4,82	10,00	9,64	2,8	0,2	3,10	3,02	2,30	2,05	0,3	16	--	--
M6	6,00	5,82	12,00	11,57	3,3	0,3	4,12	4,02	2,50	2,25	0,3	18	24	--
M8	8,00	7,78	16,00	15,57	4,4	0,5	5,14	5,02	3,50	3,20	0,4	22	28	--
M10	10,00	9,78	20,00	19,48	5,5	0,5	6,14	6,02	4,40	4,10	0,5	26	32	45
M12	12,00	11,73	24,00	23,48	6,5	1,0	8,175	8,025	4,60	4,30	0,5	30	36	49
M14	14,00	13,73	27,00	26,48	7,0	1,0	10,175	10,025	4,80	4,50	0,5	34	40	53
M16	16,00	15,73	30,00	29,48	7,5	1,0	10,175	10,025	5,30	5,00	0,5	38	44	57
M18	18,00	17,73	33,00	32,38	8,0	1,0	12,212	12,032	5,50	5,20	0,5	42	48	61
M20	20,00	19,67	36,00	35,38	8,5	1,0	12,212	12,032	5,90	5,60	0,5	46	52	65
M22	22,00	21,67	36,00	35,38	13,1	1,0	14,212	14,032	8,80	8,44	1,0	50	56	69
M24	24,00	23,67	39,00	38,38	14,0	1,6	14,212	14,032	10,30	9,87	1,0	54	60	73

OBS: 1) Comprimentos de rosca: b<sub>1</sub> para l < 125mm, b<sub>2</sub> para l > 125mm e < 200 mm e b<sub>3</sub> para l > 200mm  
2) Tolerância para comprimento "l": js 15, vide tabela de ajustes - ISO.



DIMENSIONAL CONF.  
ASME B18.3 - 2003  
TABELA 2A

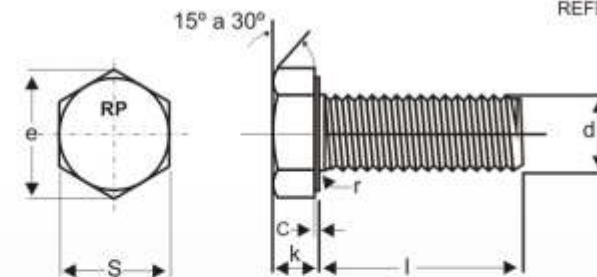


**PARAFUSO DE CABEÇA ESCAREADA COM SEXTAVADO INTERNO**

SÉRIE POLEGADA

**PARAFUSO SEXTAVADO COM ROSCA TOTAL**

SÉRIE MÉTRICA



REFERÊNCIA:  
DIN 933



Diâmetro Nominal	D		A		H		J	T	R	L <sub>T</sub>
	máx.	mín.	máx.	mín.	básico	tolerância	básico	mín.	nom.	básico
1/4"	6,350	6,184	13,487	12,192	4,089	0,406	5/32"	2,819	0,381	25,400
5/16"	7,937	7,754	16,662	15,240	5,029	0,431	3/16"	3,429	0,381	28,448
3/8"	9,525	9,342	19,837	18,288	5,943	0,457	7/32"	4,038	0,381	31,750
7/16"	11,112	10,906	21,437	19,837	5,943	0,457	1/4"	4,038	0,381	35,052
1/2"	12,700	12,494	23,825	22,148	6,375	0,457	5/16"	4,368	0,381	38,100
5/8"	15,875	15,654	30,175	28,244	8,229	0,558	3/8"	5,588	0,381	44,450
3/4"	19,050	18,811	36,525	34,417	10,058	0,609	1/2"	5,588	0,381	50,800
7/8"	22,225	21,963	42,875	40,741	11,887	0,635	9/16"	6,299	0,381	57,150
1"	25,400	25,110	49,225	46,761	13,716	0,711	5/8"	7,543	0,381	63,500
1.1/8"	28,575	28,158	55,575	52,806	15,519	0,787	3/4"	8,255	0,787	71,374
1.1/4"	31,750	31,333	61,925	58,826	17,348	0,889	7/8"	9,093	0,787	79,248
1.3/8"	34,925	34,462	68,275	64,846	19,177	0,965	7/8"	10,210	0,787	87,376
1.1/2"	38,100	37,637	74,625	70,891	21,005	1,066	1"	11,049	0,787	95,250

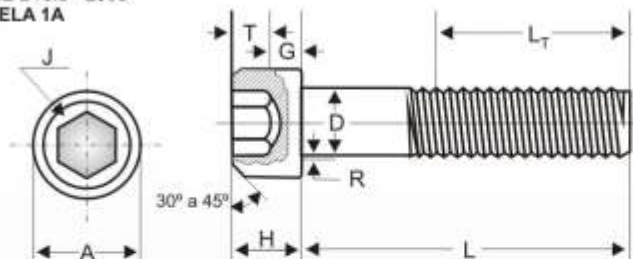
**TOLERÂNCIAS PARA COMPRIMENTOS "L"**

Comprimento Nominal "L"	Diâmetro Nominal			
	1/4" a 3/8"	7/16" a 3/4"	7/8" a 1.1/2"	Acima de 1.1/2"
Até 1"	-0,762	-0,762	-1,270	---
Acima de 1" até 2.1/2"	-1,016	-1,524	-2,540	-4,572
Acima de 2.1/2" até 6"	-1,524	-2,032	-3,556	-5,080
Acima de 6"	-3,048	-3,048	-5,080	-6,096

Diâmetro Nominal	s	e	k	c	r			
	máx.	mín.	mín.	máx.	mín.			
M3	5,50	5,32	6,01	2,12	1,88	0,40	0,15	0,1
M4	7,00	6,78	7,66	2,92	2,68	0,40	0,15	0,2
M5	8,00	7,78	8,79	3,65	3,35	0,50	0,15	0,2
M6	10,00	9,78	11,05	4,15	3,85	0,50	0,15	0,25
M8	13,00	12,73	14,38	5,45	5,15	0,60	0,15	0,4
M10	17,00	16,73	18,90	6,56	6,22	0,60	0,15	0,4
M12	19,00	18,67	21,10	7,68	7,32	0,60	0,15	0,6
M14	22,00	21,67	24,49	8,98	8,62	0,60	0,15	0,6
M16	24,00	23,67	26,75	10,18	9,82	0,80	0,20	0,6
M18	27,00	26,67	30,14	11,72	11,28	0,80	0,20	0,6
M20	30,00	29,67	33,53	12,72	12,28	0,80	0,20	0,8
M22	32,00	31,61	35,72	14,22	13,78	0,80	0,20	0,8
M24	36,00	35,38	39,98	15,22	14,78	0,80	0,20	0,8
M27	41,00	40,00	45,20	17,35	16,65	0,80	0,20	1,0
M30	46,00	45,00	50,85	19,12	18,28	0,80	0,20	1,0
M33	50,00	49,00	55,37	21,42	20,58	0,80	0,20	1,0
M36	55,00	53,80	60,79	22,92	22,08	0,80	0,20	1,0
M39	63,00	58,80	66,44	25,42	24,58	1,00	0,30	1,0
M42	65,00	63,10	71,30	26,42	25,58	1,00	0,30	1,2
M45	70,00	68,10	76,95	28,42	27,58	1,00	0,30	1,2
M48	75,00	73,10	82,60	30,42	29,58	1,00	0,30	1,6
M52	80,00	78,10	88,25	33,50	32,50	1,00	0,30	1,6
M56	85,00	82,80	93,56	36,50	34,50	1,00	--	2,0
M60	90,00	87,80	100,12	38,50	37,50	1,00	--	2,0
M64	95,00	92,80	105,77	40,50	39,50	1,00	--	2,0
M72	105,00	102,80	117,00	45,50	44,50	1,00	--	2,0
M76	110,00	107,80	122,72	48,50	47,50	1,00	--	2,0
M80	115,00	112,80	128,37	50,50	49,50	1,00	--	2,0

OBS: Roscas: Quando não especificado, usar ➤ até 1" ➤ UNC - 3A e para 1.1/8" e maiores ➤ UNC - 2A

DIMENSIONAL CONF.  
ASME B18.3 - 2003  
TABELA 1A

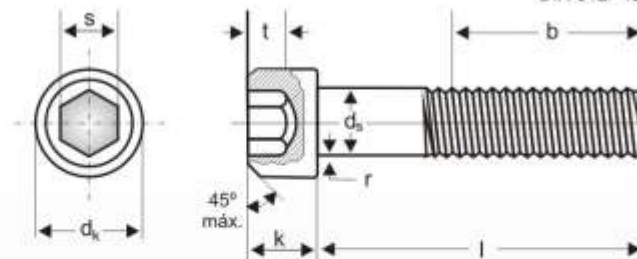


**PARAFUSO DE CABEÇA CILÍNDRICA COM SEXTAVADO INTERNO**

SÉRIE POLEGADA

**PARAFUSO DE CABEÇA CILÍNDRICA COM SEXTAVADO INTERNO**

SÉRIE METRICA



REFERÊNCIA:  
DIN 912 - ISO 4762



Diâmetro Nominal	D		A		H		R		J	T	G	L <sub>T</sub>
	máx.	min.	máx.	min.	máx.	min.	máx.	min.	nom.	min.	min.	básico
1/4"	6,350	6,184	9,525	9,271	6,350	6,197	0,355	0,228	3/16"	3,048	2,413	25,400
5/16"	7,937	7,754	11,912	11,607	7,924	7,772	0,431	0,304	1/4"	3,835	3,022	28,448
3/8"	9,525	9,342	14,274	13,970	9,525	9,347	0,508	0,381	5/16"	4,622	3,632	31,750
7/16"	11,112	10,906	16,662	16,306	11,125	10,922	0,584	0,457	3/8"	5,410	4,216	35,052
1/2"	12,700	12,494	19,050	18,669	12,700	12,496	0,660	0,518	3/8"	6,223	4,826	38,100
5/8"	15,875	15,654	23,825	23,393	15,875	15,646	0,812	0,609	1/2"	7,797	6,045	44,450
3/4"	19,050	18,811	28,575	28,117	19,050	18,796	0,990	0,762	5/8"	9,398	7,239	50,800
7/8"	22,225	21,963	33,324	32,842	22,225	21,945	1,117	0,863	3/4"	10,972	8,458	57,150
1"	25,400	25,110	38,100	37,566	25,400	25,095	1,270	1,016	3/4"	12,573	9,652	63,500
1.1/8"	28,575	28,158	42,875	42,291	28,575	28,219	1,397	1,143	7/8"	14,147	10,871	71,374
1.1/4"	31,750	31,333	47,625	47,040	31,750	31,394	1,524	1,270	7/8"	15,748	12,065	79,248
1.3/8"	34,925	34,462	52,374	51,765	34,925	34,544	1,651	1,397	1"	17,322	13,284	86,360
1.1/2"	38,100	37,637	57,150	56,489	38,100	37,719	1,778	1,524	1"	18,923	14,478	95,250
1.3/4"	44,450	43,929	66,675	65,963	44,450	44,043	2,032	1,778	1.1/4"	22,098	16,891	111,252
2"	50,800	50,241	76,200	75,438	50,800	50,368	2,286	1,905	1.1/2"	25,273	19,304	127,000
2.1/4"	57,150	56,590	85,730	84,930	57,150	56,690	2,290	1,900	1.3/4"	28,450	21,720	142,700
2.1/2"	63,500	62,900	95,250	94,410	63,500	63,020	2,400	2,100	1.3/4"	31,620	24,130	158,700

Diâmetro Nominal	D		A		H		R		J	T	G
	máx.	min.	máx.	min.	máx.	min.	min.	máx.	min.	min.	ref.
M3	3,00	2,86	5,50	5,32	3,00	2,86	0,1	2,580	2,520	1,3	18
M4	4,00	3,82	7,00	6,78	4,00	3,82	0,2	3,080	3,020	2	20
M5	5,00	4,82	8,50	8,28	5,00	4,82	0,2	4,095	4,020	2,5	22
M6	6,00	5,82	10,00	9,78	6,00	5,70	0,25	5,140	5,020	3	24
M8	8,00	7,78	13,00	12,73	8,00	7,64	0,4	6,140	6,020	4	28
M10	10,00	9,78	16,00	15,73	10,00	9,64	0,4	8,175	8,025	5	32
M12	12,00	11,73	18,00	17,73	12,00	11,57	0,6	10,175	10,025	6	36
M14	14,00	13,73	21,00	20,67	14,00	13,57	0,6	12,212	12,032	7	40
M16	16,00	15,73	24,00	23,67	16,00	15,57	0,6	14,212	14,032	8	44
M18	18,00	17,73	27,00	26,67	18,00	17,57	0,6	14,212	14,032	9	48
M20	20,00	19,67	30,00	29,67	20,00	19,48	0,8	17,230	17,050	10	52
M22	22,00	21,67	33,00	32,61	22,00	21,48	0,8	17,230	17,050	11	56
M24	24,00	23,67	36,00	35,61	24,00	23,48	0,8	19,275	19,065	12	60
M27	27,00	26,67	40,00	39,91	27,00	26,48	1	19,275	19,065	13,5	66
M30	30,00	29,67	45,00	44,61	30,00	29,48	1	22,275	22,065	15,5	72
M33	33,00	32,61	50,00	49,61	33,00	32,38	1	24,275	24,065	18	78
M36	36,00	35,61	54,00	53,54	36,00	35,38	1	27,275	27,065	19	84
M42	42,00	41,61	63,00	62,54	42,00	41,38	1,2	32,330	32,080	24	96
M48	48,00	47,61	72,00	71,54	48,00	47,38	1,6	36,330	36,080	28	108
M56	56,00	55,54	84,00	83,46	56,00	55,26	2	41,330	41,080	34	124
M64	64,00	63,54	96,00	95,46	64,00	63,26	2	46,330	46,080	38	140

**TOLERÂNCIAS PARA COMPRIMENTOS "L"**

Comprimento Nominal "L"	Diâmetro Nominal			
	1/4" a 3/8"	7/16" a 3/4"	7/8" a 1.1/2"	Acima de 1.1/2"
Até 1"	-0,762	-0,762	-1,270	—
Acima de 1" até 2.1/2"	-1,016	-1,524	-2,540	-4,572
Acima de 2.1/2" até 6"	-1,524	-2,032	-3,556	-5,080
Acima de 6"	-3,048	-3,048	-5,080	-6,096

OBS: Roscas: Quando não especificado, usar ➤ até Ø 1" ➤ UNC - 3A e para Ø 1.1/8" e maiores ➤ UNC - 2A