

TOLERÂNCIA DO DIÂMETRO DE FURO PARA ROSCAR - MACHO DE CORTE

HOLE SIZE TOLERANCE FOR THREADING - CUTTING TAP

Roscas Métricas Metric Thread DIN 13. ISO 724/965.1

Unid.:mm

Unid.:mm

Tamanho da Rosca Thread Size	Diâm. da Broca Drill Diameter	Tolerância da Rosca Interna 6H (Classe 2) Internal Thread Tolerance 6H (Class 2)	
		Mín.	Máx.
M 1 X 0,25	0,75	(0,729)	(0,785)
M 1 X 0,2	0,8	(0,783)	(0,821)
M 1,1 X 0,25	0,85	(0,829)	(0,885)
M 1,1 X 0,2	0,9	(0,883)	(0,921)
M 1,2 X 0,25	0,95	(0,929)	(0,985)
M 1,2 X 0,2	1,0	(0,983)	(1,021)
M 1,4 X 0,3	1,1	(1,075)	(1,142)
M 1,4 X 0,2	1,2	(1,183)	(1,221)
M 1,6 X 0,35	1,25	1,221	1,321
M 1,6 X 0,2	1,4	(1,383)	(1,421)
M 1,7 X 0,35	1,35	1,321	1,421
M 1,7 X 0,2	1,45	1,46	1,5
M 1,8 X 0,35	1,45	1,421	1,521
M 1,8 X 0,2	1,6	(1,583)	(1,621)
M 2 X 0,4	1,6	1,567	1,679
M 2 X 0,25	1,75	(1,729)	(1,785)
M 2,2 X 0,45	1,75	1,713	1,838
M 2,2 X 0,25	1,95	(1,929)	(1,985)
M 2,3 X 0,4	1,9	1,867	1,979
M 2,3 X 0,25	2,05	2,001	2,061
M 2,5 X 0,45	2,1	2,013	2,138
M 2,5 X 0,35	2,2	2,121	2,221
M 2,6 X 0,45	2,2	2,113	2,238
M 2,6 X 0,35	2,2	2,186	2,246
M 3 X 0,5	2,5	2,459	2,599
M 3 X 0,35	2,7	2,621	2,721
M 3 X 0,6	2,4	2,28	2,44
M 3,5 X 0,6	2,9	2,85	3,01
M 3,5 X 0,35	3,2	3,121	3,221
M 4 X 0,7	3,3	3,242	3,422
M 4 X 0,5	3,5	3,459	3,599
M 4 X 0,75	3,25	3,106	3,326
M 4,5 X 0,75	3,8	3,688	3,878
M 4,5 X 0,5	4,0	3,959	4,099
M 5 X 0,8	4,2	4,134	4,334
M 5 X 0,5	4,5	4,459	4,599
M 5 X 0,9	4,1	3,93	4,17
M 5,5X 0,9	4,6	4,43	4,67
M 5,5X 0,5	5,0	4,959	5,099
M 6 X 1	5,0	4,917	5,153
M 6 X 0,75	5,3	5,188	5,378
M 6 X 0,5	5,5	5,4	5,55
M 7 X 1	6,0	5,917	6,153
M 7 X 0,75	6,3	6,188	6,378
M 7 X 0,5	6,5	6,4	6,55
M 8 X 1,25	6,8	6,647	6,912
M 8 X 1	7,0	6,917	7,153
M 8 X 0,75	7,3	7,188	7,378
M 8 X 0,5	7,5	7,4	7,52
M 9 X 1,25	7,8	7,647	7,912
M 9 X 1	8,0	7,917	8,153
M 9 X 0,75	8,3	8,188	8,378
M 9 X 0,5	8,5	8,4	8,52
M 10 X 1,5	8,5	8,376	8,676
M 10 X 1,25	8,8	8,647	8,912
M 10 X 1	9,0	8,917	9,153
M 10 X 0,75	9,3	9,188	9,378
M 10 X 0,5	9,5	9,4	9,52
M 11 X 1,5	9,5	9,376	9,676
M 11 X 1,25	9,7	9,516	9,796
M 11 X 1	10,0	9,917	10,153
M 11 X 0,75	10,3	10,188	10,378
M 11 X 0,5	10,5	10,4	10,52
M 12 X 1,75	10,3	10,106	10,441

Tamanho da Rosca Thread Size	Diâm. da Broca Drill Diameter	Tolerância da Rosca Interna 6H (Classe 2) Internal Thread Tolerance 6H (Class 2)	
		Mín.	Máx.
M 12 X 1,5	10,5	10,376	10,676
M 12 X 1,25	10,8	10,647	10,912
M 12 X 1	11,0	10,917	11,153
M 12 X 0,5	11,5	11,4	11,52
M 13 X 1,5	11,5	11,212	11,602
M 13 X 1	11,9	11,81	12,03
M 13 X 0,5	12,4	12,4	12,52
M 14 X 2	12,0	11,835	12,21
M 14 X 1,5	12,5	12,376	12,676
M 14 X 1	13,0	12,917	13,153
M 14 X 0,5	13,4	13,4	13,52
M 15 X 1,5	13,5	13,376	13,676
M 15 X 1	14,0	13,917	14,153
M 15 X 0,5	14,4	14,4	14,52
M 16 X 2	14,0	13,835	14,21
M 16 X 1,5	14,5	14,376	14,676
M 16 X 1	15,0	14,917	15,153
M 16 X 0,5	15,4	15,4	15,52
M 17 X 1,5	15,5	15,376	15,676
M 17 X 1	16,0	15,917	16,153
M 18 X 2,5	15,5	15,294	15,744
M 18 X 2	16,0	15,835	16,21
M 18 X 1,5	16,5	16,376	16,676
M 18 X 1	17,0	16,917	17,153
M 18 X 0,5	17,4	17,4	17,52
M 20 X 2,5	17,5	17,294	17,744
M 20 X 2	18,0	17,835	18,21
M 20 X 1,5	18,5	18,376	18,676
M 20 X 1	19,0	18,917	19,153
M 20 X 0,5	19,4	19,4	19,52
M 22 X 2,5	19,5	19,294	19,744
M 22 X 2	20,0	19,835	20,21
M 22 X 1,5	20,5	20,376	20,676
M 22 X 1	21,0	20,917	21,153
M 22 X 0,5	21,4	21,4	21,52
M 24 X 3	21,0	20,752	21,252
M 24 X 2	22,0	21,835	22,21
M 24 X 1,5	22,5	22,376	22,676
M 24 X 1	23,0	22,917	23,153
M 24 X 0,5	23,4	23,4	23,52
M 25 X 2	23,0	22,835	23,21
M 25 X 1,5	23,5	23,376	23,676
M 25 X 1	24,0	23,917	24,153
M 26 X 2	23,8	23,622	24,082
M 26 X 1,5	24,5	24,376	24,676
M 26 X 1	24,8	24,81	25,03
M 27 X 3	24,0	23,752	24,252
M 27 X 2	25,0	24,835	25,21
M 27 X 1,5	25,5	25,376	25,676
M 27 X 1	26,0	25,917	26,153
M 28 X 2	26,0	25,835	26,21
M 28 X 1,5	26,5	26,376	26,676
M 28 X 1	27,0	26,917	27,153
M 30 X 3,5	26,5	26,211	26,771
M 30 X 3	27,0	26,752	27,252
M 30 X 2	28,0	27,835	28,21
M 30 X 1,5	28,5	28,376	28,676
M 30 X 1	29,0	28,917	29,153
M 32 X 2	30,0	29,835	30,21
M 32 X 1,5	30,5	30,376	30,676
M 32 X 1	30,8	30,81	31,03
M 33 X 3,5	29,5	29,211	29,771
M 33 X 3	30,0	29,752	30,252
M 33 X 2	31,0	30,835	31,21

RECOMMENDED TAPPING CONDITIONS
Condições Recomendadas
para Rosqueamento

TAPS
MACHOS

TOLERÂNCIA DO DIÂMETRO DE FURO PARA ROSCAR - MACHO DE CORTE

HOLE SIZE TOLERANCE FOR THREADING - CUTTING TAP

Roscas Métricas Metric Thread DIN 13. ISO 724/965.1

Unid.mm

Tamanho da Rosca Thread Size	Diâm. da Broca Drill Diameter	Tolerância da Rosca Interna 6H (Classe 2) Internal Thread Tolerance 6H (Class 2)	
		Mín.	Máx.
M 33 X 1,5	31,5	31,376	31,676
M 34 X 2	31,8	31,622	32,082
M 34 X 1,5	32,4	32,212	32,602
M 34 X 1	32,8	32,81	33,03
M 35 X 1,5	33,5	33,376	33,676
M 36 X 4	32,0	31,67	32,27
M 36 X 3	33,0	32,752	33,252
M 36 X 2	34,0	33,835	34,21
M 36 X 1,5	34,5	34,376	34,676
M 36 X 1	34,8	34,81	35,03
M 38 X 2	35,8	35,622	36,082
M 38 X 1,5	36,5	36,376	36,676
M 38 X 1	36,8	36,81	37,03
M 39 X 4	35,0	34,67	35,27
M 39 X 3	36,0	35,752	36,252
M 39 X 2	37,0	36,835	37,21
M 39 X 1,5	37,5	37,376	37,676
M 40 X 3	37,0	36,752	37,252
M 40 X 2	38,0	37,835	38,21
M 40 X 1,5	38,5	38,376	38,676
M 40 X 1	38,8	38,81	39,03
M 42 X 4,5	37,5	37,129	37,799
M 42 X 4	38,0	37,67	38,27
M 42 X 3	39,0	38,752	39,252
M 42 X 2	40,0	39,835	40,21
M 42 X 1,5	40,5	40,376	40,676
M 42 X 1	40,8	40,81	41,03
M 45 X 4,5	40,5	40,129	40,799
M 45 X 4	41,0	40,67	41,27
M 45 X 3	42,0	41,752	42,252
M 45 X 2	43,0	42,835	43,21
M 45 X 1,5	43,5	43,376	43,676
M 45 X 1	43,8	43,81	44,03
M 48 X 5	43,0	42,587	43,297
M 48 X 4	44,0	43,67	44,27
M 48 X 3	45,0	44,752	45,252
M 48 X 2	46,0	45,835	46,21
M 48 X 1,5	46,5	46,376	46,676
M 48 X 1	46,8	46,81	47,03
M 50 X 3	47,0	46,752	47,252
M 50 X 2	48,0	47,835	48,21
M 50 X 1,5	48,5	48,376	48,676
M 50 X 1	48,8	48,81	49,03
M 52 X 5	47,0	46,587	47,297
M 52 X 4	48,0	47,67	48,27
M 52 X 3	49,0	48,752	49,252
M 52 X 2	50,0	49,835	50,21
M 52 X 1,5	50,5	50,376	50,676
M 55 X 4	51,0	50,67	51,27
M 55 X 3	52,0	51,752	52,252
M 55 X 2	53,0	52,835	53,21
M 55 X 1,5	53,5	53,376	53,676
M 56 X 5,5	50,5	50,046	50,796
M 56 X 4	52,0	51,67	52,27
M 56 X 3	53,0	52,752	53,252
M 56 X 2	54,0	53,835	54,21
M 56 X 1,5	54,5	54,376	54,676
M 58 X 4	54,0	53,67	54,27
M 58 X 3	55,0	54,752	55,252
M 58 X 2	56,0	55,835	56,21
M 58 X 1,5	56,5	56,376	56,676
M 60 X 5,5	54,5	54,046	54,796
M 60 X 4	56	55,67	56,27

Unid.mm

Tamanho da Rosca Thread Size	Diâm. da Broca Drill Diameter	Tolerância da Rosca Interna 6H (Classe 2) Internal Thread Tolerance 6H (Class 2)	
		Mín.	Máx.
M 60 X 3	57,0	56,752	57,252
M 60 X 2	58,0	57,835	58,21
M 60 X 1,5	58,5	58,376	58,676
M 62 X 4	58,0	57,67	58,27
M 62 X 3	59,0	58,752	59,252
M 62 X 2	60,0	59,835	60,21
M 62 X 1,5	60,5	60,376	60,676
M 64 X 6	58,0	57,505	58,305
M 64 X 4	60,0	59,67	60,27
M 64 X 3	61,0	60,752	61,252
M 64 X 2	62,0	61,835	62,21
M 64 X 1,5	62,5	62,376	62,676
M 65 X 4	61,0	60,67	61,27
M 65 X 3	62,0	61,752	62,252
M 65 X 2	63,0	62,835	63,21
M 65 X 1,5	63,5	63,376	63,676
M 68 X 6	62,0	61,505	62,305
M 68 X 4	64,0	63,67	64,27
M 68 X 3	65,0	64,752	65,252
M 68 X 2	66,0	65,835	66,21
M 68 X 1,5	66,5	66,376	66,676
M 70 X 6	64,0	63,505	64,305
M 70 X 4	66,0	65,67	66,27
M 70 X 3	67,0	66,752	67,252
M 70 X 2	68,0	67,835	68,21
M 70 X 1,5	68,5	68,376	68,676
M 72 X 6	66,0	65,505	66,305
M 72 X 4	68,0	67,67	68,27
M 72 X 3	69,0	68,752	69,252
M 72 X 2	70,0	69,835	70,21
M 72 X 1,5	70,5	70,376	70,676
M 75 X 4	71,0	70,67	71,27
M 75 X 3	72,0	71,752	72,252
M 75 X 2	73,0	72,835	73,21
M 75 X 1,5	73,5	73,376	73,676
M 76 X 6	70,0	69,505	70,305
M 76 X 4	72,0	71,67	72,27
M 76 X 3	73,0	72,752	73,252
M 76 X 2	74,0	73,835	74,21
M 76 X 1,5	74,5	74,376	74,676
M 78 X 2	76,0	75,835	76,21
M 80 X 6	74,0	73,505	74,305
M 80 X 4	76,0	75,67	76,27
M 80 X 3	77,0	76,752	77,252
M 80 X 2	78,0	77,835	78,21
M 80 X 1,5	78,5	78,376	78,676
M 82 X 2	80,0	79,835	80,21
M 85 X 6	79,0	78,505	79,305
M 85 X 4	81,0	80,67	81,27
M 85 X 3	82,0	81,752	82,252
M 85 X 2	83,0	82,835	83,21
M 90 X 6	84,0	83,505	84,305
M 90 X 4	86,0	85,67	86,27
M 90 X 3	87,0	86,752	87,252
M 90 X 2	88,0	87,835	88,21
M 95 X 6	89,0	88,505	89,305
M 95 X 4	91,0	90,67	91,27
M 95 X 3	92,0	91,752	92,252
M 95 X 2	93,0	92,835	93,21
M 100 X 6	94,0	93,505	94,305
M 100 X 4	96,0	95,67	96,27
M 100 X 3	97,0	96,752	97,252
M 100 X 2	98,0	97,835	98,21

RECOMMENDED TAPPING CONDITIONS
Condições Recomendadas
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TAPS
MACHOS

TOLERÂNCIA DO DIÂMETRO DE FURO PARA ROSCAR - MACHO DE CORTE

HOLE SIZE TOLERANCE FOR THREADING - CUTTING TAP

Roscas Unificadas Unified Thread ASME B1.1

Unid.:mm

Unid.:mm

Tamanho da Rosca Thread Size	Diâm. da Broca Drill Diameter	Tolerância da Rosca Interna 2B Internal Thread Tolerance 2B	
		Mín.	Máx.
Nº 0 - 80 UNF	1,25	1,182	1,305
Nº 1 - 64 UNC	1,55	1,425	1,582
Nº 1 - 72 UNF	1,55	1,474	1,612
Nº 2 - 56 UNC	1,8	1,695	1,871
Nº 2 - 64 UNF	1,85	1,756	1,912
Nº 3 - 48 UNC	2,1	1,941	2,146
Nº 3 - 56 UNF	2,1	2,025	2,197
Nº 4 - 40 UNC	2,3	2,157	2,385
Nº 4 - 48 UNF	2,4	2,271	2,458
Nº 5 - 40 UNC	2,6	2,487	2,697
Nº 5 - 44 UNF	2,7	2,551	2,74
Nº 6 - 32 UNC	2,8	2,642	2,895
Nº 6 - 40 UNF	2,9	2,82	3,022
Nº 8 - 32 UNC	3,4	3,302	3,53
Nº 8 - 36 UNF	3,5	3,404	3,606
Nº10 - 24 UNC	3,9	3,683	3,962
Nº10 - 32 UNF	4,1	3,963	4,165
Nº12 24 UNC	4,5	4,344	4,597
Nº12 - 28 UNF	4,6	4,496	4,724
Nº12 - 32 UNEF	4,7	4,623	4,826
1/4 - 20 UNC	5,1	4,979	5,257
1/4 - 28 UNF	5,5	5,36	5,588
1/4 - 32 UNEF	5,6	5,487	5,689
5/16 - 18 UNC	6,6	6,401	6,731
5/16 - 24 UNF	6,9	6,782	7,035
5/16 - 32 UNEF	7,1	7,087	7,264
3/8 - 16 UNC	8,0	7,798	8,153
3/8 - 24 UNF	8,5	8,382	8,636
3/8 - 32 UNEF	8,7	8,662	8,864
7/16 - 14 UNC	9,4	9,144	9,55
7/16 - 20 UNF	9,9	9,729	10,033
7/16 - 24 UNS	10,1	9,957	10,21
7/16 - 28 UNEF	10,2	10,135	10,337
1/2 - 13 UNC	10,9	10,592	11,023
1/2 - 20 UNF	11,5	11,329	11,607
1/2 - 24 UNS	11,7	11,557	11,811
1/2 - 28 UNEF	11,8	11,71	11,938
1/2 - 32 UN	11,9	11,837	12,039
9/16 - 12 UNC	12,2	11,989	12,446
9/16 - 18 UNF	12,9	12,751	13,081
9/16 - 20 UN	13,0	12,904	13,208
9/16 - 24 UNEF	13,2	13,132	13,385
5/8 - 11 UNC	13,6	13,386	13,868
5/8 - 18 UNF	14,5	14,351	14,681
5/8 - 20 UN	14,6	14,504	14,782
5/8 - 24 UNEF	14,8	14,732	14,986
3/4 - 10 UNC	16,6	16,307	16,84
3/4 - 16 UNF	17,5	17,323	17,678

Tamanho da Rosca Thread Size	Diâm. da Broca Drill Diameter	Tolerância da Rosca Interna 2B Internal Thread Tolerance 2B	
		Mín.	Máx.
3/4 - 20 UNEF	17,8	17,679	17,957
7/8 - 9 UNC	19,6	19,177	19,761
7/8 - 14 UNF	20,5	20,27	20,675
7/8 - 20 UNEF	21	20,854	21,132
1 - 8 UNC	22,3	21,971	22,606
1 - 12 UNF	23,3	23,114	23,571
1 - 14 UNS	23,6	23,445	23,825
1 - 20 UNEF	24,1	24,029	24,307
1.1/16 - 12 UN	24,9	24,689	25,146
1.1/8 - 7 UNC	25	24,638	25,349
1.1/8 - 8 UN	25,5	25,146	25,781
1.1/8 - 12 UNF	26,5	26,289	26,746
1.1/8 - 18 UNEF	27,2	27,051	27,381
1.3/16 - 12 UN	28	27,864	28,321
1.1/4 - 7 UNC	28,2	27,813	28,524
1.1/4 - 8 UN	28,6	28,321	28,956
1.1/4 - 12 UNF	29,6	29,464	29,921
1.1/4 - 18 UNEF	30,3	30,226	30,556
1.5/16 - 12 UN	31,2	31,039	31,496
1.3/8 - 6 UNC	30,8	30,353	31,115
1.3/8 - 8 UN	31,8	31,496	32,131
1.3/8 - 12 UNF	32,8	32,639	33,096
1.3/8 - 18 UNEF	33,5	33,401	33,731
1.1/2 - 6 UNC	34	33,528	34,29
1.1/2 - 8 UN	35	34,671	35,306
1.1/2 - 12 UNF	36	35,814	36,271
1.1/2 - 18 UNEF	36,6	36,576	36,88
1.5/8 - 8 UN	38,1	37,846	38,481
1.5/8 - 12 UNF	39,1	38,989	39,446
1.5/8 - 18 UNEF	39,8	39,751	40,081
1.3/4 - 5 UNC	39,5	38,964	39,827
1.3/4 - 8 UN	41,3	41,021	41,656
1.3/4 - 12 UN	42,3	42,164	42,621
1.7/8 - 8 UN	44,5	44,196	44,831
1.7/8 - 12 UN	45,4	45,339	45,796
2 - 4.1/2 UNC	45,2	44,679	45,593
2 - 8 UN	47,8	47,371	48,006
2 - 12 UN	48,6	48,514	48,971
2.1/4 - 8 UN	54	53,721	54,356
2.1/2 - 8 UN	60,3	60,071	60,706
2.3/4 - 8 UN	66,6	66,421	67,056
3 - 8 UN	73	72,771	73,406
3.1/4 - 4 UNC	76,2	75,7	76,6
3.1/2 - 8 UN	85,8	85,5	86,1
3.3/4 - 4 UNC	88,9	88,4	89,3
4 - 4 UNC	95,2	94,8	95,6
4 - 8 UNC	98,5	98,2	98,8

RECOMMENDED TAPPING CONDITIONS
Condições Recomendadas
para Rosqueamento

TAPS
MACHOS

TOLERÂNCIA DO DIÂMETRO DE FURO PARA ROSCAR - MACHO DE CORTE

HOLE SIZE TOLERANCE FOR THREADING - CUTTING TAP

Rosca Whitworth Grossa Whitworth Coarse Thread BS 84 DIN 11

Unid.:mm

Tamanho da Rosca Thread Size	Diâm. da Broca Drill Diameter	Tolerância da Rosca Interna Média Tolerance of Average Internal Thread	
		Mín.	Máx.
W 1/8 - 40	2,55	2,362	2,591
W 3/16 - 24	3,7	3,406	3,744
W 1/4 - 20	5,1	4,914	5,204
W 5/16 - 18	6,6	6,340	6,670
W 3/8 - 16	8,0	7,733	8,113
W 7/16 - 14	9,4	9,048	9,508
W 1/2 - 12	10,7	10,310	10,830
W 9/16 - 12	12,3	11,898	12,418
W 5/8 - 11	13,7	13,257	13,817
W 3/4 - 10	16,6	16,178	16,778
W 7/8 - 9	19,5	19,031	19,691
W 1 - 8	22,3	21,814	22,514

Unid.:mm

Tamanho da Rosca Thread Size	Diâm. da Broca Drill Diameter	Tolerância da Rosca Interna Média Tolerance of Average Internal Thread	
		Mín.	Máx.
W 1.1/8 - 7	24,9	24,469	25,229
W 1.1/4 - 7	28,0	27,644	28,404
W 1.3/8 - 6	30,5	30,123	30,923
W 1.1/2 - 6	33,6	33,298	34,098
W 1.5/8 - 5	36,0	35,529	36,409
W 1.3/4 - 5	39,1	38,704	39,584
W 1.7/8 - 4.1/2	41,8	41,237	42,227
W 2 - 4.1/2	45,0	44,412	45,402
W 2.1/4 - 4	50,5	49,958	51,068
W 2.1/2 - 4	56,5	56,308	57,418
W 2.3/4 - 3.1/2	62,0	61,636	62,816
W 3 - 3.1/2	68,5	67,986	69,166

Rosca Whitworth Cilíndrica para Tubo (G - BSP) Whitworth Straight Pipe Thread (G - BSP) DIN 259. BS 2779. ISO 228/1

Unid.:mm

Tamanho da Rosca Thread Size	Diâm. da Broca Drill Diameter	Tolerância da Rosca Interna Média Tolerance of Average Internal Thread	
		Mín.	Máx.
G 1/16 - 28	6,7	6,561	6,843
G(PF) 1/8 - 28	8,7	8,566	8,848
G(PF) 1/4 - 19	11,7	11,445	11,890
G(PF) 3/8 - 19	15,2	14,950	15,395
G(PF) 1/2 - 14	19,0	18,631	19,172
G(PF) 5/8 - 14	21,0	20,589	21,130
G(PF) 3/4 - 14	24,5	24,117	24,658
G(PF) 7/8 - 14	28,2	27,877	28,418
G(PF) 1 - 11	30,6	30,291	30,931
G(PF) 1.1/8 - 11	35,2	34,939	35,579
G(PF) 1.1/4 - 11	39,2	38,952	39,592
G(PF) 1.1/2 - 11	45,0	44,845	45,485

Unid.:mm

Tamanho da Rosca Thread Size	Diâm. da Broca Drill Diameter	Tolerância da Rosca Interna Média Tolerance of Average Internal Thread	
		Mín.	Máx.
G(PF) 1.3/4 - 11	51,0	50,788	51,428
G(PF) 2 - 11	57,0	56,656	57,296
G(PF) 2.1/4 - 11	63,0	62,752	63,392
G(PF) 2.1/2 - 11	72,0	72,226	72,866
G(PF) 2.3/4 - 11	78,5	78,576	79,216
G(PF) 3 - 11	85,0	84,926	85,566
G(PF) 3.1/2 - 11	97,0	97,372	98,012
G(PF) 4 - 11	-	110,072	110,712
G(PF) 4.1/2 - 11	-	122,772	123,412
G(PF) 5 - 11	-	135,472	136,112
G(PF) 5.1/2 - 11	-	148,172	148,812
G(PF) 6 - 11	-	160,872	161,512

Rosca BA BA Thread

Unid.:mm

Tamanho da Rosca Thread Size	P (mm)	Diâm. d1 máx. (mm) Dia. d1 max. (mm)	Diâm. da Broca Drill Diameter
BA Nº 0	0	5,175	5,1
BA Nº 1	0,9	4,56	4,5
BA Nº 2	0,81	4,035	4,0
BA Nº 3	0,73	3,495	3,5
BA Nº 4	0,66	3,06	3,0
BA Nº 5	0,59	2,71	2,6
BA Nº 6	0,53	2,36	2,3
BA Nº 7	0,48	2,1	2,0
BA Nº 8	0,43	1,84	1,8
BA Nº 9	0,39	1,575	1,5
BA Nº 10	0,35	1,41	1,3
BA Nº 11	0,31	1,245	1,2

Rosca para Tubo Blindado (Pg) Steel Conduit Thread (Pg)

Unid.:mm

Tamanho da Rosca Thread Size	Diâm. d1 mín. (mm) Dia. d1 min. (mm)	Diâm. d1 máx. (mm) Dia. d1 max. (mm)	Diâm. da Broca Drill Diameter
Pg 7	11,28	11,43	11,4
Pg 9	13,86	14,01	14,0
Pg 11	17,26	17,41	17,3
Pg 13,5	19,06	19,21	19,0
Pg 16	21,16	21,31	21,25
Pg 21	26,78	27,03	26,8
Pg 29	35,48	35,73	35,5
Pg 36	45,48	45,73	45,5
Pg 42	52,48	52,73	52,5
Pg 48	57,78	58,03	58,0

TOLERÂNCIA DO DIÂMETRO DE FURO PARA ROSCAR - MACHO DE CORTE

HOLE SIZE TOLERANCE FOR THREADING - CUTTING TAP

Rosca Americana para Tubo (NPT • NPSC) American Standard Pipe Thread (NPT • NPSC) ANSI B2.1

Unid.:mm

Tamanho da Rosca Thread Size	Rosca para Tubo (NPT) - Diâmetro da broca Taper Thread (NPT) - Drill Diameter				Rosca para Tubo (NPSC) - Diâmetro do furo Taper Thread (NPSC) - Hole Diameter	
	Onde Alargador é usado Where Reamer is used		Onde Alargador não é usado Where Reamer is not used		mm	pol. (")
	mm	pol. (")	mm	pol. (")		
1/16 - 27	5,94	0,234	6,15	0,246	-	-
1/8 - 27	8,33	0,328	8,43	0,332	8,64	0,340
1/4 - 18	10,72	0,422	11,13	0,438	11,23	0,442
3/8 - 18	14,27	0,562	14,27	0,562	14,66	0,577
1/2 - 14	17,48	0,688	17,86	0,703	18,16	0,715
3/4 - 14	22,63	0,891	23,01	0,906	23,50	0,925
1 - 11.1/2	28,58	1,125	28,98	1,141	29,49	1,161
1.1/4 - 11.1/2	37,31	1,469	37,69	1,484	38,25	1,506
1.1/2 - 11.1/2	43,26	1,703	43,66	1,719	44,32	1,745
2 - 11.1/2	55,17	2,172	55,58	2,188	56,36	2,219
2.1/2 - 8	65,48	2,578	66,27	2,609	67,31	2,650

Rosca Americana para Tubo Dryseal (NPTF • NPSF • NPSI) American Standard Pipe Thread Dryseal (NPTF • NPSF • NPSI) ANSI B2.1

Unid.:mm

Tamanho da Rosca Thread Size	Rosca para Tubo (NPTF) - Diâmetro da broca Taper Thread (NPTF) - Drill Diameter				Rosca para Tubo (NPSF) Diâmetro do furo Taper Thread (NPSF) - Hole Diameter		Rosca para Tubo (NPSI) Diâmetro do furo Taper Thread (NPSF) - Hole Diameter	
	Onde Alargador é usado Where Reamer is used		Onde Alargador não é usado Where Reamer is not used		mm	pol. (")	mm	pol. (")
	mm	pol. (")	mm	pol. (")				
1/16 - 27	5,94	0,234	6,25	0,246	6,30	0,2482	6,36	0,2505
1/8 - 27	8,33	0,328	8,61	0,339	8,65	0,3406	8,71	0,3429
1/4 - 18	10,72	0,422	11,13	0,438	11,23	0,4422	11,32	0,4457
3/8 - 18	14,27	0,562	14,68	0,578	14,67	0,5776	14,76	0,5811
1/2 - 14	17,48	0,688	17,86	0,703	18,12	0,7133	18,24	0,7180
3/4 - 14	22,63	0,891	23,42	0,922	23,46	0,9283	23,58	0,9283
1 - 11.1/2	28,58	1,125	29,36	1,156	29,46	1,1600	29,62	1,1600
1.1/4 - 11.1/2	37,31	1,469	38,10	1,500	-	-	-	-
1.1/2 - 11.1/2	43,26	1,703	44,04	1,734	-	-	-	-
2 - 11.1/2	55,58	2,188	56,36	2,219	-	-	-	-
2.1/2 - 8	65,89	2,594	67,08	2,641	-	-	-	-

Rosca Americana para Tubo (NPSM) American Standard Pipe Thread (NPSM) ANSI B2.1

Unid.:mm

Tamanho da Rosca Thread Size	Rosca para Tubo (NPSM) Diâmetro do furo Taper Thread (NPSM) - Drill Diameter			
	Mín. (mm)	Máx. (mm)	Mín. pol. (")	Máx. pol. (")
1/8 - 27	9,09	9,25	0,358	0,364
1/4 - 18	11,89	12,22	0,468	0,481
3/8 - 18	15,32	15,54	0,603	0,612
1/2 - 14	18,97	19,28	0,747	0,759
3/4 - 14	24,33	24,64	0,958	0,97
1 - 11.1/2	30,51	30,76	1,201	1,211
1.1/4 - 11.1/2	39,27	39,50	1,546	1,555
1.1/2 - 11.1/2	45,34	45,57	1,785	1,794
2 - 11.1/2	57,38	57,61	2,259	2,268
2.1/2 - 8	68,78	69,27	2,708	2,727

Macho de Corte - Fórmula Cutting Tap - Formula

$$\text{Diâmetro da Broca} = D - P$$

$$\text{Drill Diameter}$$

D: Diâmetro Externo External Diameter
P: Passo Pitch

Exemplo Example:

M 14 x 2

$$\text{Diâmetro da Broca} = 14,0 - 2,0 = \mathbf{12,0}$$

$$\text{Thread Diameter}$$

Aplicar a fórmula somente para roscas Métricas e Unificadas.
Apply the formula only for Unified and Metric threads.

TOLERÂNCIA DO DIÂMETRO DE FURO PARA ROSCAR - MACHO LAMINADOR

HOLE SIZE TOLERANCE FOR THREADING - FORMING TAP

Macho Laminador - Rosca Métrica Grossa Fluteless Tap - Metric Coarse Thread DIN 13. ISO 724/965.1

Tamanho da Rosca Thread Size	Tolerância 6H Tolerance 6H	
	Mín. ~ Máx. (% altura do Filete Thread Overlap Ratio)	
M 1 x 0,25	-	
M 1,1 x 0,25	-	
M 1,2 x 0,25	-	
M 1,4 x 0,3	1,270 ~ 1,291 (100% ~ 82%)	
M 1,6 x 0,35	1,440 ~ 1,475 (100% ~ 75%)	
M 1,7 x 0,35	1,540 ~ 1,575 (100% ~ 75%)	
M 1,8 x 0,35	1,640 ~ 1,675 (100% ~ 75%)	
M 2 x 0,4	1,810 ~ 1,849 (100% ~ 75%)	
M 2 x 0,25	-	
M 2,2 x 0,45	1,980 ~ 2,024 (100% ~ 75%)	
M 2,3 x 0,4	2,110 ~ 2,149 (100% ~ 75%)	
M 2,5 x 0,45	2,280 ~ 2,324 (100% ~ 75%)	
M 2,6 x 0,45	2,380 ~ 2,424 (100% ~ 75%)	
M 3 x 0,5	2,762 ~ 2,812 (100% ~ 75%)	
M 3,5 x 0,6	3,202 ~ 3,250 (100% ~ 80%)	

Tamanho da Rosca Thread Size	Tolerância 6H Tolerance 6H	
	Mín. ~ Máx. (% altura do Filete Thread Overlap Ratio)	
M 4 x 0,7	3,66 ~ 3,69 (100% ~ 85%)	
M 4,5 x 0,75	4,13 ~ 4,18 (100% ~ 80%)	
M 5 x 0,8	4,60 ~ 4,65 (100% ~ 80%)	
M 6 x 1	5,49 ~ 5,56 (100% ~ 80%)	
M 7 x 1	6,48 ~ 6,55 (100% ~ 80%)	
M 8 x 1,25	7,34 ~ 7,41 (100% ~ 85%)	
M 9 x 1,25	8,34 ~ 8,41 (100% ~ 85%)	
M 10 x 1,5	9,19 ~ 9,27 (100% ~ 85%)	
M 11 x 1,5	10,19 ~ 10,27 (100% ~ 85%)	
M 12 x 1,75	11,05 ~ 11,15 (100% ~ 85%)	
M 14 x 2	12,93 ~ 13,04 (100% ~ 85%)	
M 16 x 2	14,93 ~ 15,04 (100% ~ 85%)	
M 18 x 2,5	16,64 ~ 16,78 (100% ~ 85%)	
M 20 x 2,5	18,64 ~ 18,78 (100% ~ 85%)	

Macho Laminador - Rosca Métrica Fina Fluteless Tap - Metric Fine Thread DIN 13. ISO 724/965.1

Tamanho da Rosca Thread Size	Tolerância 6H Tolerance 6H	
	Mín. ~ Máx. (% altura do Filete Thread Overlap Ratio)	
M 4 x 0,5	3,76 ~ 3,79 (100%~85%)	
M 5 x 0,5	4,76 ~ 4,81 (100%~80%)	
M 6 x 0,5	5,76 ~ 5,81 (100%~80%)	
M 6 x 0,75	5,63 ~ 5,68 (100%~80%)	
M 8 x 0,75	7,63 ~ 7,68 (100%~80%)	
M 8 x 1	7,49 ~ 7,56 (100%~80%)	
M 10 x 1	9,49 ~ 9,56 (100%~80%)	
M 10 x 1,25	9,34 ~ 9,41 (100%~80%)	

Tamanho da Rosca Thread Size	Tolerância 6H Tolerance 6H	
	Mín. ~ Máx. (% altura do Filete Thread Overlap Ratio)	
M 12 x 1,5	11,19 ~ 11,27 (100%~80%)	
M 12 x 1	11,49 ~ 11,56 (100%~80%)	
M 12 x 1,25	11,34 ~ 11,41 (100%~80%)	
M 14 x 1	13,49 ~ 13,56 (100%~80%)	
M 14 x 1,5	13,21 ~ 13,30 (100%~80%)	
M 16 x 1,5	15,21 ~ 15,30 (100%~80%)	
M 18 x 1,5	17,23 ~ 17,31 (100%~80%)	
M 20 x 1,5	19,23 ~ 19,31 (100%~80%)	

Macho Laminador - Rosca Unificada Grossa Fluteless Tap - Unified Coarse Thread ASME B1.1

Tamanho da Rosca Thread Size	Tolerância 2B Tolerance 2B	
	Mín. ~ Máx. (% altura do Filete Thread Overlap Ratio)	
Nº 1 - 64 UNC	1,66 ~ 1,7 (100 ~ 65)	
Nº 2 - 56 UNC	1,96 ~ 2,02 (100 ~ 65)	
Nº 3 - 48 UNC	2,25 ~ 2,32 (100 ~ 65)	
Nº 4 - 40 UNC	2,52 ~ 2,6 (100 ~ 70)	
Nº 5 - 40 UNC	2,86 ~ 2,93 (100 ~ 70)	

Tamanho da Rosca Thread Size	Tolerância 2B Tolerance 2B	
	Mín. ~ Máx. (% altura do Filete Thread Overlap Ratio)	
Nº 6 - 32 UNC	3,09 ~ 3,17 (100 ~ 75)	
Nº 8 - 32 UNC	3,75 ~ 3,83 (100 ~ 75)	
Nº 10 - 24 UNC	4,26 ~ 4,35 (100 ~ 80)	
Nº 12 - 24 UNC	4,92 ~ 5,01 (100 ~ 80)	
1/4 - 20 UNC	5,66 ~ 5,76 (100 ~ 80)	

Macho Laminador - Rosca Unificada Fina Fluteless Tap - Unified Coarse Thread ASME B1.1

Tamanho da Rosca Thread Size	Tolerância 2B Tolerance 2B	
	Mín. ~ Máx. (% altura do Filete Thread Overlap Ratio)	
Nº 0 - 80 UNF	1,38 ~ 1,41 (100 ~ 65)	
Nº 1 - 72 UNF	1,68 ~ 1,72 (100 ~ 65)	
Nº 2 - 64 UNF	1,98 ~ 2,04 (100 ~ 65)	
Nº 3 - 56 UNF	2,29 ~ 2,35 (100 ~ 65)	
Nº 4 - 48 UNF	2,57 ~ 2,64 (100 ~ 70)	
Nº 5 - 44 UNF	2,89 ~ 2,96 (100 ~ 70)	

Tamanho da Rosca Thread Size	Tolerância 2B Tolerance 2B	
	Mín. ~ Máx. (% altura do Filete Thread Overlap Ratio)	
Nº 6 - 40 UNF	3,19 ~ 3,26 (100 ~ 70)	
Nº 8 - 36 UNF	3,8 ~ 3,88 (100 ~ 75)	
Nº 10 - 32 UNF	4,41 ~ 4,48 (100 ~ 80)	
Nº 12 - 28 UNF	5,0 ~ 5,08 (100 ~ 80)	
1/4 - 28 UNF	5,86 ~ 5,93 (100 ~ 80)	

Macho Laminador - Fórmula Thread Mill - Formula

$$\text{Diâmetro da Broca} = D - (P/2)$$

Drill Diameter

D: Diâmetro Externo External Diameter
P: Passo Pitch

Exemplo Example:

M 14 x 2

$$\text{Diâmetro da Broca} = 14,0 - (2/2) = \mathbf{13,0}$$

Drill Diameter

Aplicar a fórmula somente para roscas Métricas e Unificadas.
Apply the formula only for Metric and Unified threads.

RECOMMENDED TAPPING CONDITIONS
Condições Recomendadas
para Rosqueamento

TAPS
MACHOS