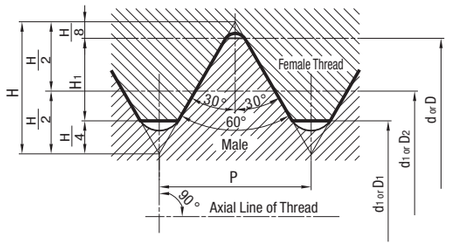
[Technical Data]
Metric Fine Screw Threads
Excerpts from JIS B 0207 (1999)



H =0.866025P
H1=0.541266P

d2=d–0.649519P
d1=d–1.082532P

D =d
D2=d2
D1=d1

Unit: mm

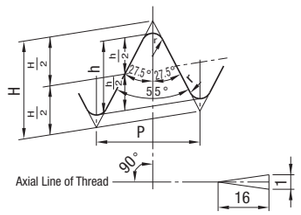
Nominal of Thread	Pitch P	Height of Engagement H1	Female Thread		
			Minor Dia. D	Effective Dia. D2	Inner Dia. D1
			Male Thread		
			Outer Dia. d	Effective Dia. d2	Inner Dia. d1
M 1 ×0.2	0.2	0.108	1.000	0.870	0.783
M 1.1×0.2	0.2	0.108	1.100	0.970	0.883
M 1.2×0.2	0.2	0.108	1.200	1.070	0.983
M 1.4×0.2	0.2	0.108	1.400	1.270	1.183
M 1.6×0.2	0.2	0.108	1.600	1.470	1.383
M 1.8×0.2	0.2	0.108	1.800	1.670	1.583
M 2 ×0.25	0.25	0.135	2.000	1.838	1.729
M 2.2×0.25	0.25	0.135	2.200	2.038	1.929
M 2.5×0.35	0.35	0.189	2.500	2.273	2.121
M 3 ×0.35	0.35	0.189	3.000	2.773	2.621
M 3.5×0.35	0.35	0.189	3.500	3.273	3.121
M 4 ×0.5	0.5	0.271	4.000	3.675	3.459
M 4.5×0.5	0.5	0.271	4.500	4.175	3.959
M 5 ×0.5	0.5	0.271	5.000	4.675	4.459
M 5.5×0.5	0.5	0.271	5.500	5.175	4.959
M 6 ×0.75	0.75	0.406	6.000	5.513	5.188
M 7 ×0.75	0.75	0.406	7.000	6.513	6.188
M 8 ×1	1	0.541	8.000	7.350	6.917
M 8 ×0.75	0.75	0.406	8.000	7.513	7.188
M 9 ×1	1	0.541	9.000	8.350	7.917
M 9 ×0.75	0.75	0.406	9.000	8.513	8.188
M 10 ×1.25	1.25	0.677	10.000	9.188	8.647
M 10 ×1	1	0.541	10.000	9.350	8.917
M 10 ×0.75	0.75	0.406	10.000	9.513	9.188
M 11 ×1	1	0.541	11.000	10.350	9.917
M 11 ×0.75	0.75	0.406	11.000	10.513	10.188
M 12 ×1.5	1.5	0.812	12.000	11.026	10.376
M 12 ×1.25	1.25	0.677	12.000	11.188	10.647
M 12 ×1	1	0.541	12.000	11.350	10.917
M 14 ×1.5	1.5	0.812	14.000	13.026	12.376
M 14 ×1.25	1.25	0.677	14.000	13.188	12.647
M 14 ×1	1	0.541	14.000	13.350	12.917
M 15 ×1.5	1.5	0.812	15.000	14.026	13.376
M 15 ×1	1	0.541	15.000	14.350	13.917
M 16 ×1.5	1.5	0.812	16.000	15.026	14.376
M 16 ×1	1	0.541	16.000	15.350	14.917
M 17 ×1.5	1.5	0.812	17.000	16.026	15.376
M 17 ×1	1	0.541	17.000	16.350	15.917
M 18 ×2	2	1.083	18.000	16.701	15.835
M 18 ×1.5	1.5	0.812	18.000	17.026	16.376
M 18 ×1	1	0.541	18.000	17.350	16.917
M 20 ×2	2	1.083	20.000	18.701	17.835
M 20 ×1.5	1.5	0.812	20.000	19.026	18.376
M 20 ×1	1	0.541	20.000	19.350	18.917
M 22 ×2	2	1.083	22.000	20.701	19.835
M 22 ×1.5	1.5	0.812	22.000	21.026	20.376
M 22 ×1	1	0.541	22.000	21.350	20.917
M 24 ×2	2	1.083	24.000	22.701	21.835
M 24 ×1.5	1.5	0.812	24.000	23.026	22.376
M 24 ×1	1	0.541	24.000	23.350	22.917

Nominal of Thread	Pitch P	Height of Engagement H1	Female Thread		
			Minor Dia. D	Effective Dia. D2	Inner Dia. D1
			Male Thread		
			Outer Dia. d	Effective Dia. d2	Inner Dia. d1
M 25×2	2	1.083	25.000	23.701	22.835
M 25×1.5	1.5	0.812	25.000	24.026	23.376
M 25×1	1	0.541	25.000	24.350	23.917
M 26×1.5	1.5	0.812	26.000	25.026	24.376
M 27×2	2	1.083	27.000	25.701	24.835
M 27×1.5	1.5	0.812	27.000	26.026	25.376
M 27×1	1	0.541	27.000	26.350	25.917
M 28×2	2	1.083	28.000	26.701	25.835
M 28×1.5	1.5	0.812	28.000	27.026	26.376
M 28×1	1	0.541	28.000	27.350	26.917
M 30×3	3	1.624	30.000	28.051	26.752
M 30×2	2	1.083	30.000	28.701	27.835
M 30×1.5	1.5	0.812	30.000	29.026	28.376
M 30×1	1	0.541	30.000	29.350	28.917
M 32×2	2	1.082	32.000	30.701	29.835
M 32×1.5	1.5	0.812	32.000	31.026	30.376
M 33×3	3	1.624	33.000	31.051	29.752
M 33×2	2	1.083	33.000	31.701	30.835
M 33×1.5	1.5	0.812	33.000	32.026	31.376
M 35×1.5	1.5	0.812	35.000	34.026	33.376
M 36×3	3	1.624	36.000	34.051	32.752
M 36×2	2	1.083	36.000	34.701	33.835
M 36×1.5	1.5	0.812	36.000	35.026	34.376
M 38×1.5	1.5	0.812	38.000	37.026	36.376
M 39×3	3	1.624	39.000	37.051	35.752
M 39×2	2	1.083	39.000	37.701	36.835
M 39×1.5	1.5	0.812	39.000	38.026	37.376
M 40×3	3	1.624	40.000	38.051	36.752
M 40×2	2	1.083	40.000	38.701	37.835
M 40×1.5	1.5	0.812	40.000	39.026	38.376
M 42×4	4	2.165	42.000	39.402	37.670
M 42×3	3	1.624	42.000	40.051	38.752
M 42×2	2	1.083	42.000	40.701	39.835
M 42×1.5	1.5	0.812	42.000	41.026	40.376
M 45×4	4	2.165	45.000	42.402	40.670
M 45×3	3	1.624	45.000	43.051	41.752
M 45×2	2	1.083	45.000	43.701	42.835
M 45×1.5	1.5	0.812	45.000	44.026	43.376
M 48×4	4	2.165	48.000	45.402	43.670
M 48×3	3	1.624	48.000	46.051	44.752
M 48×2	2	1.083	48.000	46.701	45.835
M 48×1.5	1.5	0.812	48.000	47.026	46.376
M 50×3	3	1.624	50.000	48.051	46.752
M 50×2	2	1.083	50.000	48.701	47.835
M 50×1.5	1.5	0.812	50.000	49.026	48.376
M 52×4	4	2.165	52.000	49.402	47.670
M 52×3	3	1.624	52.000	50.051	48.752
M 52×2	2	1.083	52.000	50.701	49.835
M 52×1.5	1.5	0.812	52.000	51.026	50.376
M 55×4	4	2.165	55.000	52.402	50.670
M 55×3	3	1.624	55.000	53.051	51.752
M 55×2	2	1.083	55.000	53.701	52.835
M 55×1.5	1.5	0.812	55.000	54.026	53.376

[Technical Data]
Taper Pipe Threads
Excerpts from JIS B 0203 (1999)

Reference Thread Shape and Reference Dimension

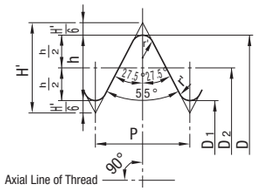
Reference Thread Shape and Basic Dimension for a Tapered Male/Female Thread



Thick Solid Lines: Reference Thread Shape

$P=\frac{25.4}{n}$
H=0.960237P
h=0.640327P
r =0.137278P

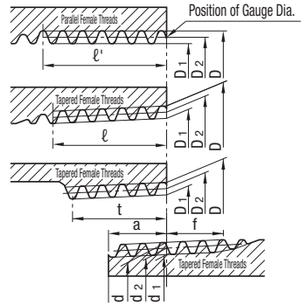
Reference Thread Shape for a Parallel Female Thread



Thick Solid Lines: Reference Thread Shape

$P=\frac{25.4}{n}$
H'=0.960491P
h =0.640327P
r' =0.137329P

Fitting together a tapered female thread or parallel female thread and a tapered male thread.



Unit: mm

Nominal of Thread (1)	Thread: Number of Threads n (in 25.4 mm)	Thread: Pitch P (Reference)	Thread: Thread Height h	Thread: Roundness r or r'	Gauge Dia.: Male Thread: Outer Dia. d	Gauge Dia.: Male Thread: Effective Dia. d2	Gauge Dia.: Male Thread: Minor Dia. d1	Gauge Dia.: Female Thread: Minor Dia. D	Gauge Dia.: Female Thread: Effective Dia. D2	Gauge Dia.: Female Thread: Inner Dia. D1	Position of Gauge Dia.: Male Thread: From Pipe End: Reference Length a	Position of Gauge Dia.: Male Thread: From Pipe End: Axial Tolerance b	Position of Gauge Dia.: Female Thread: Pipe End: Axial Tolerance c	D, D2 and D1 Tolerances of Parallel Female Threads	Length of Effective Thread (Min.): Male Thread: From Position of Gauge Dia. Spot to Major Dia. Spot f	Length of Effective Thread (Min.): Female Thread: With Incomplete Threaded Portion: Tapered Female Threads: From Position of Gauge Dia. Spot to Minor Dia. Spot ℓ	Length of Effective Thread (Min.): Female Thread: With Incomplete Threaded Portion: Parallel Female Threads: From pipe end or pipe fitting end ℓ' (Reference)	Length of Effective Thread (Min.): Female Thread: Without Incomplete Threaded Portion: Tapered Female Threads, Parallel Female Threads t(2)	Carbon Steel for Piping Size of Steel Pipe (Reference): Outer Diameter	Carbon Steel for Piping Size of Steel Pipe (Reference): Thickness
R1/16	28	0.9071	0.581	0.12	7.723	7.142	6.561				3.97	±0.91	±1.13	±0.071	2.5	6.2	7.4	4.4	–	–
R1/8	28	0.9071	0.581	0.12	9.728	9.147	8.566				3.97	±0.91	±1.13	±0.071	2.5	6.2	7.4	4.4	10.5	2.0
R1/4	19	1.3368	0.856	0.18	13.157	12.301	11.445				6.01	±1.34	±1.67	±0.104	3.7	9.4	11.0	6.7	13.8	2.3
R3/8	19	1.3368	0.856	0.18	16.662	15.806	14.950				6.35	±1.34	±1.67	±0.104	3.7	9.7	11.4	7.0	17.3	2.3
R1/2	14	1.8143	1.162	0.25	20.955	19.793	18.631				8.16	±1.81	±2.27	±0.142	5.0	12.7	15.0	9.1	21.7	2.8
R3/4	14	1.8143	1.162	0.25	26.441	25.279	24.117				9.53	±1.81	±2.27	±0.142	5.0	14.1	16.3	10.2	27.2	2.8
R1	11	2.3091	1.479	0.32	33.249	31.770	30.291				10.39	±2.31	±2.89	±0.181	6.4	16.2	19.1	11.6	34	3.2
R1 1/4	11	2.3091	1.479	0.32	41.910	40.431	38.952				12.70	±2.31	±2.89	±0.181	6.4	18.5	21.4	13.4	42.7	3.5
R1 1/2	11	2.3091	1.479	0.32	47.803	46.324	44.845				12.70	±2.31	±2.89	±0.181	6.4	18.5	21.4	13.4	48.6	3.5
R2	11	2.3091	1.479	0.32	59.614	58.135	56.656				15.88	±2.31	±2.89	±0.181	7.5	22.8	25.7	16.9	60.5	3.8
R2 1/2	11	2.3091	1.479	0.32	75.184	73.705	72.226				17.46	±3.46	±3.46	±0.216	9.2	26.7	30.1	18.6	76.3	4.2
R3	11	2.3091	1.479	0.32	87.884	86.405	84.926				20.64	±3.46	±3.46	±0.216	9.2	29.8	33.3	21.1	89.1	4.2
R4	11	2.3091	1.479	0.32	113.030	111.551	110.072				25.40	±3.46	±3.46	±0.216	10.4	35.8	39.3	25.9	114.3	4.5
R5	11	2.3091	1.479	0.32	138.430	136.951	135.472				28.58	±3.46	±3.46	±0.216	11.5	40.1	43.5	29.3	139.8	4.5
R6	11	2.3091	1.479	0.32	163.830	162.351	160.872				28.58	±3.46	±3.46	±0.216	11.5	40.1	43.5	29.3	165.2	5.0

Note(1): The nominal of a tapered male thread is given here. For a taper female thread or parallel female thread, R should be replaced with Rc or Rp. (Refer to*)

(2): Tapered thread: length from position of gauge dia. spot to a minor dia. spot. /Parallel female thread: length from a pipe end or pipe fitting end.

Reference
1. The threads should be at right angles to the central axial line, and the pitch should be measured along the central axial line.
2. The length of the effective thread means the length over which threads are fully provided. A pipe or a pipe fitting may be left in place on the crests of the last few threads. A chamfered end, if any, of a pipe or a pipe fitting should be included in the length of the effective thread.
3. When the value of a, f and t does not meet the requirements, the criteria of other standard is provided.

(*) Tapered threads type for a pipe are specified as taper male thread for a pipe, taper female thread and parallel female thread for a pipe.
The parallel female thread for a pipe should be mated with a tapered male thread for a pipe, and differs in dimension tolerances from the parallel female thread specified by JIS B 0202.