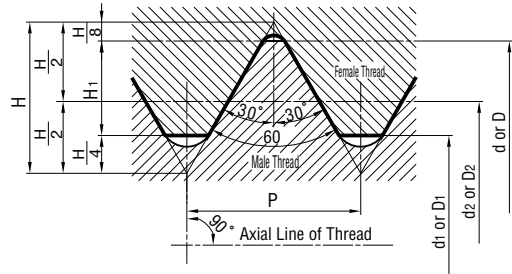


Metric Fine Screw Threads

Excerpt from JIS B 0207 (1999)



$$H = 0.866025P \quad D = d$$

$$H_1 = 0.541266P \quad D_2 = d_2$$

$$d_2 = d - 0.649519P \quad D_1 = d_1$$

$$d_1 = d - 1.082532P$$

Unit : mm

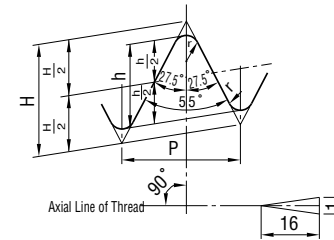
Nominal of Thread	Pitch P	Height of Engagement H ₁	Female Thread		
			Core Dia. D	Effective Dia. D ₂	Minor Dia. D ₁
			Outer Dia. d	Effective Dia. d ₂	Core Dia. d ₁
M 1 × 0.2	0.2	0.108	1.000	0.870	0.783
M 1.1 × 0.2	0.2	0.108	1.100	0.970	0.883
M 1.2 × 0.2	0.2	0.108	1.200	1.070	0.983
M 1.4 × 0.2	0.2	0.108	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

Taper Pipe Threads

Excerpt from JIS B 0203 (1999)

Reference Shape of Thread and Basic Dimension

Reference Thread Shapes for Taper Male Thread and Taper Female Thread



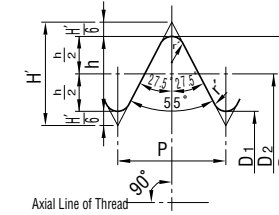
$$P = \frac{25.4}{n}$$

$$H = 0.960237P$$

$$h = 0.640327P$$

$$r = 0.137278P$$

Reference Thread Shape for a Parallel Female Thread



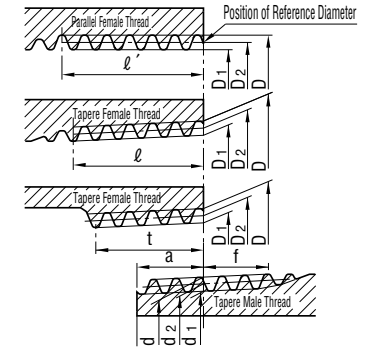
$$P = \frac{25.4}{n}$$

$$H' = 0.960491P$$

$$h = 0.640327P$$

$$r' = 0.137329P$$

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



Unit : mm

Nominal of Thread	Thread				Gauge Dia.			Position of Gauge Diameter			D, D ₂ and D ₁ Tolerances of Parallel Female Thread	Length of Effective Thread (Min.)				Carbon Steel for Piping. Size of Steel Pipe (Reference)			
	Number of Threads (in 25.4mm) n	Pitch P (Reference)	Thread Height h	Radius r or r'	Male Thread			Male Thread		Female Thread		From Reference -Dia. Spot Major -Dia. Spot f	Female Thread		Without the Incomplete Threaded Portion			Outer Diameter	Thickness
					Outer Diameter d	Effective Dia. d ₂	Core Dia. d ₁	From Pipe End	Pipe End	Taper Female Thread			Parallel Female Thread						
														Reference Length a					
R ¹ / 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	—	—		
R ¹ / 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		
R ¹ / 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		
R ³ / 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		
R ¹ / 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		
R ³ / 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		
R 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		
R 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		
R 2	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		
R ² / 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		
R 4	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		
R 5	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		
R 6	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		
M 50 × 3	3	1.624	1.083	0.25	50.000	48.000	45.402	43.670											
M 50 × 2	2	1.083	0.812	0.25	50.000	48.000	45.402	43.670											
M 50 × 1.5	1.5	0.812	0.609	0.25	50.000	48.000	45.402	43.670											
M 52 × 4	4	2.165	1.479	0.32	52.000	49.402	47.670												
M 52 × 3	3	1.624	1.083	0.25	52.000	50.051	48.752												
M 52 × 2	2	1.083	0.812	0.25	52.000	50.701	49.835												
M 52 × 1.5	1.5	0.812	0.609	0.25	52.000	51.026	50.376												
M 55 × 4	4	2.165	1.479	0.32	55.000	52.402	50.670												
M 55 × 3	3	1.624	1.083	0.25	55.000	53.051	51.752												
M 55 × 2	2	1.083	0.812	0.25	55.000	53.701	52.835												
M 55 × 1.5	1.5	0.812	0.609	0.25	55.000	54.026	53.376												

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

(2) : Taper Thread : Length from a gauge dia. spot to a minor dia. spot. / Parallel Female Thread : Length from a pipe end or pipe fitting end.

- Remarks :
- The threads should be at right angles to the central axial line, and the pitch should be measured along the central axial line.
 - 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.
 - When the value of a, f and t does not meet the requirements, the criteria of other standard is provided.

(※) Taper threads 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 taper male thread for a pipe, and differs in dimension tolerances from the parallel female thread specified by JIS B 0202.