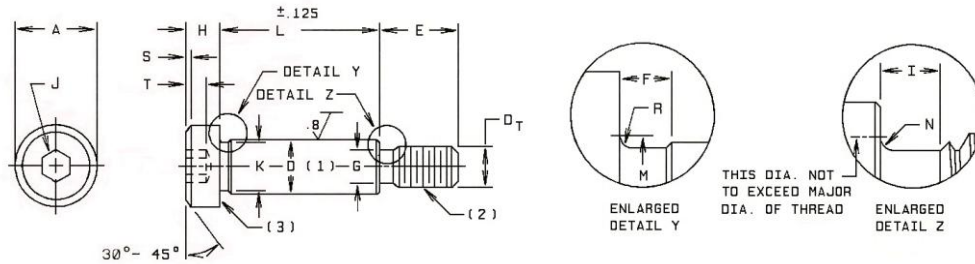


Metric Socket Head Shoulder Screws



Nominal Shoulder Diameter	D(1) Shoulder Diameter		A Head Diameter		H Head Side Height		C Chamfer Max.	J Hex Socket Size Nominal	T Key Engagement Min.	E Thread Length Max.
	Max.	Min.	Max.	Min.	Max.	Min.				
6.5	6.487	6.451	10.00	9.78	4.50	4.32	0.6	3	2.4	9.75
8.0	7.987	7.951	13.00	12.73	5.50	5.32	0.8	4	3.3	11.25
10.0	9.987	9.951	16.00	15.73	7.00	6.78	1.0	5	4.2	13.25
13.0	12.984	12.941	18.00	17.73	9.00	8.78	1.2	6	4.9	16.40
16.0	15.984	15.941	24.00	23.67	11.00	10.73	1.6	8	6.6	18.40
20.0	19.980	19.928	30.00	29.67	14.00	13.73	2.0	10	8.8	22.40
25.0	24.980	24.928	36.00	35.61	16.00	15.73	2.4	12	10.0	27.40

Nominal Shoulder Diameter	M Head Fillet Extension Diameter	K Shoulder Neck Diameter	F Shoulder Neck Width	D _T Basic Thread Diameter And Pitch	G Thread Neck Diameter	I Thread Neck Width	N Thread Neck Fillet		
	Max.	Min.	Max.		Max.	Min.	Max.	Min.	
6.5	7.5	5.92	2.5	M5x0.8	3.86	3.68	2.4	0.66	0.50
8.0	9.2	7.42	2.5	M6x1.0	4.58	4.40	2.6	0.69	0.53
10.0	11.2	9.42	2.5	M8x1.25	6.25	6.03	2.8	0.80	0.64
13.0	15.2	12.42	2.5	M10x1.50	7.91	7.69	3.0	0.93	0.77
16.0	18.2	15.42	2.5	M12x1.75	9.57	9.35	4.0	1.03	0.87
20.0	22.4	19.42	2.5	M16x2.0	13.23	12.96	4.8	1.30	1.14
25.0	27.4	24.42	3.0	M20x2.5	16.57	16.30	5.6	1.46	1.30

Applicable Standards: ASME B18.3.3M

Tensile Strength: 1100 MPa, based upon strength at thread neck

Hardness: R_C 36-43 at the surface.

Notes:

1. The shoulder diameter is the basis for the determination and callout of the screw size.
2. Screw threads are Class 4g6g.
3. **Concentricity:** The shoulder and thread pitch diameter shall be concentric within 0.10 mm full indicator movement (FIM), determined at a distance of 4.75 mm from the face of the shoulder. Concentricity, parallelism, bow, and squareness of the face of the shoulder with the axis of the thread shall be within 0.125mm FIM per 25.0mm of shoulder length, with a maximum of 0.70 mm when the shoulder face is firmly seated against a threaded bushing and deviation is checked on the shoulder at a distance of 2F from the underside of the head. The thread in the bushing shall be basic size, and the bushing O.D. and ends shall be concentric and square with the axis of the thread respectively.

Metric Socket Shoulder Screws (continued)

Mechanical Properties and Tightening Torques

Nominal Shoulder Diameter	Nominal Thread Size	Tensile Strength Neck kN Min.	Single Shear Strength kN Min.		Hex Key Size	Tightening Torque Nm
			Thread	Neck Shoulder		
M6.5	M5x0.8	11.7	7.0	21.6	3 mm	6.9
M8	M6x1.0	15.2	10.0	32.7	4 mm	12
M10	M8x1.25	28.6	18.9	51.3	5 mm	28
M13	M10x1.50	51.1	30.7	86.8	6 mm	56
M16	M12x1.75	75.5	45.3	131	8 mm	99
M20	M16x2.0	145	87.1	206	10 mm	250
M25	M20x2.5	230	137	322	12 mm	400

