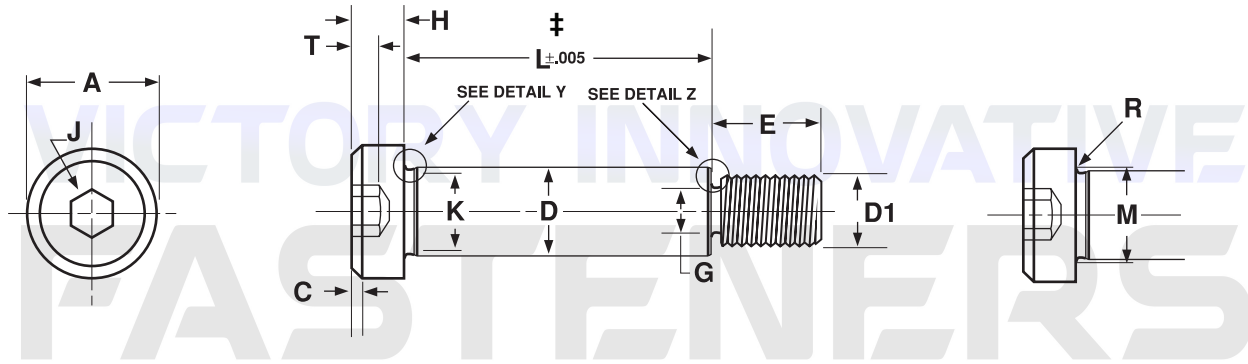


# SOCKET SHOULDER SCREWS Alloy Steel

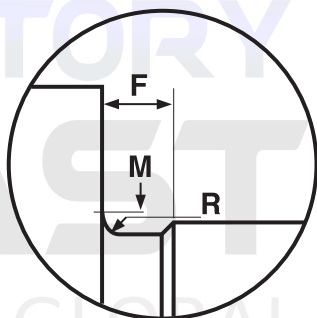


‡Length of a shoulder screw is measured from the underhead bearing surface to the plane of the shoulder at the threaded end.

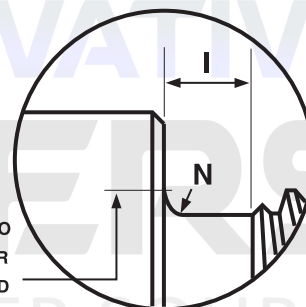
SOCKET HEAD SHOULDER SCREWS - ALLOY STEEL											ASME B18.3-2012		
Nominal Size	D		A		H		C	J	T	M	R	K	F
	Shoulder Diameter		Head Diameter		Head Height		Chamfer or Radius	Hex Socket Size	Key Engagement	Fillet Transition Diameter	Head Fillet Radius	Shoulder Neck Diameter	Shoulder Neck Width
	Max	Min	Max	Min	Max	Min	Max	Nom	Min	Max	Min	Min	Max
1/4	0.2480	0.2460	0.375	0.357	0.188	0.177	0.020	1/8	0.094	0.276	0.009	0.227	0.093
5/16	0.3105	0.3085	0.438	0.419	0.219	0.209	0.026	5/32	0.117	0.345	0.012	0.289	0.093
3/8	0.3730	0.3710	0.562	0.543	0.250	0.240	0.031	3/16	0.141	0.413	0.015	0.352	0.093
1/2	0.4980	0.4960	0.750	0.729	0.312	0.302	0.040	1/4	0.188	0.550	0.020	0.477	0.093
5/8	0.6230	0.6210	0.875	0.853	0.375	0.365	0.050	5/16	0.234	0.687	0.024	0.602	0.093
3/4	0.7480	0.7460	1.000	0.977	0.500	0.490	0.069	3/8	0.281	0.826	0.030	0.727	0.093

<b>Description</b>	A hex socket head screw with an enlarged, unthreaded, cylindrical shoulder under the head, the diameter of which serves as the basis for the derivation of the nominal size.
<b>Applications/ Advantages</b>	For rotation or sliding applications, such as pulley shafts, in punch and die work, or for use as a bearing pin. Shoulder screws are also referred to as "stripper bolts".
<b>Material</b>	Shoulder screws shall be made fabricated from an alloy steel having one or more of the following elements: chromium, nickel, molybdenum or vanadium, in sufficient quantity to assure the hardness specified below.
<b>Heat Treatment</b>	Shoulder screws shall be heat-treated by oil quenching from above the transformation temperature and then tempered at a temperature not lower than 650°F.
<b>Hardness</b>	Rockwell C32 - 43
<b>Tensile Strength</b>	140,000 psi. minimum (material only)
<b>Yield Strength</b>	120,000 psi. minimum (material only)
<b>Elongation</b>	15% minimum (applies to all machined specimens of length at least 4D where D equals the nominal diameter of the screw)
<b>Reduction of Area</b>	45% minimum (applies to all machined specimens)
<b>Plating</b>	Shoulder screws are usually supplied plain.

**SOCKET SHOULDER SCREWS**



**ENLARGED DETAIL Y**



**ENLARGED DETAIL Z**

**SOCKET HEAD SHOULDER SCREWS - ALLOY STEEL (CONTINUED)**

ASME B18.3-2012,  
Blue Devil®

Nominal Size	D1	Threads Per Inch	G		I	N		E	Thread Section Tensile Strength (Lbs) Min	Single Shear Strength (Lbs)		Seating Torque (Inch Lbs)
	Nominal Thread Size		Thread Neck Diameter		Thread Neck Width	Thread Neck Fillet		Thread Length		Shoulder	Thread Neck	
			Max	Min		Max	Min			Min	Min	
1/4	10	24	0.142	0.133	0.083	0.023	0.017	0.375	2,540	4,515	1,250	50
5/16	1/4	20	0.193	0.182	0.100	0.028	0.022	0.438	4,610	7,100	2,340	125
3/8	5/16	18	0.249	0.237	0.111	0.031	0.025	0.500	7,600	10,280	3,970	265
1/2	3/8	16	0.304	0.291	0.125	0.035	0.029	0.625	11,240	18,350	5,985	470
5/8	1/2	13	0.414	0.397	0.154	0.042	0.036	0.750	20,570	28,785	11,140	1,150
3/4	5/8	11	0.521	0.502	0.182	0.051	0.045	0.875	32,770	41,515	17,800	2,000

Tolerance on Thread Length	Nominal Screw Sizes	
	Up to 3/8 in., Inclusive	Over 3/8 in.
	-0.020	-0.030