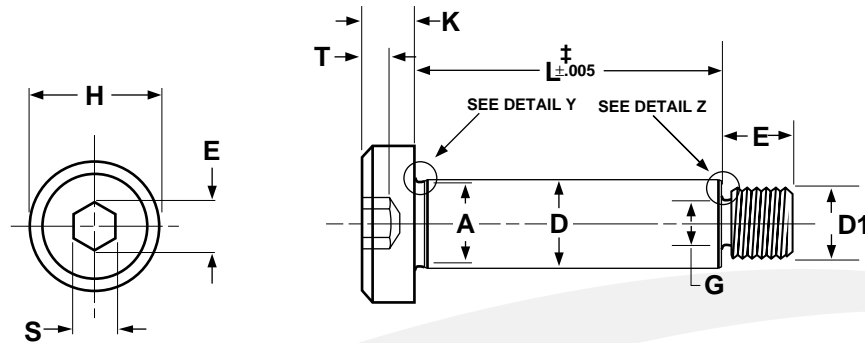


# Sockets

# METRIC

# Socket Shoulder Screws



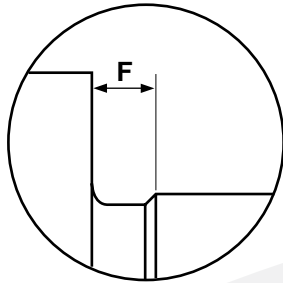
‡Length of a socket shoulder screw is measured from the underhead bearing surface to the plane of the shoulder at the threaded end.

## METRIC - SOCKET SHOULDER SCREWS

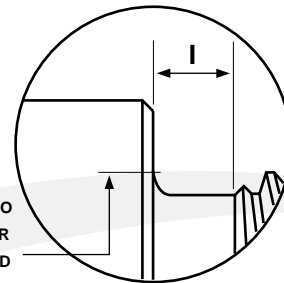
ISO 7379

Nominal Size	D		H		K		E	S	
	Shoulder Diameter		Head Diameter		Head Height		Socket Size Across Corners	Hex Socket Size Across the Flats	
	Max	Min	Max	Min	Max	Min	Min	Max	Min
6.5	6.487	6.451	10.22	9.78	4.5	4.32	3.44	3.08	3.02
8	7.987	7.951	13.27	12.73	5.5	5.32	4.58	4.095	4.02
10	9.987	9.951	16.27	15.73	7	6.78	5.72	5.095	5.02
13	12.984	12.941	18.27	17.73	9	8.78	6.86	6.095	6.02
16	15.984	15.941	24.33	23.67	11	10.73	9.15	8.115	8.025
20	19.980	19.928	30.33	29.67	14	13.73	11.43	10.115	10.025
25	24.980	24.928	36.39	35.61	16	15.73	13.72	12.142	12.032

<b>Description</b>	A hex socket screw with metric threads, 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>	Class 12.9 socket shoulder screws are comparable, but not exactly equivalent to U.S. alloy steel socket cap screws. Intended for rotation or sliding applications such as pulley shafts, in punch and die work, or for use as a bearing pin.
<b>Material</b>	Class 12.9 socket shoulder screws shall be made from an alloy steel which conforms to the following chemical composition requirements-- <i>Carbon</i> : 0.20-0.50%; <i>Phosphorous</i> : 0.035% maximum; <i>Sulfur</i> : 0.035% maximum; and one or more of chromium, nickel, molybdenum or vanadium.
<b>Heat Treatment</b>	Class 12.9 socket shoulder screws shall be heat treated by quenching in oil from above the transformation temperature and reheating to a tempering temperature of 380°C minimum.
<b>Hardness</b>	Rockwell C 39 - 44
<b>Proof Load</b>	1100 N/mm <sup>2</sup> minimum
<b>Elongation</b>	8% minimum
<b>Plating</b>	Metric Class 12.9 socket shoulder screws are usually supplied with a plain finish.



ENLARGED DETAIL Y



ENLARGED DETAIL Z

METRIC - SOCKET SHOULDER SCREWS (CONTINUED)										ISO 7379
Nominal Size	D1	Thread Pitch	E		G		I	T	A	F
	Nominal Thread Size		Thread Length		Thread Neck Diameter		Thread Neck Width	Key Engagement	Shoulder Neck Diameter	Shoulder Neck Width
			Max	Min	Max	Min	Max	Min	Min	Max
6.5	M5	0.8	9.75	9.25	3.86	3.68	2	2.4	5.92	2.5
8	M6	1	11.25	10.75	4.58	4.40	2.5	3.3	7.42	2.5
10	M8	1.25	13.25	12.75	6.25	6.03	3.1	4.2	9.42	2.5
13	M10	1.5	16.40	15.60	7.91	7.69	3.7	4.9	12.42	2.5
16	M12	1.75	18.40	17.60	9.57	9.35	4.4	6.6	15.42	2.5
20	M16	2	22.40	21.60	13.33	12.96	5	8.8	19.42	2.5
25	M20	2.5	27.40	26.60	16.57	16.30	6.3	10	24.42	3
Tolerance on Length					+0.25					