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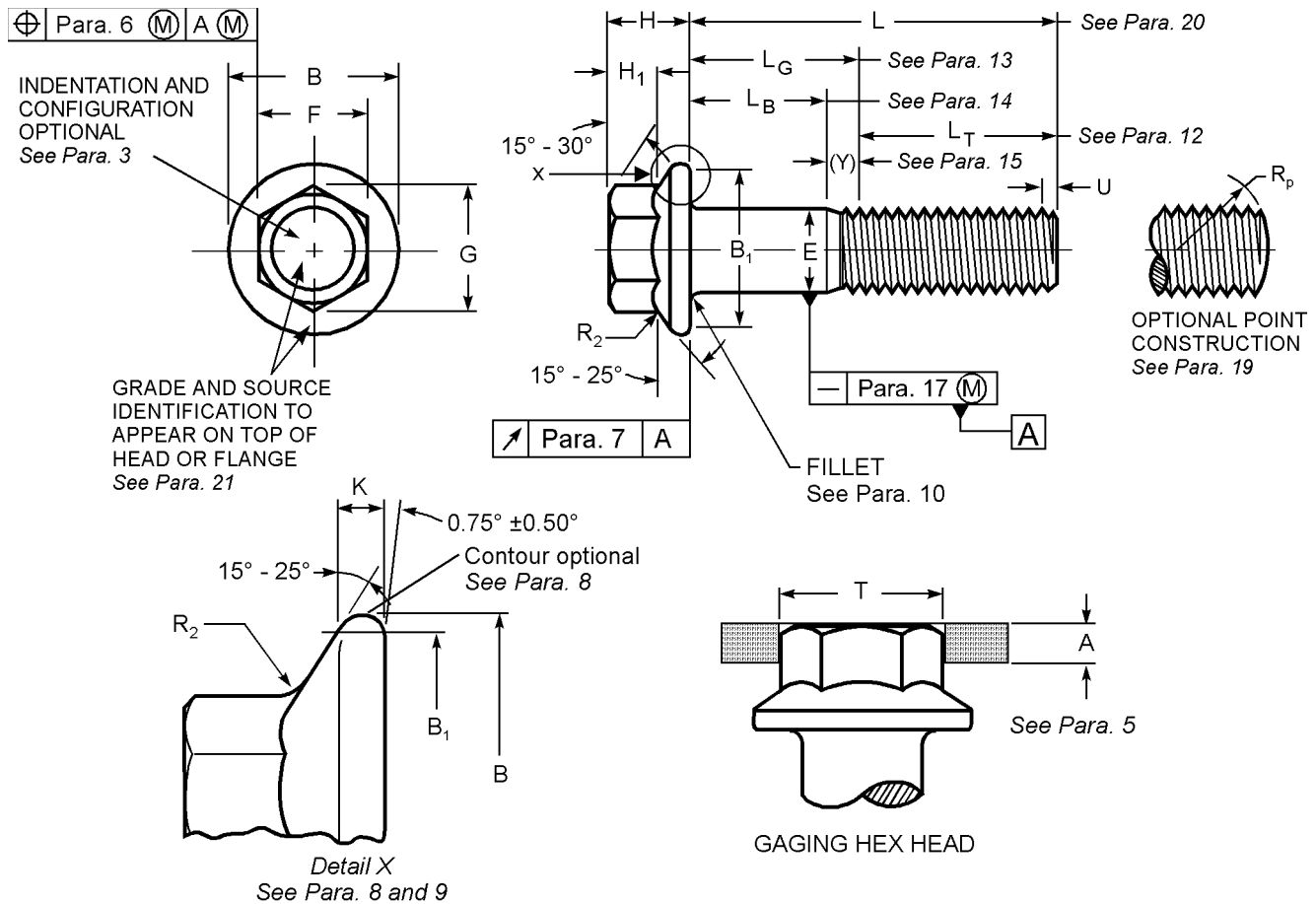


Fig. 1

Table 1 Dimensions of Hex Flange Screws

Nominal Size or Basic Major Dia of Thread	E		F			G		B	K	H	H ₁	R ₂	A	
	Body Dia		Width Across Flats			Width Across Corners		Flange Dia	Flange Thick- ness	Head Height	Hex Height	Flange Top Radius	Gaging Ring Thickness	
	Max	Min	Basic	Max	Min	Max	Min	Max	Min	Max	Min	Max	Max	Min
1/4 0.2500	0.2500	0.2450	3/8	0.3750	0.367	0.433	0.409	0.56	0.04	0.28	0.17	0.015	0.0514	0.0511
5/16 0.3125	0.3125	0.3065	1/2	0.5000	0.489	0.577	0.548	0.68	0.05	0.32	0.21	0.019	0.0643	0.0640
3/8 0.3750	0.3750	0.3690	9/16	0.5625	0.551	0.650	0.618	0.81	0.06	0.39	0.25	0.022	0.0771	0.0768
7/16 0.4375	0.4375	0.4305	5/8	0.6250	0.612	0.722	0.685	0.93	0.07	0.46	0.30	0.026	0.0900	0.0897
1/2 0.5000	0.5000	0.4930	3/4	0.7500	0.736	0.866	0.825	1.07	0.08	0.51	0.34	0.030	0.1029	0.1026
9/16 0.5625	0.5625	0.5545	13/16	0.8125	0.798	0.938	0.895	1.19	0.09	0.57	0.38	0.034	0.1157	0.1154
5/8 0.6250	0.6250	0.6170	15/16	0.9375	0.922	1.083	1.034	1.33	0.10	0.62	0.42	0.038	0.1286	0.1283
3/4 0.7500	0.7500	0.7410	1-1/8	1.1250	1.100	1.299	1.234	1.59	0.11	0.73	0.51	0.045	0.1543	0.1540
See Para. 23	18					5		8		4		8		5

IFI
STANDARD ®

Published and issued by the
Industrial Fasteners Institute of
Independence, OH

HEX FLANGE SCREWS

IFI-111

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Revised: June 2014

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Table 1 Dimensions of Hex Flange Screws (Continued)

Nominal Size or Basic Major Dia of Thread	T		B ₁	Runout of Bearing Surface FIM	L _T		Y	
	Gaging Ring Dia		Bearing Dia		Thread Length		Transition Thread Length	
					For Screws with L < 6 in.	For Screws with L > 6 in.	For Screws with L < 6 in.	For Screws with L > 6 in.
	Max	Min	Min		Max	Basic		Max
1/4 0.2500	0.4093	0.4090	0.48	0.010	0.750	1.000	0.400	0.650
5/16 0.3125	0.5483	0.5480	0.60	0.011	0.875	1.125	0.417	0.667
3/8 0.3750	0.6183	0.6180	0.73	0.012	1.000	1.250	0.438	0.688
7/16 0.4375	0.6853	0.6850	0.85	0.013	1.125	1.375	0.464	0.714
1/2 0.5000	0.8253	0.8250	0.98	0.014	1.250	1.500	0.481	0.731
9/16 0.5625	0.8953	0.8950	1.10	0.015	1.375	1.625	0.750	0.750
5/8 0.6250	1.0343	1.0340	1.23	0.017	1.500	1.750	0.773	0.773
3/4 0.7500	1.2343	1.2340	1.47	0.020	1.750	2.000	0.800	0.800
See Para. 23	5		9	7	12		15	

IFI NOTE:

IFI-111 is a standard developed through the procedures of Industrial Fasteners Institute. IFI-111 was first published in 1970, revised in 1986, and revised again and reissued in 2002 and 2014.

1. Scope.

This standard establishes the requirements for hex flange and indented hex flange screws in sizes 1/4 inch thru 3/4 inches. Provisions include three styles of standard fillets.

2. Dimensions.

All dimensions are in inches and apply before plating or coating, unless otherwise specified.

3. Top of Head.

Top of head may be full form or indented at option of the manufacturer. If full form, the top of head shall be chamfered or rounded. The diameter of the chamfer circle or the start of rounding shall be equal to the maximum width across flats, F max, within a tolerance of minus 15 percent.

4. Head Height.

The head height, H, is the distance, parallel to the axis of the screw, from the plane of the bearing surface to the top of the head, not including any raised markings. See Para. 21.

5. Corner Fill.

The rounding due to lack of fill on all six corners of the head shall be reasonably uniform and the width across corners of the head shall be such that when a sharp ring having an inside diameter equal to the specified T dimension is placed on the top of the head and normal to the screw axis, the screw head may enter, but not protrude through the gage.

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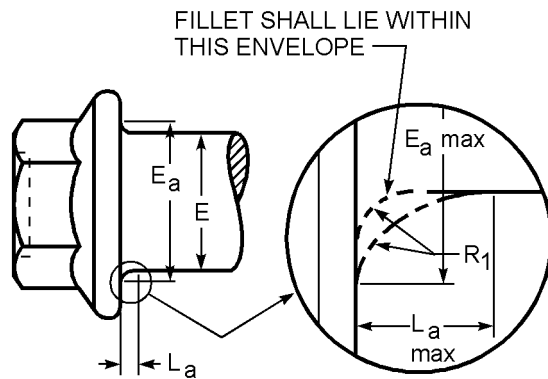


Fig. 2 Underhead fillet for long screws

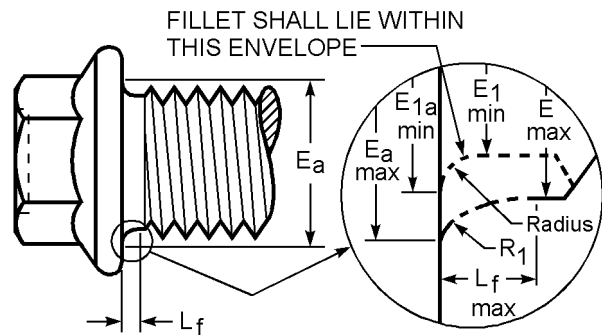


Fig. 3 Underhead fillet for short screws threaded full length

6. True Position of Head.

The axis of the head shall be located at true position with respect to the axis of the body determined over a distance under the head equal to one diameter within a tolerance zone whose diameter is equivalent to 6 percent of the maximum width across flats, regardless of feature size.

7. Bearing Surface.

Runout of the bearing surface with respect to the axis of the body shall be within the FIM limits specified. Measurement of FIM shall be made as close to the periphery of the bearing surface as possible while the screw is held in a collet or other gripping device at a distance of one screw diameter from the underside of the head.

8. Flange.

The top surface of the flange shall be conical or slightly rounded (convex). Radius, R_2 , applies both at the corners and at the flats of the hexagon. The contour of edge at flange periphery, between the maximum flange diameter, B_{max} , and the minimum bearing circle diameter, B_1 min, shall be optional provided that the minimum flange edge thickness, K min, is maintained at the minimum bearing circle diameter, B_1 min.

9. Bearing Diameter.

9.1 Fillet Style 1 & 2. The bearing diameter B_1 is determined from the bearing area necessary to support 75 percent of the specified proof load of a fine thread SAE Grade 5 screw with a max bearing stress of 20,500 psi based on using the clearance hole specified in ASME B18.2.8-1999. This same bearing area/clearance hole will support 100 percent of the specified proof load of a fine thread SAE Grade 8 screw with a max bearing stress of 38,650 psi.

9.2 Fillet Style 3. The bearing diameter is the same as for Fillet Style 1 and 2. The undercut reduces the bearing area, thereby increasing the bearing stress. The bearing stress increases to a max of 25,100 psi at 75 percent of the specified proof load of a fine thread SAE Grade 5 screw and to 47,200 psi for 100 percent the specified proof load of a fine thread SAE Grade 8 screw.

10. Fillet.

Three styles of fillet are available as Style 1, Style 2 and Style 3 and the style shall be that furnished by the manufacturer unless otherwise specified by the purchaser at the time of inquiry and order.

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