



ASTM A490M
**STRUCTURAL BOLT
ASSEMBLY**

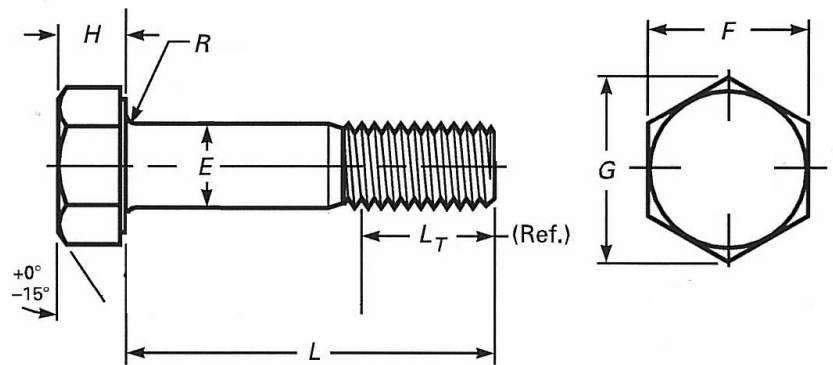
BAPP

Group of Companies

Bolt

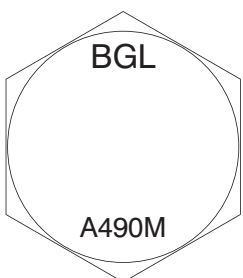
ASTM A490M Bolt Dimensions										
Diameter & Pitch	E		F		G		H		R	L_T
	max.	min.	max.	min.	max.	min.	max.	min.	min.	ref.
M12 x 1.75	12.70	11.30	21.00	20.16	24.25	22.78	7.95	7.05	0.60	25
M16 x 2	16.70	15.30	27.00	26.16	31.18	29.56	10.75	9.25	0.60	31
M20 x 2.5	20.84	19.16	34.00	33.00	39.26	37.29	13.40	11.60	0.80	36
M22 x 2.5	22.84	21.16	36.00	35.00	41.57	39.55	14.90	13.10	0.80	38
M24 x 3	24.84	23.16	41.00	40.00	47.34	45.20	15.90	14.10	1.00	41
M27 x 3	27.84	26.16	46.00	45.00	53.12	50.85	17.90	16.10	1.20	44
M30 x 3.5	30.84	29.16	50.00	49.00	57.74	55.37	19.75	17.65	1.20	49
M36 x 4	37.00	35.00	60.00	58.80	69.28	66.44	23.55	21.45	1.50	56

Standard Specification	ASTM A490M
Material	Alloy Steel
Strength Grade	10.9
Screw Thread	ASME B1.13M MC 6g
Surface Finish	Plain as Processed Hot Dipped Galvanised

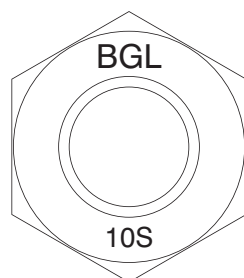


ASTM A490M Bolt Characteristics									
Diameter & Pitch	Stress Area (mm ²)	Tensile (kN)		Proof Load (kN)		Hardness			
				Length Measurement method	Yield Strength Method	Brinell HB		Rockwell HRC	
		min.	max.			min.	min.	max.	min.
M12 x 1.75	84.3	87.7	103	70	79.2	311	352	33	38
M16 x 2	157	163	190	130	148				
M20 x 2.5	245	255	296	203	230				
M22 x 2.5	303	315	366	251	285				
M24 x 3	353	367	427	293	332				
M27 x 3	459	477	555	381	431				
M30 x 3.5	561	583	679	466	527				
M36 x 4	817	850	989	678	768				

Bolt Head Marking



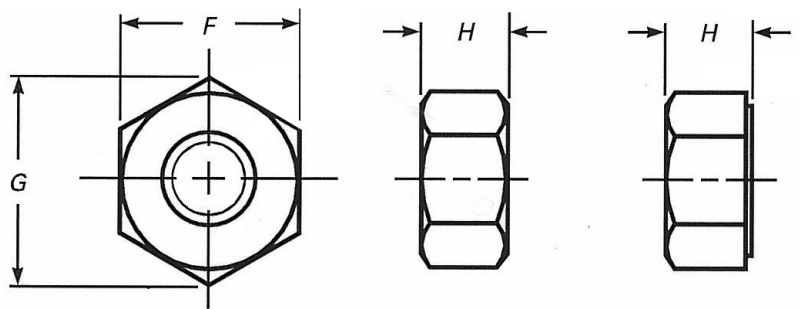
Nut Head Marking



Nut

ASTM A563M Nut Dimensions						
Diameter and Pitch	F		G		H	
	max.	min.	max.	min.	max.	min.
M12 x 1.75	21.00	20.16	24.25	22.78	12.3	11.9
M16 x 2	27.00	26.16	31.18	29.56	17.1	16.4
M20 x 2.5	34.00	33.00	39.26	37.29	20.7	19.4
M22 x 2.5	36.00	35.00	41.57	39.55	23.6	22.3
M24 x 3	41.00	40.00	47.34	45.20	24.2	22.9
M27 x 3	46.00	45.00	53.12	50.85	27.6	26.3
M30 x 3.5	50.00	49.00	57.74	55.37	30.7	29.1
M36 x 4	60.00	58.80	69.28	66.44	36.6	35.0

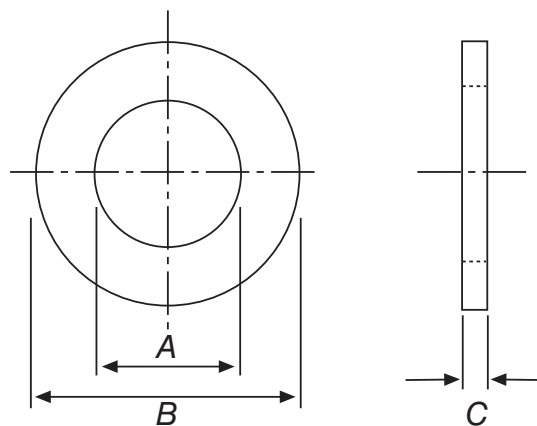
Standard Specification	ASTM A563M
Material	Carbon & Alloy Steel
Strength Grade	10S
Screw Thread	ASME B1.13M MC 6H
Surface Finish	Plain as Processed Hot Dipped Galvanised



Washer

ASTM F436M Washer Dimensions						
Diameter	A		B		C	
	max.	min.	max.	min.	max.	min.
M12	14.4	14.0	27.0	25.7	4.6	3.1
M16	18.4	18.0	34.0	32.4	4.6	3.1
M20	22.5	22.0	42.0	40.4	4.6	3.1
M22	24.5	24.0	44.0	42.4	4.6	3.4
M24	26.5	26.0	50.0	48.4	4.6	3.4
M27	30.5	30.0	56.0	54.1	4.6	3.4
M30	33.6	33.0	60.0	58.1	4.6	3.4
M36	39.6	39.0	72.0	70.1	4.6	3.4

Standard Specification	ASTM A436M
Material	Hardened Steel
Material Hardness	38 to 45 HRC
Surface Finish	Plain as Processed Hot Dipped Galvanised



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