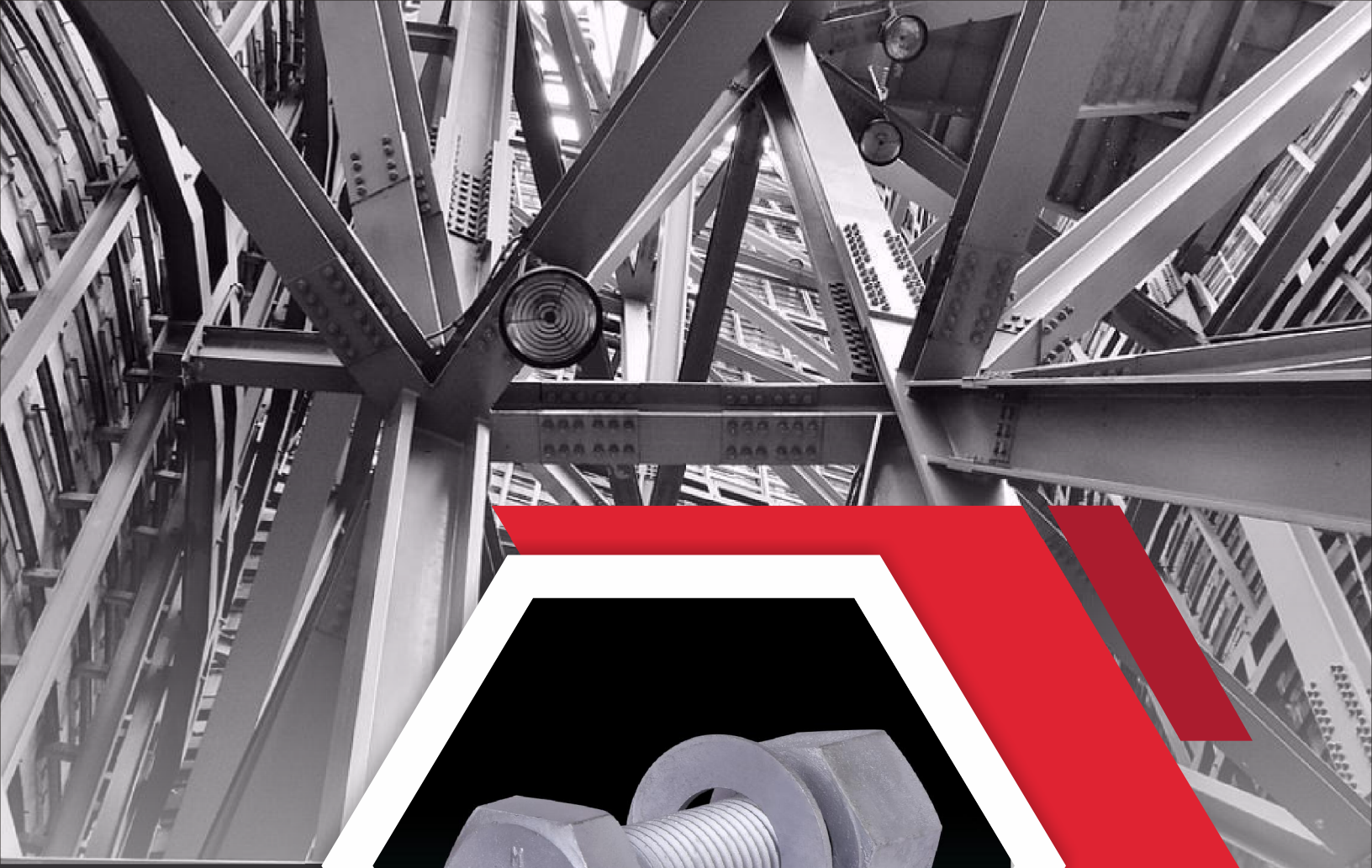


HEAVY HEX STRUCTURAL BOLTS

ASTM A325 / A490

PRECISION
AUTO ENGINEERS

"A Journey of Engineering To Perfection Since 1963"

CE

MANAGEMENT SYSTEM CERTIFICATION
DNV·GL
ISO 9001:2008

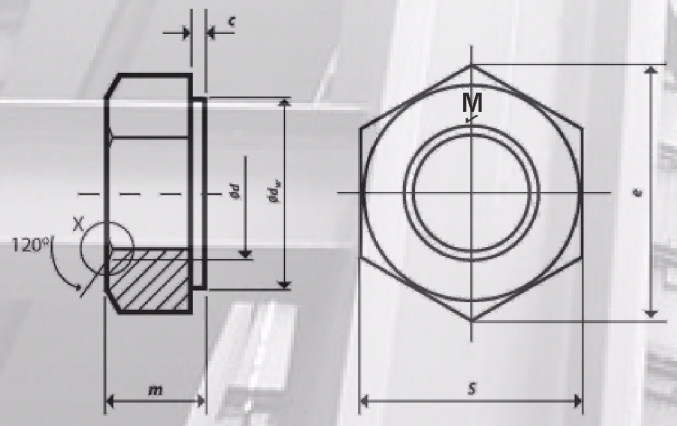
Accredited by the RvA

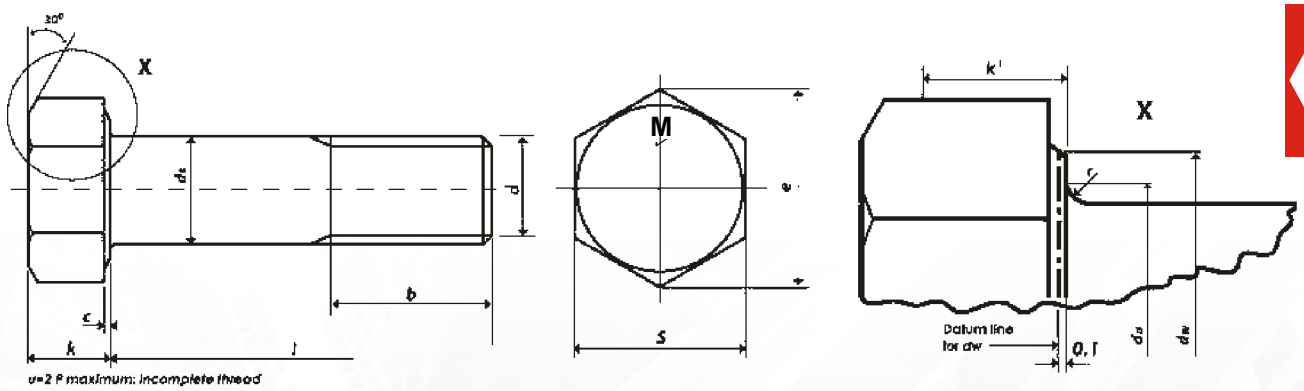
Tentative Weight of A325M/A490M BOLT, A563M NUT & A436M WASHER

A325M/A490M BOLT FINISH WEIGHT – KGS./100 PCS.							
Bolt Dia / Bolt Length	M16	M20	M22	M24	M27	M30	M36
45	10.71						
50	11.38	18.85					
55	12.04	20.10	25.58				
60	12.70	21.40	26.85	33.76			
65	13.36	22.60	28.12	35.21	48.40		
70	14.02	23.87	29.39	36.66	50.64	60.66	
75	14.68	25.13	30.44	38.11	52.88	63.43	
80	15.34	26.40	31.93	39.56	55.12	66.21	124.50
85	16.00	27.69	33.20	41.01	57.36	68.98	128.50
90	16.66	28.90	34.47	42.46	59.60	71.76	132.50
95	17.32	30.15	35.74	43.91	61.84	74.53	135.40
100	17.98	31.50	37.01	45.36	64.08	77.30	141.30
110	19.55	34.00	39.99	48.91	68.57	82.84	149.29
120	21.13	36.44	42.97	52.46	73.06	88.39	157.28
130	22.71	38.95	45.96	56.01	77.56	93.94	165.27
140	24.29	41.50	48.94	59.56	82.05	99.49	173.26
150	25.87	44.00	51.93	63.11	86.55	105.04	181.25
160	27.44	46.50	54.91	66.66	91.04	110.59	189.24
170	29.02	49.02	57.89	70.21	95.54	116.15	197.23
180	30.60	51.53	60.88	73.77	100.03	121.69	205.22
190	32.18	54.40	63.86	77.32	104.53	127.23	213.21
200	33.76	56.60	66.85	80.87	109.02	132.78	221.20
210	35.34	59.10	69.83	84.42	113.52	138.32	229.19
220	36.91	61.70	72.81	87.97	118.01	143.87	237.18
230	38.49	64.11	75.80	91.52	122.50	149.42	145.17
240	40.07	66.65	78.78	95.07	127.00	154.97	253.16
250	41.65	69.20	81.77	98.62	131.49	160.52	261.15
260	43.23	71.70	84.75	102.18	135.99	166.07	269.14
270	44.81	74.20	87.73	105.73	140.48	171.62	277.13
280	46.38	76.70	90.72	109.28	144.98	177.17	285.12
290	47.96	79.25	93.70	112.83	149.47	182.71	293.11
300	49.54	81.90	96.69	116.38	153.97	188.26	301.10

ASTM A563M NUT FINISH WEIGHT - KGS. / 100 PCS.							
M12	M16	M20	M22	M24	M27	M30	M36
2.80	5.20	7.99	10.64	17.65	22.90	29.39	49.90

ASTM F436M WASHER FINISH WEIGHT KGS./ 100 PCS.							
M12	M16	M20	M22	M24	M27	M30	M36
1.20	2.15	3.20	4.55	5.90	6.60	7.55	13.30





A325M/A490M BOLT DIMENSIONS

Thread *d*		M16	M20	M22	M24	M27	M30	M36
P pitch of thread		2	2.5	2.5	3	3	3.5	4
b	Bolt ≤100	31	36	38	41	44	49	56
	Bolt >100	38	43	45	48	51	56	63
ds	min.	15.30	19.16	21.16	23.16	26.16	29.16	35.00
	max.	16.70	20.84	22.84	24.84	27.84	30.84	37.00
s	min.	26.16	33.00	35.00	40.00	45.00	49.00	58.80
	max.	27.00	34.00	36.00	41.00	46.00	50.00	60.00
e	min.	29.56	37.29	39.55	45.20	50.85	55.37	66.44
	max.	31.18	39.26	41.57	47.34	53.12	57.74	69.28
dw[1)]	min.	24.9	31.4	33.3	38.0	42.8	46.5	55.9
k'	min.	6.5	8.1	9.2	9.9	11.3	12.4	15.0
k	min.	9.25	11.60	13.10	14.10	16.10	17.65	21.45
	max.	10.75	13.40	14.90	15.90	17.90	19.75	23.55
c	min.	0.4	0.4	0.4	0.4	0.4	0.4	0.4
	max.	0.8	0.8	0.8	0.8	0.8	0.8	0.8
da	max.	18.2	22.4	24.4	26.4	30.4	33.4	39.4
r	min.	0.6	0.8	0.8	1.0	1.2	1.2	1.5

A563M NUT DIMENSION CLASSES 8S & 10S

Nominal size and thread pitch *d*	***s***		***e***		***m***		***dw***[1)]	***c***		***Total runout of bearing surface***
	Width across flats		Width across corners		Thickness		Bearing face dia.	Washer face thickness		
	max	min	max	min	max	min	min	max	min	max
M16 x 2	27.00	26.16	31.18	29.56	17.1	16.4	24.9	0.8	0.4	0.47
M20 x 2.5	34.00	33.00	39.26	37.29	20.7	19.4	31.4	0.8	0.4	0.58
M22 x 2.5	36.00	35.00	41.57	39.55	23.6	22.3	33.3	0.8	0.4	0.63
M24 x 3	41.00	40.00	47.34	45.20	24.2	22.9	38.0	0.8	0.4	0.72
M27 x 3	46.00	45.00	53.12	50.85	27.6	26.3	42.8	0.8	0.4	0.80
M30 x 3.5	50.00	49.00	57.74	55.37	30.7	29.1	46.6	0.8	0.4	0.87
M36 x 4	60.00	58.80	69.28	66.44	36.6	35.0	55.9	0.8	0.4	1.05

Tensile Load and Proof Load Requirements

A325M						
Nominal Dia. & Thread Pitch	Stress Area	Tensile Load min	Proof Load#	Alterative Proof Load*	Hardness Rockwell HRC	
	mm²	kN	kN	kN	min	max
M16 X 2	157	130	94.2	104	25	34
M20 X 2.5	245	203	147	162	25	34
M22 X 2.5	303	251	182	200	25	34
M24 X 3	353	293	212	233	25	34
M27 X 3	459	381	275	303	19	30
M30 X 3.5	561	466	337	370	19	30
M36 X 4	817	678	490	539	19	30

A490M							
Nominal Dia. & Thread Pitch	Stress Area	Tensile Load min	Tensile Load max	Proof Load#	Alterative Proof Load*	Hardness Rockwell HRC	
	mm²	kN	kN	kN	kN	min	max
M16 X 2	157	163	190	130	148	33	39
M20 X 2.5	245	255	296	203	230	33	39
M22 X 2.5	303	315	366	251	285	33	39
M24 X 3	353	367	427	293	332	33	39
M27 X 3	459	477	555	381	431	33	39
M30 X 3.5	561	583	679	466	527	33	39
M36 X 4	817	850	989	678	768	33	39

#Determined by Length Method *Determined by Y.S. Method

Tensile Strength Requirement for Specimen Machined from Bolts

A325M				
Nominal Dia	Tensile Strength min	Yield Strength min	Elongation in 4D min	Reduction of Area min
	mm²	kN	kN	%
M16 to M36 inc	830	660	14	35

A490M				
Nominal Dia	Tensile Strength min	Yield Strength min	Elongation in 4D min	Reduction of Area min
	mm²	kN	kN	%
M16 to M36 inc	1040	1210	940	40

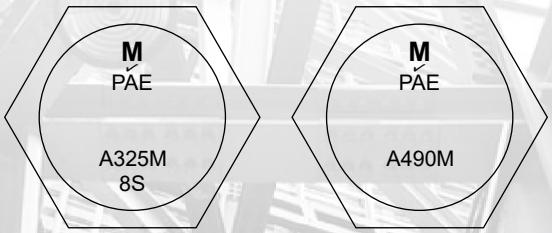
Diameter & Length Capacity

8 mm to 100 mm & Length upto 1.5 Meters (Also corresponding inch Series)

Coatings

Zinc Plating Cadmium Plating Dacromet Coating Ptfe / Xylan Coating
Mechanical Galvanizing Geomet Coating Hot Dip Galvanizing

Head Markings



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