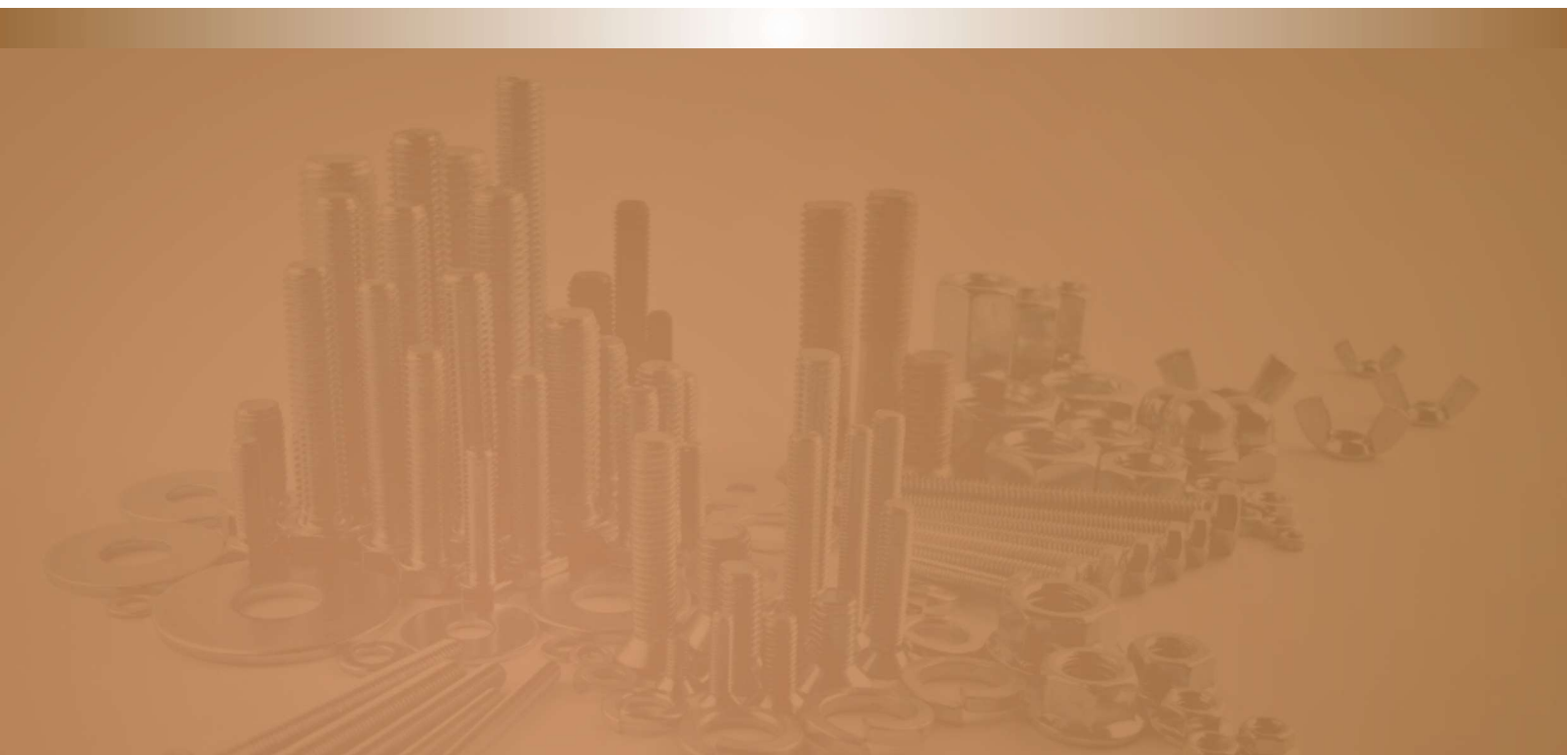




CONFAST





Values :

Customer commitment, quality, trust, integrity, Human Dignity and Excellence.

Vision :

Iconfast will achieve the leadership position in Fasteners industries & it's applications.

Mission :

Iconfast's mission to manufacture only the best quality products to meetings your needs with Total quality management (TQM) & deliver you on short lead time. Our Endeavor to become the most trusted, Preferred global player in Fastener Industries.

Quality & Testing :

To meet the strict requirements & provide maximum safety for reliable operations without breaking down, The fasteners go through strict quality checks at every stage of the manufacturing process. Iconfast inspection facilities have state-of-the-art equipment for testing both physical and metallurgical aspects of fasteners, to meet the needs of the most demanding industries.

Manufacturing Facilities

We at Iconfast aim for perfection. With this ideology in mind, Manufacturing System has been developed and are used to attain this. The entire system is an integrated one using ERP, right from Purchase to Manufacturing and finally finished products to dispatch of material.

The facility has

- Hot Dip Galvanizing
- Zinc Plating
- Black Phosphating
- Electro Galvanizing
- Zinc Flake Coating
- Zinc Phosphating
- Mechanical Galvanizing

Testing Infrastructure

- In house calibration
- Universal Testing Machine
- MPI Testing Machine
- Hardness Testing Machine
- Cantilever Testing Machine
- Shadowgraph
- Calibration Instruments
- Torque Testing
- Impact Testing
- Planting Thickness Testing
- Salt Spray Testing
- Thread Profile Masters
- Non-destructive Testing
- Magnetic Particle Inspection
- Metrological Lab
- Metallurgical Lab



'ICONFAST' range of High Strength Structural Fasteners

Product	High Strength Structural Bolts	High Strength Structural Nuts	Hardened & Tempored Washers
Specification	ISO : 7412, IS : 3757	ISO : 4775 IS : 6623	ISO : 7415, IS : 6649
Size	M16 to M36	M16 to M36	M16 to M36 (Plain Hole, Circular)
Threads	Metric Coarse, 6g. ISO : 261, ISO : 965, IS : 4218	Metric Coarse, 6h, ISO : 261, ISO : 965, IS : 4218	-----
Mechanical Properties	Property Class 8.8 or 10.9 ISO : 898(1 IS : 1367, Part 3	Property Class 8 or 10 ISO : 898(2 IS : 1367, Part 6	Hardness HRC 35 - 45

DIMENSIONS :

In Annexure - II, III & IV Table 1, 2, 3 & 4 the most widely accepted and used standard dimension and specification in India are compiled for ready reference.

The length selection of bolts can be decided by referring.

FEATURES & REQUIREMENTS:

- High Strength Structural Bolts are suitable for friction type joints.
- HSFG Bolts & Nuts have larger across flats, hence this provide larger bearing area, thereby reduces bearing pressure.
- HSFG Bolts are used in relatively larger hole size. Generally the hole size is calculated as shank dia of bolt +(2 to 3)mm.
- As the joint is designed to resist slip between plies, bolt is free from shearing forces, hence remain under tension permanently.

HSFG Bolts are to be tightened properly.

Uniformity and consistency in bolt and nut thread engagement are to be maintained to ensure that the torque applied while tightening induces the desired tension in the bolts and does not get lost in overcoming friction between bolts & nuts.

USAGE :

The contact surfaces should be free from Rust, Oil, Dust, Burrs Paint or any other defects, This is very important in case of friction grip joints where sheer load is transferred between two contact surfaces. It is advisable to determine the slip factor by carrying out actual tests on the surface.

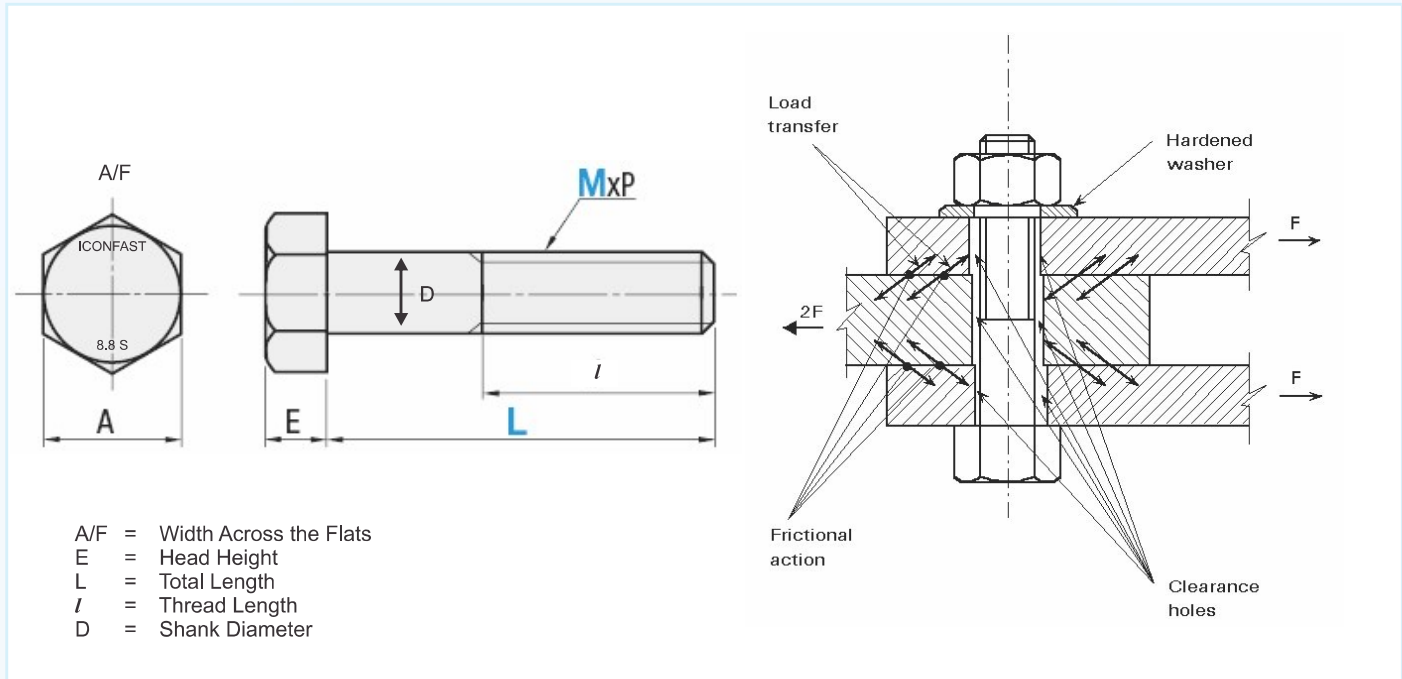
Joint Performance depends upon tightening the bolts to high pre load values, so that perfect contact is established between two surfaces and the shear load transmits the desired friction between them.

Bolt & Nut should assembled with friction grip washer Annexure - V.

Annexure -I, II, III, IV & V.

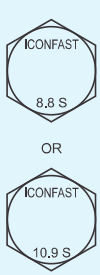


----- Annexure - I -----



----- Annexure - II -----

H.S.F.G. Bolts (Table 1), Confirming to IS : 3757 ISO 7412 : Specifications

Dia & Pitch	M16 x 2	M20 x 2.5	M22 x 2.5	M24 x 3	M27 x 3	M30 x 3.5	M36 x 4	Mech Property	Threads	Identification
Shank Dia	15.30 - 16.70	19.16 - 20.84	21.16 - 22.84	23.16 - 24.84	26.16 - 27.84	29.16 - 30.84	35.00 - 37.00	8.8 or 10.9	ISO Metric	
A/F	26.16 - 27.00	33.00 - 36.00	35.00 - 36.00	40.00 - 41.00	45.00 - 46.00	49.00 - 50.00	58.80 - 60.00	as per	6g' class as	
Head Height	9.25 - 10.75	11.60 - 13.40	13.10 - 14.90	14.10 - 15.90	16.10 - 17.90	17.65 - 19.75	21.45 - 23.55	ISO 898	per ISO 965	
Thread L < 100	31	38	38	41	44	49	58	IS 1367 (3)	IS 4218	
Length > 100	38	43	45	48	51	56	63			
Proof Load in N	8.8S	91060	147000	181800	211800	275400	336800	490200		
	10.9S	130310	203350	251490	292990	380970	465630	678110		



----- Annexure - III -----

SELECTION CHART FOR BOLT LENGTH & WEIGHT (Kg/1000 pcs.) Table 2

Dia	M 18		M 20		M 22		M 24		M 27		M 30		M 36	
	(GL)	Wt.	(GL)	Wt.	(GL)	Wt.	(GL)	Wt.	(GL)	Wt.	(GL)	Wt.	(GL)	Wt.
40	10 to 14	102.8	--	--	--	-	--	--	--	--	--	--	--	--
45	15 to 19	110.7	11 to 15	180.3	--	-	--	--	--	--	--	--	--	--
50	20 to 24	118.6	16 to 20	192.6	12 to 16	252.0	--	--	--	--	--	--	--	--
55	25 to 29	126.5	21 to 25	205.0	17 to 21	266.9	15 to 19	337.4	--	--	--	--	--	--
60	30 to 34	134.4	26 to 30	217.3	22 to 26	281.8	20 to 24	355.2	17 to 21	480.9	--	--	--	--
65	35 to 39	142.3	31 to 35	229.6	27 to 31	169.7	25 to 29	372.9	22 to 26	503.4	--	--	--	--
70	40 to 44	150.2	36 to 40	241.9	32 to 36	311.6	30 to 34	390.7	27 to 31	525.8	24 to 28	672.5	--	--
75	45 to 49	158.1	41 to 45	254.3	37 to 41	326.6	35 to 39	408.4	32 to 36	548.3	29 to 33	700.3	23 to 27	1089.1
80	50 to 54	168.0	46 to 50	266.6	42 to 46	341.5	40 to 44	428.2	37 to 41	570.8	34 to 38	728.0	28 to 32	1129.0
85	55 to 59	173.9	51 to 55	278.9	47 to 51	356.4	45 to 49	443.9	42 to 46	593.0	39 to 43	755.7	33 to 37	1169.0
90	60 to 64	181.7	56 to 60	291.3	52 to 56	371.3	50 to 54	461.7	47 to 51	615.7	44 to 48	783.5	38 to 42	1209.0
95	65 to 69	189.6	61 to 65	303.6	56 to 61	386.2	55 to 59	479.4	52 to 56	638.2	49 to 53	811.2	43 to 47	1248.9
100	70 to 74	197.5	66 to 70	315.9	62 to 66	401.2	60 to 64	497.2	57 to 61	660.7	54 to 58	839.0	48 to 52	1288.9
110	75 to 84	211.4	71 to 80	337.7	67 to 76	427.8	65 to 74	528.6	62 to 71	685.6	59 to 68	888.4	53 to 62	1362.0
120	85 to 94	227.2	81 to 90	362.4	77 to 86	457.7	75 to 84	564.1	72 to 81	730.6	69 to 78	943.9	63 to 72	1441.9
130	95 to 104	243.0	91 to 100	387.0	87 to 96	487.5	85 to 94	599.6	82 to 91	775.5	79 to 88	999.4	73 to 82	1521.8
140	105 to 114	258.8	101 to 110	411.7	97 to 106	517.3	95 to 104	635.1	92 to 101	820.5	89 to 98	1054.9	83 to 92	1601.7
150	115 to 124	274.6	111 to 120	436.3	107 to 116	547.2	105 to 114	670.6	102 to 111	885.4	99 to 108	1110.4	93 to 102	1681.6
160	125 to 134	290.3	121 to 130	461.0	117 to 126	577.0	115 to 124	708.1	112 to 121	910.4	109 to 118	1165.8	103 to 112	1761.5
170	135 to 144	306.1	131 to 140	485.7	127 to 136	606.9	125 to 134	741.6	122 to 131	955.3	119 to 128	1221.3	113 to 122	1841.4
180	145 to 154	321.9	141 to 150	510.3	137 to 146	638.7	135 to 144	777.1	132 to 141	1000.2	129 to 138	1276.8	123 to 132	1921.3
190	155 to 164	337.7	151 to 160	535.0	147 to 156	666.5	145 to 154	812.6	142 to 151	1045.2	139 to 148	1332.3	133 to 142	2001.2
200	165 to 174	353.5	161 to 170	559.6	157 to 166	694.4	155 to 164	848.2	152 to 161	1090.2	149 to 158	1387.8	143 to 152	2081.1
210									162 to 171	1135.2	159 to 168	1443.3	153 to 162	2161.0
220									172 to 181	1180.1	169 to 178	1498.8	163 to 172	2240.9
230									182 to 191	1225.0	179 to 188	1554.3	173 to 182	2320.8
240									192 to 201	1270.0	189 to 198	1609.8	183 to 192	2400.7
250									202 to 211	1314.0	199 to 208	1685.3	193 to 202	2480.6
260									212 to 221	1359.9	209 to 218	1720.7	203 to 212	2580.5
270									222 to 231	1404.9	219 to 228	1776.2	213 to 222	2640.4
280									232 to 241	1449.8	229 to 238	1831.7	223 to 232	2720.3
290									242 to 251	1493.8	239 to 248	1887.2	233 to 242	2800.2
300									252 to 261	1538.9	249 to 258	1942.7	243 to 252	2880.1

NOTE : All figures are in MM.GL Denotes Grip Length



----- Annexure - IV -----

Mechanical Properties of H.S.F.G. Bolts

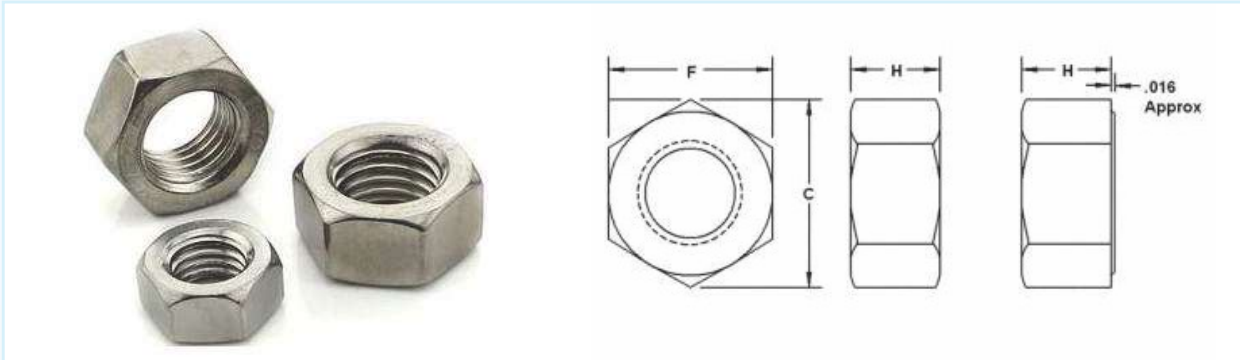
Thread Size	Stress Area	Ultimate Load (Min)	Proof Load (Min)	Hardness	Ultimate Load (Min)	Proof Load (Min)	Hardness
	Mm ²	Newtons	Newtons	HRC	Newtons	Newtons	HRC
M 16	157	125600	91060	22-32	163280	130310	
M 20	245	203350	147000		254800	203350	
(M 22)	303	251480	181800		315120	251490	
M 24	353	292990	211800	23-34	367120	292990	32-39
(M 27)	459	380970	275400		477360	380970	
M 30	561	465630	336600		583440	465630	
M 36	817	678110	490200		849680	678110	

Hole Dimensions for H.S.F.G. Bolts

No. of Plies in the Joint	Hole Diameter for Bolt Diameter (D)	
	M 16 to M 24	M 27 to M 36
<3	D + 2 mm	D + 3 mm
≥3		
a. Two outer Plies	D + 2 mm	D + 3 mm
b. Inner Plies	D + 3 mm	D + 3 mm



HEAVY HEX NUTS





A six-sided internally threaded fastener with metric thread / inch Thread pitch. 16 millimeter nuts and smaller are chamfered on the top and the bearing surface. Larger nuts may be double chamfered, or have a washer face on one side and a chamfered surface on the opposite side.

A heavy hex nut made of alloy steel, manufactured in accordance with ASTM Standard A194 Grade 2H. Used for high-temperature and high-pressure conditions.

----- Annexure - V -----

H.S.F.G. Nuts (Table 3) Confirming to IS : 6623; ISO 4775 Specification

Dia & Pitch	M18 x 2	M20 x 2.5	M22 x 2.5	M24 x 3.0	M27 x 3.0	M30 x 3.5	M36 x 4	Mech Property	Threads	Identification
A/F	26.16 - 27.00	33.00 - 34.00	35.00 - 36.00	40.00 - 41.00	45.00 - 46.00	49.00 - 50.00	58.80 - 60.00	class 8 or 10 as per ISO 898 (2) IS : 1367 (6)	ISO Metrics 6H class as per ISO 965 IS : 4218	 OR 
Height	16.40 - 17.10	19.40 - 20.7	22.30 - 23.60	22.90 - 24.20	26.30 - 27.60	29.10 - 30.70	35.00 - 36.60			
Proof	8 S 188900	263400	325700	379500	403400	803100	878300			
Load in N	10 S 195500	305000	377200	439500	571500	698400	1017200			
Wt. Kg/1000 pcs	60.4	115.3	142.8	197.7	282.3	365.0	600.0			

Mechanical Properties of H.S.F.G. Nuts

Thread	Property Class 8		Property Class 10	
	Proof Load	Hardness	Proof Load	Hardness
	Newton's		Newton's	
M 16	168900		195500	
M 20	263400		305000	
(M 22)	325700	HRC 89	377200	HRC 26
M 24	379500	to	439500	to
(M 27)	493400	HRC 38	571500	HRC 38
M 30	603100		698400	
M 36	878300		1017200	

REFERENCES STANDARDS :

- IS - 4000 - Code of practice for use of HSFG Fasteners
- IS - SP6 (4) - Hand book for structural engineers

- ASTM A 325 - Specification for high strength structural Bolts, Nuts & Washers
- A 563
- A 436

- BS - 4395 - Specification for HSFG Bolts, Nuts & Washers
- BS - 4604 - use of HSFG Bolts, Nuts & Washers in structural steel work



Nut Rotation / Part Turn Method (Table 5)

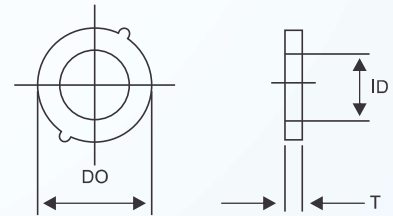
Bolt Dia.(MM)	Bolt Length (MM)	Nut Rotation Practiced
M16	upto 115	1/2
M16	above 115	3/4
M20	upto 115	1/2
M20	above 115	3/4
M22	upto 115	1/2
M22	above 115	3/4
M24	upto 160	1/2
M24	above 160	3/4
M27	upto 160	1/2
M27	above 160	3/4
M30	upto 160	1/2
M30	above 160	3/4
M36	upto 160	1/2
M36	above 160	3/4


WASHERS (PUNCHED & MACHINED)

Washers provide a smooth bearing surface and are used under the head of a bolt and / or a nut. The chemical, mechanical, and dimensional requirements for hardened washers are covered under the ASTM specification.

----- Annexure - VI -----

H.S.F.G. Washers (Table 4)
Confirming to IS : 6649; ISO 7415 Specification



Suitable for	M 16	M 20	M 22	M 24	M 27	M 30	M 36	Hardness	Identification
I.D.	18.00 - 18.43	22.00 - 22.52	24.00 - 24.52	26.00 - 26.52	30.00 - 30.52	33.00 - 33.62	39.00 - 39.62	35 HRC	
O.D.	32.40 - 34.00	40.40 - 42.00	42.40 - 44.00	48.40 - 50.00	54.10 - 56.00	58.10 - 60.00	70.10 - 72.00	to	
Thickness	3.1 - 4.6	3.1 - 4.6	3.4 - 4.6	3.4 - 4.6	3.4 - 4.6	3.4 - 4.6	3.4 - 4.6	45 HRC	
Weight kg/1000 pcs	20.3	31.3	33.2	44.7	54.8	61.4	89.7		



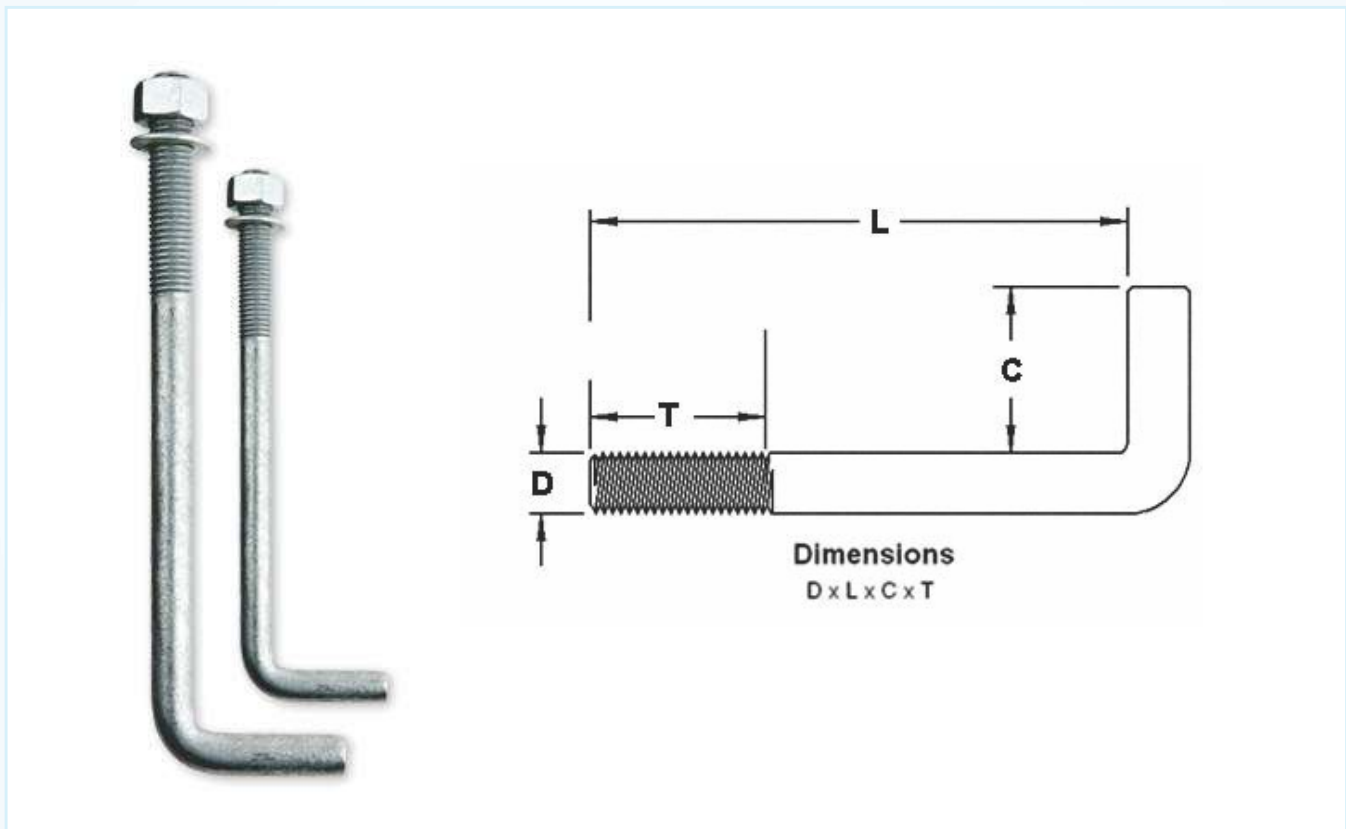


ANCHOR BOLTS (RIGHT ANGLE BEND) / FOUNDATION BOLT

Anchor bolts are embedded in concrete and used to support structural steel columns, light poles, highway sign structures, bridge rail, equipment, and many other applications. The bent portion, or "leg", of the anchor bolt serves to create resistance so that the bolt does not pull out of the concrete foundation when force is applied.

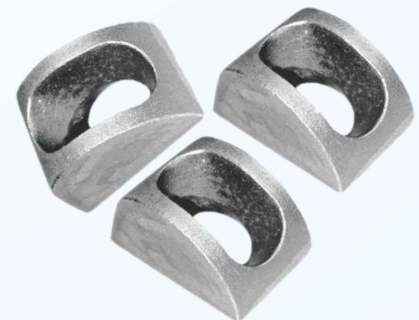
ICONFAST also manufactures other concrete anchor bolt configurations including anchor rods, headed anchor bolts, and swaged rods.

We provide either plain finish or hot-dip galvanized. Stainless steel anchor bolts are also manufactured. All operations, including the galvanizing process, are performed in-house.



HILLSIDE WASHER

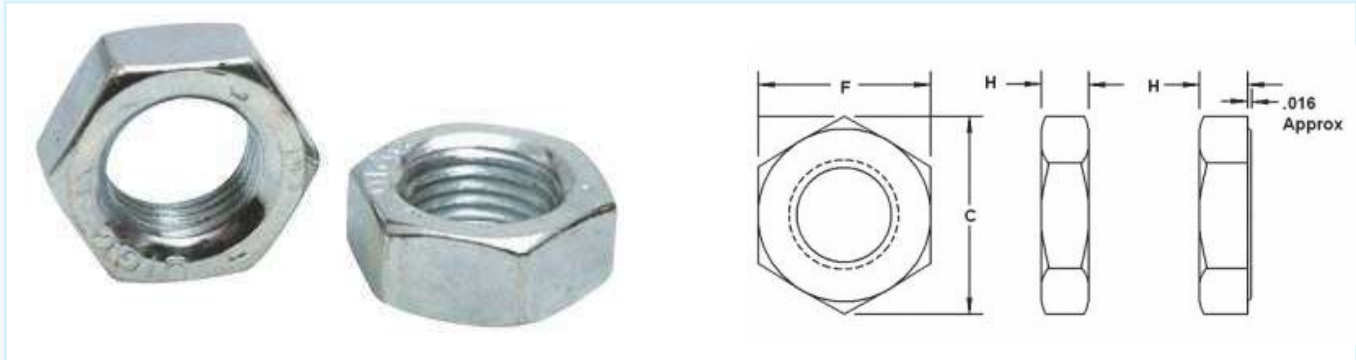
Hillside Washers are used to evenly distribute load in cross bracing applications. Diagonal tie rods are frequently used to support wall columns and steel beams in steel construction. The outer curved surface allows for field adjustments where the angle of the rod may not be known ahead of time, allowing for full nut engagement. This helps to reduce installation time and field adjustments.



Finish : Plain (black) and Galvanized



HEX JAM NUT



A six-sided internally threaded fastener which is thinner than the thickness of a finished hex nut. Used in combination with a finished hex nut to keep the nut from loosening. Hex jam nuts are thinner than a standard hex nut but have the same dimension across the flats and corners. Hex jam nuts have two common applications. A jam nut can be threaded into a bolt and run tight against the standard nut which will lock the nut in place and prevent it from backing off. Jam nuts are sometimes used for leveling purposes as well.

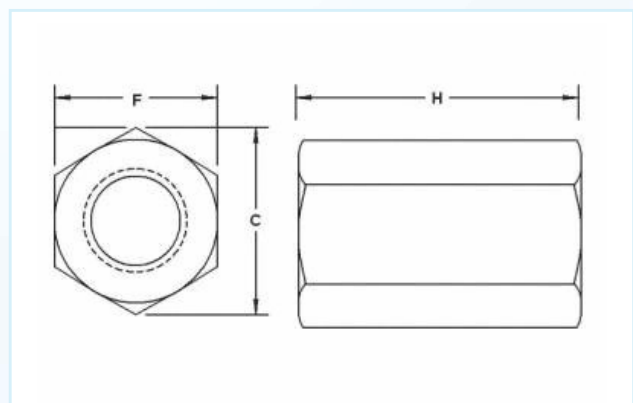
Size		Property Class		Equivalent Standards
Metric	Inches	High tensile	Stainless Steel	IS 1364, ISO 4032 DIN439, UNC/UNF , ANSI/ASME B18.2.2, B 18.2.4.6M
M16-M64	5/8"- 2.1/2"	Class 4, 8 , 10,12, 2H	SS304,316, B8,B8M, 410,Duplex steel 2205	

COUPLING NUTS

A six-sided, double chamfered nut that is available in various widths and lengths. Hex couplers are used to connect two pieces of threaded material. Hex and heavy hex couplers are threaded right hand. If a right hand-left hand coupler is needed, consider using a sleeve nut.

SIZE RANGE : M 16 – M 30

GRADE : CLASS 4 , 8, 10, 12 , SS 304 , SS 316

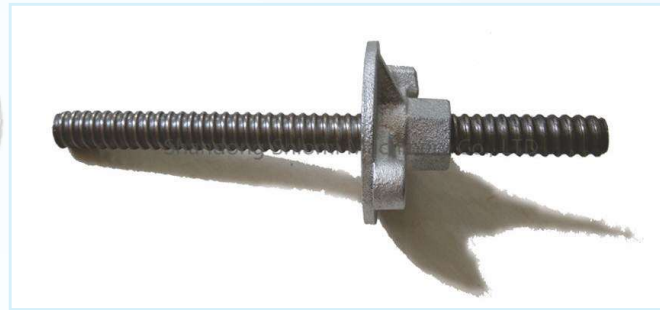
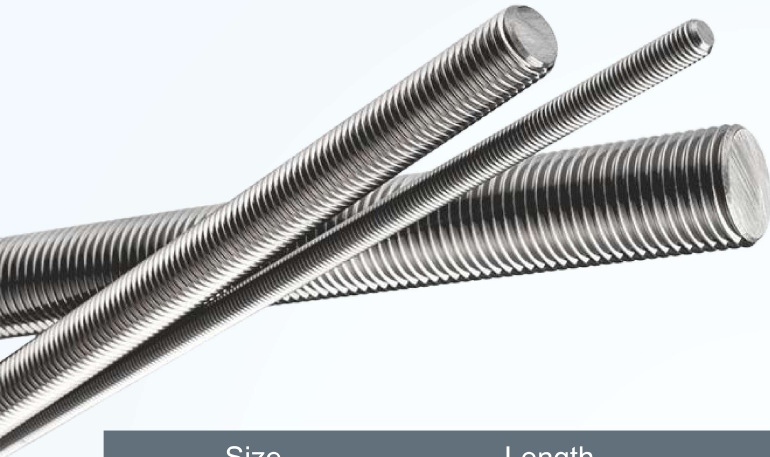




THREADED BAR / TIE ROD

Alloy Steel/Stainless Steel/Carbon Steel:

A pre-threaded bar with metric/ inch thread pitch which may be cut to length with a metal cutting hacksaw or power band saw. A nut will move easily over clean cut ends. Only minimal burr removal may be required from rough cut ends.



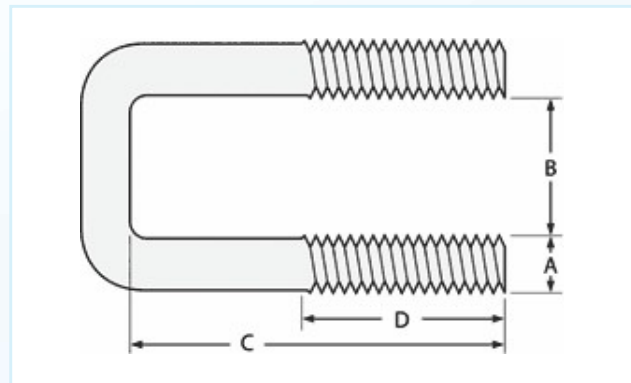
Size		Length		Property Class		Equivalent Standards
Metric	Inches	Metric	Inches	High tensile	Stainless Steel	
M10-M80	3/8" - 3"	Up To 600 MM	Up To 236"	4.6,5.6,6.4, 8.8,10.9,12.9, 14.9,B7	SS304,316, B8,B8M, 410 201	DIN 975 DIN 976 DIN 939 IS 1862 TYPE 1,2,3

U BOLT (SQUARE / ROUND)

Square bent U-Bolts are typically used for attaching product to a square shaped post. They can also be embedded in concrete and used as anchor bolts.

Round bend U-Bolts are typically used for attaching pipe or steel round bar to a round wood or steel post. Another common application is to hang wrought iron pipe in mechanical installations. They can also be embedded in concrete as anchor bolts.

ICONFAST manufactures custom round bend U-bolts from 1/2" through 3" in diameter to virtually any ASTM specification & DIN 3570. They are provided either plain finish or hot-dip galvanized. Other metals like 304 and 316 stainless steel U-Bolts are also manufactured. All operations, including the galvanizing process, are performed in-house





APPLICATION

- Heavy Engineering Industries.
- Earth Moving Equipment Manufacturers.
- Indian Railways.
- Locomotive Manufacturers.
- Petro-Chemical Industries.
- Fertilizers Plants.
- Power Generation units, Nuclear, Hydro, or thermal.
- Ship Building Industries.
- Steel Plants.
- Civil Construction Industries.
- Mining Industries.
- Elevators Manufacturers.
- Oil Exploration Project.
- Defence Organizations.
- Pre Engineered Buildings and other application.





ICONFAST

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