

PANKAJ  
INTERNATIONAL



## Complete **Fastener** Solutions

High Tensile Fasteners

Special Fasteners



## About us

We are an ISO 9001-2015 ( DNV RvA ) accredited company manufacturing High Tensile & plain carbon steel Fasteners. Our manufacturing range is as following:-

- Flange/Collar Bolts
- Socket /Allen Bolts
- Counter-sunk Bolts
- Crash Barrier bolts
- Rail Sleeper Screws
- Shoulder Bolts
- Hub/ Wheel Bolts
- Cap Screws
- Coach/Carriage Bolts
- Hex Bolts/Screws
- Nib Bolts
- T-bolts
- Special Nuts
- Hex Nuts
- Square Weld Nuts
- Serrated Flange Nuts
- Bushes
- Pins
- Studs
- Plain/ Spring Washers
- Shafts
- Special Automotive Fasteners
- Cold Forged Components

### We have in-house facilities as following:-

- Cold Forging (Bolt formers, Nut formers, Part formers and Headers) M10 to M25 capacity , length upto 250mm.
- Hot Forging (using induction heating) max capacity upto M64 and length 1 Metre, CNC Turning/ Machining.
- Heat treatment by Continuous Mesh Belt type electric furnace and Shaker Hearth Continuous electric Furnace with O<sub>2</sub> probe.
- Fully equipped Tool Room to make tooling's and dies.
- Physical Lab, Chemical Lab , Metallurgical Lab equipped with UTM 600kN, 400kN with servo control, Impact Testing, Profile projector (DRO), Magnetic Particle Inspection, Hardness tester, Spectrometer and alloy analyzer for material identification and testing
- Hot Dip Galvanizing, Zinc Electroplating (automatic alkaline plant).
- Sheet metal presses till 100 ton capacity for any type of stampings.
- CAD software for making drawings and doing designing.

### Our Range

- |                   |   |
|-------------------|---|
| Cold Forged Bolts | - M10 to M24 Length 15 mm to 250 mm as per ASTM A307, A325 , A193 , A563, DIN 933, 934 , IS 1363, 1364 , 3757 |
| Hot Forged Bolts  | - M27 to M64 Length up to max 500 mm  |
| Studs             | - M10 to M64 up to max 500 mm - as per ASTM A193, I.S, ISO Standards  |
| Nuts              | - M10 to M80 - as per ASTM A563 , A194- 2H  |

We are manufacturing all the products according to various Indian and International standards like ISO, DIN, ASTM ,B.S, ANSI ,I.S. etc. We have the capabilities to make any special items as per customer drawing , any special head, neck, body or thread profile.

The Company's inherent potential coupled with its strong performance over the years has resulted in it being chosen as one of the best manufacturers which enjoys support from the best companies in government /non government, Railways, construction, oil, energy, power and transmission sector.

# Construction Fasteners

## Arc Welding Stud



ARC Welding Stud also known as Shear Connector is used in the construction of tall buildings, bridges and steel structures. Drawn-arc process is used for stud welding. It improves the strength of the structure.

Product Range :  
Metric: M13, M16, M19  
M22, M25- Length upto 10"

Inch : 1/2", 5/8", 3/4",  
7/8", 1" - Length upto 10"

## Direct Tension Indicator Washer



Direct Tension indicators(DTI Washers), also known as Auto Torque Indicators, are single-use mechanical load cells designed to indicate the magnitude of preload in the assembly, It shows if the bolt is properly tensioned, it is very useful while tensioning High Strength Structural bolts.

Product Range :  
Metric: M16 - M36 as per  
BS EN 14399-9

## High Strength Structural Bolt Assembly



Compared to the conventional methods of riveting or welding, HSTG bolts and nuts maintain the permanent strength of the joint due to reduced stress concentration & enhanced surface area grip due to large head. Hence, it does not permit loosening, making it most ideal where vibration is involved.

Product Range :  
Metric: M12 - M48  
length upto 10"

As per BS EN 15048-1/2  
& 14399-3/4 or as  
per IS 3757



# Petrochemical Fasteners

## Product Capability Coatings

- Plain (Self condition)
- Hot Dipped Galvanized
- Mechanically Plated
- PTFE
- Zinc Plated
- Cadmium
- Oiled and Phosphated
- Xylan



## Size Range

Diameter Range	Inch : 3/8" to 2.5"
	Metric : M10 to M64
Length Range	Inch : upto 4 feet
	Metric : upto 1.2 meters



STUDBOLTS (ASTM Spec)	COMPATIBLE NUTS (ASTM Spec)	Material
A193 Grade B7	A194 Grade 2H	SAE 4140 / 4142 / 4145
A193 Grade B7M	A194 Grade 2HM	SAE 4140 / 4142 / 4145
	A194 Grade 8	AISI 304
	A194 Grade 8M	AISI 316
A193 Grade B16	A194 Grade 4 or 7	ISO EN 40CrMoV4
A320 Grade L7	A194 Grade 4 or 7	SAE 4140 / 4142 / 4145
A320 Grade L7M	A194 Grade 4M or 7M	SAE 4140 / 4142 / 4145
	A194 Grade 3	AISI 501
	A194 Grade 6	AISI 410
	A194 Grade 8T	AISI 321



## Infrastructure

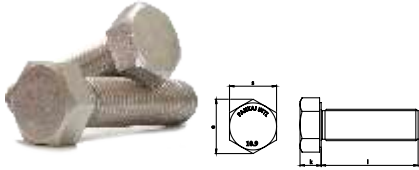
### In-house Destructive And Non destructive Testing:

- Chemical product check analysis (Spectrometer)
- Heat treatment tests
- Room temperature tension tests (or at 0° C)
- Low temperature impact tests (upto -196° c)
- Hardness tests
- UTS test upto 100 KN
- Proof load test
- Stress rupture tests
- Macro etch tests
- Salt Spray Test
- Grain size tests
- Decarburization tests
- M.P.I tests
- Micro etch tests



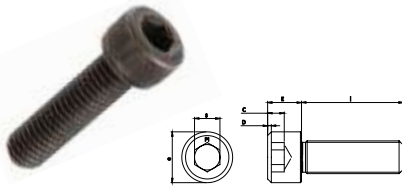


## Hex Head Screw



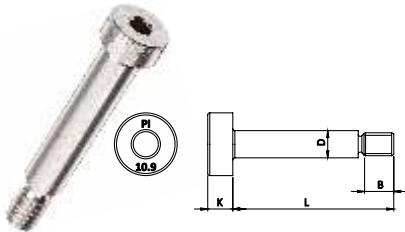
Tensile Strength			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
60000 to 174000	400 to 1200	4.6 to 12.9	M8 to M42	5/16" to 2"	20 mm to 300 mm	7/8" to 12"	1364-2 1363-2	4017 4018	933	1083	B18.2.3.1M B18.2.1	B1180

## Socket Head Cap Screw



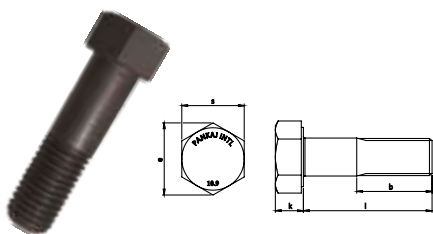
Tensile Strength			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
60000 to 174000	400 to 1200	4.6 to 12.9	M8 to M42	5/16" to 2"	20 mm to 300 mm	7/8" to 12"	2269	4762	912	4168 2470	B18.3.1M	B1176

## Hex Head Shoulder Screw



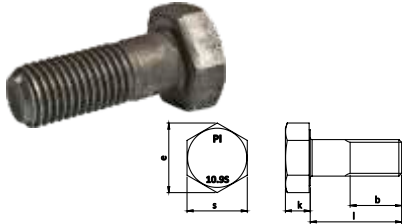
Tensile Strength			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
60000 to 174000	400 to 1200	4.6 to 12.9	M10 to M42	-	15 mm to 200 mm	-	-	7379	9841	4168	B18.3.3M	B1175

## Hex Head Bolt



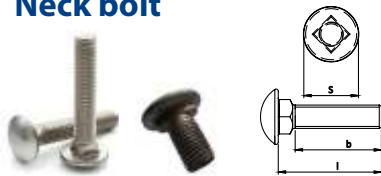
Tensile Strength			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
60000 to 174000	400 to 1200	4.6 to 12.9	M8 to M42	5/16" to 2"	20 mm to 300 mm	7/8" to 12"	1364-1 1363-1	4014 4016	931	1083	B18.2.1	B1186

### Heavy Hex Structure Bolt



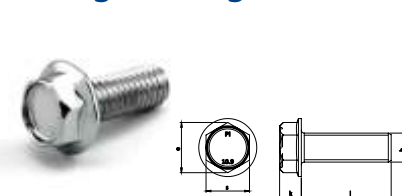
Tensile Strength			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
60000 to 174000	400 to 1200	4.6 to 12.9	M12 to M42	5/16" to 2"	20 mm to 300 mm	7/8" to 12"	3757	7412	6914	4395	B18.2.3.7M B18.2.4.6M	B1186

### Round Head Square/Oval Neck bolt



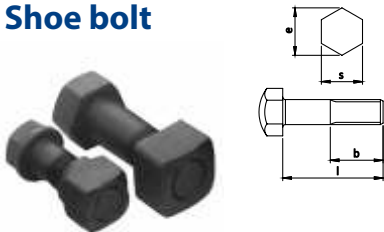
Tensile Strength			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
60000 to 174000	400 to 1200	4.6 to 12.9	M8 to M20	5/16" to 3/4"	20 mm to 200 mm	1" to 8"	-	8677	603	4933	-	-

### Hexagon Flange Bolt



Tensile Strength			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
60000 to 174000	400 to 1200	4.6 to 12.9	M8 to M20	-	20 mm to 200 mm	-	15582	4162	6921	-	B18.2.1	B1189

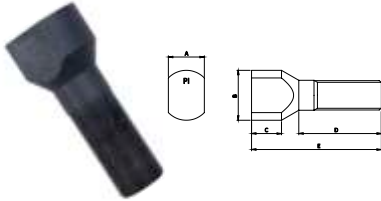
### High Tensile Track Shoe bolt



Tensile Strength			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	-					
60000 to 174000	400 to 1200	4.6 to 12.9	M8 to M42	5/16" to 2"	20 mm to 200 mm	1" to 8"	-					

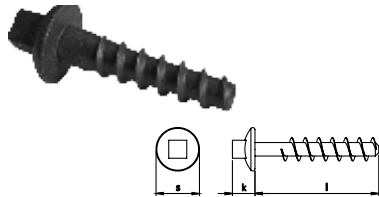


### Liner Bolt



Tensile Strength			Size Range				Equivalent Standards					
Property Class			Diameter		Length		As per Drawing					
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
60000 to 174000	400 to 1200	4.6 to 12.9	M24 to M32	1" to 1 3/4"	50 mm to 600 mm	2" to 24"	As per Drawing					

### Plate Screw/Rail Screw



Tensile Strength			Size Range				Equivalent Standards					
Property Class			Diameter		Length		As per RDSO Drawing					
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
60000 to 174000	400 to 1200	4.6 to 12.9	M20 to M25	3/4" to 1"	100 mm to 250 mm	4" to 10"	T-1443-1445, RT-3911-3915, T10673-10680, T-4153					

### Hex Nut



Proof Load			Size Range				Equivalent Standards					
Property Class			Diameter		Length		As per Drawing					
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
74000 to 174000	510 to 1200	4 to 12	M8 to M80	5/16" to 3"	-	-	1363-3 1364-3	4034 4032	934	1083 1768	B18.2.4.1M B.18.2.2	B1181

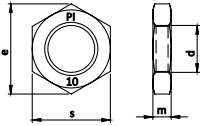
### Heavy Hex Nut



Proof Load			Size Range				Equivalent Standards					
Property Class			Diameter		Length		As per Drawing					
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
74000 to 174000	510 to 1200	4 to 12	M12 to M42	1/2" to 1 7/8"	-	-	6623	4775	6915	4395	B18.2.3.7M B18.2.4.6M	B1181

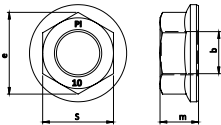


### Jam Nut



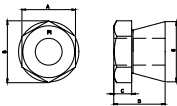
Proof Load			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
74000 to 174000	510 to 1200	4 to 12	M12 to M42	1/2" to 2"	-	-	-	-	-	-	B18.2.2	-

### Flange Nut



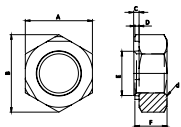
Proof Load			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
74000 to 174000	510 to 1200	4 to 12	M8 to M42	5/16" to 1 7/8"	-	-	15581	4161	6923	-	B18.2.2	B1190

### Shear Nut



Proof Load			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
74000 to 174000	510 to 1200	4 to 12	M8 to M20	5/16" to 3/4"	-	-	-	-	-	-	-	-

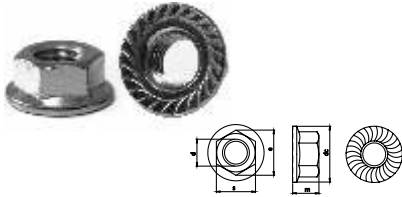
### Hex Weld Nut



Proof Load			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
74000 to 174000	510 to 1200	4 to 12	M5 to M20	5/16" to 3/4"	-	-	8856	-	929	-	-	B-1196

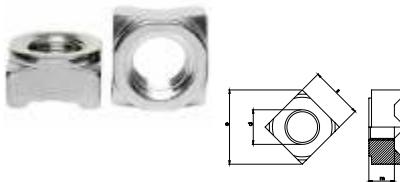


### Serrated Flange Nut



Proof Load			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
74000 to 174000	510 to 1200	4 to 12	M8 to M20	5/16" to 3/4"	-	-	15581	4161	6923	-	B18.2.2	B1190

### Square Weld Nut



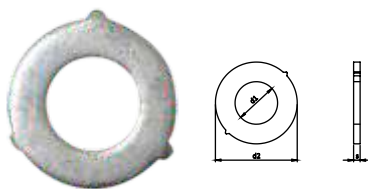
Proof Load			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
74000 to 174000	510 to 1200	4 to 12	M5 to M20	5/16" to 3/4"	-	-	-	-	928	-	-	B-1196

### Plain Washer



Tensile Strength			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
-	-	-	M8 to M42	5/16" to 2"	-	-	2016	7089	125	4320	-	-

### Hardened Steel Washer



Tensile Strength			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
-	-	-	M12 to M42	1/2" to 2"	-	-	6649	7415	6916	4395	-	-

### Spring Lock Washer



Tensile Strength			Size Range				Equivalent Standards					
Property Class			Diameter		Length							
PSI	N/mm <sup>2</sup>	Grade	Metric	Inch	Metric	Inch	IS	ISO	DIN	BS	ANSI	JIS
-	-	-	M8 to M30	5/16" to 1 1/4"	-	-	3063	-	127	-	-	-



## Comparison of Different Strength Grades

SAE	B.S.	IS ISO DIN	ULTIMATE TENSILE STRENGTH			HARDNESS		
			Ton/In <sup>2</sup> (Kgf/mm <sup>2</sup> )	N/mm <sup>2</sup> Min. (Kgf/mm <sup>2</sup> )	lb/in <sup>2</sup> Min. (Kgf/mm <sup>2</sup> )	BHN	HRB	HRC
		4.6		400 (40.8)		114 209	67 99.50	
GRADE 1					60,000 (42.3)	(121) (241)	70 100	
		4.8		420 (42.8)		124 209	71 99.50	
		5.6		500 (51.0)		147 209	79 99.5	
GRADE 2					74,000 (52.1)	(154) (241)	80 100	
		5.8		520 (53.0)		152 209	82 99.50	
	P		35/45 (55.2/71.0)			152 207		
		6.8		600 (61.2)		181 238	89 99	
	R		45/55 (71.0/86.8)			201 285		
	S		50/60 (78.9/94.7)			223 310		(20/33)
		8.8		800 ≤ M16 830 > M16 (81.6) (84.6)		219/285 242/319		20/30 23/34
GRADE 5					1,20,000 (84.6)	(266) (318)		25/34
	T		55/65 (86.8/102.6)			248 335		(24/36)
	U		60/70 (94.7/110.5)			269 331		(28/36)
	V		65/75 (102.6/118.4)			293 370		(31/40)
GRADE 8					1,50,00 (105.7)	(311) (362)		33/39
		10.9		1,040 (106.0)		295 362		31/39
	W		70/80 (110.5/126.3)			311 375		(33/41)
	X		75/85 (118.4/134.2)			341 410		(37/44)
		12.9		1,220 (124.4)		353 412		38/44
	Y		80/90 (126.3/142.0)			363 429		(39/46)
	Z		100 Min (157.8)			444		(47)



PANKAJ  
INTERNATIONAL

B-40/III, Phase V, Focal Point, LUDHIANA-141010 (INDIA)

Ph. : +91-161-2677676, 4651112, +91-9463 400 401

M.: 8427 345 345, 98760-21212

✉ [sales@pankajinternational.com](mailto:sales@pankajinternational.com)  [www.pankajinternational.com](http://www.pankajinternational.com)