

FASTENERS

Leading fasteners
manufacturer in India



40 YEARS OF CREATING
#Infinitepossibilities



Skipper Limited is the largest Transmission Tower manufacturing company in India and also among the top 10 largest tower manufacturers in the world. Skipper is also the one and only integrated T&D company in the world to be present across the entire value chain - Angle Rolling, Tower and Monopole manufacturing, Load Testing and EPC line construction.

SKIPPER FACTS:



Incorporation:

Established in 1981, Skipper has emerged as a prominent and competitive global manufacturer of electrical Transmission Towers and Poles



Facilities & Capacity:

Three of the Company's manufacturing facilities are located in Kolkata and two units in Guwahati (Assam) with a total manufacturing capacity of 300000 MTPA



Award:

Recognised as the largest tower supplier for the third consecutive year by PGCIL



Location:

Headquartered in Kolkata (West Bengal, India). Skipper is present both in national and international markets exporting to more than 40 countries



R&D:

In-house Research & Development Center recognized by the Department of Scientific and Industrial Research (DSIR), Govt. of India, backed by world's Largest Tower Testing Station

FASTENERS

Skipper has a specialised division for manufacturing of all kinds of Fastener Products. The company boasts of state of the art plants and machineries for manufacturing of flawless product categories. Each and every product at Skipper goes through a series of stringent quality checks to ensure global standards. We are not only a national powerhouse brand, but also export to multiple countries. With an experience of more than 4 decades, Skipper aims to make India the preferred sourcing hub for Global Infrastructure needs.



PROPERTY CLASS

BOLTS

	Hex Bolt M12 - M32 Grade: 4.6/4.8 5.6/5.8/6.8/8.8 10.9/ASTM T-1		Carriage Bolt M12 - M16 Grade: 5.6/6.8 8.8
U Bolt M10 - M48 Grade: 5.6/5.8 6.8/8.8		Hex Screw M12 - M52 Grade: 4.6/4.8 5.6/5.8/6.8/8.8 10.9/ASTM A-325M/T-1	
	Anti Theft Bolt M12 - M24 Grade: 5.6/5.8 6.8/8.8		Heavy Hex Bolt M12 - M36 Grade: 8.8s/10.9s A-325M/T-1
T Bolt M12 - M24 Grade: 5.6/5.8 8.8		Anchor Bolt M12 - M56 Grade: 4.6/5.6	
	Slotted Bolt M12 - M24 Grade: 5.6/5.8 8.8		

NUT



WASHERS



STUD



MANUFACTURING PROCESS FLOW CHART OF BOLTS



THERBLIGS

Process → Inspection & Testing → Rejection

PROCESS FLOW CHART OF HEAT TREATMENT PROCESS



01

Material
Loading Point



02

Hardening
Zone



03

Quenching
Zone



04

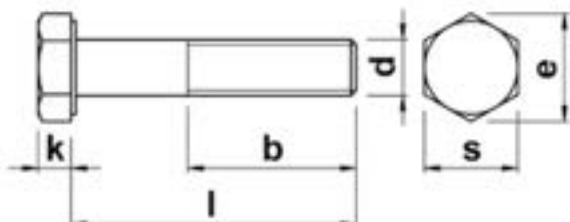
Tempering
Zone



05

Material
Unloading Point

DIMENSIONAL STANDARD FOR BOLTS, NUTS & WASHERS



HD -- Head Dia
 S -- Across Flats
 e -- Across Corner
 K -- Head Thickness
 b -- Thread Length
 C -- Washer Thickness
 ds -- Shank Dia
 dw -- Washer Dia
 MD -- Major Dia
 PCD -- Pitch Circle Dia

Table 1 Dimensional Parameters for Bolts

Bolt Size	Dimensions (mm)																		
	HD		S		e	K		b		C	ds		dw		PCD		MD		Thread
	Min	Max	Min	Max		Min	Max	Min	Max		Min	Max	Min	Max	Min	Max	Min	Max	
M12	22.00	22.50	17.57	18.00	19.85	7.55	8.45	20.50	23.00	0.50	11.30	12.70	16.10	10.65	10.82	11.57	11.96	1.75 P	
M16	28.50	29.50	23.16	24.00	26.17	9.25	10.75	23.00	-	0.80	15.30	16.70	22.00	14.41	14.66	15.51	15.96	2.00 P	
M20	-	-	29.16	30.00	32.95	12.10	13.90	26.00	28.50	0.80	19.30	20.84	28.30	18.10	18.33	19.57	19.96	2.50 P	
M24	-	-	35.00	36.00	39.55	14.10	15.90	30.00	33.00	0.80	23.30	24.70	33.30	21.75	22.00	23.57	23.96	3.00 P	



Table 2 Dimensional Parameters for Nuts

Nut Size	Dimensions (mm)							
	S		e	m		Thread Pitch Over Tap		
	Min	Max		Min	Max	Min	Max	
M12	17.57	18.00	19.85	10.37	10.80	1.75		
M16	23.16	24.00	26.17	14.90	15.50	2.00		
M20	29.16	30.00	32.95	16.90	18.00	2.50		
M24	35.00	36.00	39.55	20.20	21.50	3.00		

Table 3 Dimensional Parameters Pack Washers

Pack Washer	Dimensions (mm)			
	D		d	
	Min	Max	Min	Max
M16	28.70	30.00	18.00	18.52
M20	36.20	37.00	22.00	22.70
M24	43.20	44.00	26.00	26.70

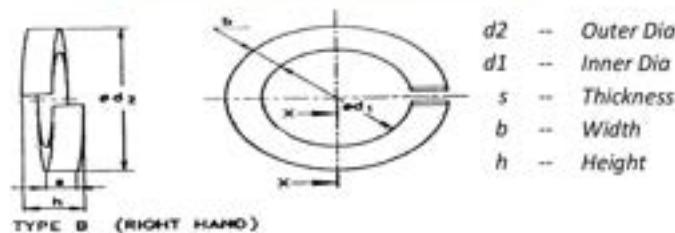


Table 4 Dimensional Parameters for Spring Washers

Spring Washer	Dimensions (mm)								
	d2	d1		s		b		h	
	Min	Max	Min	Max	Min	Max	Min	Max	
M16	27.40	28.20	17.00	18.30	3.70	4.80	5.20	7.00	8.30

TOWER ACCESSORIES

We are one of the leading manufacturers and suppliers of a wide range of Transmission Line Tower Accessories such as Hangers, Extension Links, D-Shackle, Bird Guards, etc. Manufactured using supreme grade raw materials as per the set industry standards, these accessories are available in various specifications as per the specific needs of the clients. These are widely acknowledged for features like corrosion resistant finish, dimensional accuracy, high strength, robust construction and durable finish standards.



Hangers

M16 - M27
Grade: 5.6/8.8



D-Shackles

M16 - M45
Grade: 5.6/8.8

Bird Guards



Anti Climbing Devices

M10 - M25
Grade: 4.6/5.6
8.8



Foundation Bolts

M12 - M56
Grade: 5.6/4.6



Step Bolts

M12 - M24
Grade: 5.6/4.6
5.8/8.8/6.8



SKIPPER
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