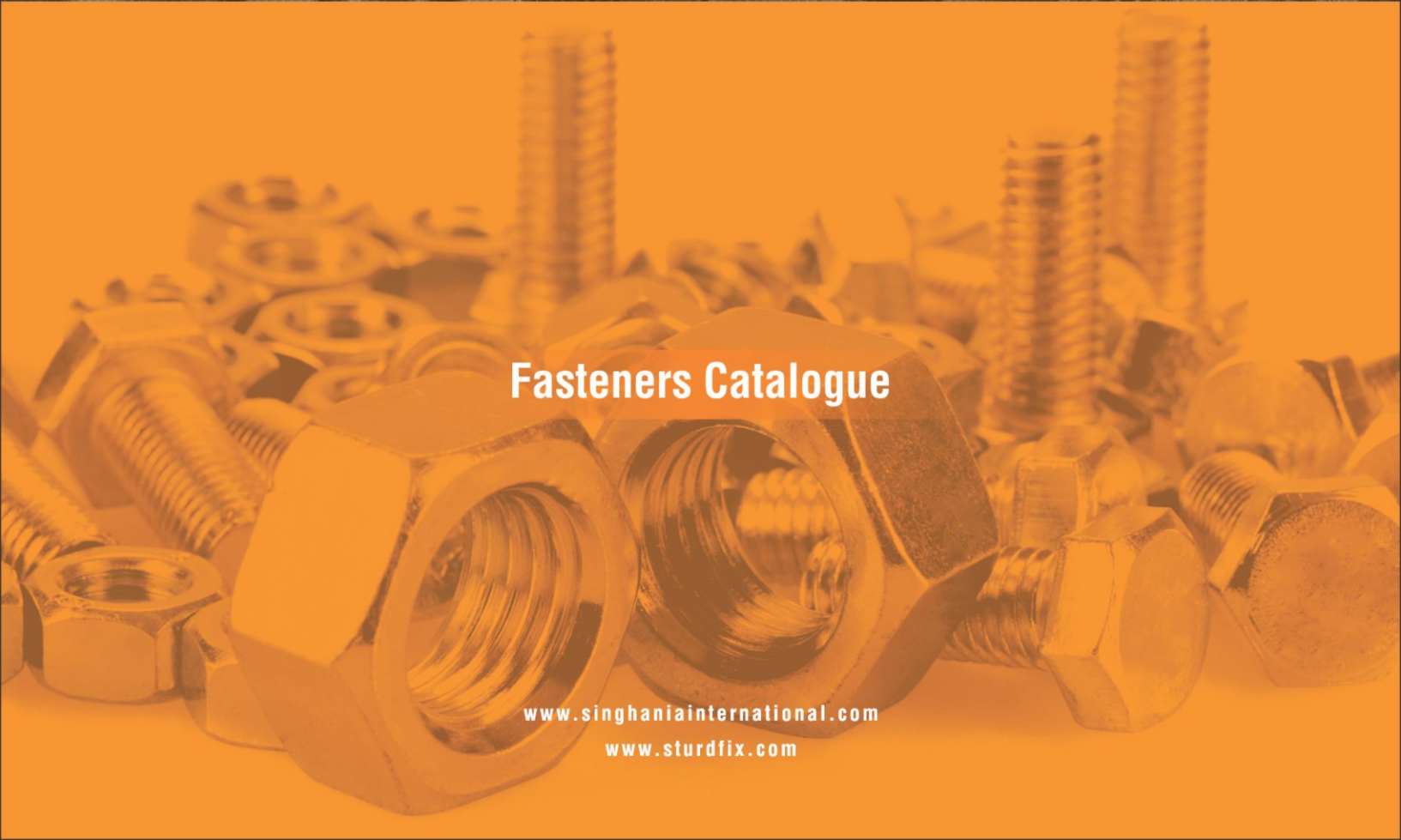
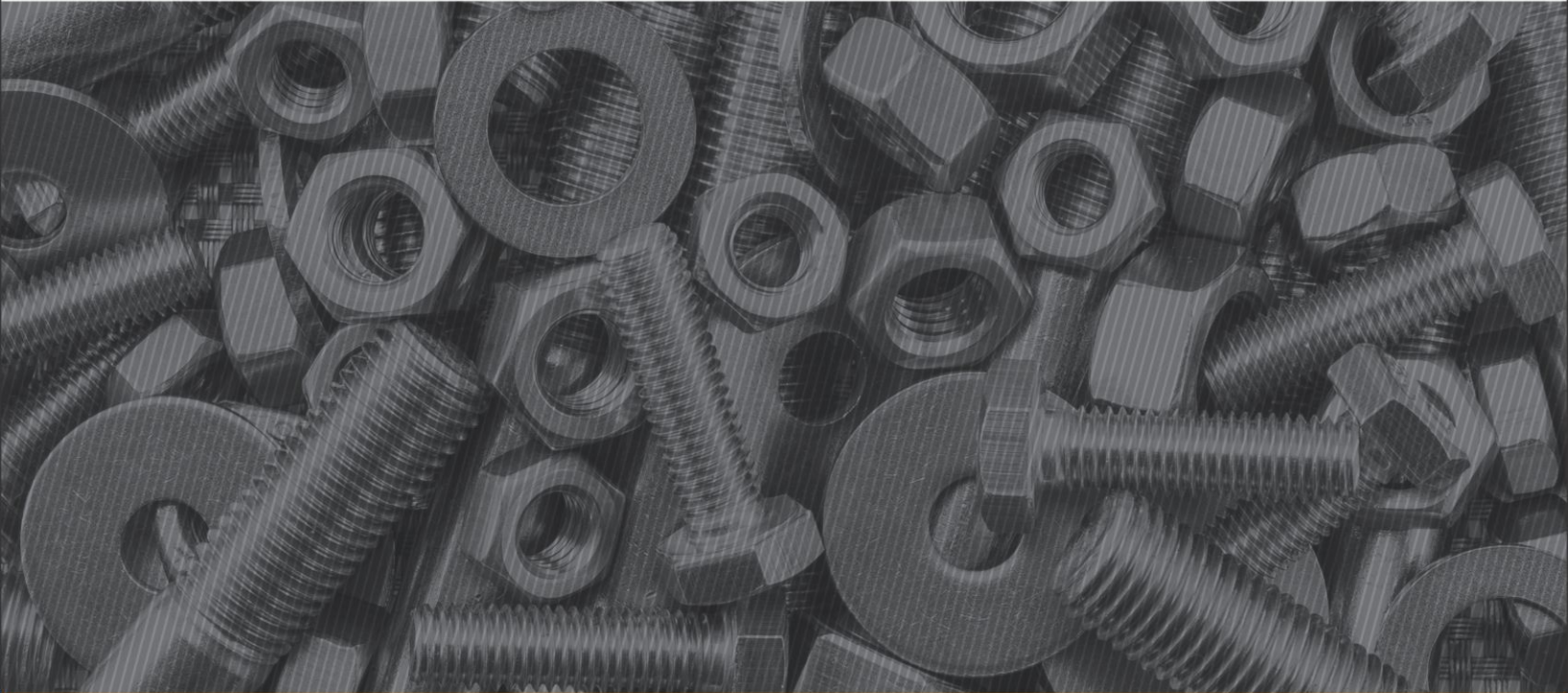


# **STURDFIX<sup>®</sup>**

**FASTENERS & FIXINGS**

An ISO 9001:2015 Certified Company



**Fasteners Catalogue**

[www.singhaniainternational.com](http://www.singhaniainternational.com)

[www.sturdfix.com](http://www.sturdfix.com)



## About Us

Singhania International Limited was established in the year 1995 and caters to the requirements of wide spectrum of industries. Located in Ludhiana (India), we have a state of the art manufacturing and testing facility for processing steel wires and fasteners.

Singhania International Limited has a widely knowledgeable management team with over 40 years of industry experience. In 2016, we launched Sturdfix® range of Fasteners and Fixings. We have regular availability of High Tensile Fasteners, Nyloc Nuts, Screws, Spring Washers and a range of other fastener products.

Our business philosophy is to hold a large variety of stock of standardized items in order to help reduce our client's inventory levels. We strive to constantly increase our stock range, but place product competence above range of sizes. We believe that this competence is a prerequisite to being a successful strategic partner to our customers. Whilst quality of product has always been our number one priority it is the service that we offer is the backbone of our business. We never lose our focus on our client's requirement, no matter how small.

We at SIL believe in working hand in hand with our customers. Our scope of products / business is not limited by any boundaries. We procure and supply our goods globally, to/from developed and developing countries. With years of specialized knowledge of importing and exporting fasteners around the world we are happy to help all of our clients find the appropriate items for their many endeavors.

Singhania International Limited is an ISO 9001: 2015 certified company.





## Quality Management & Control

At Singhania International Limited the quality concept is deeply rooted in every department. Our newly set up laboratory is equipped with modern equipment, instruments and the most advanced software for quality control. We are specialized in testing all important aspects of fasteners.

In 2011, Singhania International Limited obtained certification for its Quality Management System in conformity with ISO 9001:2008, which has now been upgraded to ISO 9001:2015 certification levels in 2017. Regular quality and Internal audits carried out by well-trained professionals, guarantee full conformity with all the requirements laid down by international standards. All our products are accompanied with test reports stating the mechanical and chemical properties of the fasteners supplied by us.

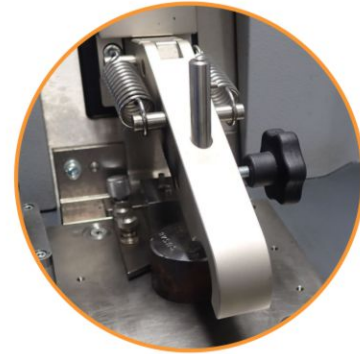
**Our lab is at the forefront to ensure quality products, in line with the required parameters as per International standards.**





## OUR TESTING & QUALITY CONTROL EQUIPMENTS

- SPECTROMAXX arc/spark OES metal analyzer
- Universal Testing Machine (UTM) with dedicated software
- Rockwell Hardness Tester
- Vickers Micro Hardness Tester
- Metallurgical Microscope with dedicated software
- Metallographic Cutting machine
- Semi-automatic polisher grinding machine
- Salt spray test chamber
- 3D Printer



All lab instruments are regularly calibrated as per management procedures in conformity with ISO 9001:2015

## STANDARDS








# INDEX





## NUTS

	Nylock Nuts (DIN 982, DIN 985, UNC/UNF BSW/BSF)	1-2
	Hex Nuts DIN 934 / ISO4032 / IS 1364 (Part 3)	3
	Flange Nuts DIN 6923 / JIS1190B	4
	Acorn / Dome Nut DIN 1587	5
	T-Nut (Four Prong Tee-Nut) DIN 1624	6
	Nylon Insert Flange Lock Nut DIN 6926 (ISO:7043)	7
	Metal Insert Flange Lock Nut	7
	Square Weld Nut JISB 1196 / DIN 927	8
	Heavy Hex Nut (IS:6623/ANSI B18.2.2/ASTM A-194)	9
	Wing Nuts DIN 315 (ANSI B 18.17)	10
	Rivet Nuts (Insert Nut - Blind Rivets)	11

## HIGH TENSILE FASTENERS

	Hex Bolt 8.8/10.9/12.9/ (DIN 931 / 933 / ASTM A325 / A490)	13-14
	Hexagon Socket Head Cap Screws DIN 912 / BS 2470	15-16
	Socket Set Screws	17
	Socket Countersunk Head Screws	18
	Socket (Button) Head Screws	19

## SCREWS

	Dry Wall Screws/Gypsum Board Screws	20
	Chipboard Screws	20
	Self Tapping Screws	20
	Self Drilling Screws (SDS)	21-22

## WASHERS

	Spring Lock Washers (DIN 127B / DIN 7980/IS:3063)	23
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## ANCHORS

	Anchor Fasteners	24
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**NUTS**

Nylock Nut



Hex Nut



Flange Nut



Acorn / Dome Nut



Four Prong Tee-Nut



Nylon Insert Flange Lock Nut



Metal Insert Flange Lock Nut



Square Weld Nut



Heavy Hex Nut

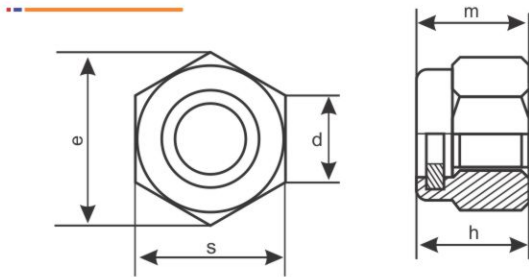


Wing Nuts



# NUTS

## Nylock Nuts (DIN 982 / DIN 985)



### Specifications:

**Materials:** Carbon Steel, Alloy Steel & Stainless steel

**Class:** Class 5, Class 6, Class 8, Class 10

**Size:** M3 to M30 (in cold forging), 3/16" to 1" (in cold forging)

**Finish:** White Zinc plated, Yellow Zinc Plated, Auto Black, Chrome Plating & others as per customer requirement

**Standards:** DIN 982, DIN 985, DIN 6924, UNC, UNF, BSW & BSF, ISO:7040

**Hardness:** Vickers HV5: 302 (Max), HRC: 30 (Max).



Standard specifications of DIN 982 Nylock Nuts are as below:

Nominal Size	Thread Pitch (p)	Thickness/ Height (h)		Width/Across Flat (s)		Width Across Corners (e)
		Min.	Max.	Min.	Min.	Min.
M5	0.8	6	6.3	7.78	8	8.79
M6	1	7.70	8	9.78	10	11.05
M8	1	9.14	9.5	12.73	13	14.38
M8	1.25	9.14	9.5	12.73	13	14.38
M10	1	11.14	11.5	16.73	17	18.9
M10	1.25	11.14	11.5	16.73	17	18.9
M10	1.5	11.14	11.5	16.73	17	18.9
M12	1.25	13.64	14	18.67	19	21.1
M12	1.5	13.64	14	18.67	19	21.1
M12	1.75	13.64	14	18.67	19	21.1
M14	1.5	15.30	16	21.67	22	24.49
M14	2	15.30	16	21.67	22	24.49
M16	1.5	17.30	18	23.67	24	26.75
M16	2	17.30	18	23.67	24	26.75
M18	2.5	19.16	20	26.18	27	29.56
M20	1.5	20.7	22	29.16	30	32.95
M20	2.5	20.7	22	29.16	30	32.95
M22	2.5	23.7	25	31	32	35.03
M24	3	26.7	28	35	36	39.55

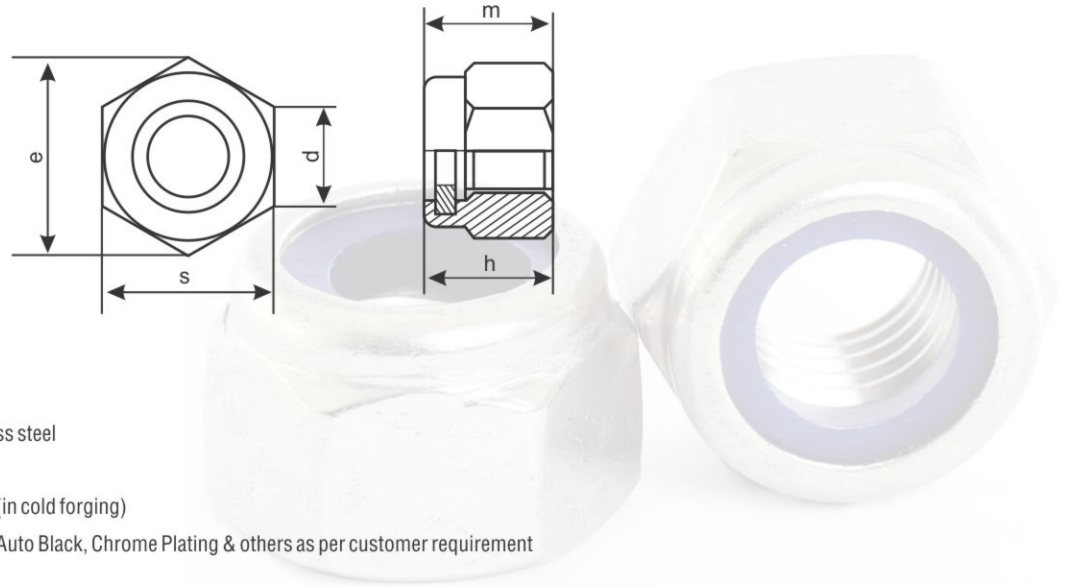
Standard specifications of DIN 985 Nylock Nuts are as below:

Nominal Size	Thread Pitch (p)	Thickness/ Height (h)		Width/Across Flat (s)		Width Across Corners (e)
		Min.	Max.	Min.	Min.	Min.
M3	0.5	3.7	4	5.32	5.5	6.01
M4	0.7	4.7	5	6.78	7	7.66
M5	0.8	4.7	5	7.78	8	8.79
M6	1	5.7	6	9.78	10	11.05
M8	1	7.64	8	12.73	13	14.38
M8	1.25	7.64	8	12.73	13	14.38
M10	1	9.64	10	16.73	17	18.9
M10	1.25	9.64	10	16.73	17	18.9
M10	1.5	9.64	10	16.73	17	18.9
M12	1.25	11.57	12	18.67	19	21.1
M12	1.5	11.57	12	18.67	19	21.1
M12	1.75	11.57	12	18.67	19	21.1
M14	1.5	13.3	14	21.67	22	24.49
M14	2	13.3	14	21.67	22	24.49
M16	1.5	15.3	16	23.67	24	26.75
M16	2	15.3	16	23.67	24	26.75
M18	2.5	17.66	18	26.18	27	29.56
M20	1.5	18.7	20	29.16	30	32.95
M20	2.5	18.7	20	28.16	30	32.95
M22	2.5	20.7	22	31	32	35.03
M24	3	22.7	24	35	36	39.55
M27	3	25.7	27	40	41	45.2
M27	3.5	25.7	27	40	41	45.2
M30	2	28.7	30	45	46	50.85
M30	3.5	28.7	30	45	46	50.85



## NUTS

### Nylock Nuts (UNC / UNF / BSW / BSF)



**Specifications:**

**Materials:** Carbon Steel, Alloy Steel & Stainless steel

**Class:** Class 5, Class 6, Class 8, Class 10

**Size:** M3 to M30 (in cold forging), 3/16" to 1" (in cold forging)

**Finish:** White Zinc plated, Yellow Zinc Plated, Auto Black, Chrome Plating & others as per customer requirement

**Standards:** UNC, UNF, BSW & BSF

**Hardness:** Vickers HV5: 302 (Max), HRC: 30 (Max).

**Standard specifications of our BSW/BSF Nylock Nuts:**

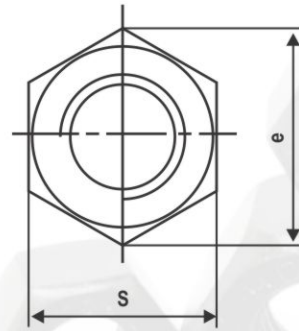
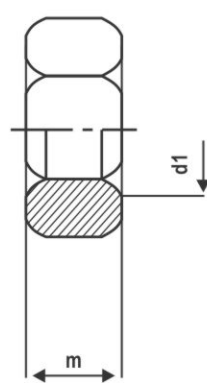
Nominal Size	Thickness/ Height (h)		Width/Across Flat (s)		Width Across Corners (e)
	Max.	Min.	Max.	Min.	Min.
3/16"	0.267	0.319	0.324		0.374
1/4"	0.321	0.435	0.445		0.510
5/16"	0.378	0.515	0.525		0.610
3/8"	0.438	0.585	0.600		0.690
7/16"	0.528	0.695	0.710		0.820
1/2"	0.593	0.800	0.820		0.950
5/8"	0.722	0.985	1.010		1.170
3/4"	0.960	1.175	1.200		1.390
7/8"	1.012	1.270	1.300		1.500
1"	1.113	1.450	1.480		1.710

**Standard specifications of our UNC/UNF Nylock Nuts:**

Nominal Size	Thickness/ Height (h)		Width/Across Flat (s)		Width Across Corners (e)
	Max.	Min.	Max.	Min.	Min.
No. 8	0.239	0.319	0.336		0.374
No. 10	0.249	0.319	0.367		0.41
No. 12	0.328	0.319	0.43		0.482
1/4"	0.328	0.435	0.428		0.482
5/16"	0.359	0.515	0.489		0.552
3/8"	0.468	0.585	0.551		0.622
7/16"	0.468	0.695	0.616		0.698
1/2"	0.609	0.800	0.736		0.837
9/16"	0.656	0.800	0.861		0.978
5/8"	0.765	0.985	0.922		1.051
3/4"	0.890	1.175	1.052		1.191
7/8"	0.999	1.270	1.239		1.403
1"	1.078	1.450	1.427		1.615

## NUTS

### Hex Nut (ISO 4032 / DIN 934)



#### Specifications:

**Materials:** Carbon Steel, Alloy Steel & Stainless steel

**Class:** Class 6, Class 8, Class 10, Class 12

**Size:** M5 to M30 (in cold forging), 3/16" to 1" (in cold forging)

**Finish:** Plain, White Zinc plated, Yellow Zinc Plated, Auto Black, Chrome Plating or as per customer requirement

**Standards:** DIN 934, UNC, UNF, ISO 4032 and ISO 4034

#### Standard Dimensions of ISO 4032/DIN 934 Hexagon Nuts (in mm)

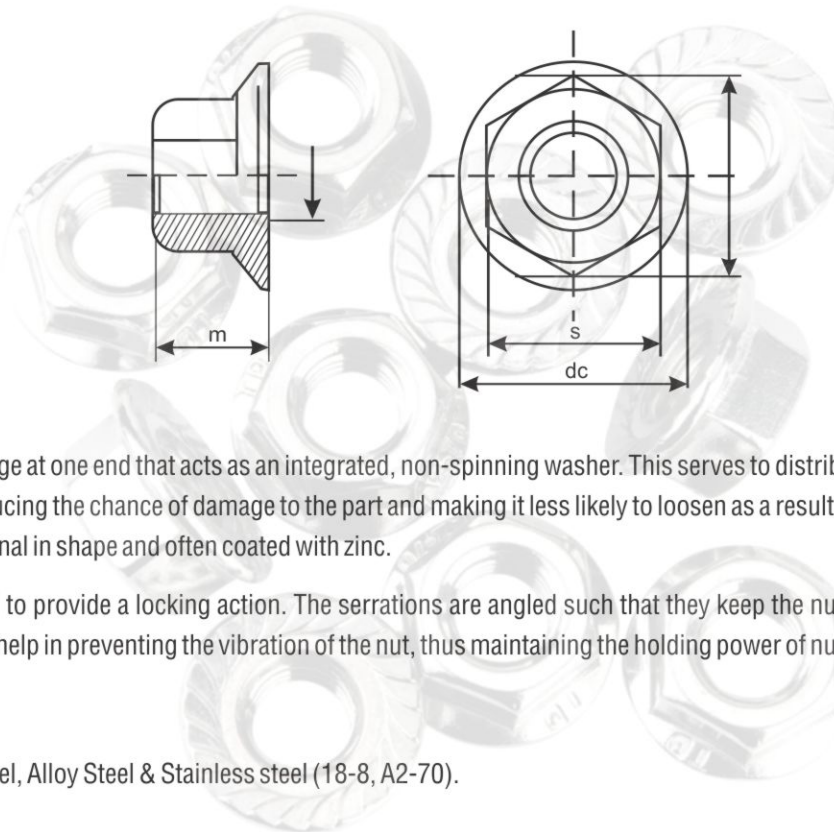
Nominal Size	Width/Across Flat (s)		Thickness/ Height (m)		Width Across Corners (e)
	Min.	Max.	Min.	Max.	Min.
M5	7.78	8.00	4.40	4.70	8.79
M6	9.78	10.00	4.90	5.20	11.05
M8	12.73	13.00	6.44	6.80	14.38
M10	15.73	16.00	8.04	8.40	17.77
M12	17.73	18.00	10.37	10.80	20.03
M14	20.67	21.00	12.10	12.80	23.36
M16	23.67	24.00	14.10	14.80	26.75
M18	26.16	27.00	15.10	15.80	29.56
M20	29.16	30.00	16.90	18.00	32.95
M22	33.00	34.00	18.10	19.40	37.29
M24	35.00	36.00	20.20	21.50	39.55
M27	40.00	41.00	22.50	23.80	45.20
M30	45.00	46.00	24.30	25.60	50.85

#### Standard Dimensions of UNC/UNF Hexagon Nuts (in inches)

Nominal Size	Width/Across Flat (s)		Thickness/ Height (m)		Width Across Corners (e)
	Min.	Max.	Min.	Max.	Min.
1/4"	0.428	0.438	0.212	0.226	0.488
5/16"	0.489	0.500	0.258	0.273	0.557
3/8"	0.551	0.562	0.320	0.337	0.628
7/16"	0.675	0.688	0.365	0.385	0.768
1/2"	0.736	0.750	0.427	0.448	0.840
9/16"	0.861	0.875	0.473	0.496	0.982
5/8"	0.922	0.938	0.535	0.559	1.051
3/4"	1.088	1.125	0.617	0.665	1.240
7/8"	1.269	1.312	0.724	0.776	1.447
1"	1.45	1.500	0.831	0.887	1.653

## NUTS

### Flange Nut (DIN 6923 / JIS 1190B)



A Flange nut has a wide flange at one end that acts as an integrated, non-spinning washer. This serves to distribute the pressure of the nut over the part being secured, reducing the chance of damage to the part and making it less likely to loosen as a result of an uneven fastening surface. The nuts are mostly hexagonal in shape and often coated with zinc.

The flange may be serrated to provide a locking action. The serrations are angled such that they keep the nut from rotating in direction that would loosen the nut. They help in preventing the vibration of the nut, thus maintaining the holding power of nut.

#### Specifications:

**Materials :** Low Carbon Steel, Alloy Steel & Stainless steel (18-8, A2-70).

**Size :** M3 to M20

**Grade :** Class 5, Class 6, Class 8, Class A2

**Finish :** White/Blue/Yellow Zinc plated, Stainless steel, Galvanized or any other finish as per customer requirements.

**Standards :** DIN 6923, JIS 1190B

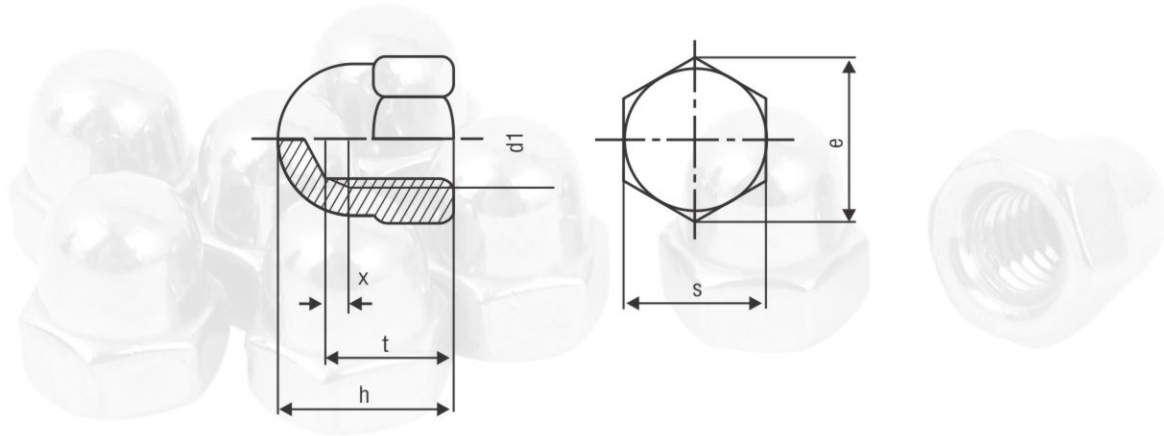
**Hardness :** Class 8 (M5 to M16) – HV (Vickers Hardness) of 188-302

**Standard specifications of our DIN 6923 Flange Nuts are as below:**

Nominal Size	Thread Pitch (p)	Overall Height (m)		Width/Across Flat (s)	Flange diameter (dc)
		Min.	Max.	Min.	Max.
M3	0.50	3.40	4.0	5.30	8.0
M4	0.70	4.20	4.65	6.78	10.0
M5	0.80	4.70	5.0	7.78	11.8
M6	1.00	5.70	6.0	9.78	14.2
M8	1.25	7.60	8.0	12.73	17.9
M10	1.50	9.60	10.0	14.73	21.8
M12	1.75	11.60	12.0	17.73	26.0
M16	2.00	15.30	16.0	23.67	34.5
M20	2.50	18.90	20.0	29.67	42.8

## NUTS

### Acorn / Dome Nut (DIN 1587)



Dome nuts have a huge variety of uses. From being used for its aesthetics as a cover for threaded rods or as cap for machine screws in architectural metalwork, to being used in car modification business as an alternative to manufacturer supplied nuts and fixings. These acorn nuts are also quite often used in furniture & fixings.

These nuts are normally available in Blue Zinc coating or chrome plating. Other finishes like Yellow/White Zinc coating, galvanized and nickel-plated are also available.

#### Specifications:

**Materials :** Carbon Steel & Stainless steel (A2-70, A4-70, SS202).

**Size :** M3 to M24

**Finish :** White Blue, White Zinc plated, Stainless steel, Galvanized or any other finish as per customer requirements.

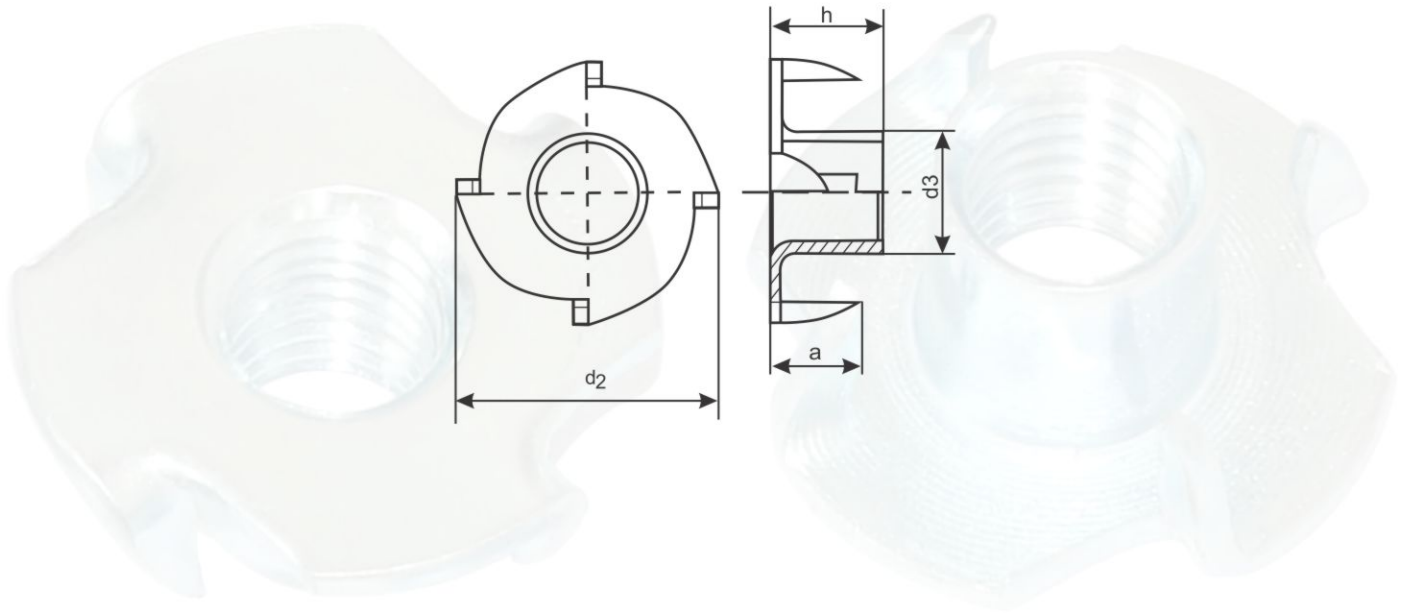
**Standards :** DIN 1587, SAE J483

**Standard specifications of our DIN 1587 Dome Nuts are as below**

Nominal Size	Thread Pitch (p)	Overall Height (h)	Width/Across Flat (s)	Width Across Corners (e)
		Ref.	Min.	Min.
M3	0.50	6	5.50	6.08
M4	0.70	8	7	7.74
M5	0.80	10	8	8.87
M6	1.00	12	10	11.05
M8	1.25	15	13	14.38
M10	1.50	18	17	18.90
M12	1.75	22	19	21.10
M16	2.00	28	24	26.75
M20	2.50	34	30	33.53
M24	3.00	42	36	39.98

## NUTS

### Four Prong Tee-Nut (DIN 1624)



#### Specifications :

**Materials :** Low Carbon Steel

**Size :** M4 to M10

**Finish :** White/Blue Zinc plated, galvanized or any other finish as per customer requirements.

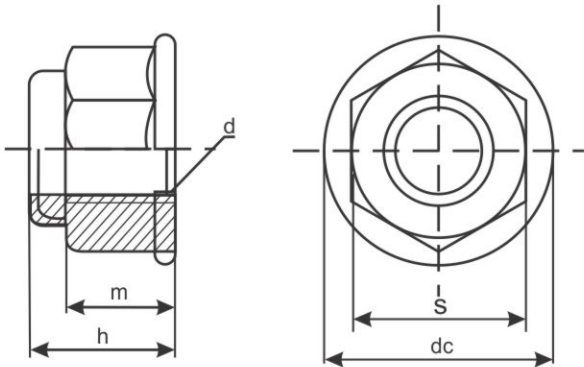
**Standards :** DIN 1624

**Standard specifications of our DIN 1624 T-Nuts are as below:**

Nominal Size	Thread Pitch (p)	Overall Height (h)	Prong Height (a)	Width of base (d2)
		Ref.	Ref.	Ref.
M4	0.70	6	5	15
M5	0.80	8	7	17
M6	1.00	9-12	7	19
M8	1.25	11-15	9	22
M10	1.50	13	11	25

## NUTS

### Nylon / Metal Insert Flange Lock Nut



**Specifications:**

**Materials :** Low Carbon Steel & Alloy Steel.

**Size :** M5 to M16

**Grade :** Class 5, Class 8

**Finish :** White/Blue Zinc plated or any other finish as per customer requirements.

**Hardness :** Class 8 (M5 to M16) – HV (Vickers Hardness) of 195 min.

**Standard specifications of DIN 6926 Nylon Insert Flange Lock Nut as below:**

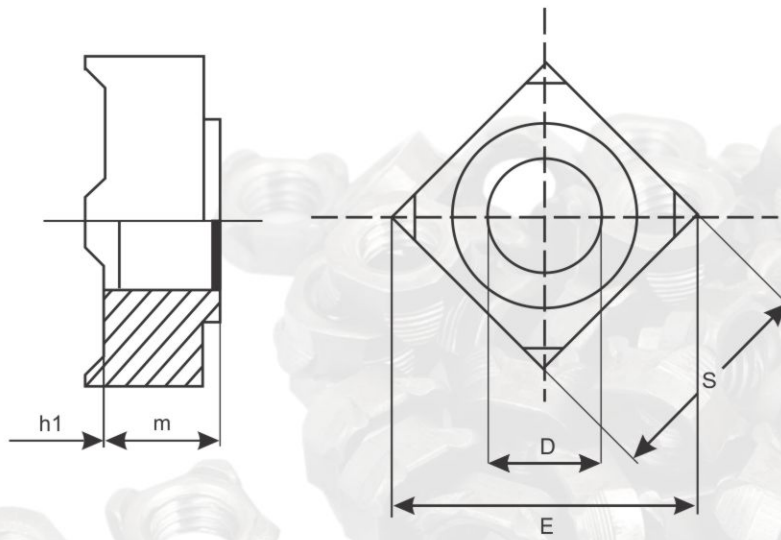
Nominal Size	Thread Pitch (p)	Overall Height (h)		Width/Across Flat (s)		Flange diameter (dc)
		Min.	Max.	Min.	Max.	Max.
M5	0.80	6.74	7.1	7.78	8.0	11.8
M6	1.00	8.74	9.1	9.78	10.0	14.2
M8	1.25	10.67	11.1	12.73	13.0	17.9
M8*	1.25	10.67	11.1	<b>11.73</b>	<b>12.0*</b>	<b>17.0</b>
M10	1.50	13.07	13.5	14.73	15.0	21.8
M10*	1.50	13.07	13.5	<b>13.73</b>	<b>14.0*</b>	<b>21.0</b>
M12*	1.75	15.67	16.1	16.73	17.0*	25.0
M16	2.00	19.46	20.3	23.67	24.0	34.5

**Standard specifications of DIN 6927 Metal Insert Flange Lock Nut as below:**

d	Pitch (p)	m (min)	h (max)	dc (max)	s
M5	0,8	4,7	6,2	11,8	8
M6	1	5,7	7,3	14,2	10
M8	1,25 (1)	7,6	9,4	17,9	13
M10	1,5 (1) (1,25)	9,6	11,4	21,8	15
M12	1,75 (1,25) (1,5)	11,6	13,8	26	18
M14	2 (1,5)	13,3	15,9	29,9	21
M16	2 (1,5)	15,3	18,3	34,5	24

## NUTS

### Square Weld Nut (JISB-1196 / DIN 927)



#### Specifications:

**Materials :** Low Carbon Steel & Stainless Steel.

**Size :** M4 to M10

**Grade :** M.S. (Low Carbon), A2 & A4

**Finish :** Plain (Forged, without any further treatment)

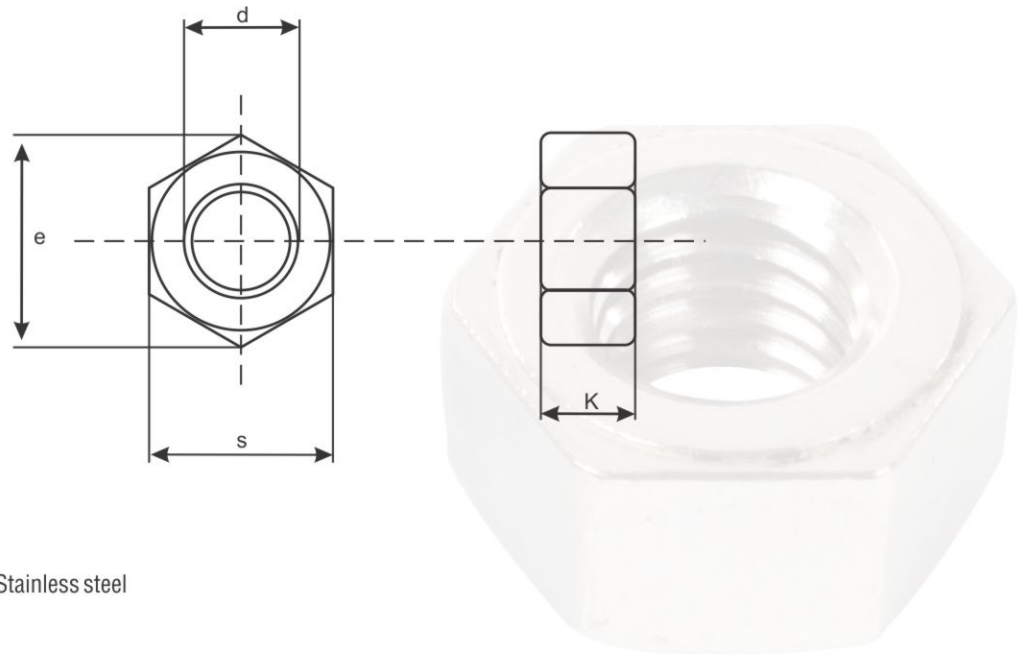
**Standards :** JIS B 1196, DIN 927

**Standard specifications of our Square weld nuts are as below:**

Nominal Size	Thread Pitch (p)	Height of weld projection (h1)		Width Across corners (e)		Width Across Flat (s)	
		Min.	Max.	Min.	Max.	Min.	Max.
M4	0.70	0.50	0.70	9	7		
M5	0.80	0.70	0.90	12	9		
M6	1.00	0.70	0.90	13	10		
M8	1.25	0.90	1.10	18	14		
M10	1.25	1.10	1.30	22	17		
M10*	1.50	1.10	1.30	22	19		

## NUTS

### Heavy Hex Nut (ASTM A194 / ANSI-B18.2.2 / IS:6623)



#### Specifications:

**Materials:** Carbon Steel, Alloy Steel & Stainless steel

**Class:** 2, 2H, 7, 7M, 8, 8M, 8S, 10S

**Size:** M12 to M36, 3/8" to 1-1/2"

**Finish:** Plain, Black, Xylan, PTFE, Galvanized, Electroplated or as per customer requirements

**Standard:** IS 6623, ANSI B18.2.2, ASTM A194

#### Standard Dimensions of IS 6623 Heavy Hex Nuts (in mm)

Nominal Size	Width/Across Flat (s)		Thickness/ Height (k)		Width Across Corners (e)
	Min	Max.	Min.	Max.	Min.
M12	20.16	21.00	11.90	12.30	22.78
M 16	26.16	27.00	16.40	17.10	29.56
M 20	33	34.00	19.40	20.70	37.29
(M22)	34	35.00	22.30	23.60	39.55
M24	40	41.00	22.90	24.20	45.20
(M27)	45	46.00	26.30	27.60	50.85
M30	49	50.00	29.10	30.70	55.37
M36	58.8	60.00	35.00	36.60	66.44

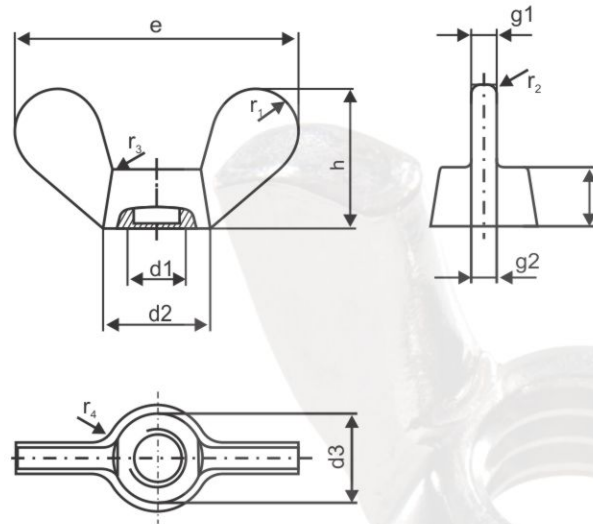
#### Standard Dimensions of ANSI B18.2.2 Heavy Hex Nuts - 2H Nuts (in inches)

Nominal Size	Width/Across Flat (s)		Thickness/ Height (k)		Width Across Corners (e)
	Min	Max.	Min.	Max.	Min.
3/8"	0.669	0.688	0.341	0.377	0.763
1/2"	0.850	0.875	0.464	0.504	0.969
5/8"	1.031	1.062	0.587	0.631	1.175
3/4"	1.212	1.250	0.710	0.758	1.382
7/8"	1.394	1.438	0.833	0.885	1.589
1"	1.575	1.625	0.956	1.012	1.796
1-1/8"	1.756	1.812	1.079	1.139	2.002
1-1/4"	1.938	2.000	1.187	1.251	2.209
1.3/8"	2.119	2.188	1.310	1.378	2.416
1-1/2"	2.300	2.375	1.433	1.505	2.622



## NUTS

### Wing Nuts (DIN 315)



#### Specifications:

**Materials :** Carbon Steel, Stainless Steel

**Size :** M4-M24, 5/16"-5/8"

**Grade :** Class 5, A2-70, 18-8

**Finish :** Zinc Plated or as per customer requirements

**Standards :** DIN 315/ANSI B18.17

Standard specifications of Wing Nuts DIN 315 are as below:

Diameter D1		M4	M5	M6	M8	M10	M12	M16	M20	M24
P <sub>1</sub> )		0,7	0,8	1	1.25	1.5	1.75	2	2,5	3
d <sub>2</sub> )	max.	8	11	13	16	20	23	29	35	44
	min.	6	8	10	13	17	20	26	32	41
d <sub>3</sub> )	max.	7	9	11	12,5	16,5	19,5	23	29	37,5
	min.	5,5	7,5	9	10,5	14,5	17,5	21	27	35
e	max.	20	26	33	39	51	65	73	90	110
	min.	18	24	30	36	48	62	70	86	106
g <sub>1</sub>	max.	1,9	2,3	2,3	2,8	4,4	4,9	6,4	6,9	9,4
	min.	1,1	1,5	1,5	2	3,6	4,1	5,4	6,1	8,6
g <sub>2</sub>	max.	2,3	2,8	3,3	4,4	5,4	6,4	7,5	8	10,5
	min.	1,7	2,3	2,7	3,6	4,6	5,6	6,5	7	9,5
h	max.	10,5	13	17	20	25	33,5	37,5	46,5	56,5
	min.	8,5	11	15	18	23	31	35	44	53,5
r <sub>1</sub>	=	3	4	5	6	8	10	11	14	18
r <sub>3</sub>	=	0,6	1	1	1	1,2	1,2	1,6	2	2,5
r <sub>4</sub>	=	2	2,5	3	3	5	6	7	8	9

## NUTS

### Rivet Nuts (Insert Nut - Blind Rivets)



FH-RB Flat Head Round Body



FH-RBC Flat Head Round Body Closed



RH-RB Reduce Head Round Body



RH-RBC Reduce Head Round Body Closed



FH-KB Flat Head Knurled Body



FH-KBC Flat Head Knurled Body Closed



RH-KB Reduce Head knurled Body



RH-KBC Reduce Head Knurled Body Closed



FH-SHB Flat Head Semi-Hex Body



FH-SHBC Flat Head Semi-Hex Body Closed



FH-FHB Flat Head Full Hex Body



FH-FHBC Flat Head Full Hex Body Closed



RHH-FHB Reduce HexHead Full Body



RHH-FHBC Reduce Hex Head Full Body Closed

## HIGH TENSILE FASTENERS

Hex Bolt



Hexagon Socket Head Cap Screws



Socket Set Screws



Socket Countersunk Head Screws



Socket (Button) Head Screws

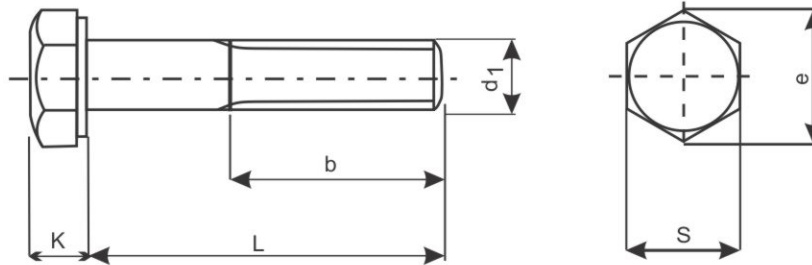


## HIGH TENSILE FASTENERS

Hex Bolt 8.8/10.9/12.9 (DIN 931 / ASTM A325 / A490 / IS:1364-1)



Technical Specifications DIN 931



### HEX BOLT HALF THREAD DIN 931

d1	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
k	2	2.8	3.5	4	5.3	6.4	7.5	8.8	10	11.5	12.5	14	15
s	5.5	7	8	10	13	17(16)	19(18)	22(21)	24	27	30	32(34)	36
b<125	12	14	16	18	22	26	30	34	38	42	46	50	54
b>125				24	28	32	36	40	44	48	52	56	60
e (max)	6.01	7.66	8.79	11.05	14.38	18.9	21.1	24.49	26.75	30.14	33.53	35.72	39.98

### HEX BOLTS DIN 931 HALF THREAD KG/1000 PCS

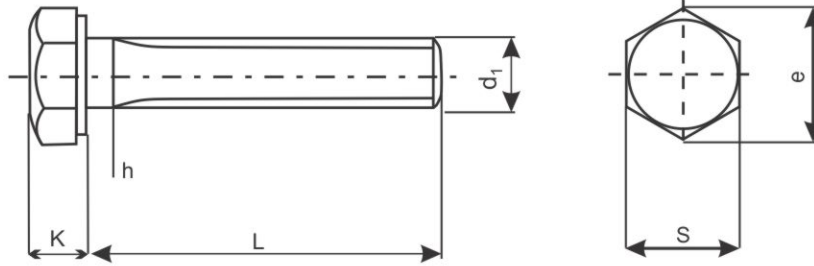
DIA	d1	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
LENGTH	25	3.12	4.86										
	30	3.6	5.64	8.06									
	35	4.04	6.42	9.13	18.2								
	40	4.53	7.2	10.2	20.3	35							
	45	5.02	7.98	11.3	22.2	38	53.6						
	50	5.51	8.76	12.3	24.2	41.1	58.1	82					
	55	6	9.54	13.4	25.8	43.8	62.6	88.1	115				
	60	6.49	10.32	14.4	27.8	46.9	67	94.1	123				
	65	6.98	11.1	15.35	29.8	50	70.3	98.8	131	171	219		
	70	7.47	11.88	16.3	31.8	53.1	74.7	105	139	181	231	281	
	75	7.96	12.66	17.25	33.7	56.2	79.1	111	147	191	243	296	
	80	8.45	13.44	18.2	35.7	59.3	83.6	117	155	200	255	311	392
	85	8.94	14.22	19.15	37.65	62.4	88.1	123	163	210	267	326	410
	90	9.43	15	20.1	39.6	65.5	92.4	127	171	220	279	341	428
	100	10.4	16.6	22	43.5	71.7	101	139	186	240	303	370	464
	110					78	109	151	202	260	327	400	500
	120					84.2	118	164	218	280	351	430	535
	125					87.3	122.5	169	224	288	362	440	547.5
	130					90.4	127	174	230	296	374	450	560
	140					96.6	136	185	246	316	398	480	595
150					102.8	145	196	262	336	422	510	630	
160						154	207	278	356	446	540	665	
170						163	218	294	376	470	570	700	
175						167.5	223.5	302	386	482	585	717.5	
180						172	229	310	396	494	600	735	
190						181	240	326	416	519	630	770	
200						190	251	342	436	544	660	805	

## HIGH TENSILE FASTENERS

Hex Bolt 8.8/10.9/12.9 (DIN 933 / ASTM A325 / A490 / IS:1364-2)



Technical Specifications DIN 933



### HEX BOLT FULL THREAD DIN 933

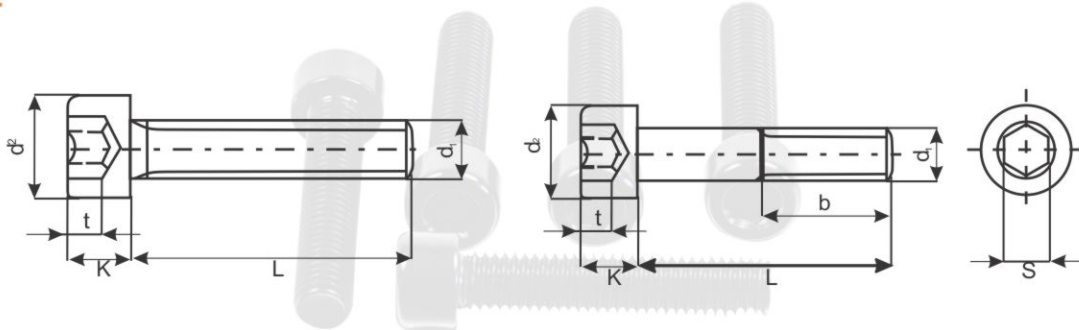
d1	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
k	2	2.8	3.5	4	5.3	6.4	7.5	8.8	10	11.5	12.5	14	15
s	5.5	7	8	10	13	17(16)	19(18)	22(21)	24	27	30	32(34)	36
e	6.01	7.66	8.79	11.05	14.38	18.9	21.1	24.49	26.75	30.14	33.53	35.72	39.98
h	1.5	2.1	2.4	3	3.75	4.5	5.25	6	6	7.5	7.5	7.5	9

### HEX BOLTS DIN 933 FULL THREAD KG/1000 PCS

DIA	d1	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
LENGTH	6	0.57	1.33	2.18	3.4									
	8	0.66	1.49	2.38	3.74	8.5	15.2							
	10	0.75	1.64	2.63	4.08	9.1	16.2	23.3	38					
	12	0.84	1.8	2.87	4.42	9.8	17.2	25	40	52.9				
	16	1	2.1	3.37	5.11	11.1	19.2	27.7	44	58.3	82	105		
	20	1.18	2.41	3.87	5.8	12.3	21.2	31	48	63.5	87.2	114		
	25	1.14	2.8	4.49	6.65	13.9	23.7	34.1	53	70.2	95.8	124		
	30	1.61	3.19	5.11	7.51	15.5	26.2	37.7	57.9	76.9	104	134		
	35		3.57	5.73	8.37	17.1	28.7	41.3	62.9	83.5	112	145	181	
	40		3.96	6.35	9.23	18.7	31.2	44.9	67.9	90.2	120	155	193	144
	45		4.34	6.99	10.1	20.3	33.7	48.5	72.9	97.1	128	165	206	159
	50		4.73	7.59	11	21.8	36.2	52	77.9	103	136	167	219	274
	55		5.12	8.21	11.9	23.4	38.7	55.6	82.8	110	145	186	232	289
	60		5.5	8.83	12.7	25	41.3	58.2	87.8	117	153	196	244	304
	65		5.89	9.45	13.6	26.6	43.8	62.8	92.8	123	161	207	257	319
	70		6.28	10.1	14.4	28.2	46.3	66.4	97.9	130	169	217	270	334
	75			10.7	15.3	29.8	48.8	70	102	137	177	227	282	348
	80			11.3	16.2	31.4	51.3	73.6	107	144	186	238	295	363
	85				17	33	53.8	77.2	112	150	194	249	308	378
	90				17.9	34.6	56.3	80.8	117	157	202	258	321	393
100				19.6	37.7	61.3	88	127	170	218	279	346	423	
110				21.3	40.9	66.4	95.2	137	184	235	300	371	453	
120				25	44.6	71.7	102	147	197	251	320	397	483	
125				25.6		74	105.5	152	203	259	330	412	500	
130				26.3	48.1	76.4	109	157	210	268	340	424	513	
140				27.8	51	81.4	116	167	224	284	361	450	543	
150				29.4	53.8	86.4	123	177	237	300	381	473	572	
160						90.1	130		253	316	402	498	602	
170						93.7	139		267	332	422	523	632	
175						97	143		272	341	436	538	654	
180						102	147		276	350	446	548	662	
190						106	154		291	368	467	573	692	
200						111.1	161		297	382	485	598	722	

## HIGH TENSILE FASTENERS

### Hexagon Socket Head Cap Screws (DIN 912 / ISO 4762)



d1	M2	M2,5	M3	M4	M5	M6	M8	M10	M12	M14	M16
d2	3.8	4.5	5.5	7	8.5	10	13	16	18	21	24
b	16	17	18	20	22	24	28	32	36	40	44
k	2	2.5	3	4	5	6	8	10	12	14	16
s	1.5	2	2.5	3	4	5	6	8	10	12	14
t min	1	1.1	1.3	2	2.5	3	4	5	6	7	8

#### DIN 912 Kg/1000 Pcs

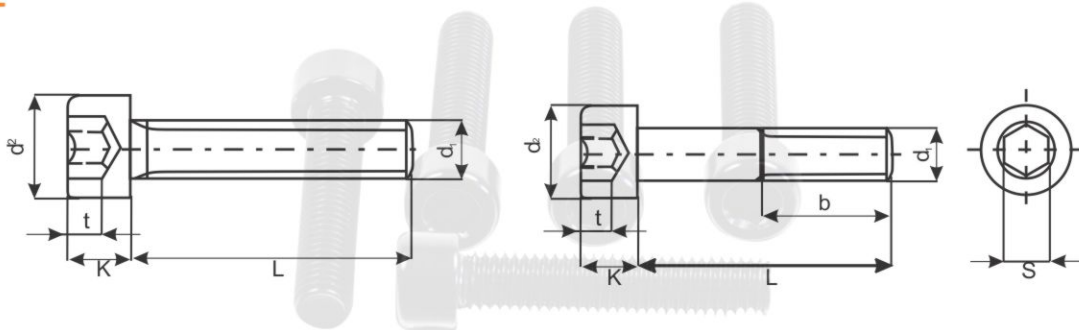
DIA	di	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M14	M16	
Length	4	0.18	0.35										
	5	0.2	0.38	0.67	1.42								
	6	0.22	0.41	0.71	1.50	2.20	3.96						
	8	0.26	0.47	0.8	1.70	2.45	4.33						
	10	0.3	0.53	0.88	1.8	2.7	4.7	10.30					
	12	0.36	0.59	0.96	1.95	2.95	5.07	10.9	10.9				
	14	0.39	0.65	1.06	2.10	3.2	5.44	11.5					
	16	0.42	0.71	1.16	2.25	3.45	5.75	12.1	20.9				
	18	0.46	0.77	1.24	2.46	3.73	6.14	12.8	21.9				
	20	0.5	0.83	1.36	2.65	4.01	6.53	13.4	22.9	32.1			
	22		0.9	1.48	2.80	4.39	6.90	14.2	23.9	33.9			
	25		0.98	1.61	3.15	4.78	7.59	15	25.4	35.7	48	71.3	
	30			1.86	3.65	5.55	8.3	16.9	27.9	39.3	53	77.8	
	35			2.11	4.15	6.32	9.91	18.9	30.4	42.9	58	84.4	
	40			2.36	4.65	7.09	11	20.9	32.9	46.5	63	91	
	45			2.61	5.15	7.86	12.1	22.9	36.1	50.1	68	97.6	
	50			2.86	5.65	8.63	13.2	24.9	39.3	54.3	73	106	
	55			3.11	6.15	9.40	14.3	26.9	42.5	58.9	78	114	
	60			3.36	6.65	10.17	15.4	28.9	45.7	63.4	84	122	
	65			3.61	7.15	10.94	16.6	31	48.9	67.8	90	130	
	70			3.86	7.65	11.71	17.6	33	52.1	71.3	96	138	
	75							18.7	35	55.30	75.75	102	146
	80					8.65	13.25	19.8	37	58.5	80.2	108	154
	90					9.65		22	40.6	64.9	89.1	120	170
	100					10.15		24.2	45	71.2	98	132	186
	110							26	49	77.4	107	144	202
	120							28.6	53	83.6	116	156	218
	130							30.8	57	89.8	125	168	234
	140							33	61	96	134	180	250
	150							35.2	65	102.2	143	192	266
160								69	105.3	147.5	204	282	
170								73	108.1	152	216	298	
180								77	111.5	156.5	228	314	
190								81	114.6	161	240	330	
200								85	117.7	165.5	252	346	
250										188	312	426	
270										197	336	458	
300										210.5	372	506	

Sizes from M18 to M48 also available

## HIGH TENSILE FASTENERS

### Hexagon Socket Head Cap Screws (BS 2470)

**SFX**



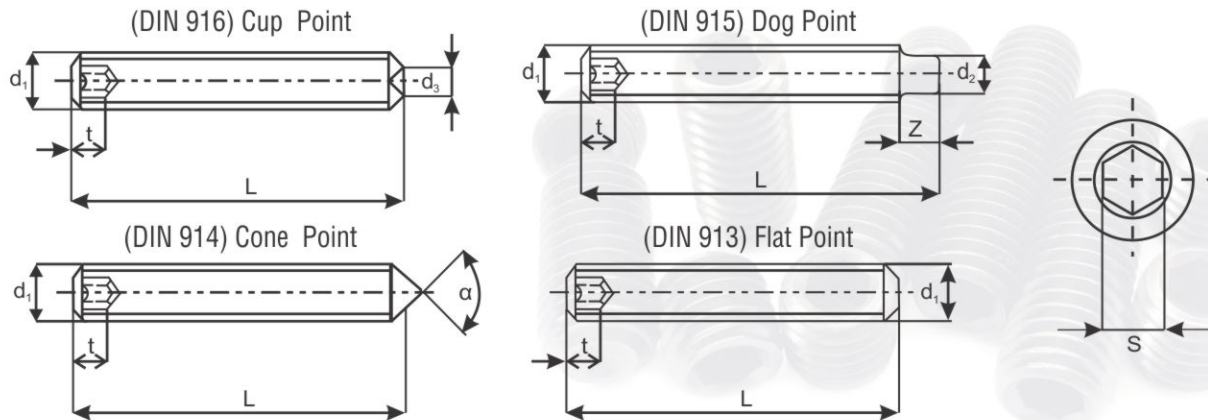
d1	M18	M20	M22	M24	M27	M30	M33	M36	M42	M48
d2	27	30	33	36	40	45	50	54	63	72
b	48	52	56	60	66	72	78	84	69	108
k	18	20	22	24	27	30	33	36	42	48
s	14	17	17	19	19	22	24	27	32	36
t min	9	10	11	12	13.5	15.5	18	19	24	28

#### HEXAGON SOCKET HEAD CAP SCREWS BS 2470 HALF THREAD KG/1000 PCS

DIA	d1	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	7/8"	1	
LENGTH	1/4	1.82	2.82										
	3/8	2.09	3.00	5.45									
	1/2	2.36	3.36	6.82	10.46								
	5/8	2.69	3.68	7.73	11.36	18.18							
	3/4	3.05	4.00	8.18	12.27	19.55		42.27					
	1	3.55	5.00	9.09	13.64	22.73	31.82	47.73	70.91				
	1 1/4	3.89	5.45	10.00	15.91	26.36	36.36	53.36	78.18	128.18			
	1 1/2	4.22	6.36	12.27	18.18	30.90	40.46	59.69	86.82	138.64			
	1 3/4		6.82	13.8	20	32.73	44.55	63.64	92.27	153.18			
	2		7.73	14.55	22.73	36.36	46.71	69.55	103.15	166.36	240	347.73	
	2 1/4		8.32	15.90	24.55	39.55	48.86	67.36	110	176.82	256.36	370.45	
	2 1/2		9.09	17.27	27.27	41.82	57.27	81.82	126.36	187.27	273.64	393.64	
	2 3/4		10.00	18.18	29.55	43.64	58	87.73	127.73	195.46			
	3		10.64	19.09	31.36	47.73	65.91	92.27	135	217.27	310.00	432.07	
	3 1/4			20.05	33.18	52.27	67.73	95.46	149.09	229.55			
	3 1/2			22	35.91	53.64	73.64	102.27	156.36	237.73	343.64	478.64	
	4			25	41.82	60.46	81.82	113.64	177.73	274.55	378.18	531.82	
	4 1/2				45	69.55		127.27	195.46	295.46	420	538.18	
	5				49.77	77.27		140.91	216.36	329.55	454.55	606.82	
	5 1/2				53.41	80.50		151.82	237.73	349.09	500.00	372.73	
	6				57.14	89.00		164.55	252.27	380.91	527.27	725	
	6 1/2					96.00		176.36	270.45	407.73	568.18	775	
	7					101.00		188.18	288.18	434.55	609.09	823.64	
	7 1/2							200.00	306.36	460.00			
8					114.86		211.82	324.09	506.82	645.46	922.73		
9					128.68		235.46	360.00	579.09	709.09	1021.82		
10					142.00		259.09	395.91	632.73	768.18	1120.46		
12							307.21	507.82	740.00	881.82	1318.18		

## HIGH TENSILE FASTENERS

### Socket Set Screws (DIN 916 / Din 915 / DIN 914 / DIN 913)



d1	M2	M3	M4	M5	M6	M8	M10	M12	M16	M20
S	0.9	1.5	2	2.5	3	4	5	6	8	10
L <	2.5	4	5	5	6	8	10	12	16	20
t	0.8	1.2	1.5	2	2	3	4	4.8	6.4	8
L >	3	5	6	6	8	10	12	14	18	22
t	1.7	2	2.5	3	3.5	5	6	8	10	12
d <sub>2</sub>	1.2	2	2.5	3.5	4	5.5	7	8.5	12	15
d <sub>3</sub>	1	1.4	2	2.5	3	5	6	8	10	14

Property Class	Material	Heat Treatment	Chemical Composition %			
			C		P	S
			max.	min.	max.	max.
14H	Carbon Steel	-	0.50	-	0.11	0.15
22H	Carbon Steel	Quenched and Tempered	0.50	-	0.05	0.05
33H	Carbon Steel	Quenched and Tempered	0.50	-	0.05	0.05
45H	Carbon Steel	Quenched and Tempered	0.50	-	0.05	0.05

### Mechanical Properties

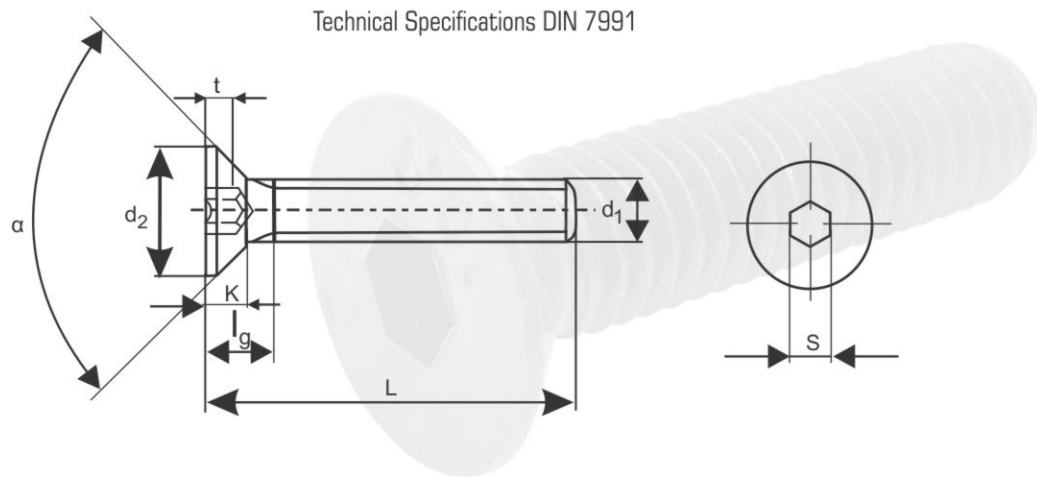
		Property				
		14H	22H	33H	45H	
Vickers Hardness HV	min.	140	220	330	450	
	max.	290	300	440	560	
Brinell Hardness HB, F=30 D2	min.	133	209	314	428	
	max.	276	285	418	532	
Rockwell Hardness	HRB	min.	75	95	-	
		max.	105	-	-	
	HRC	min.	-	-	33	45
		max.	-	30	44	53
Minimum Height of Non-decarburized thread zone, E		-	1/2H1	2/3H1	3/4H1	
Maximum depth of complete decarburization, G (mm)		-	0.015	0.015	**	
Surface Hardness HV 0.3 (max)		-	320	450	580	



## HIGH TENSILE FASTENERS

### Socket Countersunk Head Screws (DIN 7991)

**SFX**



#### HEXAGON SOCKET COUNTERSUNK HEAD SCREW DIN 7991

d1	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24
d2	4	5	6	8	10	12	16	20	24	30	36	39
k max	1.2	1.5	1.7	2.3	2.8	3.3	4.4	5.5	6.5	7.5	8.5	14
s	1.25	1.50	2.00	2.5	3.00	4.00	5.00	6.00	8.00	10.0	12.0	14.0
t	0.8	1.0	1.2	1.8	2.3	2.5	3.5	4.4	4.6	5.3	5.9	10.3
α	90°	90°	90°	90°	90°	90°	90°	90°	90°	90°	90°	90°

#### HEXAGON SOCKET COUNTERSUNK HEAD SCREW DIN 7991 KG/1000 PCS.

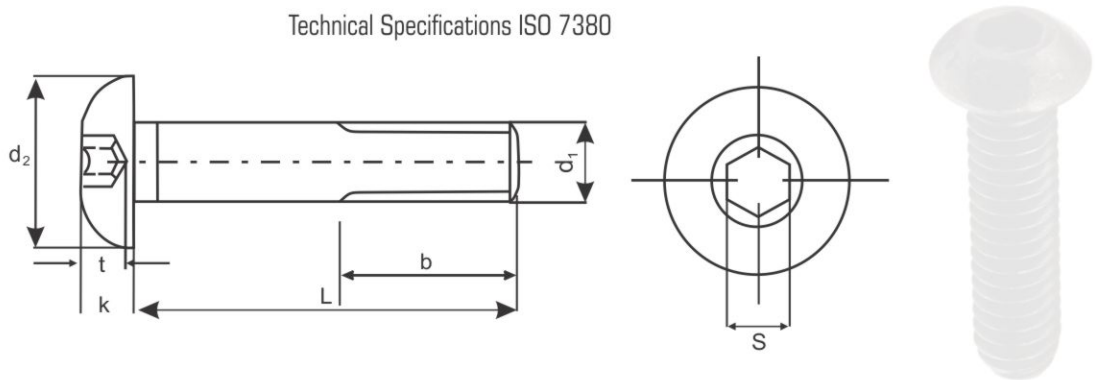
DIA	d1	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24
Length	6	0.45	0.79								
	8	0.47	0.92	1.60	2.35						
	10	0.56	1.07	1.85	2.70	5.47					
	12	0.65	1.23	2.10	3.05	6.10	10.10				
	16	0.83	1.53	2.59	3.76	7.35	12.10				
	20	1.00	1.84	3.09	4.46	8.60	14.10	21.20			
	25	1.35	2.23	3.71	5.34	10.20	16.60	24.80			
	30	1.63	2.90	4.33	6.22	11.70	19.10	28.50	51.80		
	35	1.55	3.40	5.43	7.10	13.30	21.60	32.10	58.40	91.40	
	40	1.77	3.90	6.20	8.83	14.80	24.10	35.70	65.10	102.00	
	45	2.00	4.18	6.97	9.92	17.35	26.50	40.09	74.00	113.00	
	50			7.74	11.00	19.90	30.10	43.00	78.40	123.00	179
	55					22.35	32.9	47.59	89.32	133.00	194
	60					24.80	35.70	54.00	91.70	143.00	209
	65							55.14	104.77	154.00	224
	70						41.20	62.90	111.00	164.00	239
	75								119.00	182.00	254
80								127.00	200.00	269	
90								143.00	226.00	299	
100								158.86	253.00	340	

## HIGH TENSILE FASTENERS

### Socket (Button) Head Screws (ISO 7380)



Technical Specifications ISO 7380



#### SOCKET BUTTON HEAD CAP SCREW ISO 7380

DI	M3	M4	M5	M6	M8	M10	M12	M16
<b>d2</b>	5.5	7.5	9.5	10.5	14	17.5	21	28
<b>k</b>	1.65	2.20	2.75	3.30	4.40	5.50	6.60	8.80
<b>s</b>	2	2.50	3.00	4.00	5.00	6.00	8.00	10.00
<b>t</b>	1.04	1.30	1.56	2.08	2.60	3.12	4.16	5.20

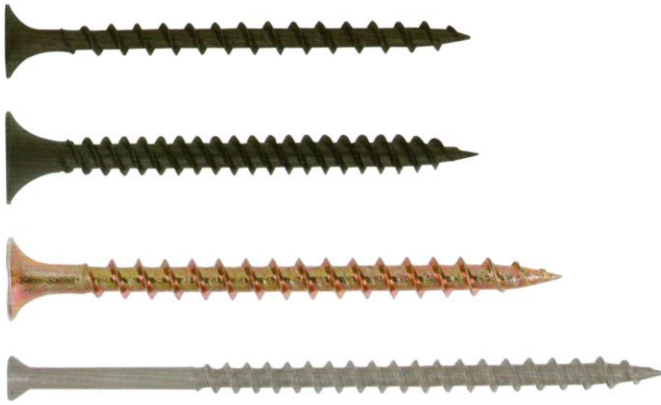
Diameter d <sup>1</sup>	M3	M4	M5	M6	M8	M10	M12
<b>r<sup>1</sup></b>	3	4.1	5.2	5.6	7.5	10	11
<b>t min.</b>	1.04	1.3	1.56	2.08	2.6	3.12	4.16
<b>s</b>	2	2.5	3	4	5	6	8
<b>k max.</b>	1.65	2.2	2.75	3.3	4.4	5.5	6.6
<b>d<sup>2</sup></b>	5.5	7.5	9.5	10.5	14	18	21
<b>R.S. Torque (NM)</b>	1.15	2.7	5.4	9.15	22	44	17

<b>Property Class</b>	<b>10.9</b>
<b>Hardness (HRC)</b>	<b>32-39</b>

# SCREWS

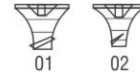
## Drywall / Chipboard / Self Tapping Screws

### Drywall Screws



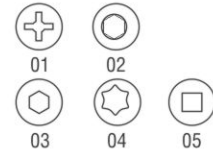
**Head Type:**

- 01. Double Countersunk head
- 02. Bugle Head



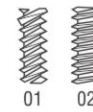
**Drive (recess) type:**

- 01. Philips
- 02. Spline Socket
- 03. Hexagon Socket
- 04. Star Drive
- 05. Square



**Thread type:**

- 01. Coarse thread
- 02. Fine thread



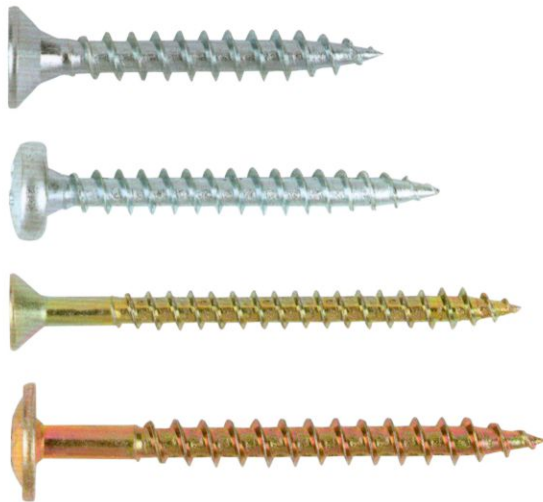
**Point type:** Sharp point



**Surface treatment**

Phosphate, Zinc, Yellow Zinc, 500hrs, 1000hrs, 1500hrs, Mechanical Galvanized, Painted Head

### Chipboard Screws



**Head Type:**

- 01. Double Countersunk head
- 02. Round Head
- 03. Truss modified (wafer) head



**Drive (recess) type:**

- 01. Slot
- 02. Philips
- 03. Pozi



**Thread type:** Coarse thread



**Point type:** Sharp point



**Surface treatment** Zinc, Yellow Zinc

### Self Tapping Screws



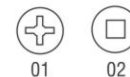
**Head Type:**

- 01. Double Countersunk head
- 02. Round Head
- 03. Truss modified (wafer) head
- 04. Hex Flange washer head



**Drive (recess) type:**

- 01. Philips
- 02. Square



**Thread type:**  
Fine thread



**Point type:**  
Sharp point



**Surface treatment**

Phosphate, Zinc, Yellow Zinc  
Mechanical Galvanized

# SCREWS

## Self Drilling Screws

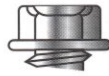
### Head Styles



Pan



Oval



H.W.H



H.W.F



C.S.K



Large Wafer



Pancake



Bugle



Pan Farming



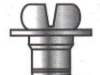
Hinge



Hinge



Wafer



Wafer

### Head Recess



Pozi



Phillips



Square

### Under Head



Phillips  
4 ribs



H.W.F  
Undercut

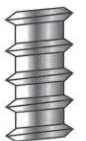


H.W.F  
Undercut

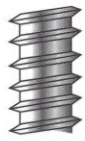


Serrations

### Threads



TYPE A  
# 10-12T  
# 12-11T  
# 14-10T



TYPE A  
# 6-20T  
# 7-19T  
# 8-10T  
# 10-16T  
# 12-14T  
# 14-14T



TYPE A  
# 8-32T  
# 10-24T  
# 12-24T  
# 14-20T



HI-LOW



DOUBLE  
THREAD

### Point



TYPE 17



TAPPING



SPOON



WING TEKS



PT. #1



PT. #2



PT. #3



PT. #4



PT. #5



PT. #6

### Washer

#### P.V.C



#10, #12, #14

#### E.P.D.M



#10, #12, #14

#### Bonded Washer



#10x14  
#12x14



#12x16  
#14x16



..#12x19  
#14x19



..#14x25



..#12, #14, #16

### Plating

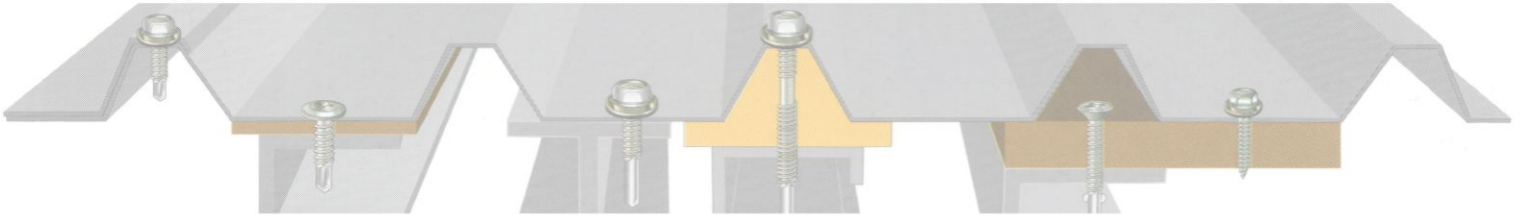
PL: Plain  
YZ: Yellow Zinc  
ZN: Zinc

BP: Black Phosphated  
GP: Grey Phosphated  
BZ: Black Zinc

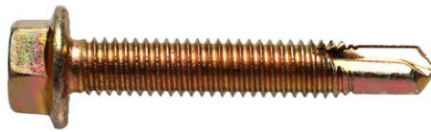
BO: Black Oxide  
DC: Dactrotized  
RS: Ruspert  
XY: Xylan

## SCREWS

### Self Drilling Screws



Xylan Coated SDS



Heavy Duty Screw



Hex Washer Head Screw



Painted Hex Washer Head SDS



Nylon Hex Washer Head SDS



Bi-Metal Screw



Stainless SDS



Countersunk Phillips SDS



Pan Phillips SDS



Truss Phillips SDS



Farmer Head SDS

## WASHERS

### Spring Lock Washers

**Specifications:**

**Materials :** Low Carbon Steel, Spring Steel (EN42), Alloy Steel, Stainless steel, Phosphor-bronze, Silicon-Bronze, Nickel-Copper-Aluminum and any other material to the customer requirements.

**Size :** M3 to M48, 1/8" to 1-3/4"

**Finish :** plain, oiled, auto black, hot-dip galvanized, electroplated (with de-embrittlement)

**Standards :** DIN 127B (Flat Section), DIN 7980 (Square section), ASME B18.21.1 (Helical Spring-lock washers – regular, heavy, extra-duty & high-collar), JIS B 1251 (Regular & Heavy duty), IS3063, IS 6735, BSS 1802, BS 4464

**Tests we do for our Spring-lock washers :** Chemical composition, Hardness, Decarburization, Washer cross-section, Coiling, twist test, free height, toughness, appearance, compression test.



**Typical dimensions for DIN127B/ IS3063 (or other flat section spring washers)**

Nom. Size	Inner dia (d) (min.)	Outer dia (D) (max.)	Width (mm)	Tolerance (+/-)(mm)	Thickness (mm)	Tolerance (+/-)(mm)	Weight (g/100pcs)
M3	3.1	6.2	1.3	0.1	0.8	0.1	11.0
M4	4.1	7.6	1.5	0.1	0.9	0.1	18.0
M5	5.1	9.2	1.8	0.1	1.2	0.1	36.0
M6	6.1	11.8	2.5	0.15	1.6	0.1	83.0
M8	8.1	14.8	3	0.15	2	0.1	160.0
M10	10.2	18.1	3.5	0.2	2.2	0.15	253.0
M12	12.2	21.1	4	0.2	2.5	0.15	382.0
M14	14.2	24.1	4.5	0.2	3	0.15	601.0
M16	16.2	27.4	5	0.2	3.5	0.2	891.0
M18	18.2	29.4	5	0.2	3.5	0.2	973.0
M20	20.2	33.6	6	0.2	4	0.2	1520.0
M22	22.5	35.9	6	0.2	4	0.2	1650.0
M24	24.5	40	7	0.25	5	0.2	2620.0
M27	27.5	43	7	0.25	5	0.2	2870.0
M30	30.5	48.2	8	0.25	6	0.2	4430.0
M33	33.5	55.2	10	0.25	6	0.2	6300.0
M36	36.5	58.2	10	0.25	6	0.2	6730.0
M39	39.5	61.2	10	0.25	6	0.2	7170.0
M42	42.5	68.2	12	0.25	7	0.25	11000
M45	45.5	71.2	12	0.25	7	0.25	11700
M48	49	75	12	0.25	7	0.25	12300

**Typical dimensions for DIN7980/ IS6735 (or other square section spring washers)**

Nom. Size	Inner dia (d) (min.)	Outer dia (D) (max.)	Width (mm)	Tolerance (+/-)(mm)	Weight (g/100pcs)
M3	3.1	5.6	1.0	0.1	10.5
M4	4.1	7	1.2	0.1	19.5
M5	5.1	8.8	1.6	0.1	37.0
M6	6.1	9.9	1.6	0.1	42.5
M8	8.1	12.7	2	0.1	105.0
M10	10.2	16	2.5	0.15	196.0
M12	12.2	18	2.5	0.15	228.0
M14	14.2	21.1	3	0.2	380.0
M16	16.2	24.4	3.5	0.2	594.0
M18	18.2	26.4	3.5	0.2	660.0
M20	20.2	30.6	4.5	0.2	1230.0
M22	22.5	32.9	4.5	0.2	1360.0
M24	24.5	35.9	5	0.2	1810.0
M27	27.5	38.9	5	0.2	2060.0
M30	30.5	44.1	6	0.2	3200.0
M33	33.5	47.2	6	0.2	3500.0
M36	36.5	52.2	7	0.25	5250.0
M39	39.5	55.2	7	0.25	5610.0
M42	42.5	60.2	8	0.25	8000
M45	45.5	64	8	0.25	8530
M48	49	67	8	0.25	9000

## ANCHORS

### Anchor Fasteners



A2 / A4 Stainless Steel Through bolt  
(Wedge Anchors)



Through Bolt  
(Wedge Anchors)



Elevator Anchor



Sleeve Anchor



3 Pcs Anchor



4 Pcs Anchor



Sleeve Anchor



Shield Anchor



Drop in Anchor



Drop in Anchor



Drop in Anchor



Concrete Screws

# **STURDFIX**®

**FASTENERS & FIXINGS**

## **Singhania International Limited**

An ISO 9001:2015 Certified Company

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