



TORQFASTENERS™

QUALITY. PRECISION. INNOVATION.

ISO 9001 CERTIFIED COMPANY

OUR MISSION

Our goal is to be a world class company. We will be our customers best supplier. We will accomplish this goal through excellent customer service, honest business practices, providing quality product and on time delivery.

OUR VISION

To be known as the premier provider of innovative products for the fastening and engineered component marketplace.

OUR QUALITY POLICY

The Management of Torq Fasteners is committed to deliver highest quality products and services in achieving total customer satisfaction.



उद्योग आधार Udyog Aadhaar																			
A																			
<table border="1"> <tr> <td>Type of Enterprise</td> <td>Micro</td> <td>Small</td> <td>Medium</td> </tr> <tr> <td>Manufacturing</td> <td>A</td> <td>B</td> <td>C</td> </tr> <tr> <td>Services</td> <td>D</td> <td>E</td> <td>F</td> </tr> <tr> <td>UAM No.</td> <td colspan="3">MH19A0088919</td> </tr> </table>		Type of Enterprise	Micro	Small	Medium	Manufacturing	A	B	C	Services	D	E	F	UAM No.	MH19A0088919				
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Udyog Aadhaar Registration Certificate Udyog Aadhaar Number: MH19A0088919 Name of Enterprise: TORQ FASTENERS LLP Location of Plant Details:																			
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Official Address of Enterprise: 81 GROUND FLOOR NAGDEVI CROSS LANE District: MUMBAI CITY State: MAHARASHTRA PIN: 400003 Mobile No: 9930303286 Email: torqfasteners@gmail.com																			
Date of commencement: 11/02/2019 Major Activity: MANUFACTURING Enterprise Type: Micro Previous Registration details-if any: ..																			
National Industry Classification Code:																			
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Acknowledgement: Date of Filing: 11/05/2019 Date of Printing: 11/05/2019																			
Disclaimer: This is computer generated statement, no signature required, Printed from: udyogadhaar.gov.in MyMeme Mobile App (Beta Version) is available now for download, https://play.google.com/store/apps/details?id=meme.mymeme																			

ABOUT US

ABOUT MANAGEMENT TEAM

Parag Shah (Director - Marketing & Sales)

Parag Shah has over 30 years of experience in manufacturing and distribution in the fasteners industry and works closely with several well reputed OEM's. Parag is also one of the founding members of "The Fastener Association of India".

Jeet Desai (Director – Business Development)

Jeet Desai, an MBA, started his career as an investment banker with Standard Chartered Bank. After a successful 7 year stint in investment banking, Jeet got into the business of importing and sourcing fasteners from countries across the globe including China, Taiwan, Malaysia, Germany and South Korea . He has a strong network with some of the best fastener manufacturing companies in the world.

Vijay Gupta (Head – Production & Planning)

Vijay Gupta, started a fastener manufacturing plant in 1998 in Mumbai. Has fastener manufacturing experience of more than 35 years, and is an expert in tooling, die designing and specialized fasteners production

ABOUT TORQ FASTENERS

Torq Fasteners is a market leader in manufacturing and supply of industrial and automotive fasteners. Our manufacturing plant and warehouse is spread across 30,000 sq. feet in Bhiwandi, Maharashtra.

Our company manufactures standard and specialized high precision components based on client requirements. Our company is driven by quality and is committed to developing strong client relationships. Our management team has a combined experience of more than 45 years in the fasteners industry.

MANUFACTURING PLANT



WAREHOUSE



INNOVATION

VENDOR MANAGEMENT INVENTORY (VMI)

Through the introduction of a managed system we can significantly reduce the time & expense spent in controlling your fastener parts usage extensively reducing your total acquisition costs.

VMI BENEFITS

The benefits of VMI systems are extensive. It essentially reduces the amount of non-value added time spent on getting the right product to the right destination at the right time.

Vendor based consolidated & reduction

Decreased inventory & stock holding costs

Release of production time

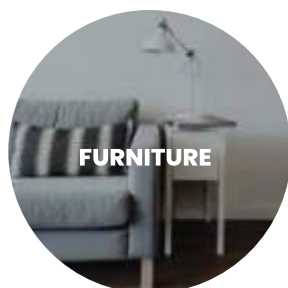
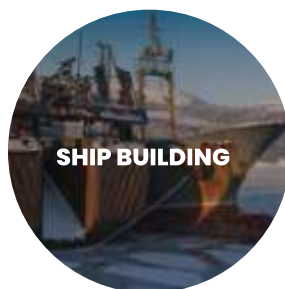
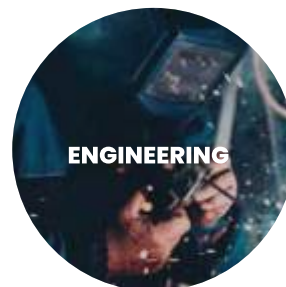
Condensed administration costs

Elimination of stock outs

Minimized storage space



INDUSTRIES WE SERVE



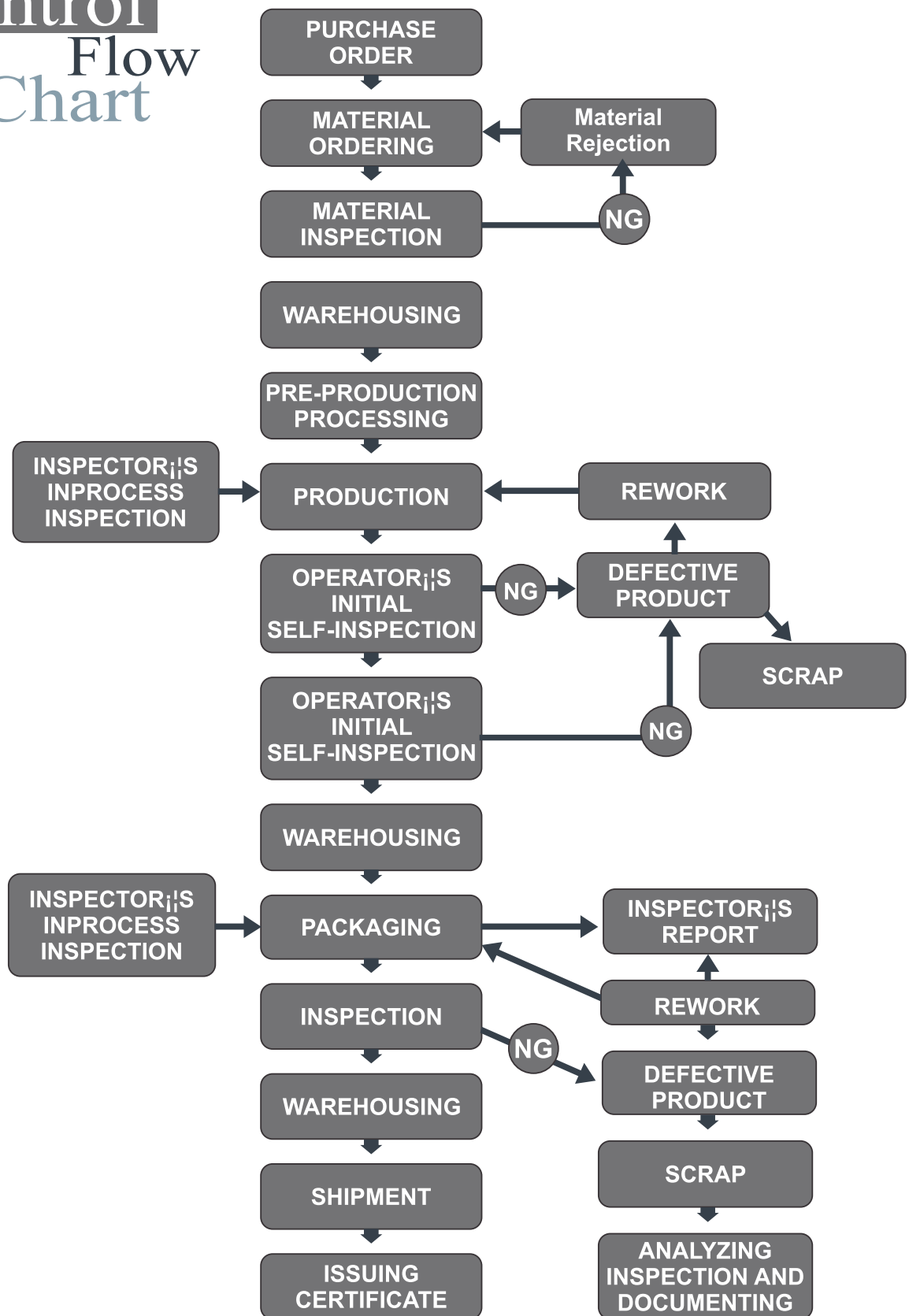
LIST OF MACHINES IN COLD FORGING UNIT

MACHINE	SIZE	MAKE
Bolt Former GB20 4 Station	M 20 x 140MM	Germany
Bolt Former GB30 5 Station	M 12 X 100MM	Germany
Bolt Former CEVA 4 station	M 8 X 45MM	Germany
Header Machine	M 12 X 100MM	Indian
Header Machine	M 6 X 60MM	Taiwan
Header Machine	M 4 X 32MM	Taiwan
Header Machine	M 4 X 25MM	Indian
Header Machine	M 10 X 75MM	Japan
Header Machine	M 6 X 50MM	Indian
Header Machine	M 5 X 40MM	Indian
Thread Rolling Machine	M 12 X 4	Indian
Thread Rolling Machine	M 6 X 2	Indian
Thread Rolling Machine	M 8 X 75	Taiwan
Thread Rolling Machine	M 5 X 40	Taiwan
Trimming Machine	M 6 X 50MM	Indian
Trimming Machine	M 12 X 100MM	Indian
Hardness Tester	-	Indian

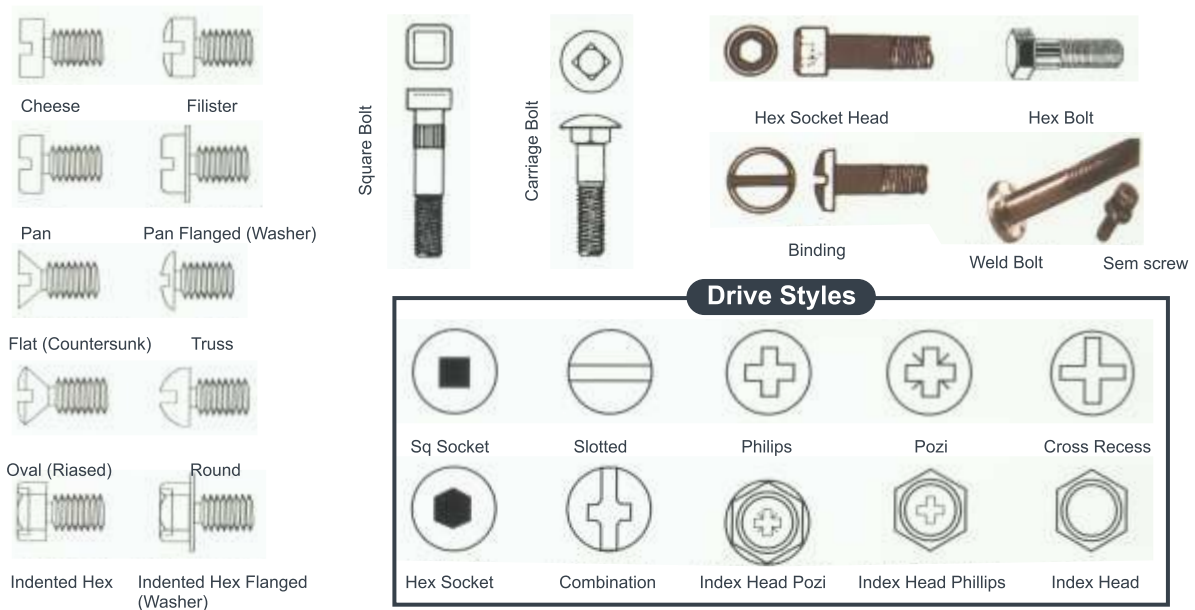
MACHINE	SIZE	MAKE
Lathe Machine	4 ft Max dia 150mm	Indian
	Min Dia 2mm	Indian
Bench Grinder	-	Indian
Half Grinder	-	Indian
Drill Machine	-	Indian
Centre less Grinder	Max Dia 500mm	Indian
	Min Dia 2mm	
Band saw Cutting	-	Indian
Tapping Machine	2mm to 1	-
Hydraulic Press	-	-
ID/OD grin dip Machine	-	-

NB – Apart from above we have calliper /micrometer /go No gauges (Plug & Ring) as per standard inspection requirement

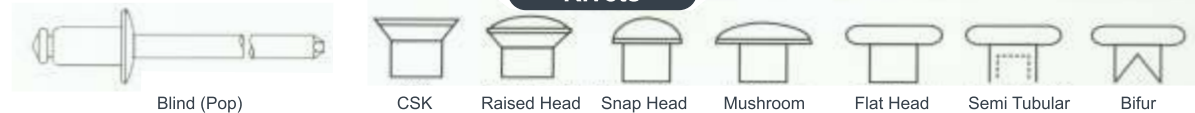
Quality Control Flow Chart



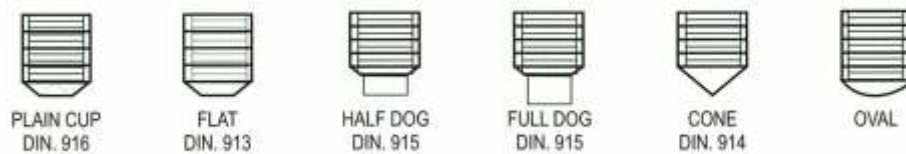
HEAD STYLES



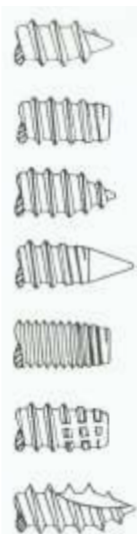
Rivets



Grub Screws



TAPPING SCREWS



Type A has a gimlet point applied to a thread-forming screw having a coarse-spaced thread.

Type B has a blunt, tapered, thread-forming point with incomplete entering threads.

Type AB has a gimlet point applied to a thread-forming screw.

Type BP has a sharp, conical or pinched point applied to a type B screw.

Type C has a blunt, tapered, thread-forming point with incomplete entering threads.

Type BF has a blunt, tapered, thread-cutting point with incomplete entering threads and multiple flutes.

Type 17 has a sharp, thread-cutting point with incomplete entering threads and a wide, milled cutting slot.



Type BG or H has a slotted, blunt, tapered, thread-cutting point with incomplete entering threads.

Type BT or 25 has a blunt, tapered, thread-cutting point with incomplete entering threads and a wide, milled cutting slot.

Type D or 1 has a blunt, tapered, thread-cutting point with incomplete entering threads and one flute.

Type F has a blunt, tapered, thread-cutting point with incomplete entering threads and multiple flutes.

Type G has a slotted, blunt, tapered, thread-cutting point with incomplete entering threads.

Type T or 23 has a blunt, tapered, thread-cutting point with incomplete entering threads and a wide, milled, cutting slot.

BOLTS



BOLTS

WHEEL BOLTS

BOLTS

T BOLTS

SQ. HEAD SET SCREW

WHEEL BOLTS

THUMB SCREWS

SHOULDER SCREW

ELEVATOR BOLTS

SQ. HEAD M/S

WING SCREW

U BOLT

WHEEL BOLTS SET

SOCKET CSK HEAD CAP SCREW

HOOK

EYE BOLTS

THREADED BOLTS

BUTTON HEAD CAP SCREW

BOLTS / STUDS

BOLTS

- Bolts
- Ball plungers
- Pipe plugs
- Socket set screws
- Special studs



PIPE PLUGS



SOCKET SET SCREWS



BALL PLUNGERS



SPECIAL STUDS



NUTS

HEX NUTS



LOCKING NUTS



FLANGE NUTS



NUTS

HEX CASTLE NUT

- Hex Castle Nut
- Coupling Nuts
- Square / Rectangular Nut
- Conical / Kep Nuts
- Weld Nuts
- Wing Nuts
- Hex Cap Nuts



SQUARE / RECTANGULAR NUT



WING NUTS



COUPLING NUTS



WELD NUTS



CONICAL / KEP NUTS



HEX CAP NUTS



NUTS

SPECIAL NUTS



CONE NUTS



PIPE NUTS



SPECIAL NUTS



BRASS INSERT RUBBER NUTS



CLINCH NUTS



INVIOABLE NUTS

WHEEL NUT



NUTS

- SPOT WELDING NUTS
- STAMPING NUTS
- TEE NUTS
- SPRING NUTS
- CAGE NUTS
- PLATE NUTS
- ASSEMBLY PARTS
- RIVET NUTS



SPOT WELDING NUTS

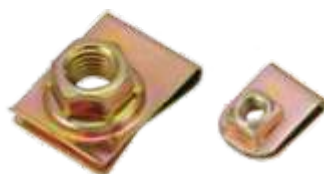
RIVET NUTS



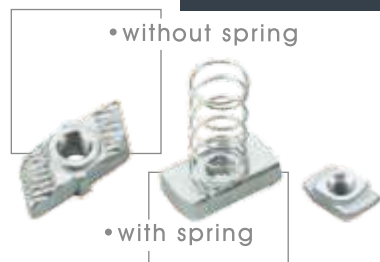
TEE NUTS



ASSEMBLY PARTS



SPRING NUTS



CAGE NUTS



PLATE NUTS



STAMPING NUTS



SCREWS

TRILOBULAR/TAPTITE/PLASTITE/THREAD FORMING SCREWS

- Thread Forming Screws
- Thread Cutting Screws
- Machine Screws
- Window Screws



THREAD CUTTING SCREWS

WINDOW SCREWS



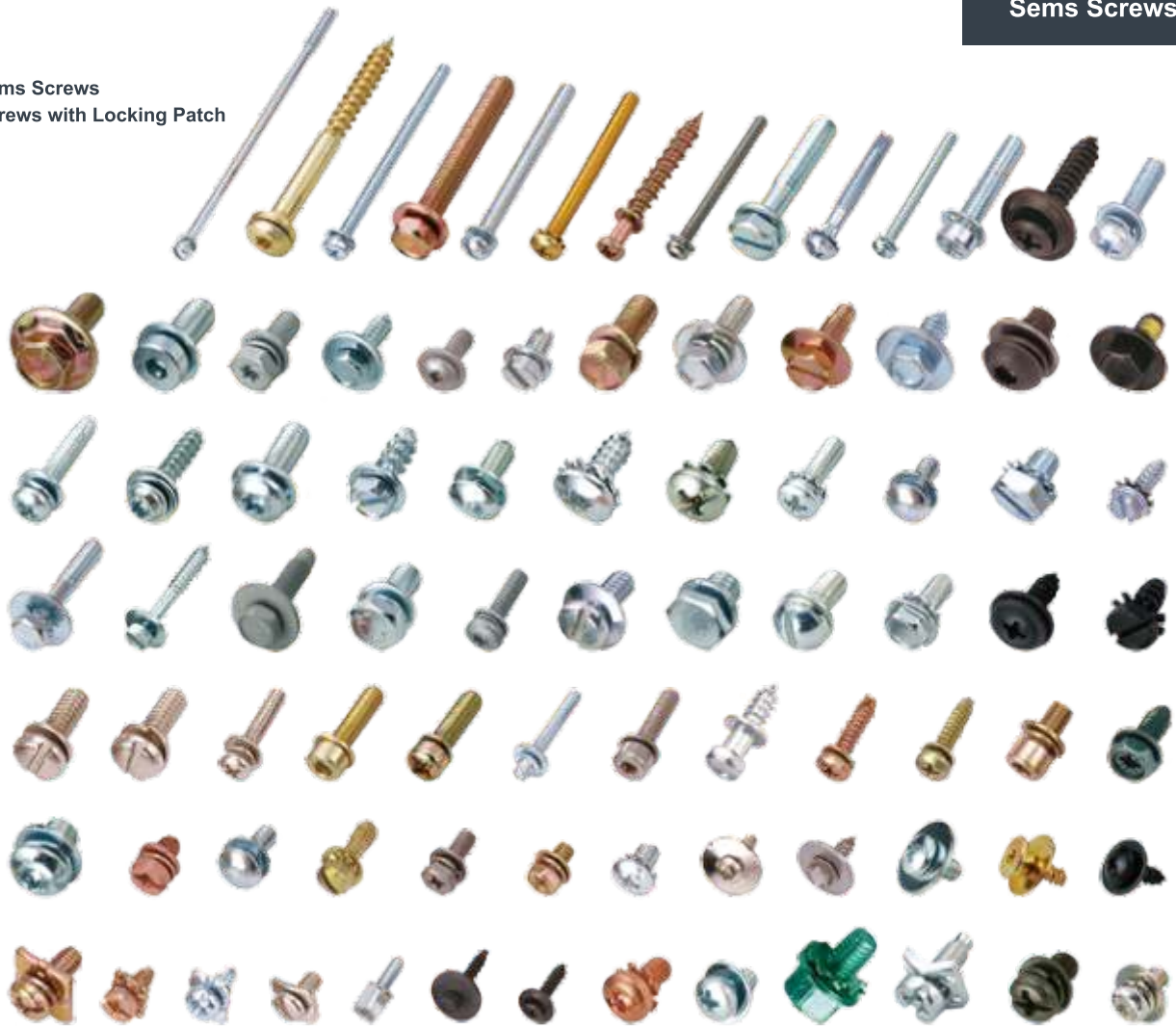
MACHINE SCREWS



SCREWS

- Sems Screws
- Screws with Locking Patch

Sems Screws



Screws with Locking Patch



SCREWS

MICRO SCREWS

- Special Screws
- Micro Screws



Micro Screws

SPECIAL SCREWS



SCREWS

WOOD SCREWS & OTHER SHARP POINT SCREWS

- Wood Screws & Other Sharp Point Screws
- Hi-Lo Thread Screws

- Trimmed head wood screw



- Nail screws



HI-LO THREAD SCREWS

- Window frame screws

- Masonry screws

- Distance screw

- Security screw

- White ruspert



SCREWS

CHIPBOARD SCREWS

- Chipboard screws
- Tapping screws
- Drywall screws



DRYWALL SCREWS



TAPPING SCREWS



SCREWS

Self Drilling Screws

SELF DRILLING SCREWS



SCREWS

STAINLESS STEEL COVER CAP HEAD

- Nylon Cover Cap Head
- Stainless Steel Cover Cap Head
- Spoon Point
- Painted Head
- Self Drilling Screws



NYLON COVER CAP HEAD

SPOON POINT



SELF DRILLING SCREWS



WASHER / RING

DIN9021 / DIN125A / DIN127B

- FLAT WASHER
- CIRCULAR RING
- WAVE WASHER
- TEETH WASHER
- E-RING
- EPDM WASHER



CIRCULAR RING



WAVE WASHER



TOOTH WASHER



CUP WASHER



E-RING



EPDM BONDED WASHER



ANCHORS

Anchors with nylon sleeve

- Anchors with sleeve
- Other anchors
- Nylon material plug / Anchors
- Metal & wire rope fittings



Metal & wire rope fittings

Nylon material plug / Anchors



Other anchors



ANCHORS

SLEEVE ANCHORS

- WEDGE ANCHORS
- SLEEVE ANCHORS
- SHIELD ANCHORS
- DROP IN / CUT ANCHORS
- HOLLOW WALL ANCHORS
- SPEED PLUGS & TOOL
- TOGGLE ANCHORS
- GRAVITY ANCHORS



DROP IN / CUT ANCHORS



HOLLOW WALL ANCHORS



WEDGE ANCHORS



TOGGLE ANCHORS



GRAVITY ANCHORS



SHIELD ANCHORS



NYLON PRODUCTS

NYLON / PVC / PLASTIC / EPDM PRODUCTS



MACHINING PARTS

MACHINING PARTS

MACHINING PARTS



STAMPING PARTS

OTHER STAMPING PARTS

OTHER STAMPING PARTS



PINS / NAILS / RIVETS



FURNITURE SCREWS & ASSOCIATES

EYE SCREWS/HOOKS

INSERT NUTS

JOINT CONNECTOR NUTS

BARREL NUT
(STEEL / ZINC ALLOY)

WING NUTS (DIE CASTING)

EYE SCREWS/HOOKS

CUP HOOK

C HOOK

SQUARE HOOK

INSERT NUTS

BARREL NUT (STEEL / ZINC ALLOY)

JOINT CONNECTOR NUTS

BREAK MACHINE SCREWS

WING NUTS(DIE CASTING)

OTHERS FOR FURNITURE

- CONFIRMAT SCREWS
- JOINT CONNECTOR
- EURO SCREWS
- OTHERS FOR FURNITURE
- BINDING POST NUTS/SETS
- SHELL SUPPORTS
- HANGER BOLTS

CONFIRMAT SCREWS



JOINT CONNECTOR



HANGER BOLTS

EURO SCREWS



SHELF SUPPORTS



BINDING POST NUTS/SETS



AVAILABLE STANDARD

ANSI ISO IS SAE ASTM BS JIS AS
(as per customer specification)

PLATING SELECTION

TYPES	SALT SPRAY TEST (HRS)
Zinc	24-36
Yellow Zinc	24-36
Black Phosphate	24-36
Grey Phosphate	24-36
Dacromet	500-1000
Ruspert	500-3000
Mechanical galvanizing	500-1000
Mechanical galvanizing + coating	1000-1500
Nanoplatin	1500-2000
Tufcode (Ruspert)	1500-2000

AVAILABLE FINISH

Self Colour (Plain) / Zinc (White /Blue /Yellow /Olive Green/Black)

Also available Trivalent Chrome (Cr+3) Plating /ROHS Complaint

Black Oxide / Nickel /Chrome/Brass/Antique Brass/Antique Bronze/

Copper /Tin/Cadmium/Lead

Hot Dip Galvanized /Zylan Coating

Mechanical Galvanized /Phosphate

Dacrodiozed/Delta Coating /E- Coating /Geomat

Coating adhesives/sealants on threading surface available



AVAILABLE PACKING

Gunny bags in bulk packing (about 20 25 kgs)

Carton packing (about 20-25 kgs)

Poly bags and plastics box assortment as per customer request

Sheet Metal Fasteners



Self Clinch Fasteners (For Installation into sheet upto HRB7-0 max)



PANEL FASTENERS



Self Clinch Fasteners (For installation into sheet upto HRB90 max)



Self Clinch Fasteners for Blind Holes



Rivet Products



Self Clinch Fasteners for PC board



SECONDARY OPERATIONS

FOR FASTENERS WHICH REQUIRE ADDITIONAL PROCESSES WE CAN PROVIDE A WIDE RANGE OF FACILITIES SUCH AS:

Auto Lathe & CNC Machinings
Chamferring
Shank & Head Slotting
Centreless grinding

AVAILABLE MATERIAL :

Low Carbon steel
High Carbon Steel /Boron Steel /Alloy Steel
Stainless Steel
Aluminium
Brass
Silicon Bronze
Copper
Exotic Metals
Zinc Alloy Die Casting
Nylon (Polyamide)
PVC



WHILST SENDING YOUR ENQUIRY, KINDLY PROVIDE US WITH THE FOLLOWING DETAILS TO ENABLE US TO BE MORE EFFICIENT IN OUR SERVICE TO YOU.

1. Description
2. Standard
3. Material
4. Size (nominal dia, length, head style, point style etc)
5. Surface treatment and heat treatment
6. Quantity
7. Delivery Requirement (Freight /Transportation)
8. Packing Requirement if any
9. Special Requirement if any
10. Drawing (if non standard screw)/ sample

Chemical Properties ISO 898-1 : 2009

Property class	Material and Heat Treatment	Chemical Composition Limits (cast analysis, %) ^a					Tempering temperature °C min
		C min	C max	P max	S max	B ^b max	
4.6 c,d	Carbon Steel or Carbon Steel with Additives	-	0,55	0,050	0,060	Not Specified	-
4.8 d							
5.6 c		0,13	0,55	0,050	0,060		
5.8d		-	0,55	0,050	0,060		
6.8 d		0,15	0,55	0,050	0,060		
8.8 c,d	Carbon Steel with Additives (eg. Boron or Mn or Cr) Quenched and Tempered OR	0,15 ^e	0,40	0,025	0,025	0,003	425
	Carbon Steel Quenched and Tempered OR	0,25	0,55	0,025	0,025		
	Alloy Steel Quenched and Tempered ⁹	0,20	0,55	0,025	0,025		
9.8 f	Carbon Steel with Additives (eg. Boron or Mn or Cr) Quenched and Tempered OR	0,15 ^e	0,40	0,025	0,025	0,003	425
	Carbon Steel Quenched and Tempered OR	0,25	0,55	0,025	0,025		
	Alloy Steel Quenched and Tempered ⁹	0,20	0,55	0,025	0,025		
10.9 f	Carbon Steel with Additives (eg. Boron or Mn or Cr) Quenched and Tempered OR	0,20 ^e	0,55	0,025	0,025	0,003	425
	Carbon Steel Quenched and Tempered OR	0,25	0,55	0,025	0,025		
	Alloy Steel Quenched and Tempered ⁹	0,20	0,55	0,025	0,025		
12.9 f,h,i	Alloy Steel Quenched and Tempered ⁹	0,30	0,50	0,025	0,025	0,003	425
12.9 f,h,i	Carbon Steel with Additives (eg. Boron or Mn or Cr or Molybdenum) Quenched and Tempered	0,28	0,50	0,025	0,025	0,003	380

- a. In case of dispute, the product analysis applies.
- b. Boron content can reach 0,005% provided that non-effective boron is controlled by addition of titanium and / or aluminium.
- c. For cold forged fasteners of property classes 4.6 and 5.6, heat treatment of the wire used for cold forging or of the cold forged fastener itself may be necessary to achieve required ductility.
- d. Free cutting steel is allowed for these property classes with the following maximum sulphur, phosphorus and lead contents :
Sulphur 0,34%; Phosphorus 0,11%;
Lead 0,35%.
- e. In case of plain carbon boron steel with carbon content below 0,25% (Cast Analysis), the minimum manganese content shall be 0.6% for property class 8.8 and 0,7% for 9.8 and 10.9.
- f. For materials of these property classes, there shall be a sufficient hardenability to ensure a structure consisting of approximately 90% martensite in the core of the threaded sections for the fasteners in the "as -hardened" condition before tempering.
- g. This alloy steel shall contain at least one of the following elements in the minimum quantity given :
Chromium 0,30%, Nickel 0,30%,
Molybdenum 0,20%, Vanadium 0,10%.
Where elements are specified in combinations of two, three or four and have alloy contents less than those given above, the limit value to be applied for steel class determination is 70% of the sum of the individual limit values shown above for the two three or four elements concerned.
- h. A metallographically detectable white phosphorus enriched layer is not permitted for property class 12.9 / 12.9 . It shall be detected by a suitable test method.
- i. Caution is advised when the use of property class 12.9 / 12.9 is considered. The capability of fasteners manufacturer, the service conditions and the wrenching methods should be considered. Environments may cause stress corrosion cracking of fasteners as processed as well as those coated.

Property of Bolts. ISO 898-1: 2009

No.	Mechanical or physical Property		Property Class									
			4.6	4.8	5.6	5.8	6.8	8.8		9.8	10.9	12.9 / 12.9
								d ≤ 16 mm ^a	d > 16 mm ^b	d ≤ 16 mm		
1	Tensile strength, R _m , MPa	nom. ^c	400		500		600	800		900	1000	1200
		min,	400	420	500	520	600	800	830	900	1040	1220
2	Lower yeild strength, ReL ^d , MPa	nom. ^c	240	-	300	-	-	-	-	-	-	-
		min,	240	-	300	-	-	-	-	-	-	-
3	Stress at 0,2% non-proportional elongation, Rp0, MPa	nom. ^c	-	-	-	-	-	640	640	720	900	1080
		min,	-	-	-	-	-	640	660	720	940	1100
4	Stress at 0,0048 d non-proportional elongation for full-size fasteners, Rpf, MPa	nom. ^c	-	320	-	400	480	-	-	-	-	-
		min,	-	340 ^e	-	420 ^e	480 ^e	-	-	-	-	-
5	Stress under proof load, Sp ^f , MPa	nom.	225	310	280	380	440	580	600	650	830	970
	Sp,nom /ReL min OR Proof strength ratio Sp,nom /Rp0,2min OR Sp,nom /Rpfmin		0,94	0,91	0,93	0,90	0,92	0,91	0,91	0,90	0,88	0,88
6	Percentage elongation after fracture for machined test pieces, A, %	min.	22	-	20	-	-	12	12	10	9	8
7	Percentage reduction of area after fracture for machined test pieces, Z, %	min	-					52		48	48	44
8	Elongation after fracture for full-size fasteners, Af (see also Annex C)	min	-	0,24	-	0,22	0,20	-	-	-	-	-
9	Head Soundness	No Fracture										
10	Vickers hardness, HV F ≥ 98 N	min	120	130	155	160	190	250	255	290	320	385
		max	2209					250	320	335	360	380
11	Brinell hardness, HBW, F = 30 D ²	min	114	124	147	152	181	238	242	276	304	366
		max	2209					238	304	318	342	361
12	Rockwell Hardness, HRB	min	67	71	79	82	89	-				
		max	95,0					99,5	-			
	Rockwell Hardness, HRC	min	-					22	23	28	32	39
		max	-					32	34	37	39	44
13	Surface Hardness, HV 0,3	max	-					h			h,i	h,j
14	Height of non-decarburized thread zone E,mm Depth of complete decarburization in the thread, G, mm	min.	-					1/2H1		2/3H1	3/4H2	
		max.	-					0,015				
15	Reduction of hardness after retempering, HV	max	-					20				
16	Breaking rorque, MB, N.M	min,	-					in accordance with ISO 898-7				
17	impact strength, Kv ^{k,l,j}	min,	-	27	-	-	27	27	27	27	m	
18	Surface integrity in accordance with		ISO 6157-1 ⁿ									ISO 6157-3

Mechanical Properties DIN 267-4 for nuts DIN 934

Mechanical Properties	Hardness Type					
	11 H			14 H	17 H	22 H
	4	5	6	8	10	12
Proof load stress Sp N/mm ²	400	500	600	800	1000	2000
Vickers hardness ...HV 5 max.	302	302	302	302	353	353
Brinell Hardness ... HB 30 max.	290	290	290	290	335	335
Rockwell hardness...HRC max.	30	30	30	30	36	36

Chemical Composition EN 20898-2: 1992 - ISO 898 - 2: 1992

Property Symbol (Class of nuts)	Chemical Composition in % by mass (check analysis) 1*			
	C max.	Mn min	P max	S max.
11 H (4,5 and 6)	0,5	-	0,06	0,15
14 H (8)	0,58	0,25	0,06	0,15
17 H (10)	0,58	0,3	0,048	0,058
22 H (12)	0,58	0,45	0,048	0,058

1 * Chips for the check analysis shall be taken uniformly over the whole cross section

1)NQT: Not quenched or tempered. 2)QT: Quenched and tempered. 3) The maximum bolt the hardness of property classes 5.6 and 5.8 will be changed to be 220 HC in the next revision of ISO 898-1:1998. This is the maximum bolt hardness in the thread engagement area whereas only the thread end or the head may have a maximum hardness of 250 HV. Therefore the values of stress under proof load are based on a maximum bolt hardness of 220 HV. Note: Minimum hardness is mandatory only for heat-treated nuts and nuts too large to be proof-load tested. For all other nuts, minimum hardness is not mandatory but is provided for guidance only. For nuts which are not hardened and tempered, and which satisfy the proof-load test, minimum hardness shall not be cause for rejection.

Mechanical Properties EN 20898-2: 1992

Property class	Thread		Stress under proof load Sp	Vickers Hardness HV		Nut	
	greater than	less than or equal to	N / mm ²	min	max	state	style
04	-	M4	380	188	302	NQT1)	thin
	M4	M7					
	M7	M10					
	M10	M16					
	M16	M39					
05	-	M4	500	272	353	QT2)	thin
	M4	M7					
	M7	M10					
	M10	M16					
	M16	M39					
4	-	M4					
	M4	M7					
	M7	M10					
	M10	M16					
	M16	M39					
53)	-	M4	510	117	302	NQT1)	1
	M4	M7	520	130	302	NQT1)	1
	M7	M10	580				
	M10	M16	580				
	M16	M39	610				
6	-	M4	630	146	302	NQT1)	1
	M4	M7	600				
	M7	M10	670				
	M10	M16	680				
	M16	M39	700				
8	-	M4	720	170	302	NQT1)	1
	M4	M7	800	180			
	M7	M10	855				
	M10	M16	870				
	M16	M39	880				
9	-	M4	920 890	233 180	353 302	NQT2) NQT1)	1 2
	M4	M7	900	170	302	NQT1)	2
	M7	M10	915				
	M10	M16	940				
	M16	M39	950				
10	-	M4	920				
	M4	M7	1040	272	353	QT2)	1
	M7	M10	1040				
	M10	M16	1040				
	M16	M39	1050				
12	-	M4	1060				
	M4	M7	1140 1150	295	353	QT2)	1
	M7	M10	1140 1160				
	M10	M16	1170 1190	272	353	QT2)	2
	M16	M39	- 1200				

Mechanical properties of bolts and nuts . ISO 3506

Steel gade	Property class	For sizes d	Bolts and Screws			Nuts
			Tensile strength Rm N/mm2, min. (1*)	0.2% proof stress Rp 0,2 N/mm2,min. (1*)	Elongation at fracture AL in mm, min. (2*)	Proof load stress Sp N/mm2
A2	50	≤M39	500	210	0,6d	500
A4	70	≤M20	700	450	0,4d	700

1 * All values are calculated and reported in terms of the tensile stress area of the thread (see Tables of screw thread elsewhere in this section).

2* The elongation at fracture shall be determined on the actual screw of bolt length 3 x d and not on a prepared test piece of gauge length 5d.

Studbolts and Threaded rods

Main Chemical Elements									Corresponding Materials			
Norm	Grade	C	Mn	Cr	Ni	Mo	V	Ti	AISI	AFNOR	DIN	BS
Ferrific Steel												
ASTMA193	B7	0,37-0,49	0,65-1,10	0,75-1,20	-	0,15-0,25	-	-	4140/4142/4145	42CD4	42CrMo4	1506-621 GrA
ASTMA193	B16	0,36-0,47	0,45-0,70	0,80-1,15	-	0,50-0,65	0,25-0,35	-	-	40CDV4-06	24CrMoV55	1506-661
ASTMA320	L7	0,38-0,48	0,75-1,00	0,80-1,10	-	0,15-0,25	-	-	4142/4145	42CD4	42CD4	1506-621 GrA
Austenetic Stainless Steel												
ASTMA193	B8	max. 0,08	max. 2,00	18,0-20,0	8,0-10,5	-	-	-	304	Z6CN18-09	X5CrNi18-19	1506-801GrB
ASTMA193	B8M	max. 0,08	max 2,00	16,0-18,0	10,0-14,0	2,0-3,0	-	-	316	Z6CND17-11	X5CrNi-Mo18-10	1506-845
ASTMA320	B8T	max.0,08	max 2,00	17,0-19,0	9,0-12,0	-	-	min. 5xC%	321	Z6CNT18-11	X10CrNi-Ti18-09	1506-821GrT
Mechanical Properties												
Norm	Grade	Tensile Strengt N/ mm ²		0,2% yeildstrength N/mm ²		Elongation min %			Reduction of area min %		Hardness HB	
Ferrific Steel												
ASTMA193	B7	860		720		16			50		max.321	
ASTMA193	B16	860		725		18			50		max.321	
ASTMA320	L7	860		725		16			50		-	
Austenetic Stainless Steel												
ASTMA193	B8	515		205		30			50		max.223	
ASTMA193	B8M	515		205		30			50		max.223	
ASTMA320	B8t	515		205		30			50		max.223	

Core holes for tapping screws and bolts with tapping screws threads. DIN 7970.

Thread of tapping screws as per DIN 7970		Sheet Thickness		Sheet			
a nominal	ISO number	min	max	Turned		Drilled	
				Sheets of steel nickel, brass	Aluminium sheets copper and Monel	Sheets of steel,nickel brass, copper and Monel	Aluminium sheets
2,2	N° 2	-	0,56	-	-	1,6	-
		0,56	0,75	-	-	1,7	1,6
		0,75	0,88	-	-	1,8	1,6
		0,88	1,13	-	-	1,85	1,6
		1,13	1,38	-	-	1,9	1,7
		1,38	1,5	-	-	2,2	1,8
2,9	N° 4	-	0,56	2,2	-	2,2	-
		0,56	0,63	2,5	2,2	2,25	-
		0,63	0,75	2,5	2,2	2,25	2,2
		0,75	0,88	2,5	2,2	2,4	2,2
		0,88	1,25	-	2,2	2,4	2,2
		1,25	1,38	-	-	2,4	2,2
		1,38	1,75	-	-	2,5	2,25
		1,75	2,5	-	-	2,6	2,4
3,5	N° 6	-	0,56	2,8	-	2,6	-
		0,56	0,75	2,8	2,8	2,7	-
		0,75	0,88	2,8	2,8	2,7	2,65
		1	1,25	-	2,8	2,8	2,65
		1,25	1,38	-	-	2,8	2,65
		1,38	1,75	-	-	2,9	2,75
		1,75	2,5	-	-	3	2,85
		2,5	3	-	-	3,2	3
		3	6	-	-	-	3
		-	-	-	-	-	-
4,2	N° 7	-	0,5	3	-	2,95	-
		0,5	0,63	3	3	2,95	-
		0,63	0,88	3	3	2,95	2,9
		0,88	1,13	3	3	2,95	2,95
		1,13	1,25	3	3	3	2,95
		1,25	1,38	-	-	3	2,95
		1,38	1,75	-	-	3,2	3
		1,75	2	-	-	3,2	3,5
		2	2,5	-	-	3,5	3,5
		2,5	3,5	-	-	3,6	3,5
		-	-	-	-	-	-

Core holes for tapping screws and bolts with tapping screws threads. DIN 7970.

Thread of tapping screws as per DIN 7970		Sheet Thickness		Sheet			
a nominal	ISO number	min	max	Turned		Drilled	
				Sheets of steel nickel, brass	Aluminium sheets copper and Monel	Sheets of steel,nickel brass, copper and Monel	Aluminium sheets
4,2	N ⁰ 8	-	0,5	3,5	-	-	-
		0,5	0,63	3,5	3,5	3,2	2,95
		0,63	0,88	3,5	3,5	3,2	3
		0,88	1,13	3,5	3,5	3,2	3,2
		1,13	1,38	3,5	3,5	3,3	3,5
		1,38	2,5	-	-	3,5	3,7
		2,5	3	-	-	3,8	3,8
		3	3,5	-	-	3,9	3,9
		3,5	10	-	-	-	-
4,8	N ⁰ 10	-	0,5	4	-	-	-
		0,5	0,75	4	4	3,7	3,7
		0,75	1,13	4	4	3,7	3,7
		1,13	1,38	4	4	3,9	3,7
		1,38	1,75	-	-	3,9	3,8
		1,75	2,5	-	-	4	3,8
		2,5	3	-	-	4,1	3,9
		3	3,5	-	-	4,3	3,9
		3,5	4	-	-	4,4	4
		4	4,75	-	-	4,4	4,2
		4,75	10	-	-	-	-
5,5	N ⁰ 12	-	1,13	4,7	-	4,2	-
		1,13	1,38	4,7	-	4,3	4,1
		1,38	1,5	-	-	4,3	4,1
		1,5	1,75	-	-	4,5	4,2
		1,75	2,25	-	-	4,6	4,4
		2,25	3	-	-	4,7	4,6
		3	3,5	-	-	5	4,6
		3,5	4	-	-	5	4,8
		4	4,75	-	-	5,1	4,8
		4,75	10	-	-	-	4,9
		-	1,38	5,3	-	4,9	-
6,3	N ⁰ 14	1,38	1,75	-	-	5	5
		1,75	2	-	-	5,2	5
		2	3	-	-	5,3	5,2
		3	4	-	-	5,8	5,3
		4	4,75	-	-	5,9	5,4
		4,75	5	-	-	-	5,6
		5	10	-	-	-	5,8

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