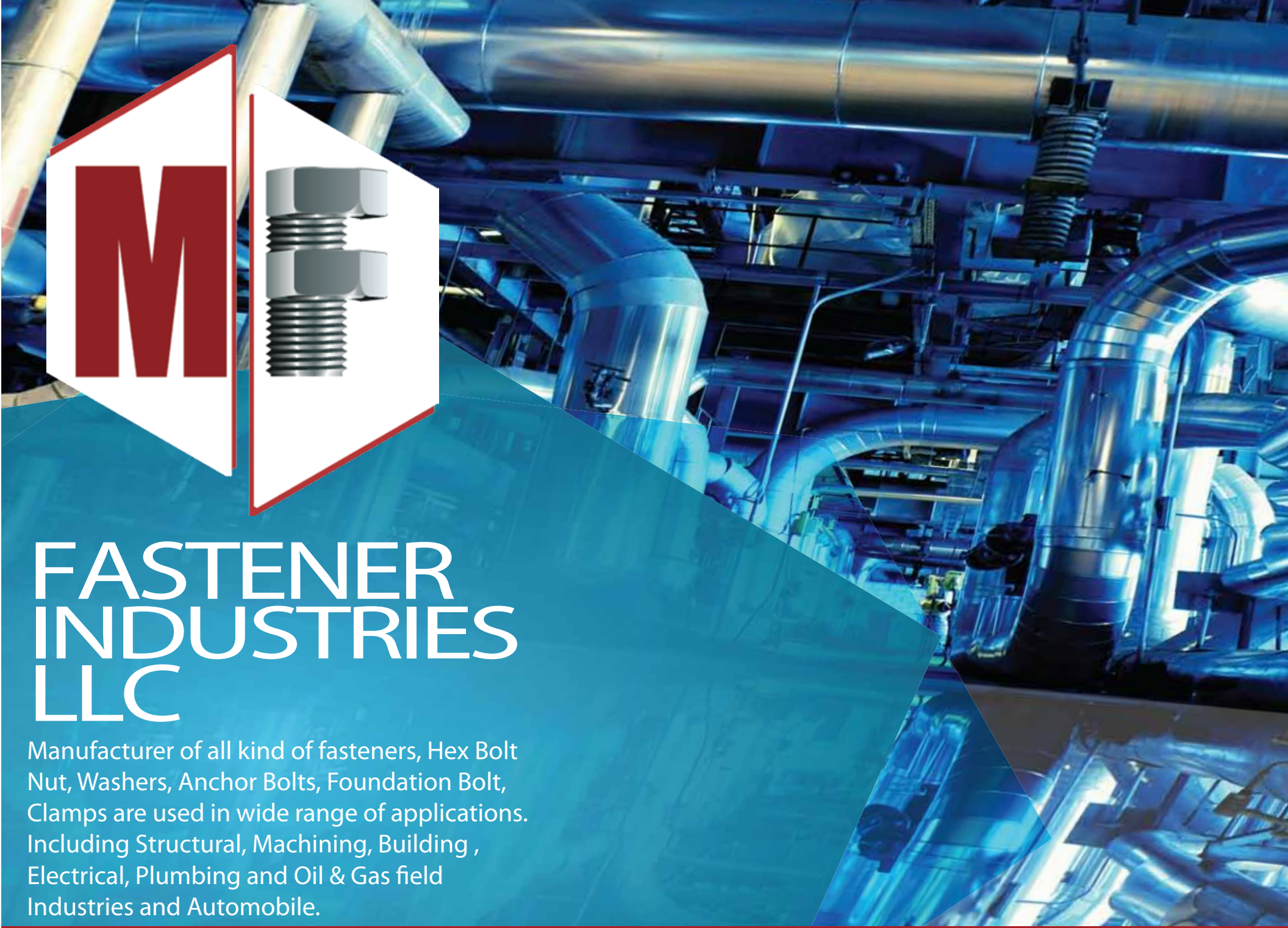
FASTENER INDUSTRIES LLC

A LEADING FASTENER MANUFACTURER

Emirates Modern Industrial Area Umm Al Quwain, UAE
sales@mfindllc.com | www.mfindllc.com



FASTENER INDUSTRIES LLC

Manufacturer of all kind of fasteners, Hex Bolt Nut, Washers, Anchor Bolts, Foundation Bolt, Clamps are used in wide range of applications. Including Structural, Machining, Building , Electrical, Plumbing and Oil & Gas field Industries and Automobile.

Emirates Modern Industrial Area Umm Al Quwain, UAE
Tel: +971-6-7672469 sales@mfindllc.com | www.mfindllc.com

Company Profile

MF is situated in the Emirates Modern Industrial Area of UAQ-United Arab Emirates, Supported with a 44000 sqft Manufacturing plant facility providing quality products to comply with International Standard and certification emphasis on material guarantee and Traceability .

Quality Policy

Our Core suppliers to procure materials from Europein Unioun, China, India, & Fasr East Countries.

Our Key export countries are Gulf and GCC countries, North & East African countries.

Our Mission

Quality and best products at compative and Projetct base prices, on time delivery to cater best services with for all our Customers.

We cater for industries like Steel Structure, Construction, Oil & Gas, Petrol Chemical, Industries and Ship Building.

Quality and Customer services are our core s trength Our efficient response means that all our Clients / Customers receive prompt feedback / reply all of their enquiries for most of products within a day time.

Our modern warehousing facility spread over several thousand SqFt capacity of 7500MT fasteners material, having more than 110 different types of fasteners.

All our products are supply & delivered with necessary MTC's to comply with international quality standard to allow complete traceability & assurance.

Introduction

MF Fastener Industries LLC is ISO 9001:2008 certified company is a leading manufacturer of custom made & standard fasteners products. Our well qualitied , trained and dedicated (Staff/Workers) workforce ensure the quality products and standard right from the inquiry to delivery with prompt reply and responsibility in all aspects to provide best quality & services to all our customers.

We serves in most industries including, Construction, automotive, aerospace, defense pre-engineering, Oil & Gas, Petro Chemical etc. Our latest equipped manufacturing machineries with in house testing laboratory facility to ensure our clients for quality material and production. Our production capacity of custom made and standard fasteners is more than 2000 MT per month and increasing with customer's trusts, product treliability and satisfaction.

Our Mission

Our mission is to become a premier manufacturer of high quality fasteners products in all sector and promise to produce on-time delivery with most competitive pricing.

MF Fastener Industries LLC has grown and earned the respect of its customers, supplier and competitors. The company's growth has resulted customers purchase and build –out of a new state of the art manufacturing facility which is expending the clients base.

MF produced any size of order with prides to serving the market with focus on satisfying individual client's needs and requirements and committed to fulfilling, developing and maintaining long term business relationships through treating the customers with honesty, integrity and respect. We serves in most industries including, Construction, automotive, aerospace, defense pre-engineering, Oil & Gas, Petro Chemical etc.

While we believe our motto "Customer Focus & Quality Commitment" describes the focus of our business. When you do business with MF FASTENER INDUSTRIES LLC, you are assured that what we promise is what we deliver

Commitment Quality & Services

1. Prompt and efficient services
2. Products available off the shelf
3. Stringent quality checks
4. Products well packaged
5. Deliver on Time

Quality Cycle

Our Strength

Following the principle of friendly cooperation and professional services, MF Fastener Industries LLC has servel years manufacturing experiences in best quality fasteners. We are always willing to provide the most professional service and aims to reach the zenith of collaboration. Our customer are supplied with additional services that not only meet their requirements but can also prevent potential problems. We are devoted to widen the cooperation scope and promoting the relationships with customers, thus maximum benifits to both parties

We specializes in following products which comprise of all type of Anchor bolt, Studs, Clamps and all related fasteners products to OIL & GAS upon customers requirement.

Our modern manufacturing facility area cover by sqft 44000 which can manufactur different Fasteners Products. all of this produce manage by automated machines, this enable us to offer efficient services to our clients with most products off the shelf.

Exacting Standards

Our sound organizational strengths and strategic ties with quality manufacturers have positioned ourselves well to meet the growing demands of the regions industrial sector.

Fasteners and bolting are crucial component in any construction project. While their cost maybe negligible to the overall projects costs, substand--ard bolting can have severe consequences in terms of project schedules and costs. Our emphasis therefore is always on quality, backed up by reliable inventory manufacturing and efficient raw material supply chain.

We maintain a large inventory of raw material & produce fastening for various sectors including Structural Steel Construction, Pre-Engineered Steel Buildings (PEB), Tower Cranes, General Construction and Oil & Gas & Petrochemical industries.

With our strong presence in UAE the regions manufacturing & supply hub and other GCC countries one of the regions fastest growing economies, we are ideally placed to cover the wider GCC region. Our inherent strength in terms of quality policy, organization and propmt manufacturing gives us considerable leverage to be a leading player in the manufacturing and supply of quality fastening solutions.

Technical Information

Fasteners in high tensile steel 8.8/10.9/12.9 grades, Threaded Bars, Stud Bolts, Shear Studs, traight Anchor Bolts, L-shaped Anchor Bolt, Wedge Anchor, Contact Washers, Products available in a wide variety of head types such as Hex head, Socket head, Allen CSK etc.

Various thread types such as UNC, UNF, and BSW etc. We offer various coatings such as Electro Plated, Hot Dip Galvanized, PTFE, Cadmium Plated etc.

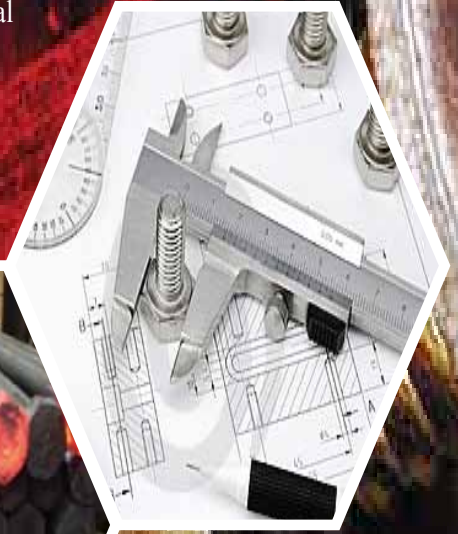
High Strength Friction Grip (HSFG) bolting: ASTM A325M & ASTM A490M widely used in Steel Construction, Pre- Engineer Steel Structure Building industry. Assemblies compatible with ASTM A563M H.H Nuts & Hardened ASTM F436M Washer.

Stainless Steel Fasteners: Products available in Gr 304 (A2-70) & Gr316 (A2-80) with a wide varity of head types. Stainless Steel SDS specially for PEB and other structurel works.

Products available adhering to the following International Standards.

- American ASTM Standard
- British BS Standard
- German DIN Standard

Besides the above products we stock a wide variety of specialized fasteners and can also supply customized solutions to meet specific requirements.



Machines & Facility

ANCHOR BOLTS

J Type Anchor Bolts

With good quality, reasonable prices and as per custome designs, our products are extensively used in mold, electricity, construction, solar energy, and other indusries. -

Size	Standard	Material	Certificate
M5-M125	ISO,JIS,GB,ANSI,BSW,DIN	Carbon Steel	EN10204.3.1(2004)

U Type Anchor Bolts

U - Bolt used in a variety of applications, U bolt round bend cut sheel - Haydon bolt manufactures round bend U bold in-house. We have the ability to manufacture custom U-Bolt as per customer exact specification.

Size	Standard	Material	Surface
M6-M56	DIN, ISO-ASTM	MS steel, 45#steel	z/p, hot dip galvanizing

L Type Anchor Bolts

Bent 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.

Size	Standard	Material	Surface
M5-M100	DIN, ASTM	S275Jr. Q235. 35#.45# . etc.	Bright, Hot Dip Galvanized

Straight Type Anchor Bolts

The Straight type anchor bolt in type A36, Gr55, Gr105 , 8.8 as per ASTM F1554. also offers optimum performance in both cracked and uncracked concrete, meeting as per standards for post-installed anchors.

Size	Standard	Material	Surface
M6-M125	DIN, F1554, ASTM	4.6, A36, 8.8 & B7	Plain, Black, Zinc Plated, HDG

Emirates Modern Industrial Area Umm Al Quwain, UAE
sales@mfindllc.com | www.mfindllc.com

BOLT SERIES

Stud Bolts

With good quality, reasonable prices and our products are extensively used in Oil & Gas, Electricity, Construction, Solar energy, Automotive, machinery & equipment and other industries.

Size	Standard	Material	Certificate
M5-M100	ISO,JIS,GB,ANSI,BSW,DIN, ASTM	S.SA2-70/80,B7, B7M, B8, B8M & 8.8	EN10204.3.1(2004)

Stainless Steel Bolt

S.S Hex bolt (A2-70/80) used in a variety of applications,

Size	Standard	Material	Surface
M6-M56	DIN, DIN AS GB	MS steel, 45#steel	z/p, hot dip galvane plain,black

Foundation Bolts

Bent 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.

Size	Standard	Material	Surface
M5-M125	DIN, ISO, ASTM	Q235. 35#.45# . etc.	Bright, HDG , Plain

Hexagon Bolt

This standard contains specifications for Full and Half threaded hexagon head bolt and screws with coarse meric thread form diameters M10-72. Although long term expectation is for DIN to be superseded by ISO standard.

Size	Standard	Available Finish
M8-M72	DIN 931/933, / ISO 4014,4017	Black, Hot Dip Galvanized, Electro Galvanized, Cadmium Plated

Emirates Modern Industrial Area Umm Al Quwain, UAE
sales@mfindllc.com | www.mfindllc.com

PRODUCT

NUT SERIES

ASTM Heavy Hex Bolt (A325/A325M, A490/A490M

This standard contains specifications for standard threaded heavy hex head bolt coarse meric and UNC imperial thread form diameters M12-64.

Size	Standard	Material Grade	Finish
M12toM64	ASTM	45#, 40Cr. 42Cr.Mo	Electro Galvanized, Plain (Black), Yellow Plated, Hot Dip Galvanized & PTFE

Eye Nut

We are an eminent entity engaged in offering an extensive range of quality assured Eye Nut. Owing to features like durability and excellent quality, the offered nut is extensively demanded in the market.

Size	Standard	Material
M6-M64	DIN, DIN AS GB	Precisely design Durability Anti corrosive

Spring Nut

The spring Nut is the key to the Strut System. Insert spring Nut anywhere along the length of the channel and attach the fitting to combine another channel a 90°turn. Easy to use, save time and work.

Size	Standard	Material
M6, M8, M10, M12	DIN	Steel With Zinc Plated

Hex Nut

Hex nuts are the world standard, and we carry most types you may ever need There are quite a few factors which determine the durability and stress bearing strength of a particular fastener, including material, how the fastener was heat treated, and the major diameter of the threads.

Size	Standard	Material	Surface
M6-M64	DIN934 / BS4032 / BS4190	Stainless Steel,Carbon Steel	Plain, Black, Zinc Plated, HDG

Heavy Hex Nut

Heavy Hex nuts are the world standard, and we carry most types you may ever need There are quite a few factors which determine the durability and stress bearing strength of a particular fastener, including material, how the fastener was heat treated, and the major diameter of the threads.

Size	Standard	Material	Surface
M12 to M125	ASTM A563/A563M	40Cr.	Black , HDG, PTFE

2H Hexagon Nut (Inch)

We offer our clients quality 2H (ASTM A194, L7) Hex Nut which is used for various industrial, Oil and Gas industries .

Size	Standard	Surface
1/2" to 5"	ASTM A194, L7	Black, HDG, PTFE

2H Hexagon Nut (MM)

We offer our clients quality 2H (ASTM A194, L7) Hex Nut which is used for various industrial, Oil and Gas industries .

Size	Standard	Surface
M12to M125	ASTM A194M, L7M	Plain, Black, Zinc Plated, HDG, PTFE

Standard Round Flat Washer

Assisted by a qualified workforce and advanced manufacturing unit, we are engaged in offering a wide range of Internal External Lock Washer.

Size	Standard	Material	Surface
M9 to M33	DIN 127A / F436M	Mild steel,Carbon steel, A3	Plain, Black, Zinc Plated, HDG

Emirates Modern Industrial Area Umm Al Quwain, UAE
sales@mfindllc.com | www.mfindllc.com

Product

Washer Series

Square Washer

We are providing a wide range of Square Washer, which are manufactured by premium grade material. These Square Washers assure smooth functioning.

Hardness	Size	Standard	Material	Surface
HV100	M12 to 64 M12 to 64	DIN436	Low Carbon	Plain, HDG

Spring Washer

We offer our clients quality Spring Washer, which is used for various industrial purposes. These washers are highly appreciated in the industries for their features like smooth finish, corrosion resistance and durability

Size	Standard	Material
M6-M64	DIN127/7989	MS steel, 45#steel

Square Tapper Washers

We render our clients with a vast range of Square Tapper Washers, which is available in different mechanical properties.

Size	Standard	Material	Surface
M9 to M33	DIN 434 Square Bevel Washer-8%	Mild steel,Carbon steel,Q235,A 2,A4(304,316),45#,50#,65 Mn	Plain, Black, Zinc Plated, HDG

SQ.SQ Plate Wasaher

We do manufacture a wide range of Square Square Plate customized Washer, which are manufactured by premium grade material. These Square Square Washers assure smooth functioning and quality.

Thickness	Standard	Material	Surface
M4-M72	S275Jr, Gr50	4.6, Carbon Steel	Plain, Black, Zinc Plated, HDG

Product

Threaded Road

Threaded Bar

We are providing a wide range of threaded / sag rods, which are manufactured by premium grade material.

Size	Standard	Material	Grades
M6-M64	DIN975	MS steel, 45#steel	4.6, 8.8

Threaded Bar

We are providing a wide range of B7/ B7M, B16, A320 GrL7/L7M threaded rods, which are manufactured by premium grade material.

Size	Standard	Material	Surface
1/2" - 2-1/2" M12 - M64	ASTM A193/ A193M B16, A320 GrL7, L7M	AISI 4140/4142	Plain

NordLock Washer

Nord-Lock washers secure bolted joints with tension instead of friction. It is a high quality product with documented success in many industries worldwide.
Regular outer diameter (NL3–NL130) Enlarged outer diameter (NL3,5sp–NL36sp)
Corrosion resistance Minimum 600 hours in salt spray test (according to IS09227)

Size	Hardness	Material	Surface
M12 to M42	≥ 465 HV1	EN 1.7182 or equivalent EN 1.4404 or equivalent	Delta Protekt® base coat (KL100) and top coat (VH302GZ)

Self Locking Counter Nuts (PalNut)

wide range in stock of Pal Nut

Size	Standard	Material	Surface
M4 to M52	DIN 7967	Stainless Steel, Mild steel,Carbon steel 2,A4(304,316),45#,50#,65 Mn	Plain, Black, Zinc Plated, HDG

Emirates Modern Industrial Area Umm Al Quwain, UAE
sales@mfindllc.com | www.mfindllc.com

Steel Pipe Clamps

Pipe clamps offered in this section are designed for support and attachment of pipe to structural members. A wide range of pipe clamps are available for various applications.

Size	Standard	Material Grade	Finish
M8 toM20	ISO,JIS,GB,ANSI,BSW,DIN	Stainless Stee, CArbon Stell	Plain. Contact B-Line for alternative finishes and materials.

Anchor Shackle Bolt

Minimum ultimate load is 6 times the working load limit. Bolt type anchor shackles supplied with thin head bolt and nut with cotter pin.

Specifications

Meets Federal Specification RR - C, Type IVA, Grade A, Class 3 All dimensions approxi - mate – variations do not effect use or design factor

Turn Buckle

Our jaw and eye turnbuckle are hot dip galvanized for durability and weather resistance. Made for inline or straight pull applications only, our cable turnbuckles feature a jaw on one end which is fitted with a nut & bolt or a pin & cotter pin assembly.

Size	Standard
M12 to M42	ASTM F1145

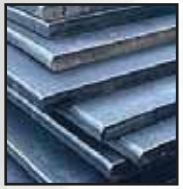
Chemical Anchor & Studs

The studs are pre-cut to standard chemical anchoring lengths and supplied with nuts and washer. The hex insert allows rotation and a chisel point to break the chemical capsule.

Specification

Studs in carbon steel and zinc plated.

Steel Plates

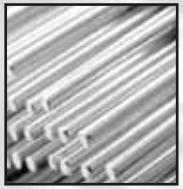


Prime hot rolled plate, Miled steel, cut edge or mill edge. Free from the oil, loose mill scale, non

Specification

ASTM A-572M 2004 edition,Tolerance: Width, length, thickness, flatness, camber, Out of square as per ASTM A568

Stainless Steel Bright Bars



316L grade Stainless Steel polished bright Bars are extensilvery used in direct machining , Pump Shafting,marine application. Material comes with superior surface finish for direct use.

Place of Origin	Size	Standard	Material	Surface

PTFE STuds

We offer ASTM A193/A193M, B7/B7M PTFE Studs for Oil and Gas , Pipe lines and other related jobs

Size	Standard	Material	Surface
M8 to M100	ASTM A193,193M ,A320,L7,B8/B8M	AISI4140, 304(A2-70/80	PTFE (YL,GR,RD)

MS Round Bar

Hot rolled MS round bar A36, (S275Jr), Grade EN8, EN8D, 40Cr, 42CrMo,

Size	Standard	Surface
M8 to M100	AISI/5140	Plain

Emirates Modern Industrial Area Umm Al Quwain, UAE
sales@mfindllc.com | www.mfindllc.com

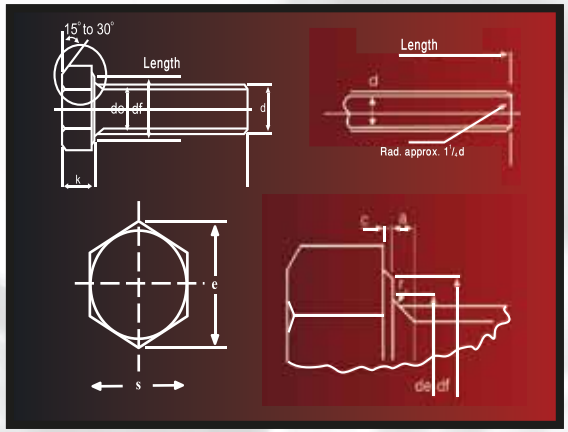
Non- Pre Load Bolt Assemblies as EN 15048-1&2

Hex Bolt

BS EN 15048 Fully threaded setscrew dimensions. Classes 8.8 & 10.9

Nominal size and Thread dia. *d*	*Pitch of thread p*	*Plain portion a*	*Width across flats s*		*Width across corners e*	*Diameter of washer face df*	*Depth of washer face c*		*Radius under head r*	*Transition diameter de*	*Thickness of head k*	
	Coarse pitch series)	max	max	min	min	min	max	min	min	max	max	Min
M12	1.75	5.25	18.00	17.57	19.85	16.47	0.60	0.15	0.60	13.70	7.68	7.32
M16	2.00	6.00	24.00	23.16	26.16	22.00	0.80	0.20	0.60	17.70	10.29	9.71
M20	2.50	7.50	30.00	29.16	32.95	27.70	0.80	0.20	0.80	22.40	12.85	12.15
M24	3.00	9.00	36.00	35.00	39.55	33.25	0.80	0.20	0.80	26.40	15.35	14.65
M30	3.50	10.50	46.00	45.00	50.85	42.75	0.80	0.20	1.00	33.40	19.12	18.28
M36	4.00	12.00	55.00	53.00	60.78	51.11	0.80	0.20	1.00	39.40	22.92	22.08

Bolt Drwaing



Product Characteristics		Standard
Fully threaded setscrews		
General requirements		ISO 4017
Material & manufacture		ISO 898-1 CLASSES 8.8 & 10.9
Finish /coatings	Zinc electroplated	BS 7371-3 or BS EN ISO 4042
	Hot dip galvanized	BS 7371-6 or BS EN ISO 10684
Mechanical Properties		ISO 898-1 Classes 8.8 & 10.9
Dimensions & tolerances		ISO 4017
Threads		ISO 965-2 class 6G

BS EN 15048 Mechanical properties. Grade 8.8 setscrews

Bolt thread dia	Tensile strength	Proof load	Elongation	Hardness Rockwell HRC	
	N/mm^2 min	N/mm^2 min	% min	min	Max
M12	800.00	48.90	12.00	22.00	32.00
M16	800.00	91.00	12.00	22.00	32.00
M20	830.00	147.00	12.00	23.00	34.00
M22	830.00	182.00	12.00	23.00	34.00
M24	830.00	212.00	12.00	23.00	34.00
M27	830.00	275.00	12.00	23.00	34.00
M30	830.00	337.00	12.00	23.00	34.00
M36	830.00	490.00	12.00	23.00	34.00
BS EN 15048 Assemblies also require a charpy impact test to en 10045-1					

Marking

Note : it is a requirment of BSEN 15048 standard theat the bolt nut & washer should be assembled and supplied by one manufacturer who shall be resprnsible for the function of the assembly. all the components are identified with the manufacturer Id. Coating of the fasteners shall beas per standard

Non- Pre Load Bolt Assemblies as EN 15048-1&2

Hexagon Nut & Washer

BS EN 15048 Nut ISO 4032/4034, Classes 8 & 10

Normal Size and Thread Diameter *d*	Pitch of Thread *P*	Width Across Flats *S*		Width Across Corners *E*	Thickness of Nut *m*	
		max	min	min	max	min
M12	1.75	18.00	17.57	21.10	12.20	10.40
M16	2.00	24.00	23.16	26.75	15.90	14.10
M20	2.50	30.00	29.16	32.95	19.00	16.90
M24	3.00	36.00	35.00	39.55	22.30	20.20
M30	3.50	46.00	45.00	50.85	26.40	24.50
M36	4.00	55.00	53.80	60.79	31.90	29.40

BS EN 15048 Nut ISO 4032/4034, Proof Loads, Classes 8 & 10

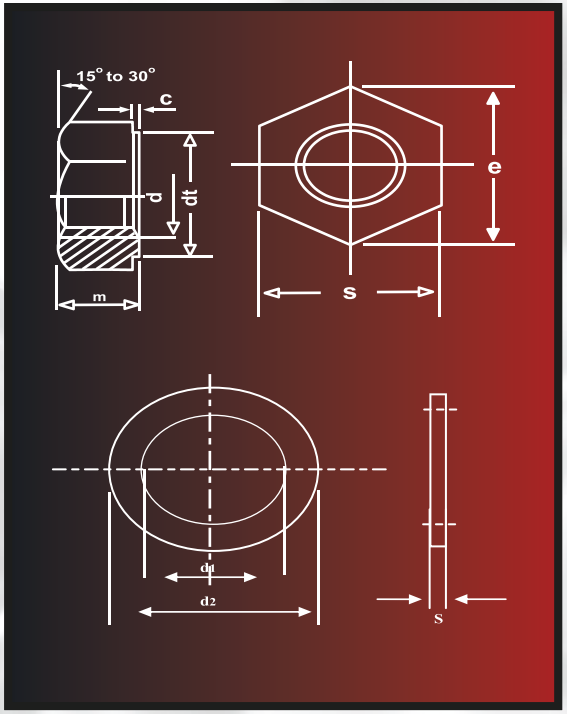
Nut Thread Diad	Stress Area Test Mandrel	Property Class	
		8	10
		Tolerance Class 6H (1)	Tolerance Class 6AZ(2)
	mm^2	Proof Load kN	Proof Load kN
M12	84.30	67.0	78.10
M16	157.0	125.0	150.0
M20	245.0	196.0	236.0
M24	353.0	282.0	342.0
M30	561.0	448.0	551.0
M36	817.0	653.0	808.0

6H (1) is the tolerance class for self color & zinc plated nuts.
6AZ(2) is the tolerance class for hot dip galvanized nuts

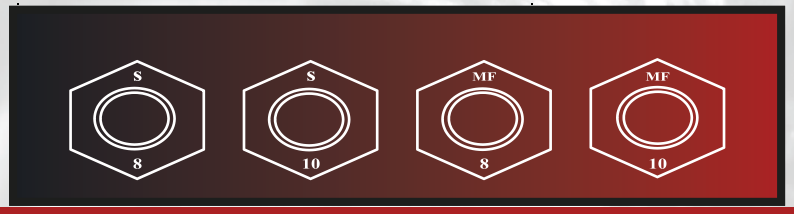
BS EN 15048 Washer ISO 7091 (100 HV Min)

Normal Size and Thread Diameter *d*	ISO 7091- 2000					
	Inside Diameter d_1		Outside Diameter d_2		Thickness *s*	
	max	min	max	min	max	min
M12	13.93	13.50	24.00	22.70	2.80	2.20
M16	17.93	17.50	30.00	28.70	3.60	2.40
M20	22.52	22.00	37.00	35.40	3.60	2.40
M24	26.52	26.00	44.00	42.40	4.60	3.40
M30	33.62	33.00	56.00	54.10	4.60	3.40
M36	40.00	39.00	66.00	64.10	6.00	4.00

Drwaing



Product Characteristics		Standard
Hexagon Full Nuts		
General Requirement		ISO 4032 & 4034
Material & Manufacturer		ISO 4032 & 4034 Classes 8 & 10
Finish Coating	Zinc Electroplated	BS 7371-3 OR BS EN ISO 4032
	Hot Dip Galvanized	BS 7371-6 OR BS EN ISO 10684
Mechanical Properties	Self Colour / Zinc Electroplated	ISO 4032 & 4034 Class 8
	Hot Dip Galvanized	ISO 4032 & 4034 Class 10
Dimensions & Tolerances		ISO 4032 & 4034
Threads	Self Colour / Zinc Electroplated	ISO 965-2 Class 6H
	Hot Dip Galvanized	ISO 965-2 Class 6AZ



Product Characteristics		Standard
Washer		
General Requirement		ISO 7089/7091-2000
Material & Manufacturer		ISO 7089/7091-2000
Finish /Coating	Zinc Electroplated	BS 7371/3 or BS EN 442
	Hot Dip Galvanized	BS 7371-6 or BS EN ISO 10684
Dimensions & Tolerance		ISO 7091-2000

Note : it is a requirment of BSEN 15048 standard theat the bolt nut & washer should be assembled and supplied by one manufacturer who shall be resprnsible for the function of the assembly. all the components are identified with the manufacturer Id. Coating of the fasteners shall beas per standard

Pre - Load Bolt Assemblies HR BS EN 14399-3

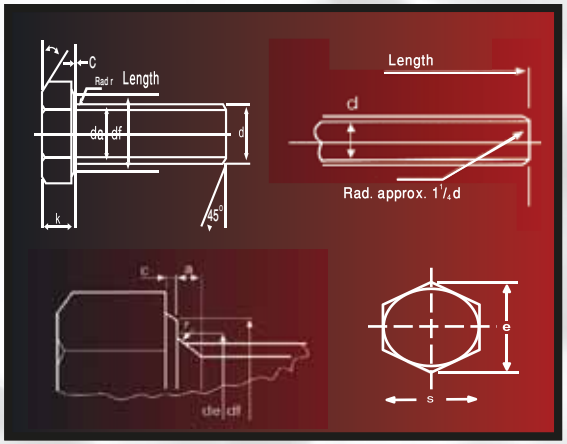
Hexagon Bolt

BS EN 14399-3	HR Bolt Dimension Classes 8.8 & 10.9												
Nominal Size and Thread Diameter d	*Pitch of Thread p*	*Diameter of Unthreaded Shank d_a*		*Width Across Flats s*		*Width Across Corners e*	*Diameter Of Washer Face df*	*Depth of Washer Face c*		*Radius Under Head r*	Transition Diameter d_e	*Thickness of Head k*	
	(coarse pitch series	max	min	max	min	min	min	max	min	min	max	max	min
M12	1.75	12.70	11.30	22.00	21.16	23.91	20.10	0.8	0.4	1.2	15.20	7.95	7.05
M16	2.00	16.70	15.30	27.0	26.16	29.56	24.90	0.8	0.4	1.2	19.20	10.75	9.25
M20	2.50	20.84	19.16	32.00	31.00	35.03	29.50	0.8	0.4	1.5	24.40	13.40	11.60
M22	2.50	22.84	21.16	36.00	35.00	39.55	33.50	0.8	0.4	1.5	26.40	14.90	13.10
M24	3.00	24.84	23.16	41.00	40.00	45.20	38.00	0.8	0.4	1.5	28.40	15.90	14.10
M27	3.00	27.84	26.16	46.00	45.00	50.85	42.80	0.8	0.4	2.0	32.40	17.90	16.10
M30	3.50	30.84	29.16	50.00	49.00	55.37	46.60	0.8	0.4	2.0	35.40	19.75	17.65
M36	4.00	37.00	35.0	60.00	58.80	66.40	55.90	0.8	0.4	2.0	42.40	23,55	21.45

Product Characteristic		Standard
Material		Steel
General Requirements		EN 14399-1
Thread	Tolerance	6g[a]
	International Standard	ISO 261, ISO 965-2
Mechanical Properties	Property Class	8.8 or 10.9
	European Standard	EN ISO 898-1
Impact strength	Value	K V min = 27 J at – 20 °C
	Test Piece[b]	ISO 148
	Test	EN 10045-1
Tolerances	Product Grade	C except: dimensions $_C$ and $_r$. Tolerance for lengths ≥ 160 mm ± 4.0mm
	International Standard	EN ISO 4759-1
Surface Finish	Normal	As processed[c]
	Hot Dip Galvanized	EN ISO 10684[d]
	Others	To be agreed[c]
Surface Discontinuities		Limits for surface discontinuities as specified in EN 26157-1
Acceptability		For acceptance procedure, see EN ISO 3269

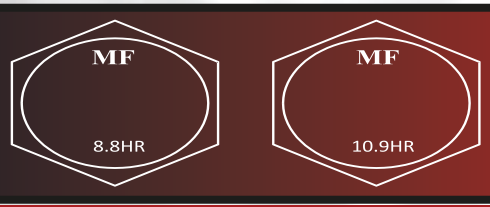
a. The tolerance class specified supplies before hot dip galvanizing bolts are intended for assembly with oversize tapped nuts.
b. The location of the charpy V-notch test pieces in the bolt shall be as specified in EN ISO 898-1
c. "As processed" means the normal finish resulting from manufacture with a light coating of oil.
d. Attention is drawn to the need to consider the risk of hydrogen embrittlement in the case of bolts of property class 10.9, when selection an appropriate surface treatment process (eg. Cleaning and coating.)
e. Other coating may be negotiated between the purchaser and the manufacturer provided they do not impair the mechanical properties or the functional characteristics. **Coating of cadmium or cadmium alloys are not permitted.**

Drawing



Bolt / Nut / Washer Assembly Systems HR		
General Requirement	BS EN 14399-1	
Materials & Manufacture	BS EN 14399-3	
Marking	HR	
Property Classes	8.8/8	10.9/10
Washer (s)	EN 14399-5 Or EN 14399-6	
Marking	H	
Suitable Test for Preloading	EN 14399-2	

Marking



Note : it is a requirment of BSEN 14399-3 standard theat the bolt nut & washer should be assembled and supplied by one manufacturer who shall be respnsible for the function of the assembly. all the components are identified with the manufacturer Id. Coating of the fasteners shall beas per standard

Pre - Load Fastener Assemblies HR BS EN 14399-3

Hexagon Nut

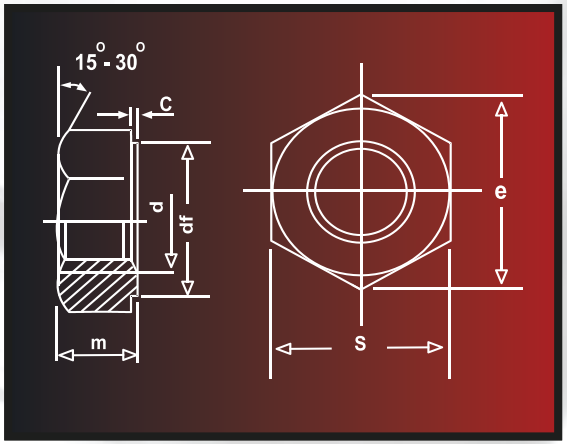
BS EN 14399-3 Nut Dimensions. Classes 8 & 10

Nominal Size & Thread Diameter *d*	Pitch of thread *p*	Width Across Flats *s*		Width Across Corner *e*	Diameter of washer face *df*		Depth of washer face *c*	Thickness of nut *m*		Tolerance on squareness
	(coarse pitch series)	max	min	min	min	max.	min	max.	min.	max.
M12	1.75	22.00	21.16	23.91	20.10	0.8	0.4	10.80	10.37	0.38
M16	2.00	27.00	26.16	29.56	24.90	0.8	0.4	14.80	14.10	0.47
M20	2.50	32.00	31.00	35.03	29.50	0.8	0.4	18.00	16.90	0.58
M22	2.50	36.00	35.00	39.55	33.30	0.8	0.4	19.40	18.10	0.63
M24	3.00	41.00	40.00	45.20	38.00	0.8	0.4	21.50	20.20	0.72
M27	3.00	46.00	45.00	50.85	42.80	0.8	0.4	23.80	22.50	0.80
M30	3.50	50.00	49.00	55.37	46.60	0.8	0.4	25.60	24.30	0.87
M36	4.00	60.00	58.80	66.44	55.90	0.8	0.4	31.00	29.40	1.05

Product Characteristic		Standard
Material		Steel
General requirements		EN 14399-1
Thread	Tolerance	6H or 6AZ
	International standard	ISO 261, ISO 965-2, ISO 965-5
Mechanical Properties	Property Class	8[a] or 10[a]
	European Class	EN 20898-2
Tolerances	Product Grade	B expect dimensions *m* and *c*
	International standard	EN ISO 4759-1[b]
Surface Finish	Normal	As processed[c]
	Hot Dip Galvanized	EN ISO 10684
	Others	To be agreed[d]
Surface discontinuities		Limits of surface discontinuities as specified in EN 493
Acceptability		For acceptance procedure see EN ISO 3269

For proof load values, see 4.3 all other mechanical properties as specified in EN 20898-2
Except tolerance on perpendicularity of bearing face. See tolerance / in table 4.
"As processed" means the normal finish resulting from manufacture with a light coating of oil
Other coating may be negotiated between the purchaser and the manufacturer they do not impair the mechanical properties of the functional characteristics. Coating of cadmium alloys are not permitted .

Drawing



BS EN 14399-3 Nut Proof Loads. Classes 8 &10

Nut Thread Dia	Stress Area Test Mandrel	Property class	
		8	10
		Tolerance Class 6H or 2) 6AZ	Tolerance Class 6H or 2) 6AZ
	mm^2	Proof load kN	Proof load kN
M12	84.30	84.30	97.80
M16	157.70	157.0	182.1
M20	245.0	245.0	284.2
M22	303.0	303.0	351.2
M24	353.0	353.0	409.5
M27	459.0	459.0	532.4
M30	561.0	561.0	650.8
M36	817.0	817.0	947.7

6H is the tolerance class for self colour & zinc plated nuts .
6AZ is the tolerance class for hot dip galvanized nuts.

Marking

Note : it is a requirment of BSEN 14399-3 standard theat the bolt nut & washer should be assembled and supplied by one manufacturer who shall be respnsible for the function of the assembly. all the components are identified with the manufacturer Id. Coating of the fasteners shall beas per standard

Pre - Load Fastener Assemblies HR BS EN 14399-4

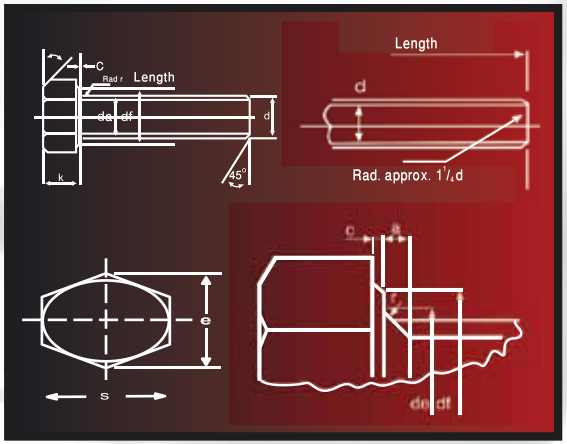
Hexagon Bolt

BS EN 14399-4	HR Bolt Dimension Classes 10.9												
Nominal Size and Thread Diameter d	*Pitch of Thread p*	*Diameter of Unthreaded Shank d_a*		*Width Across Flats s*		*Width Across Corners e*	*Diameter Of Washer Face df*	*Depth of Washer Face c*		*Radius Under Head r*	Transition Diameter d_e	*Thickness of Head k*	
	(coarse pitch series	max	min	max	min	min	min	max	min	min	max	max	min
M12	1.75	12.70	11.30	22.00	21.16	23.91	20.10	0.6	0.4	1.2	15.20	8.45	7.55
M16	2.00	16.70	15.30	27.0	26.16	29.56	24.90	0.6	0.4	1.2	19.20	10.75	9.25
M20	2.50	20.84	19.16	32.00	31.00	35.03	29.50	0.8	0.4	1.5	24.00	13.90	12.10
M22	2.50	22.84	21.16	36.00	35.00	39.55	33.50	0.8	0.4	1.5	26.00	14.90	13.10
M24	3.00	24.84	23.16	41.00	40.00	45.20	38.00	0.8	0.4	1.5	28.00	15.90	14.10
M27	3.00	27.84	26.16	46.00	45.00	50.85	42.80	0.8	0.4	2.0	32.00	17.90	16.10
M30	3.50	30.84	29.16	50.00	49.00	55.37	46.60	0.8	0.4	2.0	35.00	20.05	17.95
M36	4.00	37.00	35.00	60.00	58.80	66.44	55.90	0.8	0.4	2.0	41.00	24.05	21.95

Product Characteristic		Standard
Material		Steel
General Requirements		EN 14399-1
Thread	Tolerance	6g[a]
	International Standard	ISO 261, ISO 965-2
Mechanical Properties	Property Class	10.9
	European Standard	EN ISO 898-1
Impact strength	Value	K $V_{.}$min = 27 J at – 20 °C
	Test Piece[b]	ISO 148
	Test	EN 10045-1
Tolerances	Product Grade	C except: dimensions $_C$ and $_{r.}$ +IT 17 Tolerance for lengths ≥ 155 mm 1/2 IT 17
	International Standard	EN ISO 4759-1
Surface Finish	Normal	As processed[c]
	Hot Dip Galvanized	EN ISO 10684[d]
	Others	To be agreed[c]
Surface Discontinuities		Limits for surface discontinuities as specified in EN 26157-1
Acceptability		For acceptance procedure, see EN ISO 3269

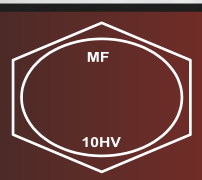
a. The tolerance class specified supplies before hot dip galvanizing bolts are intended for assembly with oversize tapped nuts.
b. The location of the charpy V-notch test pieces in the bolt shall be as specified in EN ISO 898-1
c. Attention is drawn to the need to consider the risk of hydrogen embrittlement in the case of bolts of property class 10.9, when selection an appropriate surface treatment process (eg. Cleaning and coating.)
d. "As processed" means the normal finish resulting from manufacture with a light coating of oil.
e. Other coating may be negotiated between the purchaser and the manufacturer provided they do not impair the mechanical properties or the functional characteristics. **Coating of cadmium or cadmium alloys are not permitted.**

Drawing



Bolt / Nut / Washer Assembly Systems HV	
General Requirement	BS EN 14399-1
Materials & Manufacture	BS EN 14399-4
Marking	HV
Property Classes	10.9/10
Washer (s)	EN 14399-5 Or EN 14399-6
Marking	H
Suitable Test for Preloading	EN 14399-2

Marking



Note : it is a requirment of BSEN 14399-3 standard theat the bolt nut & washer should be assembled and supplied by one manufacturer who shall be respnsible for the function of the assembly. all the components are identified with the manufacturer Id. Coating of the fasteners shall beas per standard

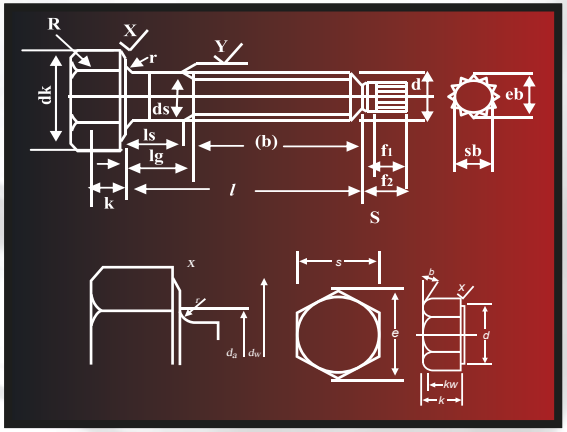
Pre - Load Fastener Assemblies HR BS EN 14399-10

TCB Bolt (Tension Control Bolt)

BS EN 14399-10 HRC Bolt Dimension

Thread	pb	b(ref.)			c		da	ds		dw		e	k			kw	r	s	
		c	d	e	Max	min	max	max	min	max	min	min	nom	max	min	min	min	max	Min
M12	1.75	30			0.8	0.4	15.2	12.70	11.30		20.1	23.91	7.50	7.95	7.05	4.9	1.2	22	21.16
M16	2.00	38	44		0.8	0.4	19.2	16.70	15.30		24.9	29.56	10.0	10.75	9.25	6.50	1.2	27	26.16
M20	2.50	46	52	65	0.8	0.4	24.4	20.84	19.16		29.5	35.03	12.5	13.40	11.60	8.1	1.5	32	31.00
M22	2.50	50	56	69	0.8	0.4	26.4	22.84	21.16	f	33.3	39.55	14.0	14.90	13.10	9.2	1.5	36	35.00
M24	3.00	54	60	73	0.8	0.4	28.4	24.84	23.16		38.0	45.20	15.0	15.90	14.10	9.9	1.5	41	40.00
M27	3.00	60	66	79	0.8	0.4	32.4	27.84	26.16		42.8	50.85	17.0	17.90	16.10	11.3	2.0	46	45.00
M30	3.50	66	72	85	0.8	0.4	35.4	30.84	29.16		46.6	55.37	18.75	19.75	17.65	12.4	2.0	50	49.00

Drawing



BS EN 14399-10 HRC Spline End Dimensions

Thread d	Width Across Flats of Spline-end rb b			Width Across Corners of Spline-end eb b	Length Of Spline-End *F1*	Break off Length *F2*
	nom	max	min	min	min	max
M12	7.7	8.0	7.4	8.36	11.0	16.0
M16	11.3	11.6	11.0	12.43	13.0	18.0
M20	14.1	14.4	13.8	15.60	15.0	20.0
M22	15.4.	15.7	15.1	17.06	15.5	21.0
M24	16.8	17.1	16.5	18.65	16.0	21.5
M27	19.0	19.3	18.7	21.13	19.0	24.0
M30	21.1	21.4	20.8	23.50	21.0	26.0

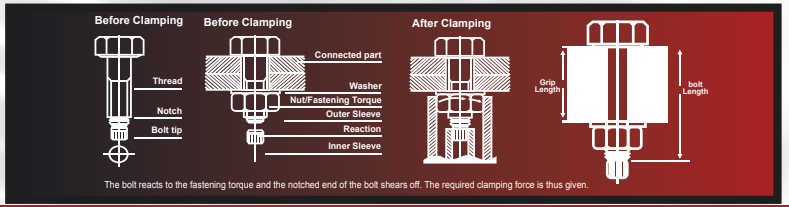
BS EN 14399-10 HRC Spline End Dimensions

Thread d	Width Across Flats of Spline-end rb b			Width Across Corners of Spline-end eb b	Length Of Spline-End *F1*	Break off Length *F2*
	nom	max	min	min	min	max
M12	7.7	8.0	7.4	8.36	11.0	16.0
M16	11.3	11.6	11.0	12.43	13.0	18.0
M20	14.1	14.4	13.8	15.60	15.0	20.0
M22	15.4.	15.7	15.1	17.06	15.5	21.0
M24	16.8	17.1	16.5	18.65	16.0	21.5
M27	19.0	19.3	18.7	21.13	19.0	24.0
M30	21.1	21.4	20.8	23.50	21.0	26.0

Features of High Strength HRC (Tension Control) Bolt

Developed for more simplified bolt fastening and more accurate performance. HRC (Tension Control) Bolts offer excellent characteristics as shown below

1. Controlled clamping force can be ensured.
2. Completion of bolt fastening can be confirmed by the shear-off of the notched end of the bolt.
3. Removes the possibility of operator error.
4. Fastening can easily be done by electric wrench.
5. Noiseless installation and no need of wrench adjustment.
6. The bolt does not rotate when fastening.



Note : it is a requirment of BSEN 14399-3 standard theat the bolt nut & washer should be assembled and supplied by one manufacturer who shall be respnsible for the function of the assembly. all the components are identified with the manufacturer Id. Coating of the fasteners shall beas per standard

Pre - Load Heavy Hex Nut HR BS EN 14399-3

Pre - Load Hexagon Nut

BS EN 14399-3 HR Nut Dimensions

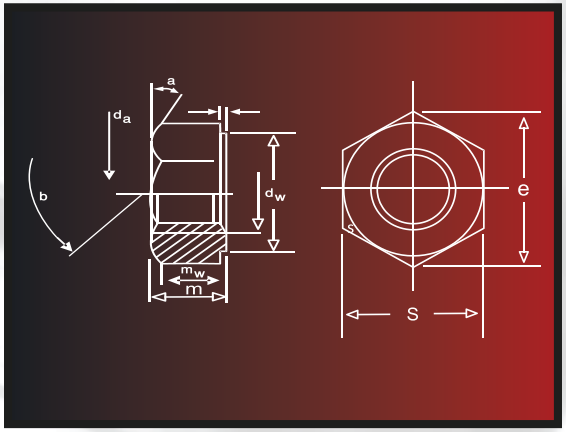
Thread d	Pd	d_a		d_w		c	m		M_w	c		s		r
		max	min	min	min	Min	Max	Min	min.	Max	min	Max	min	
M12	1.75	13.0	12		20.1	23.91	10.8	10.37	8.3	0.8	0.4	22	21.16	0.38
M16	2.00	17.3	16		24.9	29.56	14.8	14.10	11.3	0.8	0.4	27	26.16	0.47
M20	2.50	21.6	20		29.5	35.03	18.0	16.90	13.5	0.8	0.4	32	31.00	0.58
M22	2.50	23.7	22	e	33.3	39.55	19.4	18.10	14.5	0.8	0.4	36	35.00	0.63
M24	3.00	25.9	24		38.0	45.20	21.5	20.20	16.2	0.8	0.4	41	40.00	0.72
M27	3.00	29.1	27		42.8	50.85	23.8	22.50	18.1	0.8	0.4	46	45.00	0.80
M30	3.50	32.4	30		46.6	55.37	25.6	24.00	19.5	0.8	0.4	50	49.00	0.87

Product Characteristic		Standard
Material		Steel
General requirements		EN 14399-1
Thread	Tolerance	6H or 6AZ
	International standard	ISO 261, ISO 965-2, ISO 965-5
Mechanical Properties	Property Class	10[a]
	European Class	EN 20898-2
Tolerances	Product Grade	B expect dimensions *m* and *c*
	International standard	EN ISO 4759-1[b]
Surface Finish	Normal	As processed[c]
	Hot Dip Galvanized	EN ISO 10684
	Others	To be agreed[d]
Surface discontinuities		Limits of surface discontinuities as specified in EN ISO 6157-2
Acceptability		For acceptance procedure see EN ISO 3269

For proof load values, see 4.3 all other mechanical properties as specified in EN 20898-2
Except tolerance on perpendicularity of bearing face. See tolerance / in table 4.
"As processed" means the normal finish resulting from manufacture with a light coating of oil
Other coating may be negotiated between the purchaser and the manufacturer they do not impair the mechanical properties of the functional characteristics. Coating of cadmium alloys are not permitted .

Galvanized HRC Assemblies.(bolt, nuts, washer) are supplied in a fully assembled condition ready for use. No treatments such as T-Washing or Etching can be applied before installation as this will change the tightening characteristics and prevent the correct preload being achieved.
The components of the assembly, as supplied, have been tested as a atch and must not be mixed with components from any other batch of HRC assemblies.
Care must always be taken to avoid any contamination of the assemblies with anything that may charges the lubrication of the nut, bolt thread or washer.
SUCH CONTAMINATION WILL EFFECT THE ASSEMBLY PRELOAD THAT IS ACHEVED DURING TIGHTENING.
Although HRC assemblies are designed to withstand the maximum preloads that can occur when contaminated with water, we would advise that tightening of HRC assemblies is avoided in the rain.

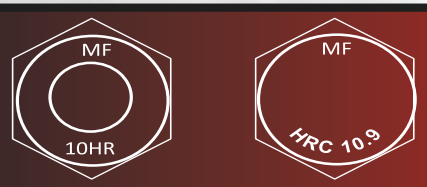
Drawing



BS EN 14399-3 Nut Proof Loads. Classes 8 & 10

Nut Thread d	Nominal Stress Area of Standard Test Mandrel A_s mm²	Property Class 10 Tolerance Flass 6H or 6HZ Proof Load ($A_{S\,X}\,S_{Pj}$) N	
		Nuts According to EN 14399-3 HR [a]	Nuts with Height m = d HRD [D]
	mm²	Proof load kN	Proof load kN
M12	84.3	97 800	104 900
M16	157.0	182 100	195 500
M20	245.0	284 200	305 000
M22	303.0	351 200	377 200
M24	353.0	409 500	439 500
M27	459.0	532 400	571 500
M30	561.0	650 800	698 400

a. The proof load values are based on the stress under proof load of 1 160 MPa
b. The proof load values are based on the stress under proof load of 1 245 MPa



Note : it is a requirment of BSEN 14399-3 standard theat the bolt nut & washer should be assembled and supplied by one manufacturer who shall be respnsible for the function of the assembly. all the components are identified with the manufacturer Id. Coating of the fasteners shall beas per standard

Technical Data

Pre - Load Heavy Hex Nut HR BS EN 14399-3

Pre - Load Hexagon Nut

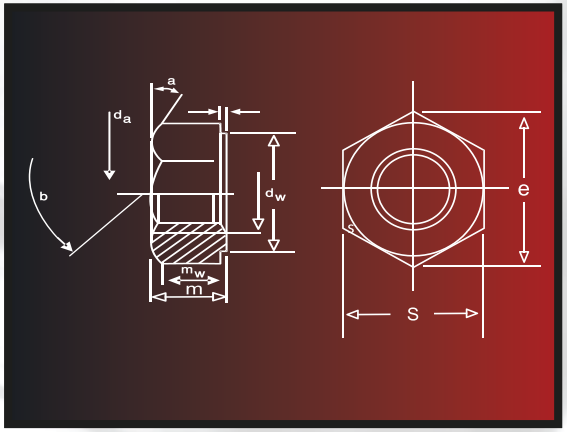
BS EN 14399-3 HR Nut Dimensions														
Thread d	Pd	d_a		d_w		c	m		M_w	c		s		r
		max	min	min	min	Min	Max	Min	min.	Max	min	Max	min	
M12	1.75	13.0	12		20.1	23.91	10.8	10.37	8.3	0.8	0.4	22	21.16	0.38
M16	2.00	17.3	16		24.9	29.56	14.8	14.10	11.3	0.8	0.4	27	26.16	0.47
M20	2.50	21.6	20		29.5	35.03	18.0	16.90	13.5	0.8	0.4	32	31.00	0.58
M22	2.50	23.7	22	e	33.3	39.55	19.4	18.10	14.5	0.8	0.4	36	35.00	0.63
M24	3.00	25.9	24		38.0	45.20	21.5	20.20	16.2	0.8	0.4	41	40.00	0.72
M27	3.00	29.1	27		42.8	50.85	23.8	22.50	18.1	0.8	0.4	46	45.00	0.80
M30	3.50	32.4	30		46.6	55.37	25.6	24.00	19.5	0.8	0.4	50	49.00	0.87

Product Characteristic		Standard
Material		Steel
General requirements		EN 14399-1
Thread	Tolerance	6H or 6AZ
	International standard	ISO 261, ISO 965-2, ISO 965-5
Mechanical Properties	Property Class	10[a]
	European Class	EN 20898-2
Tolerances	Product Grade	B expect dimensions *m* and *c*
	International standard	EN ISO 4759-1[b]
Surface Finish	Normal	As processed[c]
	Hot Dip Galvanized	EN ISO 10684
	Others	To be agreed[d]
Surface discontinuities		Limits of surface discontinuities as specified in EN ISO 6157-2
Acceptability		For acceptance procedure see EN ISO 3269

For proof load values, see 4.3 all other mechanical properties as specified in EN 20898-2
Except tolerance on perpendicularity of bearing face. See tolerance / in table 4.
"As processed" means the normal finish resulting from manufacture with a light coating of oil
Other coating may be negotiated between the purchaser and the manufacturer they do not impair the mechanical properties of the functional characteristics. Coating of cadmium alloys are not permitted .

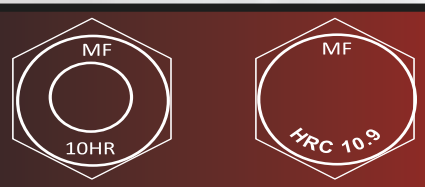
Galvanized HRC Assemblies.(bolt, nuts, washer) are supplied in a fully assembled condition ready for use. No treatments such as T-Washing or Etching can be applied before installation as this will change the tightening characteristics and prevent the correct preload being achieved.
The components of the assembly, as supplied, have been tested as a atch and must not be mixed with components from any other batch of HRC assemblies.
Care must always be taken to avoid any contamination of the assemblies with anything that may charges the lubrication of the nut, bolt thread or washer.
SUCH CONTAMINATION WILL EFFECT THE ASSEMBLY PRELOAD THAT IS ACHEVED DURING TIGHTENING.
Although HRC assemblies are designed to withstand the maximum preloads that can occur when contaminated with water, we would advise that tightening of HRC assemblies is avoided in the rain.

Drawing



BS EN 14399-3 Nut Proof Loads. Classes 8 & 10			
Nut Thread d	Nominal Stress Area of Standard Test Mandrel A_s mm²	Property Class 10 Tolerance Flass 6H or 6HZ	
		Proof Load ($A_{S\,X}\,S_{P)}$ N	
		Nuts According to EN 14399-3 HR [a]	Nuts with Height m = d HRD [D]
	mm²	Proof load kN	Proof load kN
M12	84.3	97 800	104 900
M16	157.0	182 100	195 500
M20	245.0	284 200	305 000
M22	303.0	351 200	377 200
M24	353.0	409 500	439 500
M27	459.0	532 400	571 500
M30	561.0	650 800	698 400

a. The proof load values are based on the stress under proof load of 1 160 MPa
b. The proof load values are based on the stress under proof load of 1 245 MPa



Note : it is a requirment of BSEN 14399-3 standard theat the bolt nut & washer should be assembled and supplied by one manufacturer who shall be respnsible for the function of the assembly. all the components are identified with the manufacturer Id. Coating of the fasteners shall beas per standard

Direct Tension Indicator (DTI)

Direct Tension Indicator Washer

BS EN 14399-9 Direct Tension Indicator Washer Dimensions

For Use with Bolts of designation	Internal diameter *d1*			External diameter *d2*	Material thickness *h1*		Height over protrusions *h2*		Height of protrusions *h3*		Protrusion tangential diameter *d3*		Protrusion internal diameter *d4*	
	min.	max.	min	min	min	max	min	max	min	max	min	max	min	max
M12	12.75	12.85	26.0	32.5	2.50	5.50	0.80	1.60	0.80	1.60	20		13.85	
M16	16.75	16.85	35.0	36.8	3.00	6.00	0.80	1.60	0.80	1.60	25		17.85	
M20	20.95	21.05	41.0	46.0	3.50	6.50	0.80	1.60	0.80	1.60	29		22.05	
M22	23.05	23.15	46.5	50.6	4.00	7.00	0.80	1.60	0.80	1.60	33		24.15	
M24	25.15	25.25	50.0	55.2	4.00	7.00	0.80	1.60	0.80	1.60	38		26.25	
M27	28.30	28.40	54.0	62.1	4.00	7.00	0.80	1.60	0.80	1.60	43		29.40	
M30	31.45	31.55	59.0	69.0	4.00	7.00	0.80	1.60	0.80	1.60	46.5		32.55	
M36	37.75	37.85	78.0	83.0	4.00	7.50	0.80	1.60	0.80	1.60	56		38.85	

BS EN 14399-9 DTI Compression Loads at Specified Gap

For use with bolts of designation	Compression load			
	Designated H8		Designated H10	
	Min.	Max.	Min.	Max.
M12	47	56	59	71
M16	88	106	110	132
M20	137	164	172	206
M22	170	204	212	254
M24	198	238	247	296
M27	257	308	321	385
M30	314	377	393	472
M36	458	550	572	688

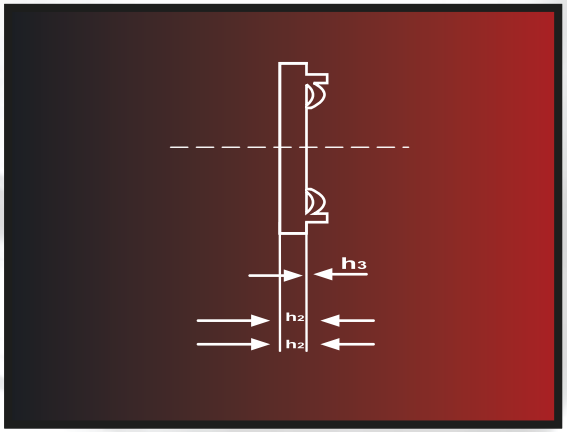
These minimum values are equal to 0.7 fub. As in accordance with EN 1993-1-1

BS EN 14399-9 DTI Washer feeler gauge requirements	
Direct tension indicator positions	Designation H8 and H10 Thickness of feeler guage
Under bolt head, when nut is rotated	0.40
Under nut, when bolt is rotated	
Under nut, when nut is rotated	0.25
Under bolt head, when bolt is rotated	

The DTI is a specially Hardened washer used totally independently of the bolts torque resistance.

DTI are one of four methods allowed to ensure that structural bolting is correctly installed.

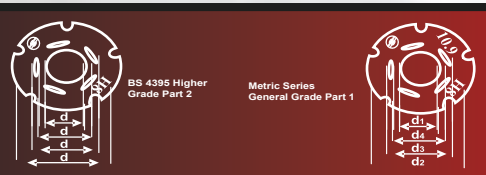
Drawing



Product Characteristic		Standard
Material		Steel
General requirements		EN 14399-1
Heat treatment		Hardened and tempered or controlled rolled and tempered
Maximum Hardness		380 HV
Surface Finish	Normal	As processed[c]
	Sherardized [b]	EN 13811
	Others	To be agreed[d]
Associated bolts and nuts		EN 14399-3, EN 14399-4, EN 14399-7 or EN 14399-8
Associated washers		EN 14399-5 or EN 14399-6
Acceptability		For acceptance procedure see EN ISO 3269[e]

The direct indicators shall not be electroplated or subjected to any process that could result in hydrogen embrittlement.
Sherardizing is considered to provide corrosion protection equivalent to hot dip galvanizing.
"As Processed" means the normal finish resulting from manufacture with oil coating . Other coating may be negotiated between the purchaser and the manufacturer providing they do not impair the mechanical properties of functional characteristics . coating of cadmium or cadmium alloys are not permitted.
For acceptance criteria use 0,65 AQL, Ac No 0; see EN ISO 3269:2000, Tables 5 and 6

Marking



Note : it is a requirment of DTI Washer to use its original Standard detail and data

Pre - Load Heavy Hex Bolt ASTM

ASTM Heavy Hex Bolt (A325M & ASTM A490M)

A325M Bolt

Standard Specification	**A325M B18.2.3.7M**
Material	**Medium Carbon Steel**
Strength	**8.8**
Screw Thread	**ASME B1.13. 6G**
Surface Finish	**Plain as Processed**
	Hot Dip Galvanized

A490M Bolt

Standard Specification	**A490M B18.2.3.7M**
Material	**Alloy Steel**
Strength	**10.9**
Screw Thread	**ASME B1.13. 6G**
Surface Finish	**Plain as Processed**

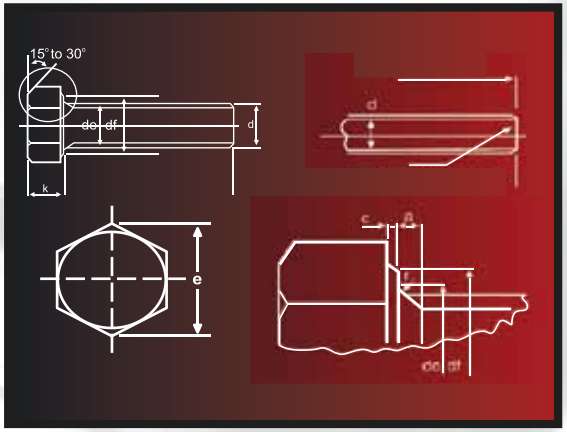
A325M Bolt Characteristics

Nominal Bolt Dia & Thread Pitch	Stress Area, mm^2	Proof Load, kn		Tensile Strength min, kN	Hardness			
		Length Measurement Method,	Yeild Strength Method,		Rockwell		Vickers	
					min	max	min	max
M16x2	157	94.2	104	130	C23	C34	255	336
M20x2.5	245	147	162	203				
M22x2.5	303	182	200	251				
M24x3	353	212	233	293				
M27x3	459	275	303	381				
M30x3.5	561	337	370	466				
M36x4	817	490	539	678				

A490M Bolt Characteristics

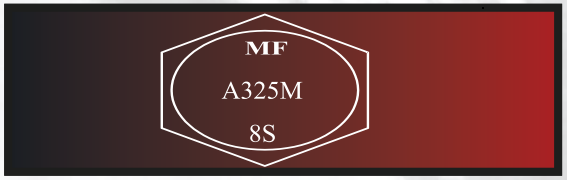
Nominal Bolt Dia & Thread Pitch	Stress Area, mm^2	Proof Load, kN		Tensile Strength min, kN		Product Hardness				Surface Hardness
		Length Measurement Method	Yeild Strength Method			HRC Rockwell C		HV (Vickers)		HR 30N (Rockwell 30N)
						min	max	min	max	Max
M16x2	157	130	148	163	188	33	39	327	336	59
M20x2.5	245	203	230	255	294					
M22x2.5	303	251	285	315	364					
M24x3	353	293	332	367	424					
M27x3	459	381	431	477	551					
M30x3.5	561	466	327	583	673					
M36x4	817	678	768	580	980					

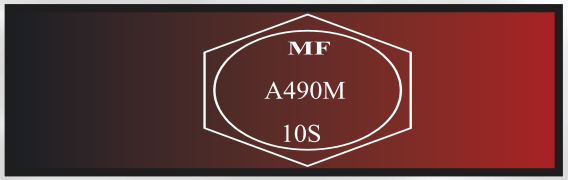
Drawing



ANSI B18.2.3.7M	Heavy hex structural bolt dimensions

D	S		E		K		B(Ref)	
Nominal Size and Thread Pitch	Width across flats		Width across corners		Head height		Thread length	
	Max.	Min.	Max.	Min.	Max.	Min.	Bolt Length ≤ 100	Bolt Length > 100
							Basic	
M16x2	27.00	26.16	31.18	29.56	10.75	9.25	31	38
M20x2.5	34.00	33.00	39.26	37.29	13.40	11.60	36	43
M22x2.5	36.00	35.00	41.57	39.55	14.90	13.10	38	45
M24x3	41.00	40.00	47.34	45.20	15.90	14.10	41	48
M27x3	46.00	45.00	53.12	50.85	17.90	16.10	44	51
M30x3.5	50.00	49.00	57.74	55.37	19.75	17.65	49	56
M36x4	60.00	58.80	69.28	66.44	23.55	21.45	56	63





Note : it is a requirment of ASTM A325M & ASTM A490M standard theat the bolt nut & washer should be assembled and supplied by one manufacturer who shall be respnsible for the function of the assembly. all the components are identified with the manufacturer Id. Coating of the fasteners shall beas per standard. for furher detail and specification follow its original data.

Pre - Load Nut & Washer (Assemblies) ASTM

ASTM A563M & ASTM F436M

ANSI B18.2.4.6M A563M Heavy Hex Nut Dimensions

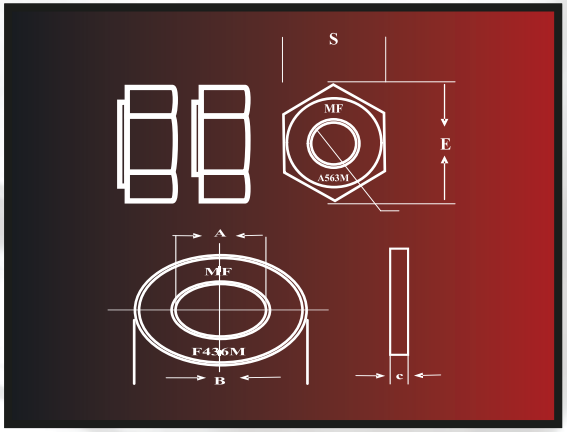
Nominal nut diameter and thread pitch	S		E		M	
	Width across flats		Width across corners		Thickness	
	max.	min.	max.	min.	max.	min.
M16x2	27.00	26.16	31.18	29.56	17.1	16.4
M20X2.5	34.00	33.00	39.26	37.29	20.7	19.4
M22X2.5	36.00	35.00	41.57	39.55	23.6	22.3
M24X3	41.00	40.00	47.34	45.20	24.2	22.9
M27X3	46.00	45.00	53.12	50.85	27.6	26.3
M30X3.5	50.00	49.00	57.74	55.37	30.7	29.1
M36X4	60.00	58.80	69.28	66.44	36.6	35.0

ASTM F436M Circular Washer Dimensions

Flat Circular Washers

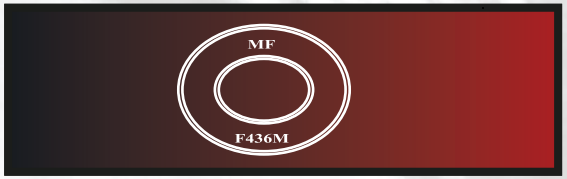
Nominal nut diameter and thread pitch	A		B		C	
	Inside		Outside		Thickness	
	Max.	Min.	Max.	Min.	Max.	Min.
16	18.4	18.0	34.0	32.4	4.6	3.1
20	22.5	22.0	42.0	40.4	4.6	3.1
22	24.5	24.0	44.0	42.4	4.6	3.4
24	26.5	26.0	50.0	48.4	4.6	3.4
27	30.5	30.0	56.0	54.1	4.6	3.4
30	33.6	33.0	60.0	58.1	4.6	3.4
36	39.6	39.0	72.0	70.1	4.6	3.4

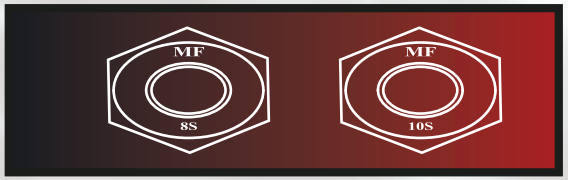
Drwaing



Standard specification	A563 ANSI B18.2.4.6M
Material	Carbon & Alloy Steel
Strength grade	8S , 10S
Screw thread	ANSI B18.2.4.1M
Surface finish	Plain as processed
	Hot dipped galvanized ASTM A153C

Standard specification	ASTM F436M
Material	Hardened steel
Material properties	38 to 45 HRC
Surface finish	Plain as processed
	Hot dipped galvanized ASTM A153C





Note : it is a requirment of ASTM A563M & ASTM F436M standard theat the bolt nut & washer should be assembled and supplied by one manufacturer who shall be respnsible for the function of the assembly. all the components are identified with the manufacturer Id. Coating of the fasteners shall beas per standard.

Square Sq. Holding Down Anchor Bolt

SQUARE BOLT

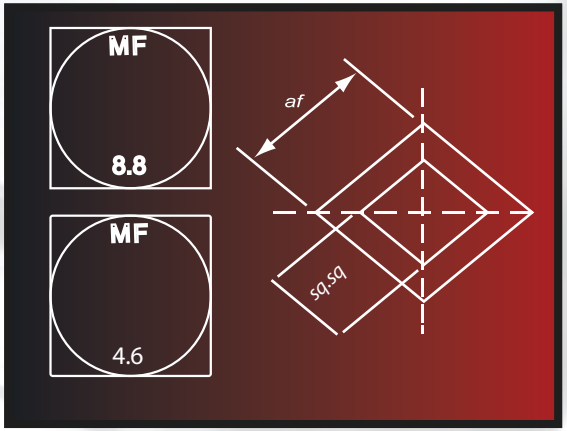
BS 7419 Grades 4.6 & 8.8 Dimensions

thread size *d*	Pitch of thread *p*	Thread length *t*				Diameter of unthreaded shank *ds*		Thickness Of head *h*		Radius under thread	Width across flats *af*		Depth of washer *s*		Width across Square *sq*	
		a		*b*												
		max	min	max	min	max	min	max	min	min	max	min	max	min	max	min
M16	2.00	122.0	116	225	200	16.70	15.30	10.75	9.25	0.6	24.00	23.16	8.75	7.25	16.70	15.30
M20	2.50	127.5	120	225	200	20.84	19.16	13.40	11.60	0.8	30.00	29.16	10.75	9.25	20.84	19.16
M24	3.00	133.0	124	225	200	24.84	23.16	15.90	14.10	0.8	36.00	35.00	12.90	11.10	24.84	23.16
M30	3.50	14.05	130	225	200	30.84	29.16	19.75	17.65	1.0	46.00	45.00	15.90	14.10	30.84	29.16
M36	4.0	148.0	136	225	200	37.00	35.00	23.55	21.45	1.0	55.00	53.80	18.90	17.10	37.00	35.00
M42	4.5	155.5	142	225	200	43.00	41.00	27.05	24.95	1.2	65.00	63.10	22.05	19.95	43.00	41.00
M48	5.0	163.0	148	225	200	49.00	47.00	31.05	28.95	1.6	75.00	73.10	25.05	22.95	49.00	47.00
M56	5.5	172.5	156	225	200	57.20	54.80	36.26	33.75	2.0	85.00	82.80	29.02	26.95	57.20	54.80
M64	6.0	182.0	164	225	200	65.20	64.80	41.25	38.75	2.0	95.00	92.80	33.25	30.75	65.20	62.80

a For nominal lengths L < 600. *B* For nominal lengths L > 600.

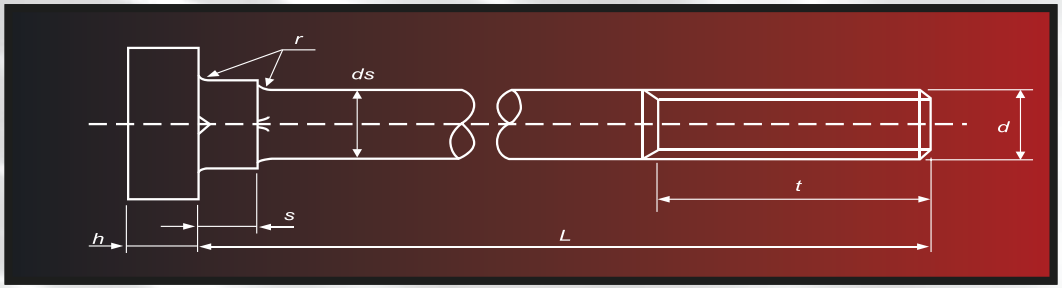
Product Characteristic		Standard	
General requirements		BS 7419	
Thread		BS 3643 Part 1&2 tolarence class 8g	
Mechanical & manufacture		ISO 898-1Property classes 4.6 &8.8	
Mechanical properties		ISO 898-1Property classes 4.6 &8.8	
Dimensions & tolerance		BS 7419	
Finish coating		Self colour/black	BS 7419
		Hot dip galvanized	BS 729 & BS 7371 Part 6

Drawing



BS 7419 Machined Test Requirements

Tensile Strength Min	Elongation Min	Reduction of area min	Hardness rockwell HRC	
N/mm²	%	%	min	Max
830	12	52	23	34
For bolts > M36 testing would generally be on machined test pieces				



Note : it is a requirment of SQ SQ Holding Down Bolt BS7419 standard theat the bolt nut & washer should be assembled and supplied by one manufacturer who shall be respnsible for the function of the assembly. all the components are identified with the manufacturer Id. Coating of the fasteners shall beas per standard.

Anchor Bolt & Plate Washers

Anchor Bolt & Plate Washer

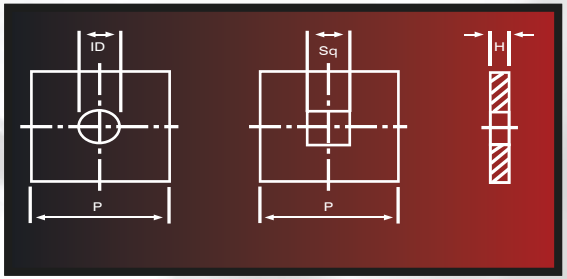
Washer plates are produced from mild steel plate (S275 & Gr50).
All holes are produced on a diameter + 2mm tolerance on both square and round hole & washers. As well as dingle holed plates, we can manufacture a range of all kind of holed plates wahser as per customer specification

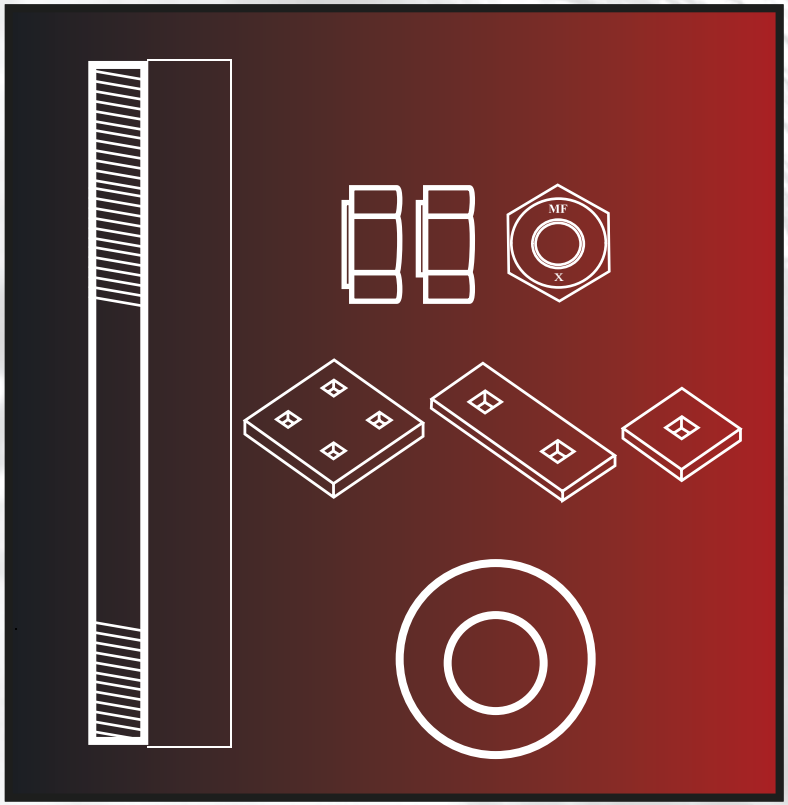
Plate washer Thickness
M4 to M100

Anchor Bolt
M16 to M125

Bolt Grades.
A36/50/105 F1554, 4.6, 8.8, 10.9, A193 B7, 4140
A320 L7, A307A/B/C

Drawing





Threaded Studs & Anchors

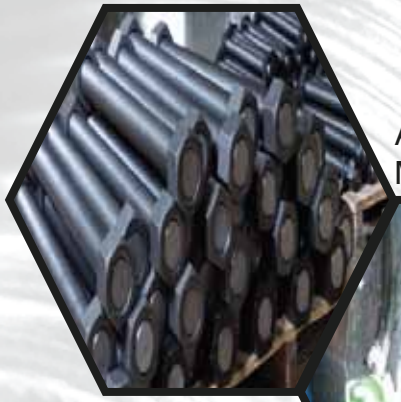
Threaded Studs and Anchor

Threaded Studs are produced from different standard material as per customer requirement and design

* Thickness
M10 to M125
* Length
Min 25mm

Studs Grades.
A36/50/105 F1554, 4.6, 8.8, 10.9, A193 B7, B7M
A320 L7, L7M, B16, SS304, SS316, B8, B8M,
A307A/B etc.

8.8 , A193 B7/B7M
M10 to M125



A193 B7/B7M/A320L7
M10 to M125

A193 B7/B7M/A320L7
M10 to M125

PTFE Studs
M10 to M125

PTFE Studs
M10 to M125

Machine Studs
M10 to M36


YOUR RELIABLE
SOURCE
A LEADING FASTENER MANUFACTURER

FACTORY ADDRESS

Emirates Modern Industrial Area Umm Al Quwain, UAE

P.O Box 7071-UAQ

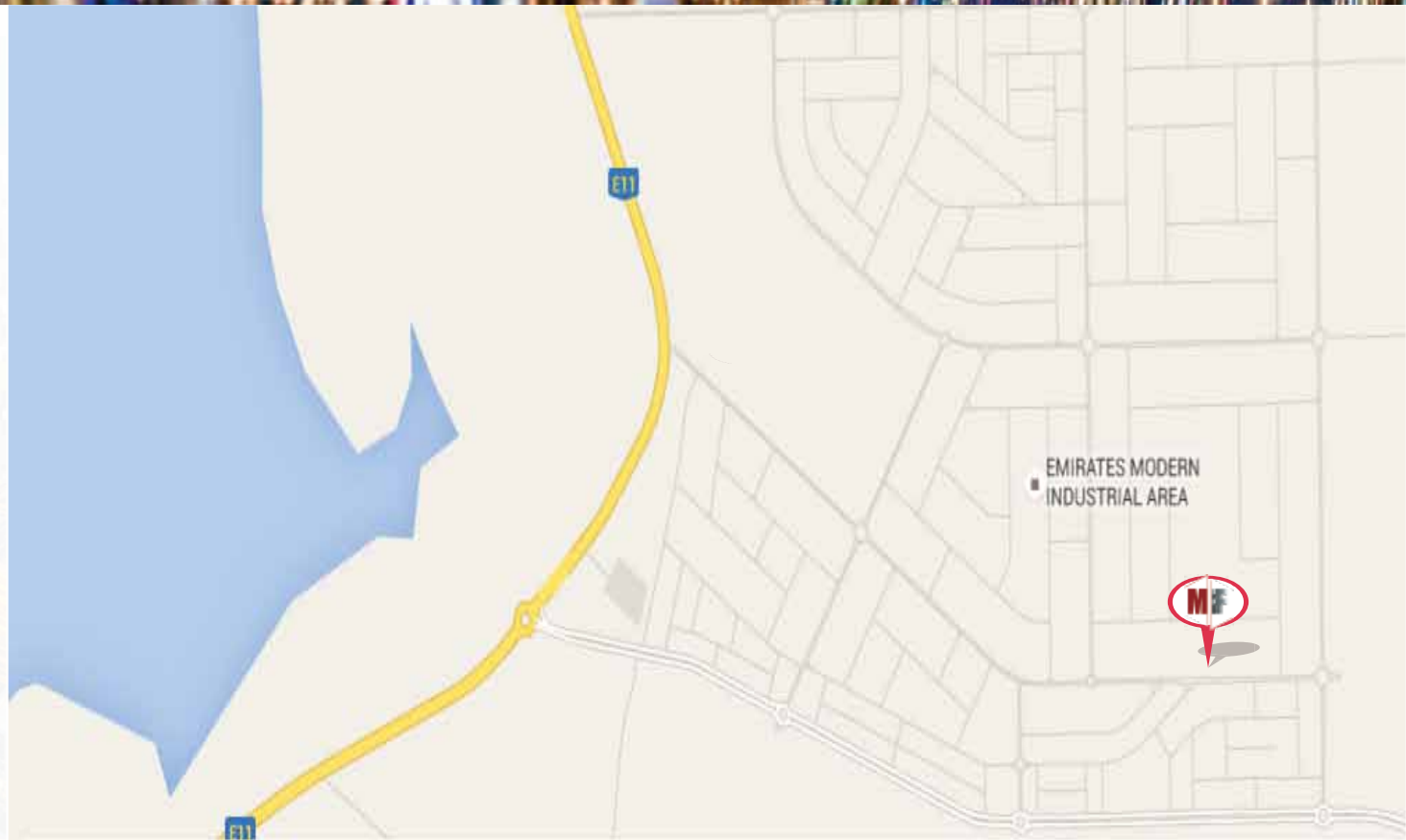
email: sales@mfindllc.com

www.mfindllc.com

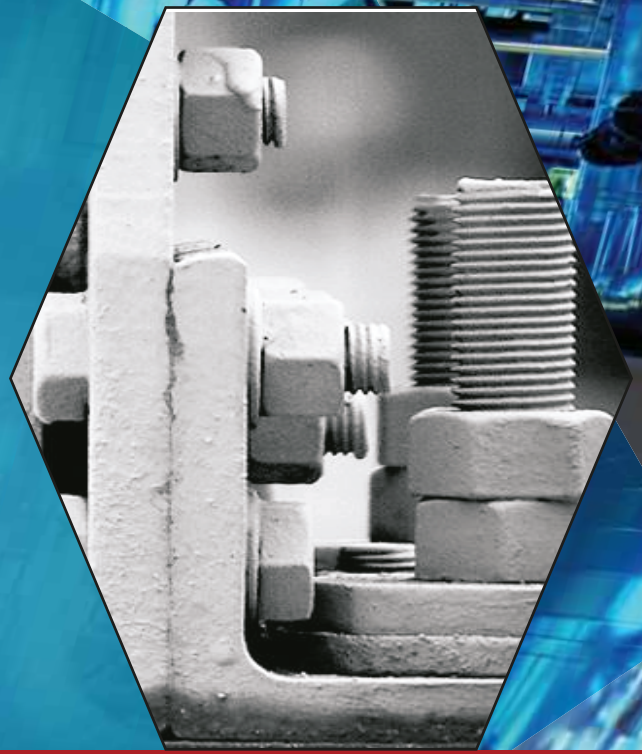
SIRA CERTIFICATION ISO9001:2008

Member of SN Registrars (Holdings) Ltd

UKAS MANAGEMENT SYSTEMS 8327



Credibility Through Relationship



Emirates Modern Industrial Area Umm Al Quwain, UAE
Email: sales@mfindllc.com | www.mfindllc.com