UCON METAL INDUSTRIES W L L

يـــــوكون للـــــصناعات الـــــمعدنية

FASTENER

TECHNICAL MANUAL

UCON METAL INDUSTRIES – WE BREATH FASTENERS

UCON METAL Industries is one of the Middles East's leading manufacturers and exporters of Industrial fasteners and ISO certified by TUV Middle East. Our products are used in a wide range of industrial and commercial applications. In the field of Fasteners Industry, we have made a mark, Our Quality and Service have made a mark in Fasteners World. We have been in the business of manufacturing Industrial Fasteners more than 10 years.

Founded in 2012 under the BECON GROUP, we are today a team of 120+ trained people, Factories in United Arab Emirates, Qatar & India, having the capability and expertise to design, manufacture and supply even the most complex fasteners. This has earned the confidence of our ever-growing clientele base through a commitment that covers unparalleled customer service, Product quality that has become an international benchmark, Product knowledge that helps us understand the client's minutest details.

We have an extensive R&D department that collaborates with clients towards the design and prototyping of products. We are having capabilities for Hot dip galvanizing, zinc plating, black oxidizing ,PTFE, Dacromet & Gomet Finishing.

We also undertake the manufacture of specialized industrial fasteners to the customer's exacting specifications and applications.

Coorporate Philosophy

Ucon Metal Industries is dedicated to providing products that create value and fair returns, performance that is at the forefront of our industry, and conduct that reflects the highest standards of ethics and integrity.

Our vision is to continue being the world leader in designing, manufacturing and marketing of premium quality industrial fasteners, and to capture a major share of global market for industrial fasteners with an extensive and accessible worldwide marketing and distribution network.

We are committed to being a responsible employer and a good corporate citizen in the local and global communities in which we operate.

OUR MISSION

To ease the workload of our customer through innovation in reliabillity and technology. Just on time delivery. To simplify maintenance along with round the clock services. To offer lowest cost of ownership initial saving and yearly saving.

Our Vision

Best Customer Services.
Product, safety and service innovations
Cost-efficient quality solutions

Our Key Points

- We are ISO 9001 certified.
- We hold CE approval certificates for EN 14399 and EN 15048 bolting assemblies including DTIs
- UCON Industries solely owned Factory in Qatar, UAE and Dealership factory in India enables us to manufacture and stock a large number of assembled products for global supply
- We are able to supply containers directly from our own factory
- 3.1 Test Certificates are supplied for most products
- Our products are fully traceable from our manufacturers
- We offer technical expertise
- We supply fasteners in Galvanized, Sherardized and Bright Zinc Plated (CR3), Corrosion Resistant finishes
- Partnering experience with many leading companies

QA/AC

Understanding the importance of effective QA / QC process for our business and in order to meet today's challenges, Technical Metal has an implemented Quality Management systems in line with Iso 9001: 2015's requirement.

MARKET SEGMENT

At Ucon Metal Industries Fasteners we understand that different customers have different needs, and it's rarely possible to satisfy all the customers by treating them alike. Major market segments that we serve are:

Certified Testing Laboratory

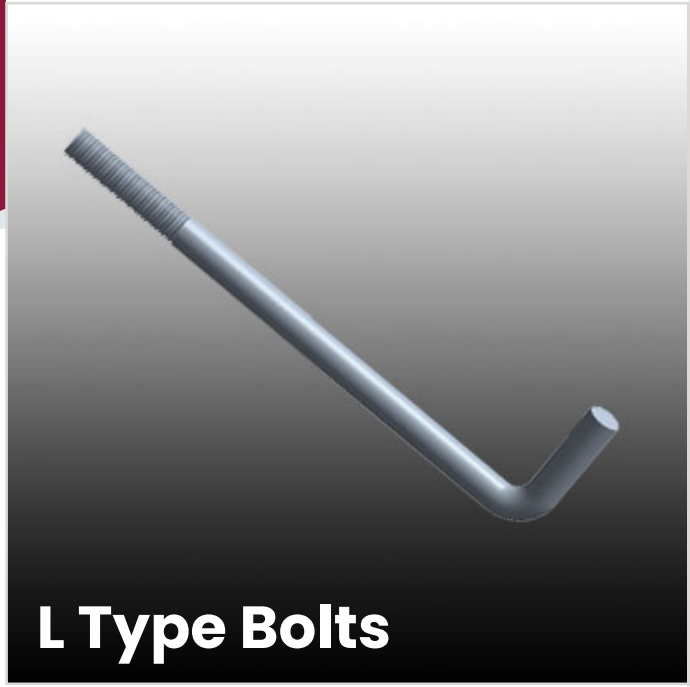
- General and Civil Engineering
- Oil and Gas / Petrochemical
- Truck and off-Highway
- Aerospace
- Agriculture
- Automative
- Construction
- Electronics
- Heavy Machinery
- Power Generation
- Pharmaceutical
- Military and Defense
- Infrastructure
- Leisure
- Marine
- Motor Sport
- Railways
- Shipping
- Windmills
- Solar Energy
- Mining

Our Products

Stud Bolts are fully threaded headless bolts used on Pipeline flanges for joining the pipelines. The main advantage of Stud Bolts over the Hex Bolts is that, it can be tightened from both the ends by holding one end with nut. The other type of Stud Bolt is the Engineering Stud which is also known as both end threaded bolt with unthreaded portion in the centre

Type	Full threads, Partial Threads, and customized as per requirements
Size	Nom Dia: ¼" to 4⅜ [6-100 mm] *Tailor made if required.
Length	As Per Standard or Upto any Length
Specification / Standard	ASTM A193 B7/B8/B8 M/ ASME / BS / DIN / BS EN ISO
Material	C.S., M.S., Alloy Steel, Ferritic & Austenitic Stainless Steel
Threads	UNC, 8UN, UNF, Metric Coarse & Fine Series.
Surface Finish	Self Color, Hot Dip Galvanized, Electro Galvanized, Di-Chromated, P.T.F.E. Coated

An Anchor Bolt is used to attach objects or structures to concrete. There are many types of Anchor Bolts all consist of thread end, to which a nut and washer is attached for the external load. Anchor Bolts are extensively used on all types of projects, from standard building to dams, bridges, road, power plants etc.



L Type Bolts

L-type anchor bolts have a bend at one end to grab onto the concrete or masonry structure. These type of anchor bolts are normally cast-in-place—meaning they are inserted into the concrete as soon as it is poured. The concrete cures, and securing retains the bolts in place.

J Typ

J-type anchor bolts have a bend at one end to grab onto the concrete or masonry structure. These type of anchor bolts are normally cast-in-place—meaning they are inserted into the concrete as soon as it is poured. The concrete cures, and securing retains the bolts in place.

Nut & Plate Welded Anchor Bolts

Common anchor bolt configurations include a rod that is threaded on both ends with a nut and/or anchor plate welded to the embedded end of the anchor bolt. Headed anchor bolts can also have an anchor plate welded to the head of the bolt if the head itself does not provide enough pull-out resistance.

Chemical Anchors

Hot dip galvanized version (4.8 / 8.8). Diameter M8-M24, complete with nut and washer. Compatible with all Hilti/Fischer Adhesive Anchoring Systems

Square Hooks

Ucon Metal Industries manufactures a range of quality custom square bend hook bolts that are available at a diameter 1/2" – 1½" which practically fulfills any ASTM specification. We supply these bolts in plain finish as well as hot-dip galvanized finish. Stainless steel hook bolts are also available with us. All our operations are done in our exclusive in-house facility.

Round Hooks

Ucon Metal Industires manufactures a variety of quality custom round bend hook bolts that are available at a diameter 1/2" – 1½" which practically fulfills any ASTM specification. We supply these bolts in plain finish as well as hot-dip galvanized finish. Stainless steel hook bolts are also available with us. All our operations including galvanizing are done in our exclusive in-house facility.

Customized Hook

Ucon Metal Industries manufactures a range of custom bent bolts of diameter 1/2" through 11/2" to virtually suit any ASTM specification. These bolts are available in plain finish as well as hot-dip galvanized finish. We also manufacture stainless steel bent bolts. At Ucon Metal, all the operations are performed in our in-house facility.

Square U Bolts

Square bend U-bolts find their usage in attaching the product onto a post that is square-shaped. By embedding these bolts in concrete, they can be used as anchor bolts as well. Round bend U-bolts are also available with us. Ucon Metal Industries provides U-bolts that are of diameter over 1/2".

Round U Bolt

Round U-bolts generally find their usage in attaching pipe or steel round bar to a round wood or steel post. Moreover, these bolts are used to suspend wrought iron pipe at times of mechanical installations. Round U-bolts can also be used to replace anchor bolts in concrete. We supply square bend U-bolts as well. Ucon Metal Industries manufactures U-bolts of diameter above 1/2".

Open Eye

Ucon Metal Industries manufactures a wide range of quality custom open eye bolts with diameter 1/2" through 11/2" that practically fulfills any ASTM specification. We supply these bolts in plain finish as well as hot-dip galvanized finish. Stainless steel eye bolts are also available with us. All our operations are done in our exclusive in-house facility.

Closed Eye

Ucon Metal Industries manufactures a wide variety of custom closed eye bolts that are of diameter 1/2" – 1-1/2" to satisfy any ASTM specification. These bolts are also known as turned eye bolts because they are welded in a closed position most of the times. Our closed eye bolts are available as plain finish as well as hot dip galvanized. We manufacture stainless steel eye bolts as well.

ASME SA194

ASME SA194 2H / 2HM / 4 / 7 / 7L / 7M / 8/ 8M / 8MA: ASME SA194 (ASTM A 194) generally stands for all carbon steel, stainless steel alloys & materials that are suitable for almost all the high temperatures / high pressure application nuts. High resistance ASME SA194 2H nuts find their most common usage in the petrochemical industry.

ASME SA320

ASME SA320 L7 / L43 / B8 / B8M ASME SA320 specs bolting are widely used for low temperature application in Petrochemical Industry and related fields. The subject ASME and ASTM Standard covers the steel and stainless steel alloys suitable for fastening materials involving low working temperature. Besides, this includes specifications of fastening devices that are utilized in pressure vessels, valves, fittings and flanges.

ASME SA193

ASME SA193 B8M/ SA320 B8M At UCON METAL, we produce stud bolts and screws in A193 B8M & A320 B8M. This happens to be a NI-Cr not tempered stainless steel (austenitic) that is hardened by means of cooling warping. Compared to the type 304, it is known to exhibit a higher corrosion resistance, especially with regards to the pitting that is caused by the chloride ions.

INCOLOY® Alloy

INCOLOY® Alloy 925 UNS N09925 Austenitic steel with a nick-el-iron-chromium base and addi-tions of titanium, molybdenum, aluminum and copper, INCOLOY® 925 involves precipitation harden-ing. It offers excellent corrosion resistance combined with high mechanical strength. All these make INCOLOY® 925 superior and upper grade when compared to INCOLOY ® alloy 825.

ASTM A193

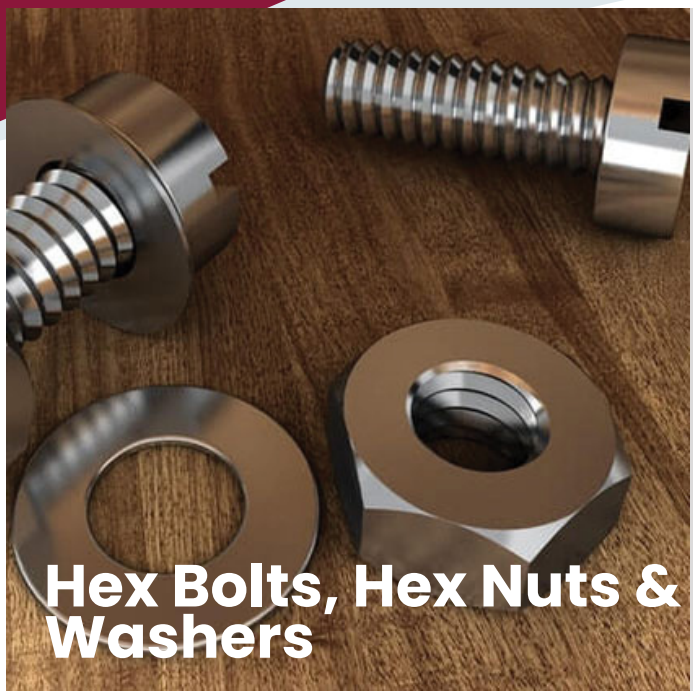
ASTM A193 B8R NITRONIC 50 XM-19 At UCON METAL, we manufacture stud bolts and nuts – ASTM A193 B8R NITRONIC 50 XM-19 Stainless Steel which offers a unique combination of strength and corrosion resistance. This austenitic stainless steel pos-sesses high corrosion resistance when compared to the Types 316, 316L, 317 and 317L as well as almost twice the yield strength.

INCONEL® Alloy

INCONEL® alloy 718 UNS N07718 Inconel™ 718 Material Property Data Sheet At UCON METAL, we are capable of supplying Stud Bolt & Nuts in INCONEL® alloy 718 UNS N07718.

ASME SA453 GR 660 A/B/C/D UCON METAL specializes in supplying stud bolts and nuts ASTM A453 GR 660, Alloy 286, 1.4980 materials. It happens to be a precipitation hardening steel that is heat resistant. It is highly recommended in terms of high mechanical resistance & corrosion resistance (up to 700°C).

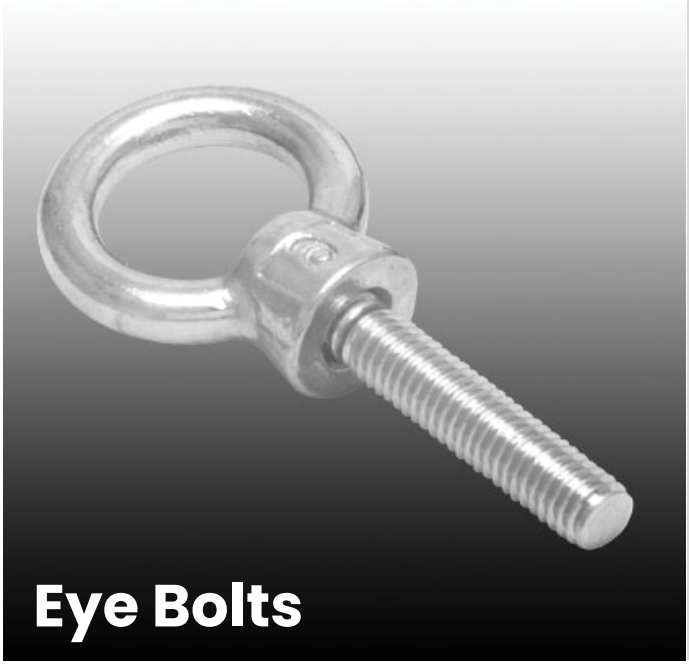
Duplex ASTM A182 F55 UCON METAL produces SUPERDUPLEX ASTM A182 F55, UNS 32760, EN 1.4501 screws, stud bolts and nuts; double-phase stainless steel, Cr-Ni-Mo-N pitting resistant & stressed corrosion resistant. An austenitic & ferritic structural stainless steel, ASTM A182 F55 exhibits excellent mechanical and corrosion resistance.



Hex Bolts, Hex Nuts & Washers

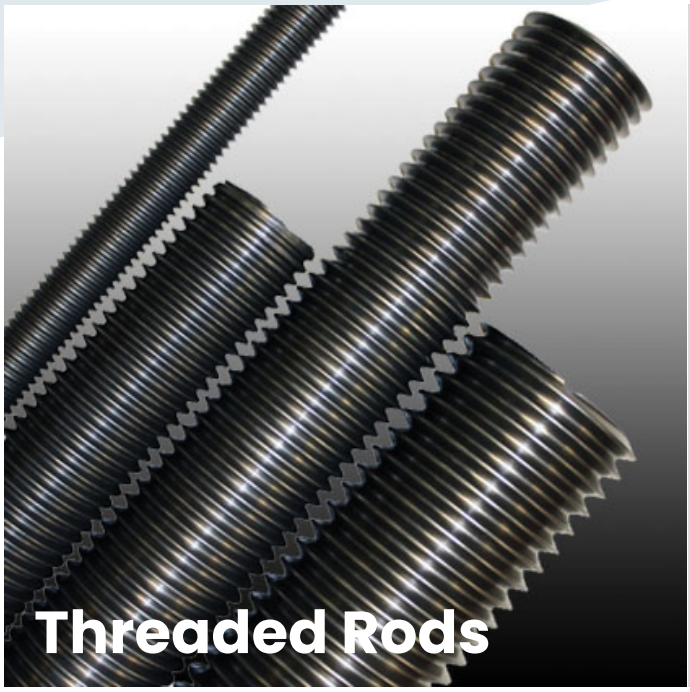
Hex Bolts or Screws are usually full threaded or partial/half threaded. Generally they are Hexagonal or Heavy Hexagonal Bolts/Screws where the difference is determined through their Hex head size. As the dimension of Heavy Hex across flat is more than the hex across flat, more bearing area will be covered by Heavy Hex Bolt and hence having high strength or more bearing pressure.

Type	Full threads, Partial Threads, Heavy Hex High Strength Bolts, Structural Bolts Square Head, Round
Size	Nom Dia: ¼" to 4" [6-100 mm] *Tailor made if required.
Length	As Per Standard or Upto any Length
Specification / Standard	ADIN 933/ DIN 931 / ISO 4014 / ISO 4017/ ASTM A 325 / ASTM A490 / EN 15048 / EN 14399-3
	DIN 934 / ASTM A 193 B7/ A 192 2H/ / F 436/ ISO 7089/ ISO 7091
Material	C.S., M.S., Alloy Steel, Ferritic & Austenitic Stainless Steel
Threads	UNC, 8UN, UNF, Metric Coarse & Fine Series.
Surface Finish	Self Color, Hot Dip Galvanized, Electro Galvanized, Di-Chromated, P.T.F.E. Coated



Eye Bolts

An eye bolt is a screw with a loop on one end and threads on the other end. Eye bolts are commonly used to attach cables to objects.Machinery Eye bolts are fully threaded and may have a collar, making them suitable for use with angular loads up to 45°.Eye bolts made by bending a rod or wire into a loop are only suitable for light duty applications, as heavy loads can cause the eye to open.



Threaded Rods

A Threaded Rod is a relatively long rod in which the thread may extend to complete length of rod. They are designed to be used in tension. Threaded rod is also commonly known as thread bar.

Type	Full threaded
Size	Nom Dia: 6mm – 100 mm
Length	2,3,3.6 & 6 Meter Length.
Specification / Standard	DIN 975 / DIN 976/ ASTM A 193 B7
Material	C.S., M.S., Alloy Steel, Ferritic & Austenitic Stainless Steel
Threads	UNC, 8UN, UNF, Metric Coarse & Fine Series.
Surface Finish	Self Color, Hot Dip Galvanized, Electro Galvanized, Di-Chromated, P.T.F.E. Coated

U Bolts

LONG TANGENTIAL U BOLTS

A U-shaped bolt with two threaded arms protruding from a curved base. The long legs on these are perfect for mounting to thick flanges.

ROUND U BOLTS

Round U-Bolts are typically used for attaching pipe or steel round bar to a round wood or steel post. May be used to hang wrought iron pipe in mechanical installations and also be embedded in concrete as anchor bolts.

Specification

ASTM A 193 Grade B7

Threading is the process of creating a screw thread. There are various methods for generating screw threads. The method chosen for any one application is chosen based on constraints—time, money, degree of precision needed (or not needed), what equipment is already available, what equipment purchases could be justified based on resulting unit price of the threaded part (which depends on how many parts are planned), etc.At Technical Metal we provide the highest quality threaded product at the best value.Roll and cut thread as per required diameter.

A193 Grades

B7	Alloy steel, AISI 4140/4142 quenched and tempered
B8	Class 1 Stainless steel, AISI 304, carbide solution treated
B8M	Class 1 Stainless steel, AISI 316, carbide solution treated
B8	Class 2 Stainless steel, AISI 304, carbide solution treated, strain hardened
B8M	Class 2 Stainless steel, AISI 316, carbide solution treated, strain hardened

ASTM A307

The ASTM A307 specification covers carbon steel bolts and studs ranging from 1/4" through 4" diameter. This is your everyday, run of the mill bolt specification often manufactured using A36 round bar. There are three grades A, B, and C* which denote tensile strength, configuration, and application.

ASTM F1554

The ASTM F1554 specification was introduced in 1994 and covers anchor bolts designed to anchor structural supports to concrete foundations. F1554 anchor bolts can take the form of either headed bolts, straight rods, or bent anchor bolts. The three grades 36, 55, and 105 designate the minimum yield strength (ksi) of the anchor bolt. The bolts can be either cut or roll threaded and a weldable grade 55 can be substituted for grade 36 at the supplier's option. Color coding on the end – 36 blue, 55 yellow, and 105 red – helps facilitate easy identification in the field. Permanent manufacturer and grade marking is allowed under the S2 supplementary requirements.

ASTM A325

ASTM A325 specification covered high strength heavy hex structural bolts from 1/2″ diameter through 1-1/2″ diameter. These bolts are intended for use in structural connections and therefore have shorter thread lengths than standard hex bolts.

ASTM A490

ASTM A490 specification covered quenched and tempered, alloy steel, heavy hex structural bolts from 1/2″ diameter through 1-1/2″ diameter with a minimum 150 ksi tensile strength. These bolts are intended for use in structural connections and therefore have shorter thread lengths than standard hex bolts. A490 bolts are similar in application and dimensions to A325 heavy hex structural bolts but are made from an alloy steel rather than a medium carbon steel, resulting in a higher strength fastener.

GRADE 8.8 & 10.9 NON PRELOADED ASSEMBLIES

Grade 8.8 Bolts are manufactured using medium carbon steel that has been quenched and tempered. Used in railroad equipment, motors, engines and processing equipment, grade 8.8 bolts exhibit good tensile strength and perform well in most environments.

Class 10.9 Precision Hex Bolts have 40% higher clamp load than Class 8.8. They are manufactured to AS1110.1. to ensure the highest quality product is supplied

BS EN 14399-3 PRE LOADED ASSEMBLIES

EN14399-3 HR Cl 8.8 High Strength Bolting Assemblies for Preloading are manufactured to the highest international standards.Among the many standards and quality certifications, the “Conformité Européene” CE Marking stands out. With this certification, products are assured to be manufactured to a high level of protection with regard to health, safety and environmental hazards.

GRADE 4.6

Grade 4.6 Bolts/Screws/Studs manufactured from Low or medium carbon Alloy Steel in size range of M5 upto M100 with minimum Tensile Strength of 400Mpa.

ASTM A 36

ASTM A36 is the most commonly used mild and hot-rolled steel. It has excellent welding properties and is suitable for grinding, punching, tapping, drilling and machining processes.

S 275 JR

S275 steel plate meets European structural steel standard EN 10025 : 2004. S275 structural steel plate is a common carbon structural steel with minimum yield strength of 36 ksi, it bears many similarities to ASTM A36 in both chemistry and physical properties. S275 can be known as an equivalent to ASTM A36. S275 structural steel plate can be bolted, riveted and welded in a full range of construction and fabrication including bridges and other general structural projects.

SS 304,316.304L & 316 L

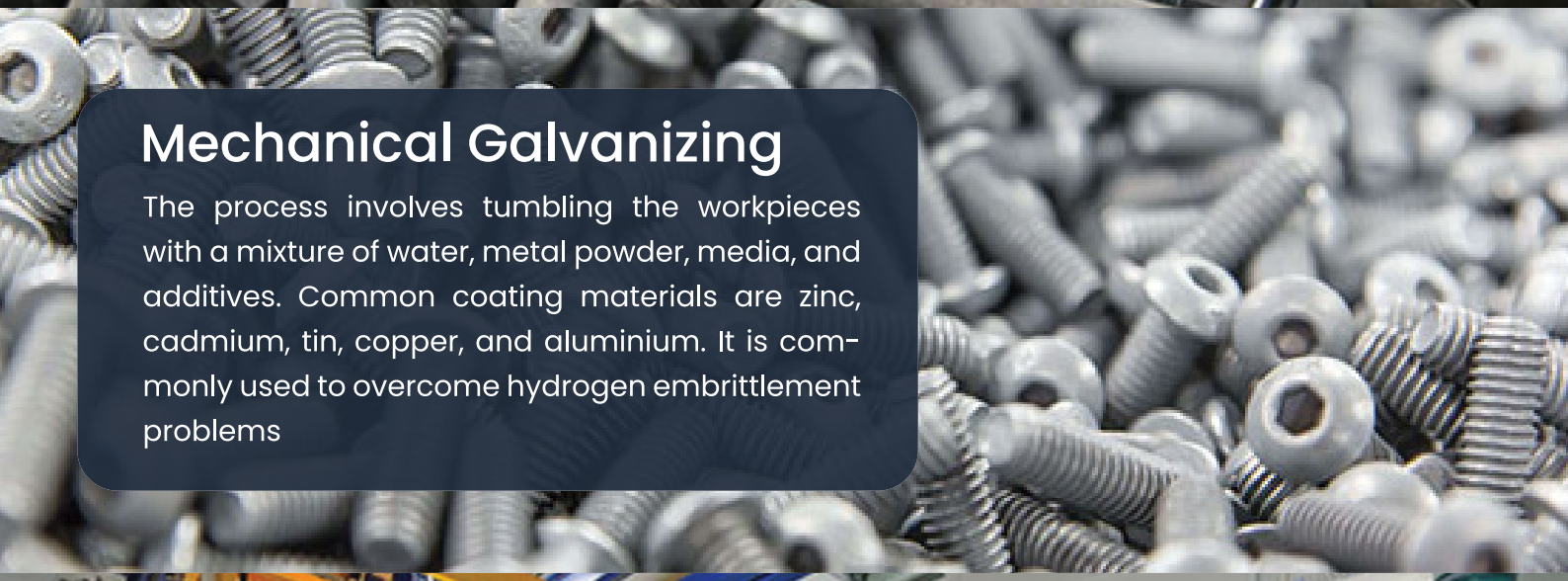
Stainless steel type 316 and type 304 are raw material grades for stainless steel. Stainless steel fasteners are sometimes referred to and ordered as their raw material grades (such as SS 316 and SS304).Type 316 stainless has a unique chemical composition which includes 16% chromium, 10% nickel and 2% molybdenum. Type 304 stainless has 18% chromium, 8% nickel and no molybdenum (this is where the “18-8” designation comes from). Stainless steel 316 is more resistant to chlorides than stainless steel 304, making it the preferred material for marine construction.

Sometimes, a type “SS316L” or type “SS304L” bolt will be specified in a particular application. The “L” at the end of these designations refers to the low carbon content of the steel. Stainless steel certified to 316L or 304L will have a maximum of 0.03% carbon, versus the 0.08% maximum that regular 316 and 304 can have.

Coating

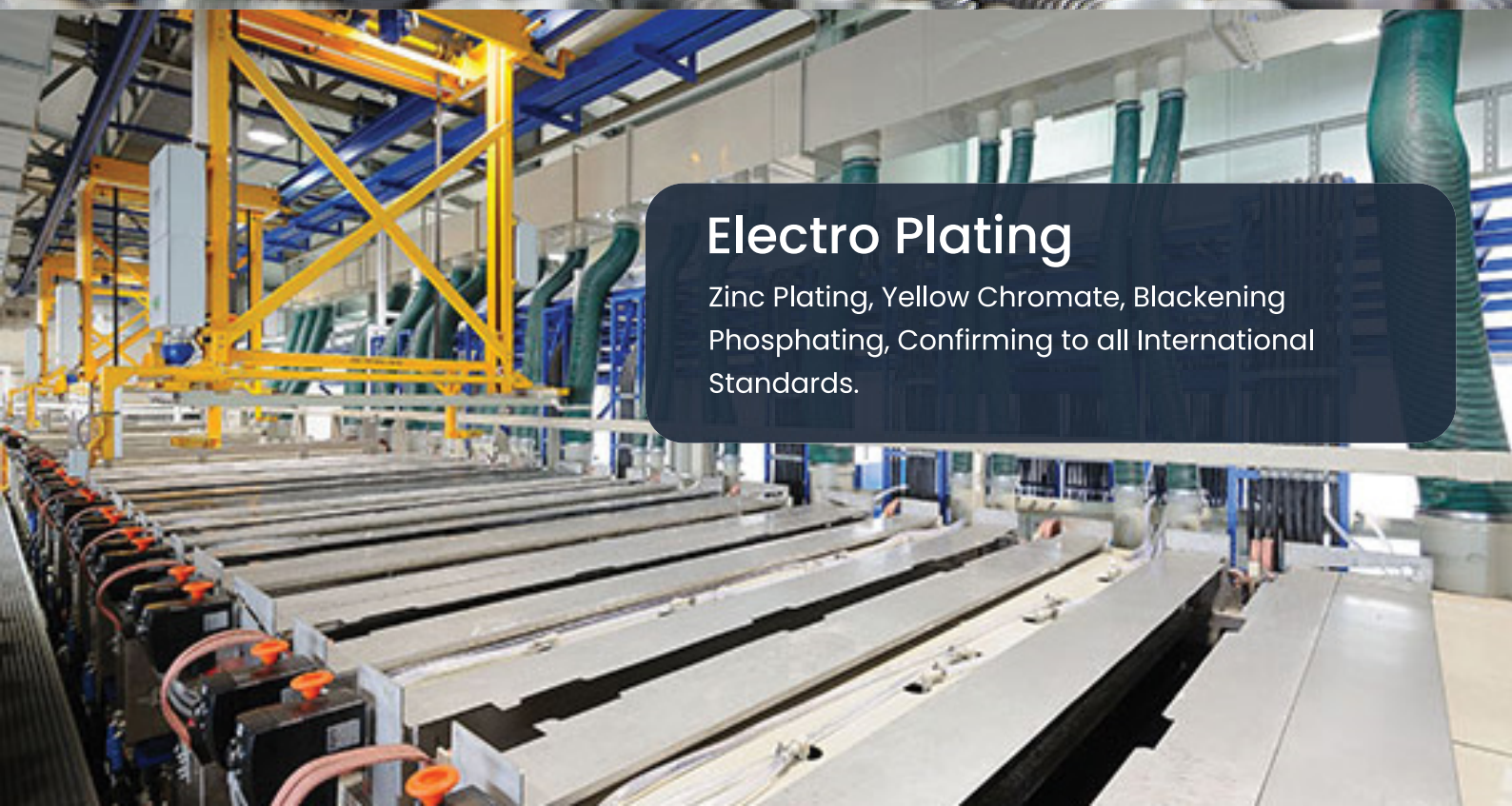
Hot Dip Galvanizing

Hot Dip Galvanizing to BS729, ASTM A123 I 153 with centrifuge system to hot dip galvanize very intricate components/fasteners with smooth finish coating Confirming to all International Standards.



Mechanical Galvanizing

The process involves tumbling the workpieces with a mixture of water, metal powder, media, and additives. Common coating materials are zinc, cadmium, tin, copper, and aluminium. It is commonly used to overcome hydrogen embrittlement problems

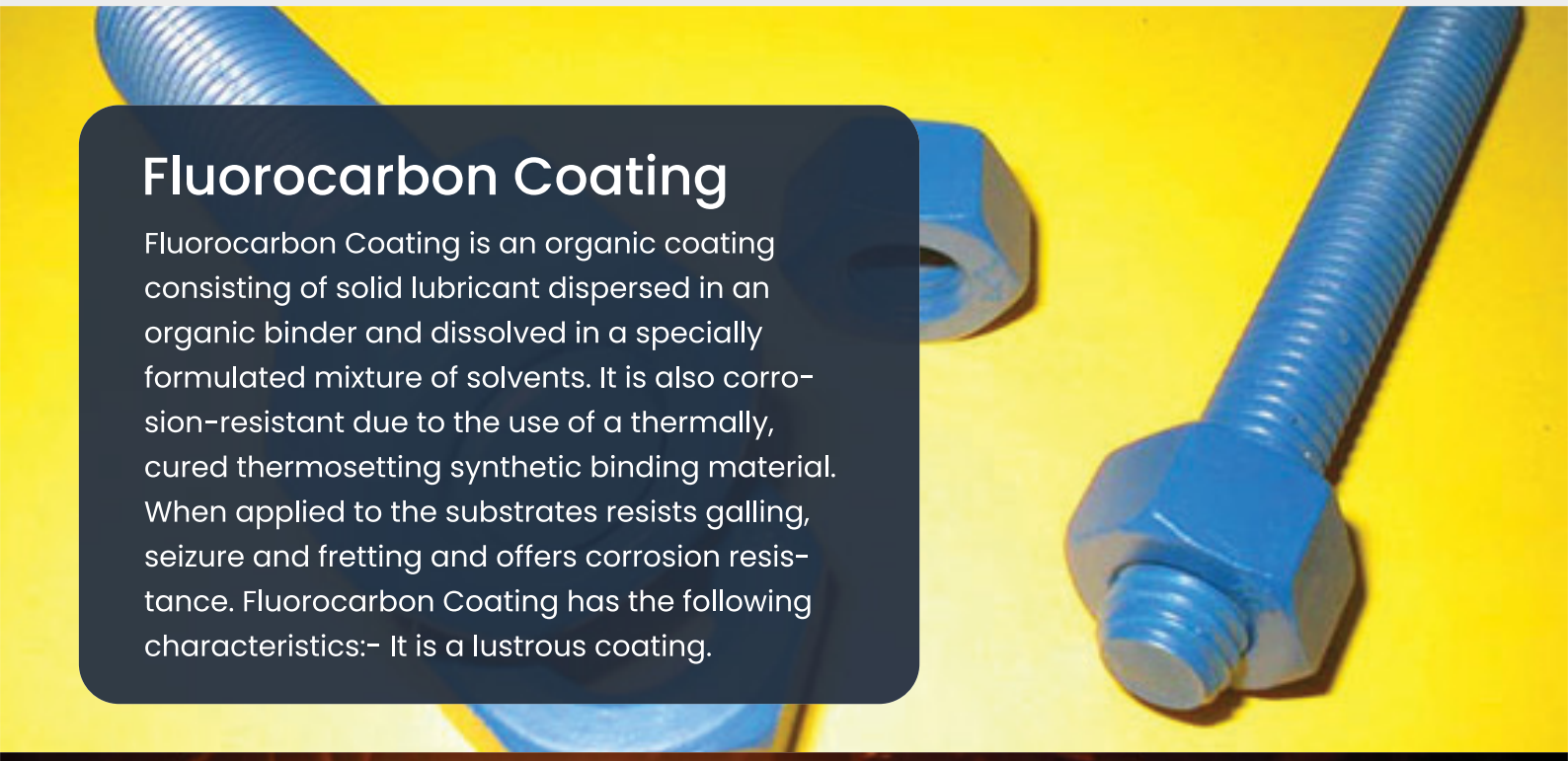


Electro Plating

Zinc Plating, Yellow Chromate, Blackening Phosphating, Confirming to all International Standards.

Polytetrafluoroethylene

Polytetrafluoroethylene (PTFE) is a synthetic fluoropolymer of tetrafluoroethylene that has numerous applications. We provide Fluorocarbon Polymers Coating called Xylan 1070 from M/s Whitford UK.



Fluorocarbon Coating

Fluorocarbon Coating is an organic coating consisting of solid lubricant dispersed in an organic binder and dissolved in a specially formulated mixture of solvents. It is also corrosion-resistant due to the use of a thermally, cured thermosetting synthetic binding material. When applied to the substrates resists galling, seizure and fretting and offers corrosion resistance. Fluorocarbon Coating has the following characteristics:- It is a lustrous coating.

Heat Treatment and Finishing Facilities

Special Facilities for creating controlled atmosphere like non-oxidising, carburizing, nitride. Heat treated in a controlled atmosphere to achieve maximum strength and toughness.

Manufacturing Facility

Ucon Metal Industries committed to continual investment in their manufacturing capacity, combining conventional in house manufacturing of bars turned products with latest CNC machining technology.

The combination of computer aided design and operation skills gives us the ability to produce high quality safety critical parts to customer drawings. Extensive facilities incorporate bar turned products from ¼ " (6mm) to excess of 12" (300 mm) diameter by up to 2 meters in length and on site thread rolling capacity for metric and imperial thread forms in all materials up to 6" in diameter.

Ucon Metal Industries has developed Supply Agreements with major oil field OEMs, providing bolts, Anchors, and studs specific to customer requirements.

Manufacturing Equipment

- Hot Forging Press
- Cold Forging Machine
- Thread Rolling machine
- Centre less Grinding
- Automatic Band saw
- CNC Machining Lathes
- CNC Machining Centre
- Nut Forging Machine
- Fiber Laser Machine
- Plasma Cutting Machine
- Vertical Milling Machine
- Chamfering Machine
- Bending Machine
- Nut Re tapping machine
- PTFE Chamber
- Airless spraying machine


QATAR
يوكون للصناعات المعدنية
UCON METAL INDUSTRIES


UAE
يوكون للصناعات المعدنية
UCON METAL INDUSTRIES

Iso certificate

ISO 45001:2018

CERTIFICATE

The Certification Body of TÜV SÜD Middle East L.L.C. certifies that

UCON METAL INDUSTRIES W.L.L

Street no.3, Building no. 217, Zone 81, New Industrial Area, Doha, Qatar

has established and applies an Occupational Health and Safety Management System for

Design, Manufacture and Supply of Fasteners and Steel Structures (Category: NACE 25.9)

An audit was performed, Report No. 50797

Proof has been furnished that the requirements according to

ISO 45001:2018

are fulfilled.

The certificate is valid from 2022-12-12 until 2025-12-11

Certificate Registration No. ME 45K 0126 EIAC

ISO 14001:2015

CERTIFICATE

The Certification Body of TÜV SÜD Middle East L.L.C. certifies that

UCON METAL INDUSTRIES W.L.L

Street no.3, Building no. 217, Zone 81, New Industrial Area, Doha, Qatar

has established and applies an Environmental Management System for

Design, Manufacture and Supply of Fasteners and Steel Structures (Category: NACE 25.9)

An audit was performed, Report No. 50797

Proof has been furnished that the requirements according to

ISO 14001:2015

are fulfilled.

The certificate is valid from 2022-12-12 until 2025-12-11

Certificate Registration No. ME 14K 0136 EIAC

ISO 9001:2015

CERTIFICATE

The Certification Body of TÜV SÜD Middle East L.L.C. certifies that

UCON METAL INDUSTRIES W.L.L

Street no.3, Building no. 217, Zone 81, New Industrial Area, Doha, Qatar

has established and applies a Quality Management System for

Design, Manufacture and Supply of Fasteners and Steel Structures (Category: NACE 25.9)

An audit was performed, Report No. 50797

Proof has been furnished that the requirements according to

ISO 9001:2015

are fulfilled.

The certificate is valid from 2022-12-12 until 2025-12-11

Certificate Registration No. ME 9K 0349 EIAC

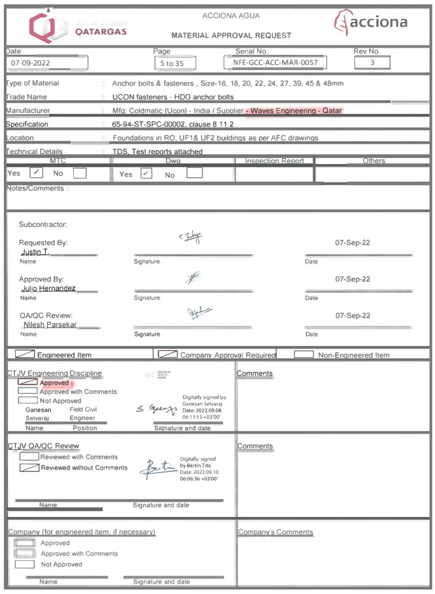
ISO 45001:2018 specifies requirements for an occupational health and safety (OH&S) management system, and gives guidance for its use, to enable organizations to provide safe and healthy workplaces by preventing work-related injury and ill health, as well as by proactively improving its OH&S performance.

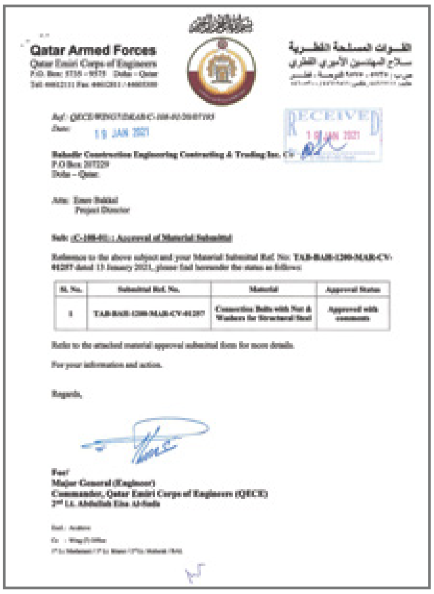
By achieving ISO 14001:2015 certification we are able to clearly demonstrate our commitment to reducing waste and recycling materials where appropriate thereby resulting in cost saving.

ISO 9001:2015 sets out the requirements of a quality management system. By achieving ISO 9001 certification our quality system provides the foundation to better customer satisfaction, employee motivation and continual improvement.

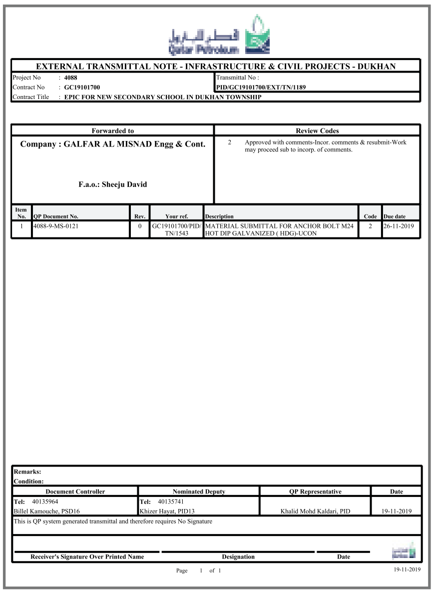
Approvals


Supervision Consultant: wsp
Contractor: UCC-INFRAROAD-LIMAK JV
Project: D-RING ROAD IMPROVEMENT WORKS
Document Title: MATERIAL APPROVAL REQUEST FOR HDG FASTENERS
DOCUMENT REF: EXW-P046-0000-IC-UIL-MS-00335
REVIEW BY: SUPERVISION CONSULTANT
'A' Non-objected
'B' Non-objection with revisions
'W' Rejected/Revise and resubmit
'I' Information Only


QATARGAS
ACCIONA AGUA
MATERIAL APPROVAL REQUEST
Date: 07-09-2022
Serial No.: NFE-GCC-ACC-MAR-0057
Type of Material: Anchor bolts & fasteners , Size-16, 18, 20, 22, 24, 27, 39, 45 & 48mm
Trade Name: UCON fasteners - HDG anchor bolts
Manufacturer: Mfg: Coldmatic (Ucon) - India / Supplier - Waves Engineering - Qatar
Specification: 65-94-ST-SPC-00002, clause 8.11.2
Location: Foundations in RO, UF1& UF2 buildings as per AFC drawings
Technical Details: TDS, Test reports attached


Qatar Armed Forces
Qatar Emiri Corps of Engineers
القوات المسلحة القطرية
Subj: Approval of Material Submittal
Connection Bolts with Nut & Washers for Structural Steel — Approved with comments
Refer to the attached material approval submittal form for more details.
For your information and action.
Regards,
Major General (Engineer)
Commander, Qatar Emiri Corps of Engineers (QECE)


QATAR INTEGRATED RAIL PROJECT
Lusail LRT
Material Approval Request
LRT-QDPD-XX-MAF-STS-OMF00-392522--1


Qatar Petroleum
EXTERNAL TRANSMITTAL NOTE - INFRASTRUCTURE & CIVIL PROJECTS - DUKHAN
Contract Title: EPIC FOR NEW SECONDARY SCHOOL IN DUKHAN TOWNSHIP
Company : GALFAR AL MISNAD Engg & Cont.
F.a.o.: Sheeju David
MATERIAL SUBMITTAL FOR ANCHOR BOLT M24 HOT DIP GALVANIZED (HDG)-UCON


Qatar Armed Forces
Qatar Emiri Corps of Engineers
القوات المسلحة القطرية
FAX MESSAGE
Ministry of Defense Headquarters Design and Build
Material Submittal
MEP Fasteners and Support — Approved As Noted
Refer to the attached comments sheet for details.
For your information and further action.
Regards,
Commander - QECE

Datasheet Content

BOLT/SCREW & STUD ISO 4014 / 4017 ISO 898-1 -13 Gr. 8.8												NUT ISO 4032 ISO 898-2 - 12 Gr. 8				
BOLT SIZE	PITCH	STRESS AREA	SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	TENSILE STRESS	TORQUE*	HARDNESS	ELONGATION	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
mm	mm	mm^2	mm	mm	mm	Mpa	KN	Mpa	N-m	HRC	%	mm	mm	Mpa	KN	HRC
			A /B Min~Max	A /B Min~Max	A /B Min~A/B Max											
M6	1	20.1	5.82/5.70~6.00	9.78/9.64~10.00	3.85/3.76~4.15/4.24	580	11.6	800	9.4	22-32	12-	9.78~10.00	4.90~5.20	855	17.2	-30
M8	1.25	36.6	7.78/7.64~8.00	12.73/12.57~13.00	5.15/5.06~5.45/5.54	580	21.2	800	22.8	22-32	12-	12.73~13.00	6.44~6.80	870	31.8	-30
M10	1.5	58.0	9.78/9.64~10.00	15.73/15.57~16.00	6.22/6.11~6.58/6.69	580	33.7	800	45.8	22-32	12-	15.73~16.00	8.04~8.40	870	50.5	-30
M12	1.75	84.3	11.73/11.57~12.00	17.73/17.57~18.00	7.32/7.21~7.68/7.79	600	50.7	830	78.8	23-34	12-	17.73~18.00	10.37~10.80	880	74.2	-30
M14	2.0	115.0	13.73/13.57~14	20.67/20.16~21.00	8.62/8.51~8.98/9.09	600	68.8	830	129.7	23-34	12-	20.67~21.00	12.10~12.80	880	101.2	-30
M16	2.0	157.0	15.73/15.57~16.00	23.67/23.16~24.00	9.82/9.71~10.18/10.29	600	94.5	830	195.6	23-34	12-	23.67~24.00	14.10~14.80	880	138.2	-30
M18	2.5	192.0	17.73/17.57~18	26.67/26.16~27.00	11.285/11.15~11.715/11.85	600	115.0	830	278.4	23-34	12-	26.16~27.00	15.10~15.80	920	176.6	-36
M20	2.5	245.0	19.67/19.48~20.00	29.67/29.16~30.00	12.285/12.15~12.715/12.85	600	147.0	830	394.7	23-34	12-	29.16~30.00	16.90~18.00	920	225.4	-36
M22	2.5	303.0	21.67/21.48~22.00	33.38/33.00~34.00	13.785/13.65~14.215/14.35	600	182.0	830	536.9	23-34	12-	33.00~34.00	18.10~19.40	920	278.8	-36
M24	3.0	353.0	23.67/23.48~24.00	35.38/35.00~36.00	14.785/14.65~15.215/15.35	600	212.0	830	682.4	23-34	12-	35.00~36.00	20.20~21.50	920	324.8	-36
M27	3.0	459.0	N/26.48~27.00	N/40.00~41.00	N/16.65~N/17.35	600	275.0	830	998.3	23-34	12-	40.00~41.00	22.50~23.80	920	422.3	-36
M30	3.5	561.0	N/29.48~30.00	N/45.00~46.00	N/18.28~N/19.12	600	337.0	830	1,356	23-34	12-	45.00~46.00	24.30~25.60	920	516.1	-36
M33	3.5	694.0	N/32.38~33	N/49.00~50.00	N/20.58~N/21.42	600	416.0	830	1,845	23-34	12-	49.00~50.00	27.40~28.70	920	638.5	-36
M36	4.0	817.0	N/35.38~36.00	N/53.80~55.00	N/22.08~N/22.92	600	490.0	830	2,369	23-34	12-	53.80~55.00	29.40~31.00	920	751.6	-36
M39	4.0	976.0	N/38.38~39.00	N/58.80~60.00	N/24.58~N/25.42	600	586.0	830	3,066	23-34	12-	58.80~60.00	31.80~33.40	920	897.9	-36
M42	4.5	1,120.0	N/41.38~42.00	N/63.1.~65.00	N/25.58~N/26.42	600	672.0	830	3,789	23-34	12-	63.10~65.00	32.40~34.00	920	1,030	-36
M45	4.5	1,310.0	N/44.38~45.00	N/68.10~70.00	N/27.58~N/28.42	600	786.0	830	4,748	23-34	12-	68.10~70.00	34.40~36.00	920	1,205	-36
M48	5.0	1,470.0	N/47.38~48.00	N/73.10~75.00	N/29.58~N/30.42	600	882.0	830	5,684	23-34	12-	73.10~75.00	36.40~38.00	920	1,352	-36
M52	5.0	1,760.0	N/51.26~52.00	N/78.10~80.00	N/32.50~N/33.50	600	1,056	830	7,372	23-34	12-	78.10~80.00	40.40~42.00	920	1,619	-36
M56	5.5	2,030.0	N/55.26~56.00	N/82.80~85.00	N/34.50~N/35.50	600	1,218	830	9,157	23-34	12-	82.80~85.00	43.40~45.00	920	1,868	-36
M60	5.5	2,360.0	N/59.26~60.00	N/87.80~90.00	N/37.50~N38.50	600	1,416	830	11,406	23-34	12-	87.80~90.00	46.40~48.00	920	2,171	-36
M64	6.0	2,680.0	N/63.26~64.00	N/92.80~95.00	N/39.50~N/40.50	600	1,608	830	13,816	23-34	12-	92.80~95.00	49.10~51.00	920	2,466	-36
M68	6.0	3,060.0				600	1,836	830	16,761	23-34	12-			920	2,815	-36
M72	6.0	3,460.0				600	2,076	830	20,067	23-34	12-			920	3,183	-36
M76	6.0	3,890.0				600	2,334	830	23,814	23-34	12-			920	3,579	-36
M80	6.0	4,340.0				600	2,604	830	27,967	23-34	12-			920	3,993	-36
M85	6.0	4,950.0				600	2,970	830	33,891	23-34	12-			920	4,554	-36
M90	6.0	5,590.0				600	3,354	830	40,525	23-34	12-			920	5,143	-36
M95	6.0	6,270.0				600	3,762	830	47,980	23-34	12-			920	5,768	-36
M100	6.0	6,990.0				600	4,194	830	56,304	23-34	12-			920	6,431	-36

Dimensions	HEX as per ISO 4014/4017	HEX as per ISO 4032
Markings	'UMI' 'M' '8.8'	'UMI' '8'
Carbon	0.25-0.55/0.20-0.55	-0.58
Manganese		(<=M16) 0.25- / 0.3- (>M16)
Sulfur	-0.025	(<=M16) -0.15 / -0.056 (>M16)
Silicon		
Chromium		
Molybdenum		
Nickle		
Vanadium		
Boron	-0.003	
Copper		
Nitrogen		
Phosphorus	-0.025	(<=M16)-0.06/-0.048(>M16)
Material	Carbon/Alloy steel quenched & tempered	Medium Carbon steel

Notes:
Left hand side of '-' is minium value right hand side of '-' is maximam value
Eg. 0.5-0.7 min is 0.5 and max is 0.7
Eg. -0.8 max is 0.8 no minimam value
Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

			BOLT/SCREW BS 3692 Gr. 8.8 - 14									NUT BS 3692 Gr. 8 - 14				
BOLT SIZE	PITCH	STRESS AREA	SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	TENSILE STRESS	TORQUE*	HARDNESS	ELONGATION	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
mm	mm	mm²	mm	mm	mm	Mpa	KN	Mpa	N-m	HRC	%	mm	mm	Mpa	KN	HRC
M6	1	20.1	5.82~6.00	9.78~10.00	3.85~4.15	580	11.7	800	9.4	22-32	12-	9.78~10.00	4.70~5.00	800	16.0	-30
M8	1.25	36.6	7.78~8.00	12.73~13.00	5.35~5.65	580	21.2	800	22.8	22-32	12-	12.73~13.00	6.14~6.50	800	29.0	-30
M10	1.5	58.0	9.78~10.00	16.73~17.00	6.82~7.18	580	33.7	800	45.2	22-32	12-	16.73~17.00	7.64~8.00	800	46.0	-30
M12	1.75	84.3	11.73~12.00	18.67~19.00	7.82~8.18	600	50.7	830	81.5	23-34	12-	18.67~19.00	9.64~10.00	800	67.0	-30
M14	2.0	115.0	13.73~14.00	21.67~22.00	8.82~9.18	600	69.0	830	129.7	23-34	12-	21.67~22.00	10.57~11.00	800	92.0	-30
M16	2.0	157.0	15.73~16.00	23.67~24.00	9.82~10.18	600	94.5	830	202.3	23-34	12-	23.67~24.00	12.57~13.00	800	125.0	-30
M18	2.5	192.0	17.73~18.00	26.67~27.00	11.785~12.215	600	115.2	830	278.4	23-34	12-	26.67~27.00	14.57~15.00	800	154.0	-30
M20	2.5	245.0	19.67~20.00	29.67~30.00	12.785~13.215	600	147.0	830	394.7	23-34	12-	29.67~30.00	15.57~16.00	800	196.0	-30
M22	2.5	303.0	21.67~22.00	31.61~32.00	13.785~14.215	600	181.8	830	536.9	23-34	12-	31.61~32.00	17.57~18.00	800	242.0	-30
M24	3.0	353.0	23.67~24.00	35.38~36.00	14.785~15.215	600	211.8	830	682.4	23-34	12-	35.38~36.00	18.48~19.00	800	282.0	-30
M27	3.0	459.0	26.67~27.00	40.38~41.00	16.785~17.215	600	275.4	830	998.3	23-34	12-	40.38~41.00	21.48~22.00	800	367.0	-30
M30	3.5	561.0	29.67~30.00	45.38~46.00	18.74~19.26	600	336.6	830	1,356	23-34	12-	45.38~46.00	23.48~24.00	800	448.0	-30
M33	3.5	694.0	32.61~33.00	49.38~50.00	20.74~21.26	600	416.4	830	1,845	23-34	12-	49.38~50.00	25.48~26.00	800	555.0	-30
M36	4.0	817.0	35.61~36.00	54.26~55.00	22.74~23.26	600	490.2	830	2,369	23-34	12-	54.26~55.00	28.48~29.00	800	653.0	-30
M39	4.0	976.0	38.61~39.00	59.26~60.00	24.74~25.26	600	585.6	830	3,066	23-34	12-	59.26~60.00	30.38~31.00	800	780.0	-30
M42	4.5	1,120.0	41.61~42.00	64.26~65.00	25.74~26.26	600	672.00	830	3,789	23-34	12-	64.26~65.00	33.38~34.00	800	896.0	-30
M45	4.5	1,310.0	44.61~45.00	69.26~70.00	27.74~28.26	600	786.00	830	4,748	23-34	12-	69.26~70.00	35.38~36.00	800	1,040.0	-30
M48	5.0	1,470.0	47.61~48.00	74.26~75.00	29.74~30.26	600	882.00	830	5,684	23-34	12-	74.26~75.00	37.38~38.00	800	1,180.0	-30
M52	5.0	1,760.0	51.54~52.00	79.26~80.00	32.69~33.21	600	1,056.00	830	7,372	23-34	12-	79.26~80.00	41.38~42.00	800	1,410.0	-30
M56	5.5	2,030.0	55.54~56.00	84.13~85.00	34.69~35.31	600	1,218.00	830	9,157	23-34	12-	84.13~85.00	44.38~45.00	800	1,620.0	-30
M60	5.5	2,360.0	59.54~60.00	89.13~90.00	37.69~38.31	600	1,416.00	830	11,406	23-34	12-	89.13~90.00	47.38~48.00	800	180.0	-30
M64	6.0	2,680.0	63.54~64.00	94.13~95.00	39.69~40.31	600	1,608.00	830	13,816	23-34	12-	94.13~95.00	50.26~51.00	800	2,140.0	-30
M68	6.0	3,060.0	67.54~68.00	99.13~100.00	42.69~43.31	600	1,836.00	830	16,761	23-34	12-			800	2,450.0	-30
M72	6.0	3,460.0				600	2,076.00	830	20,067	23-34	12-			800	2,768.0	-30
M76	6.0	3,890.0				600	2,334.00	830	23,814	23-34	12-			800	3,112.0	-30
M80	6.0	4,340.0				600	2,604.00	830	27,967	23-34	12-			800	3,472.0	-30
M85	6.0	4,950.0				600	2,970.00	830	33,891	23-34	12-			800	3,960.0	-30
M90	6.0	5,590.0				600	3,354.00	830	40,525	23-34	12-			800	4,472.0	-30
M95	6.0	6,270.0				600	3,762.00	830	47,980	23-34	12-			800	5,016.0	-30
M100	6.0	6,990.0				600	4,194.00	830	56,304	23-34	12-			800	5,016.0	-30

Dimensions	HEX as per BS 3692	HEX as per BS 3692
Markings	'UMI 'M' '8.8'	'UMI' '8'
Carbon	0.25-0.55/0.20-0.55	-0.58
Manganese		(<=M16) 0.25- / 0.3- (>M16)
Sulfur	-0.025	(<=M16) -0.15 / -0.058 (>M16)
Silicon		
Chromium		
Molybdenum		
Nickle		
Vanadium		
Boron	-0.003	
Copper		
Nitrogen		
Phosphorus	-0.025	(<=M16)-0.06/-0.048(>M16)
Material	Carbon/Alloy steel quenched & tempered	Medium Carbon steel

Notes:
Left hand side of '-' is minium value right hand side of '-' is maximam value
Eg. 0.5-0.7 min is 0.5 and max is 0.7
Eg. -0.8 max is 0.8 no minimam value
Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

			BOLT/SCREW ASTM F3125 A325M-1 - 15									NUT ASTM A563M CL 10S - 07 (2013 Reapproved)					
BOLT SIZE mm	PITCH mm	STRESS AREA mm²	SHANK DIAMETER mm	WIDTH ACROSS FLATS mm	HEAD HEIGHT mm	PROOF STRESS Mpa	PROOF LOAD KN	TENSILE STRESS Mpa	TORQUE* N-m	HARDNESS HRC	ELONGATION # %	WIDTH ACROSS FLATS mm	HEAD HEIGHT mm	PROOF STRESS Mpa		PROOF LOAD KN		HARDNESS HRC
														PLAIN	HDG	PLAIN	HDG	
M6	1	20.1																
M8	1.25	36.6																
M10	1.5	58.0																
M12	1.75	84.3	11.3~12.7	20.16~21.00	7.05~7.95	600	50.6	830	81.5	25-34	14-	20.16~21.00	11.90~12.30	1245	1165	105	98.2	26~38
M14	2.0	115.0				600	69.0	830	129.7	25-34	14-	23.16~24.00	13.60~14.30	1245	1165	143	134	26~38
M16	2.0	157.0	15.30~16.70	26.16~27.00	9.25~10.75	600	94.2	830	202.3	25-34	14-	26.16~27.00	16.40~17.10	1245	1165	195	183	26~38
M18	2.5	192.0				600	115.2	830	278.4	25-34	14-			1245	1165	239	224	26~38
M20	2.5	245.0	19.16~20.84	33.00~34.00	11.60~13.40	600	147.0	830	394.7	25-34	14-	33.00~34.00	19.40~20.70	1245	1165	305	285	26~38
M22	2.5	303.0	21.16~22.84	35.00~36.00	13.10~14.90	600	182.0	830	536.9	25-34	14-	35.00~36.00	22.30~23.60	1245	1165	377	353	26~38
M24	3.0	353.0	23.16~24.84	40.00~41.00	14.10~15.90	600	212.0	830	682.4	25-34	14-	40.00~41.00	22.90~24.20	1245	1165	439	411	26~38
M27	3.0	459.0	26.16~27.84	45.00~46.00	16.1~17.90	600	275.0	830	998.3	25-34	14-	45.00~46.00	26.30~27.60	1245	1165	571	535	26~38
M30	3.5	561.0	29.16~30.84	49.00~50.00	17.65~19.75	600	337.0	830	1,356	25-34	14-	49.00~50.00	29.10~30.70	1245	1165	698	654	26~38
M33	3.5	694.0				600	416.0	830	1,845	25-34	14-			1245	1165	864	809	26~38
M36	4.0	817.0	35.00~37.00	58.80~60.00	21.45~23.55	600	490.0	830	2,369	25-34	14-	58.80~60.00	35.00~36.60	1245	1165	1,020	952	26~38
M39	4.0	976.0																
M42	4.5	1,120.0																
M45	4.5	1,310.0																
M48	5.0	1,470.0																
M52	5.0	1,760.0																
M56	5.5	2,030.0																
M60	5.5	2,360.0																
M64	6.0	2,680.0																
M68	6.0	3,060.0																
M72	6.0	3,460.0																
M76	6.0	3,890.0																
M80	6.0	4,340.0																
M85	6.0	4,950.0																
M90	6.0	5,590.0																
M95	6.0	6,270.0																
M100	6.0	6,990.0																
Dimensions			HEAVY HEX as per ANSI/ASME B18.2.6M									HEAVY HEX as per ANSI/ASME B18.2.4.6M						
Markings			'UMI' 'A325M' / 'UMI' 'A325MT'									'UMI' '10S'						
Carbon			0.30-0.52									-0.55						
Manganese			0.6-									0.30-						
Sulfur			-0.04									-0.05						
Silicon			0.15-0.30															
Chromium																		
Molybdenum																		
Nickle																		
Vanadium																		
Boron																		
Copper																		
Nitrogen																		
Phosphorus			-0.035									-0.04						
Material			Plain Carbon/Alloy Steel									Plain Carbon Steel or Alloy Steel						

Notes:

Left hand side of '-' is minium value right hand side of '-' is maximam value

Eg. 0.5-0.7 min is 0.5 and max is 0.7

Eg. -0.8 max is 0.8 no minimam value

Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel

Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

	PITCH in TPI			Stress area in in²			BOLT,SCREW & STUD SAE J429 GRADE 5 - 14										NUT SAE J995 GRADE 5 - 17					
BOLT SIZE							SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	PROOF LOAD	TENSILE STRESS	TORQUE*	HARDNESS	ELONGATION	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	PROOF STRESS	PROOF LOAD	HARDNESS
Inch	UNC	UNF	8UN	UNC	UNF	8UN	Inch	Inch	Inch	ksi	UNC lbf	UNF lbf	ksi	ft-lbs	HRC	%	Inch	Inch	ksi	UNC lbf	ksi	UNF lbf	HRC
1/4	20	28		0.0318	0.0364		0.245 ~ 0.250	0.428 ~0.438	0.150 ~0.163	85	2,700	3,100	120	8	25-34	14-	0.428~0.438	0.212~0.226	120	3,800	109	3,970	-32
5/16	18	24		0.0524	0.0580		0.307 ~0.313	0.489 ~0.500	0.195 ~0.211	85	4,450	4,900	120	16	25-34	14-	0.489~0.500	0.258~0.273	120	6,300	109	6,320	-32
3/8	16	24		0.0775	0.0878		0.369 ~0.375	0.551 ~0.563	0.226 ~0.243	85	6,600	7,450	120	28	25-34	14-	0.551~0.562	0.320~0.337	120	9,300	109	9,570	-32
7/16	14	20		0.1063	0.1187		0.431 ~0.438	0.612 ~0.625	0.272 ~0.291	85	9,050	10,100	120	44	25-34	14-	0.675~0.688	0.365~0.385	120	12,800	109	12,940	-32
1/2	13	20		0.1419	0.1599		0.493 ~0.500	0.736 ~0.750	0.302 ~0.323	85	12,600	13,600	120	67	25-34	14-	0.736~0.750	0.427~0.448	120	17,000	109	17,430	-32
9/16	12	18		0.182	0.203		0.555 ~0.563	0.798 ~0.813	0.348 ~0.371	85	15,500	17,300	120	97	25-34	14-	0.861~0.875	0.473~0.496	120	21,800	109	22,130	-32
5/8	11	18		0.226	0.256		0.617 ~0.625	0.922 ~0.938	0.378 ~0.403	85	19,200	21,800	120	134	25-34	14-	0.922~0.938	0.535~0.559	120	27,100	109	27,900	-32
3/4	10	16		0.334	0.373		0.741 ~0.750	1.100 ~1.125	0.455 ~ 0.483	85	28,400	31,700	120	238	25-34	14-	1.088~1.125	0.617~0.665	120	40,100	109	40,660	-32
7/8	9	14			0.509		0.866 ~0.875	1.285 ~1.313	0.531 ~0.563	85	39,300	43,300	120	384	25-34	14-	1.269~1.312	0.724~0.776	120	55,400	109	55,480	-32
1	8	12	8	0.606	0.663	0.606	0.990 ~1.000	1.469 ~1.500	0.591 ~ 0.627	85	51,500	56,400	120	576	25-34	14-	1.450~1.500	0.831~0.887	120	72,700	109	72,270	-32
1 1/8	7	12	8	0.763	0.856	0.790	1.114 ~1.125	1.631 ~1.688	0.658 ~0.718	74	56,500	63,300	105	711	19-30	14-	1.631~1.688	0.939~0.999	105	80,100	94	80,460	-32
1 1/4	7	12	8	0.969	1.073	1.000	1.239 ~1.250	1.812 ~1.875	0.749 ~0.813	74	71,700	79,400	105	1,003	19-30	14-	1.812~1.875	1.030~1.094	105	102,000	94	100,860	-32
1 3/8	6	12	8	1.155	1.315	1.233	1.363 ~1.375	1.994 ~2.063	0.810 ~ 0.878	74	85,500	97,300	105	1,315	19-30	14-	1.994~2.062	1.138~1.206	105	121,000	94	123,610	-32
1 1/2	6	12	8	1.405	1.581	1.492	1.488 ~1.500	2.175 ~2.250	0.902~0.974	74	104,000	117,000	105	1,745	19-30	14-	2.175~2.250	1.245~1.317	105	148,000	94	148,610	-32
1 5/8			8			1.78																	-32
1 3/4	5		8	1.90		2.08				74	140,600		105	2,753	19-30	14-			105	199,500			-32
1 7/8			8			2.41																	-32
2	4 1/2		8	2.50		2.77				74	185,000		105	4,139	19-30	14-			105	262,500			-32
2 1/4	4 1/2		8	3.25		3.56				74	240,500		105	6,054	19-30	14-			105	341,250			-32
2 1/2	4		8	4.00		4.44				74	296,000		105	8,279	19-30	14-			105	420,000			-32
2 3/4	4		8	4.93		5.43				74	364,820		105	11,224	19-30	14-			105	517,650			-32
3	4		8	5.97		6.51				74	441,780		105	14,827	19-30	14-			105	626,850			-32
3 1/4	4		8	7.10		7.69				74	525,400		105	19,103	19-30	14-			105	745,500			-32
3 1/2	4		8	8.33		8.96				74	616,420		105	24,137	19-30	14-			105	874,650			-32
3 3/4	4		8	9.66		10.34				74	714,840		105	29,990	19-30	14-			105	1,014,300			-32
4	4		8	11.08		11.81				74	819,920		105	36,691	19-30	14-			105	1,163,400			-32
Dimension							HEX as per ANSI/ASME B18.2.1										HEX as per ANSI/ASME B18.2.2						
Marking							'UMI' Three Radial Lines										'UMI' Two Radial lines						
Carbon							0.25-0.55/0.15-0.40										-0.55						
Mangaenese																	0.30-						
Sulfur							-0.025										-0.15						
Silicon																							
Chromium																							
Molybdenum																							
Nickle																							
Vanadium																							
Boron																							
Copper																							
Nitrogen																							
Phosphorus							-0.025										-0.05						
Material							Plain Carbon/Alloy Steel										Plain CarbonSteel						

Notes:

1. 8UN means less than 1" UNC thread and above 1" 8 TPI thread
2. Left hand side of '-' is minium value right hand side of '-' is maximam value

Eg. 0.5-0.7 min is 0.5 and max is 0.7

Eg. -0.8 max is 0.8 no minimam value

Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

BOLT SIZE	PITCH in TPI			Stress area in in²			BOLT/SCREW ASTM F3125 A325-1 - 15									NUT ASTM A563 GR.DH 07a - (Reapproved 2014)					
							SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	TENSILE STRESS	TORQUE*	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS		PROOF LOAD UNC		HARDNESS
Inch	UNC	UNF	8UN	UNC	UNF	8UN	Inch	Inch	Inch	ksi	UNC lbf	ksi	ft-lbs	HRC	%	Inch	Inch	PLAIN	HDG	PLAIN	HDG	HRC
1/4	20	28		0.0318	0.0364																	
5/16	18	24		0.0524	0.0580																	
3/8	16	24		0.0775	0.0878																	
7/16	14	20		0.1063	0.1187																	
1/2	13	20		0.1419	0.1599		0.482 ~ 0.515	0.850 ~ 0.875	0.302 ~0.323	85	12,050	120	67	25-34	14-	0.850~0.875	0.464~0.504	175	150	24,830	21,290	24-38
9/16	12	18		0.182	0.203					85	15,470	120	97	25-34	14-			175	150	31,850	27,300	24-38
5/8	11	18		0.226	0.256		0.605 ~0.642	1.031 ~ 1.063	0.378 ~0.403	85	19,200	120	134	25-34	14-	1.031~1.062	0.587~0.631	175	150	39,550	33,900	24-38
3/4	10	16		0.334	0.373		0.729 ~0.768	1.212 ~1.250	0.455 ~0.483	85	28,400	120	238	25-34	14-	1.212~1.250	0.710~0.758	175	150	58,450	50,100	24-38
7/8	9	14		0.462	0.509		0.852 ~0.895	1.394 ~ 1.437	0.531 ~0.563	85	39,250	120	384	25-34	14-	1.394~1.438	0.833~0.885	175	150	80,850	69,300	24-38
1	8	12	8	0.606	0.663	0.606	0.976 ~1.022	1.575 ~1.625	0.591 ~0.627	85	51,500	120	576	25-34	14-	1.575~1.625	0.956~1.012	175	150	106,050	90,900	24-38
1 1/8	7	12	8	0.763	0.856	0.790	1.098 ~1.149	1.756 ~1.813	0.658 ~0.718	85	64,900	120	816	25-34	14-	1.756~1.812	1.079~1.139	175	150	133,530	114,450	24-38
1 1/4	7	12	8	0.969	1.073	1.000	1.223 ~1.277	1.938 ~2.000	0.749 ~0.813	85	82,400	120	1,152	25-34	14-	1.938~2.000	1.187~1.251	175	150	169,580	145,350	24-38
1 3/8	6	12	8	1.155	1.315	1.233	1.345 ~ 1.404	2.119 ~2.188	0.810 ~0.878	85	98,200	120	1,510	25-34	14-	2.119~2.188	1.310~1.378	175	150	202,130	173,250	24-38
1 1/2	6	12	8	1.405	1.581	1.492	1.470 ~ 1.531	2.300 ~ 2.375	0.902 ~ 0.974	85	119,500	120	2,004	25-34	14-	2.300~2.375	1.433~1.505	175	150	245,880	210,750	24-38
1 5/8			8			1.78																
1 3/4	5		8	1.90		2.08																
1 7/8			8			2.41																
2	4 1/2		8	2.50		2.77																
2 1/4	4 1/2		8	3.25		3.56																
2 1/2	4		8	4.00		4.44																
2 3/4	4		8	4.93		5.43																
3	4		8	5.97		6.51																
3 1/4	4		8	7.10		7.69																
3 1/2	4		8	8.33		8.96																
3 3/4	4		8	9.66		10.34																
4	4		8	11.08		11.81																
Dimension							HEAVY HEX as per ANSI/ASME B18.2.6									HEAVY HEX as per ANSI/ASME B18.2.2						
Marking							'UMI' 'A325' /'UMI' 'A325T'									'UMI 'DH'						
Carbon							0.30-0.52									0.20-0.55						
Mangaenese							0.60-									0.6-						
Sulfur							-0.04									-0.05						
Silicon							0.15-0.30															
Chromium																						
Molybdenum																						
Nickle																						
Vanadium																						
Boron																						
Copper																						
Nitrogen																						
Phosphorus							-0.035									-0.04						
Material							Plain Carbon/Alloy Steel									Plain Carbon Steel or Alloy Steel						

Notes:

1. 8UN means less than 1" UNC thread and above 1" 8 TPI thread
2. Left hand side of '-' is minium value right hand side of '-' is maximam value

Eg. 0.5-0.7 min is 0.5 and max is 0.7

Eg. -0.8 max is 0.8 no minimam value

* ALTERNATIVE ASTM A194 2H CAN BE USED

* Torque value based on 75% of proof load and finish as received steel

Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

			BOLT/SCREW & STUD ASTM A193M B7 - 17										NUT ASTM A194M 2H - 17				
BOLT SIZE	PITCH	STRESS AREA	SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE*	REDUCTION OF AREA	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
mm	mm	mm^2	mm	mm	mm	Mpa	KN	Mpa	N-m	%	HRC	%	mm	mm	Mpa	KN	HRC
M6	1	20.1				720	14.5	860	11.7	50-	-35	16-			1205	24.2	24-35
M8	1.25	36.6				720	26.4	860	28.3	50-	-35	16-			1205	44.1	24-35
M10	1.5	58.0				720	41.8	860	56.8	50-	-35	16-			1205	69.9	24-35
M12	1.75	84.3	11.73~12.00	20.67~21.00	7.24~7.76	720	60.7	860	97.8	50-	-35	16-	20.16~21.00	11.90~12.30	1205	101.6	24-35
M14	2.0	115.0	13.73~14.00	23.67~24.00	8.51~9.09	720	82.8	860	155.6	50-	-35	16-	23.16~24.00	13.60~14.30	1205	138.6	24-35
M16	2.0	157.0	15.73~16.00	26.67~27.00	9.68~10.32	720	113.0	860	242.8	50-	-35	16-	26.16~27.00	16.40~17.10	1205	189.2	24-35
M18	2.5	192.0				720	138.2	860	334.1	50-	-35	16-			1205	231.4	24-35
M20	2.5	245.0	19.67~20.00	33.00~34.00	12.12~12.88	720	176.4	860	473.6	50-	-35	16-	33.00~34.00	19.40~20.70	1205	295.2	24-35
M22	2.5	303.0				720	218.2	860	644.3	50-	-35	16-	35.00~36.00	22.30~23.60	1205	365.1	24-35
M24	3.0	353.0	23.67~24.00	40.00~41.00	14.56~15.44	720	254.2	860	818.9	50-	-35	16-	40.00~41.00	22.90~24.20	1205	425.4	24-35
M27	3.0	459.0				720	330.5	860	1,198	50-	-35	16-	45.00~46.00	26.3~27.60	1205	553.4	24-35
M30	3.5	561.0	29.67~30.00	49.00~50.00	17.92~19.48	720	403.9	860	1,627	50-	-35	16-	49.00~50.00	29.10~30.70	1205	676.0	24-35
M33	3.5	694.0				720	499.7	860	2,214	50-	-35	16-			1205	836.3	24-35
M36	4.0	817.0	35.61~36.00	58.80~60.00	21.72~23.38	720	588.2	860	2,843	50-	-35	16-	58.80~60.00	35.00~36.60	1205	984.5	24-35
M39	4.0	976.0				720	702.7	860	3,679	50-	-35	16-			1205	1,176.1	-35
M42	4.5	1,120.0				720	806.4	860	4,547	50-	-35	16-	67.90~70.00	40.40~42.00	1205	1,349.6	-35
M45	4.5	1,310.0				720	943.2	860	5,698	50-	-35	16-			1205	1,578.6	-35
M48	5.0	1,470.0				720	1,058.4	860	6,820	50-	-35	16-	77.60~80.00	46.40~48.00	1205	1,771.4	-35
M52	5.0	1,760.0				720	1,267.2	860	8,846	50-	-35	16-			1205	2,120.8	-35
M56	5.5	2,030.0				720	1,461.6	860	10,988	50-	-35	16-	87.20~90.00	54.10~56.00	1205	2,446.2	-35
M60	5.5	2,360.0				720	1,699.2	860	13,687	50-	-35	16-			1205	2,843.8	-35
M64	6.0	2,680.0				720	1,929.6	860	16,579	50-	-35	16-	96.80~100.00	62.10~64.00	1205	3,229.4	-35
M68	6.0	3,060.0				655	2,004.3	795	18,297	50-	-35	16-			1205	3,687.3	-35
M72	6.0	3,460.0				655	2,266.3	795	21,906	50-	-35	16-	106.40~110.00	70.10~72.00	1205	4,169.3	-35
M76	6.0	3,890.0				655	2,548.0	795	25,997	50-	-35	16-			1205	4,687.5	-35
M80	6.0	4,340.0				655	2,842.7	795	30,531	50-	-35	16-	116.00~120.00	78.10~80.00	1205	5,229.7	-35
M85	6.0	4,950.0				655	3,242.3	795	36,998	50-	-35	16-			1205	5,964.8	-35
M90	6.0	5,590.0				655	3,661.5	795	44,239	50-	-35	16-	130.50~135.00	87.80~90.00	1205	6,736.0	-35
M95	6.0	6,270.0				655	4,106.9	795	52,378	50-	-35	16-			1205	7,555.4	-35
M100	6.0	6,990.0				655	4,578.5	795	16,482	50-	-35	16-	145.00~150.00	97.80~100.00	1205	8,423.0	-35
Dimensions			HEAVY HEX as per ANSI/ASME B18.2.3.3M										HEAVY HEX as per ANSI/ASME B18.2.4.6M				
Markings			'UMI' 'B7'										'UMI' '2H'				
Tempering °C			593 (1100° F)										455 (850° F)				
Heating for 24Hours for the Nut °C													540 (1000° F)				
Hardness After Heating													<= M36 89 - HRB >M36 79 - HRB				
Charpy Test Specimen 10X10X55																	
Charpy V Notch Impact test at																	
Carbon			0.38-0.48										0.4-				
Manganese			0.75-1.0										-1.0				
Sulfur			-0.040										-0.050				
Silicon			0.15-0.35										-0.40				
Chromium			0.8-1.10														
Molybdenum			0.15-0.25														
Nickle																	
Vandium																	
Boron																	
Copper																	
Nitrogen																	
Phosphorus			-0.035										-0.04				
Material			Chromium-Molybdenum Steel										Medium Carbon Steel				

Notes:
Left hand side of '-' is minium value right hand side of '-' is maximam value
Eg. 0.5-0.7 min is 0.5 and max is 0.7
Eg. -0.8 max is 0.8 no minimam value
Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel
# Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

	BOLT/STUD/SCREW ASTM A193M B7M - 17												NUT ASTM A194M 2HM - 17				
BOLT SIZE	PITCH	STRESS AREA	SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE*	REDUCTION OF AREA	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
mm	mm	mm^2	mm	mm	mm	Mpa	KN	Mpa	N-m	%	HRB	%	mm	mm	Mpa	KN	HRB
M6	1	20.1				550	11.1	690	8.9	50-	-99	18-			1035	20.8	84~99
M8	1.25	36.6				550	20.1	690	21.6	50-	-99	18-			1035	37.9	84~99
M10	1.5	58.0				550	31.9	690	43.4	50-	-99	18-			1035	60.0	84~99
M12	1.75	84.3	11.73~12.00	20.67~21.00	7.24~7.76	550	46.4	690	74.7	50-	-99	18-	20.16~21.00	11.90~12.30	1035	87.3	84~99
M14	2.0	115.0	13.73~14.00	23.67~24.00	8.51~9.09	550	63.3	690	118.9	50-	-99	18-	23.16~24.00	13.60~14.30	1035	119.0	84~99
M16	2.0	157.0	15.73~16.00	26.67~27.00	9.68~10.32	550	86.4	690	185.5	50-	-99	18-	26.16~27.00	16.40~17.10	1035	162.5	84~99
M18	2.5	192.0				550	105.6	690	255.2	50-	-99	18-			1035	198.7	84~99
M20	2.5	245.0	19.67~20.00	33.00~34.00	12.12~12.88	550	134.8	690	361.8	50-	-99	18-	33.00~34.00	19.40~20.70	1035	253.6	84~99
M22	2.5	303.0				550	166.7	690	492.2	50-	-99	18-	35.00~36.00	22.30~23.60	1035	313.6	84~99
M24	3.0	353.0	23.67~24.00	40.00~41.00	14.56~15.44	550	194.2	690	625.6	50-	-99	18-	40.00~41.00	22.90~24.20	1035	365.4	84~99
M27	3.0	459.0				550	252.5	690	915.1	50-	-99	18-	45.00~46.00	26.3~27.60	1035	475.1	84~99
M30	3.5	561.0	29.67~30.00	49.00~50.00	17.92~19.48	550	308.6	690	1,243	50-	-99	18-	49.00~50.00	29.10~30.70	1035	580.6	84~99
M33	3.5	694.0				550	381.7	690	1,691	50-	-99	18-			1035	718.3	84~99
M36	4.0	817.0	35.61~36.00	58.80~60.00	21.72~23.38	550	449.4	690	2,172	50-	-99	18-	58.80~60.00	35.00~36.60	1035	845.6	84~99
M39	4.0	976.0				550	536.8	690	2,811	50-	-99	18-			1035	1,010	84~99
M42	4.5	1,120.0				550	616.0	690	3,473	50-	-99	18-	67.90~70.00	40.40~42.00	1035	1,159	84~99
M45	4.5	1,310.0				550	720.5	690	4,353	50-	-99	18-			1035	1,356	84~99
M48	5.0	1,470.0				550	808.5	690	5,210	50-	-99	18-	77.60~80.00	46.40~48.00	1035	1,521	84~99
M52	5.0	1,760.0				550	968.0	690	6,758	50-	-99	18-			1035	1,822	84~99
M56	5.5	2,030.0				550	1,117	690	8,394	50-	-99	18-	87.20~90.00	54.10~56.00	1035	2,101	84~99
M60	5.5	2,360.0				550	1,298	690	10,455	50-	-99	18-			1035	2,443	84~99
M64	6.0	2,680.0				550	1,474	690	12,665	50-	-99	18-	96.80~100.00	62.10~64.00	1035	2,774	84~99
M68	6.0	3,060.0				550	1,683	690	15,364	50-	-99	18-			1035	3,167	84~99
M72	6.0	3,460.0				550	1,903	690	18,394	50-	-99	18-	106.40~110.00	70.10~72.00	1035	3,581	84~99
M76	6.0	3,890.0				550	2,140	690	21,829	50-	-99	18-			1035	4,026	84~99
M80	6.0	4,340.0				550	2,387	690	25,636	50-	-99	18-	116.00~120.00	78.10~80.00	1035	4,492	84~99
M85	6.0	4,950.0				550	2,723	690	31,067	50-	-99	18-			1035	5,123	84~99
M90	6.0	5,590.0				550	3,075	690	37,148	50-	-99	18-	130.50~135.00	87.80~90.00	1035	5,786	84~99
M95	6.0	6,270.0				550	3,449	690	43,981	50-	-99	18-			1035	6,489	84~99
M100	6.0	6,990.0				550	3,845	690	51,612	50-	-99	18-	145.00~150.00	97.80~100.00	1035	7,235	84~99

Dimensions	HEAVY HEX as per ANSI/ASME B18.2.3.3M	HEAVY HEX as per ANSI/ASME B18.2.4.6M
Markings	'UMI' 'B7M'	'UMI' '2HM'
Tempering °C	620 (1150° F)	620 (1150° F)
Heating for 24Hours for the Nut °C		540 (1000° F)
Hardness After Heating		84 - HRB
Charpy Test Specimen 10X10X55		
Charpy V Notch Impact test at		
Carbon	0.38-0.48	0.4-
Manganese	0.75-1.0	-1.0
Sulfur	-0.040	-0.050
Silicon	0.15-0.35	-0.40
Chromium	0.8-1.10	
Molybdenum	0.15-0.25	
Nickle		
Vandium		
Boron		
Copper		
Nitrogen		
Phosphorus	-0.035	-0.04
Material	Chromium-Molybdenum Steel	Medium Carbon Steel

Notes:
Left hand side of '-' is minium value right hand side of '-' is maximam value
Eg. 0.5-0.7 min is 0.5 and max is 0.7
Eg. -0.8 max is 0.8 no minimam value
Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel
# Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

			BOLT/STUD/SCREW ASTM A320M L7 - 17										NUT ASTM A194M Gr. 7 -17				
BOLT SIZE	PITCH	STRESS AREA	SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE*	REDUCTION OF AREA	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
mm	mm	mm^2	mm	mm	mm	Mpa	KN	Mpa	N-m	%	HRC	%	mm	mm	Mpa	KN	HRC
M6	1	20.1				725	14.6	860	11.7	50-	-35	16-			1205	24.2	24-35
M8	1.25	36.6				725	26.5	860	28.5	50-	-35	16-			1205	44.1	24-35
M10	1.5	58.0				725	42.1	860	56.5	50-	-35	16-			1205	69.9	24-35
M12	1.75	84.3	11.73~12.00	20.67~21.00	7.24~7.76	725	61.1	860	98.5	50-	-35	16-	20.16~21.00	11.90~12.30	1205	101.6	24-35
M14	2.0	115.0	13.73~14.00	23.67~24.00	8.51~9.09	725	83.4	860	156.7	50-	-35	16-	23.16~24.00	13.60~14.30	1205	138.6	24-35
M16	2.0	157.0	15.73~16.00	26.67~27.00	9.68~10.32	725	113.8	860	244.5	50-	-35	16-	26.16~27.00	16.40~17.10	1205	189.2	24-35
M18	2.5	192.0				725	139.2	860	336.4	50-	-35	16-			1205	231.4	24-35
M20	2.5	245.0	19.67~20.00	33.00~34.00	12.12~12.88	725	177.6	860	476.9	50-	-35	16-	33.00~34.00	19.40~20.70	1205	295.2	24-35
M22	2.5	303.0				725	219.7	860	648.8	50-	-35	16-	35.00~36.00	22.30~23.60	1205	365.1	24-35
M24	3.0	353.0	23.67~24.00	40.00~41.00	14.56~15.44	725	255.9	860	824.6	50-	-35	16-	40.00~41.00	22.90~24.20	1205	425.4	24-35
M27	3.0	459.0				725	332.8	860	1,206	50-	-35	16-	45.00~46.00	26.3~27.60	1205	553.1	24-35
M30	3.5	561.0	29.67~30.00	49.00~50.00	17.92~19.48	725	406.7	860	1,638	50-	-35	16-	49.00~50.00	29.10~30.70	1205	676.0	24-35
M33	3.5	694.0				725	503.2	860	2,229	50-	-35	16-			1205	836.3	24-35
M36	4.0	817.0	35.61~36.00	58.80~60.00	21.72~23.38	725	592.3	860	2,863	50-	-35	16-	58.80~60.00	35.00~36.60	1205	984.5	24-35
M39	4.0	976.0				725	707.6	860	3,705	50-	-35	16-			1205	1,176	24-35
M42	4.5	1,120.0				725	812.0	860	4,578	50-	-35	16-	67.90~70.00	40.40~42.00	1205	1,350	24-35
M45	4.5	1,310.0				725	949.8	860	5,738	50-	-35	16-			1205	1,579	24-35
M48	5.0	1,470.0				725	1,065.8	860	6,868	50-	-35	16-	77.60~80.00	46.40~48.00	1205	1,771	24-35
M52	5.0	1,760.0				725	1,276.0	860	8,908	50-	-35	16-			1205	2,121	24-35
M56	5.5	2,030.0				725	1,471.8	860	11,065	50-	-35	16-	87.20~90.00	54.10~56.00	1205	2,446	24-35
M60	5.5	2,360.0				725	1,711.0	860	13,782	50-	-35	16-			1205	2,844	24-35
M64	6.0	2,680.0				725	1,943.0	860	16,694	50-	-35	16-	96.80~100.00	62.10~64.00	1205	3,229	24-35
M68	6.0	3,060.0													1205	3,687	24-35
M72	6.0	3,460.0											106.40~110.00	70.10~72.00	1205	4,169	24-35
M76	6.0	3,890.0													1205	4,687	24-35
M80	6.0	4,340.0											116.00~120.00	78.10~80.00	1205	5,230	24-35
M85	6.0	4,950.0													1205	5,965	24-35
M90	6.0	5,590.0											130.50~135.00	87.80~90.00	1205	6,736	24-35
M95	6.0	6,270.0													1205	7,555	24-35
M100	6.0	6,990.0											145.00~150.00	97.80~100.00	1205	8,423	24-35

Dimensions	HEAVY HEX as per ANSI/ASME B18.2.3.3M	HEAVY HEX as per ANSI/ASME B18.2.4.6M
Markings	'UMI' 'L7'	'UMI' '7L'
Tempering °C	593 (1100° F)	595 (1100° F)
Heating for 24Hours for the Nut °C		590 (1100° F)
Hardness After Heating		94- HRB
Charpy Test Specimen 10X10X55	27 J min (Avg)	27 J min (Avg)
Charpy V Notch Impact test at	–101 ° C Temp	–101° C Temp
Carbon	0.38-0.48	0.38-0.48
Manganese	0.75-1.0	0.75-1.0
Sulfur	-0.04	-0.04
Silicon	0.15-0.35	0.15-0.35
Chromium	0.80-1.1	0.80-1.1
Molybdenum	0.15-0.25	0.15-0.25
Nickle	-	
Vandium		
Boron		
Copper		
Nitrogen		
Phosphorus	-0.035	-0.035
Material	Chromium-Molybdenum Steel	Chromium-Molybdenum Steel

Notes:
Left hand side of '-' is minium value right hand side of '-' is maximam value
Eg. 0.5-0.7 min is 0.5 and max is 0.7
Eg. -0.8 max is 0.8 no minimam value
Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel
# Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

			BOLT/SCREW & STUD ASTM A320M L7M -17										NUT ASTM A194M 7M - 17				
BOLT SIZE	PITCH	STRESS AREA	SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE*	REDUCTION OF AREA	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
mm	mm	mm^2	mm	mm	mm	Mpa	KN	Mpa	N-m	%	HRB	%	mm	mm	Mpa	KN	HRB
M6	1	20.1				550	11.1	690	8.9	50-	-99	18-			1035	20.8	84~99
M8	1.25	36.6				550	20.1	690	21.6	50-	-99	18-			1035	37.9	84~99
M10	1.5	58.0				550	31.9	690	43.4	50-	-99	18-			1035	60.0	84~99
M12	1.75	84.3	11.73~12.00	20.67~21.00	7.24~7.76	550	46.4	690	74.7	50-	-99	18-	20.16~21.00	11.90~12.30	1035	87.3	84~99
M14	2.0	115.0	13.73~14.00	23.67~24.00	8.51~9.09	550	63.3	690	118.9	50-	-99	18-	23.16~24.00	13.60~14.30	1035	119.0	84~99
M16	2.0	157.0	15.73~16.00	26.67~27.00	9.68~10.32	550	86.4	690	185.5	50-	-99	18-	26.16~27.00	16.40~17.10	1035	162.5	84~99
M18	2.5	192.0				550	105.6	690	255.2	50-	-99	18-			1035	198.7	84~99
M20	2.5	245.0	19.67~20.00	33.00~34.00	12.12~12.88	550	134.8	690	361.8	50-	-99	18-	33.00~34.00	19.40~20.70	1035	253.6	84~99
M22	2.5	303.0				550	166.7	690	492.2	50-	-99	18-	35.00~36.00	22.30~23.60	1035	313.6	84~99
M24	3.0	353.0	23.67~24.00	40.00~41.00	14.56~15.44	550	194.2	690	625.6	50-	-99	18-	40.00~41.00	22.90~24.20	1035	365.4	84~99
M27	3.0	459.0				550	252.5	690	915.1	50-	-99	18-	45.00~46.00	26.3~27.60	1035	475.1	84~99
M30	3.5	561.0	29.67~30.00	49.00~50.00	17.92~19.48	550	308.6	690	1,243	50-	-99	18-	49.00~50.00	29.10~30.70	1035	580.6	84~99
M33	3.5	694.0				550	381.7	690	1,691	50-	-99	18-			1035	718.3	84~99
M36	4.0	817.0	35.61~36.00	58.80~60.00	21.72~23.38	550	449.4	690	2,172	50-	-99	18-	58.80~60.00	35.00~36.60	1035	845.6	84~99
M39	4.0	976.0				550	536.8	690	2,811	50-	-99	18-			1035	1,010	84~99
M42	4.5	1,120.0				550	616.0	690	3,473	50-	-99	18-	67.90~70.00	40.40~42.00	1035	1,159	84~99
M45	4.5	1,310.0				550	720.5	690	4,353	50-	-99	18-			1035	1,356	84~99
M48	5.0	1,470.0				550	808.5	690	5,210	50-	-99	18-	77.60~80.00	46.40~48.00	1035	1,521	84~99
M52	5.0	1,760.0				550	968.0	690	6,758	50-	-99	18-			1035	1,822	84~99
M56	5.5	2,030.0				550	1,116.5	690	8,394	50-	-99	18-	87.20~90.00	54.10~56.00	1035	2,101	84~99
M60	5.5	2,360.0				550	1,298.0	690	10,455	50-	-99	18-			1035	2,443	84~99
M64	6.0	2,680.0				550	1,474.0	690	12,665	50-	-99	18-	96.80~100.00	62.10~64.00	1035	2,774	84~99
M68	6.0	3,060.0													1035	3,167	84~99
M72	6.0	3,460.0											106.40~110.00	70.10~72.00	1035	3,581	84~99
M76	6.0	3,890.0													1035	4,026	84~99
M80	6.0	4,340.0											116.00~120.00	78.10~80.00	1035	4,492	84~99
M85	6.0	4,950.0													1035	5,123	84~99
M90	6.0	5,590.0											130.50~135.00	87.80~90.00	1035	5,786	84~99
M95	6.0	6,270.0													1035	6,489	84~99
M100	6.0	6,990.0											145.00~150.00	97.80~100.00	1035	7,235	84~99

Dimensions	HEAVY HEX as per ANSI/ASME B18.2.3.3M	HEAVY HEX as per ANSI/ASME B18.2.4.6M
Markings	'UMI' 'L7M'	'UMI' '7ML'
Tempering °C	620 (1150° F)	620 (1150° F)
Heating for 24Hours for the Nut °C		590 (1100° F)
Hardness After Heating		84- HRB
Charpy Test Specimen 10X10X55	27 J min (Avg)	27 J min (Avg)
Charpy V Notch Impact test at	–73° C Temp	–73° C Temp
Carbon	0.38-0.48	0.38-0.48
Manganese	0.75-1.0	0.75-1.0
Sulfur	-0.04	0.04
Silicon	0.15-0.35	0.15-0.35
Chromium	0.80-1.1	0.80-1.1
Molybdenum	0.15-0.25	0.15-0.25
Nickle	-	
Vandium		
Boron		
Copper		
Nitrogen		
Phosphorus	-0.035	-0.035
Material	Chromium-Molybdenum Steel	Chromium-Molybdenum Steel

Notes:
Left hand side of '-' is minium value right hand side of '-' is maximam value
Eg. 0.5-0.7 min is 0.5 and max is 0.7
Eg. -0.8 max is 0.8 no minimam value
Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel
# Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

	PITCH in TPI			Stress area in in²			BOLT/SCREW & STUD ASTM A193 B7 - 17									NUT ASTM A194 2H -17				
BOLT SIZE							SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE*	REDUCTION OF AREA	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
Inch	UNC	UNF	8UN	UNC	UNF	8UN	Inch	Inch	Inch	ksi	8UN lbf	ksi	ft-lbs	%	HRC	%	Inch	Inch	ksi	8UN lbf	HRC
1/4	20	28		0.0318	0.0364																
5/16	18	24		0.0524	0.0580																
3/8	16	24		0.0775	0.0878		0.360~0.388	0.669~0.688	0.220~0.268	105	8,140	125	34	50-	-35	16-	0.669~0.688	0.341~0.377	175	13,560	24-35
7/16	14	20		0.1063	0.1187					105	11,160	125	55	50-	-35	16-			175	18,600	24-35
1/2	13	20		0.1419	0.1599		0.482~0.515	0.850~0.875	0.302~0.364	105	14,900	125	83	50-	-35	16-	0.850~0.875	0.464~0.504	175	24,830	24-35
9/16	12	18		0.182	0.203					105	19,110	125	120	50-	-35	16-			175	31,850	24-35
5/8	11	18		0.226	0.256		0.605~0.642	1.031~1.062	0.378~0.444	105	23,730	125	166	50-	-35	16-	1.031~1.062	0.587~0.631	175	39,550	24-35
3/4	10	16		0.334	0.373		0.729~0.768	1.212~1.250	0.455~0.524	105	35,070	125	294	50-	-35	16-	1.212~1.250	0.710~0.758	175	58,450	24-35
7/8	9	14		0.462	0.509		0.852~0.895	1.394~1.438	0.531~0.604	105	48,510	125	475	50-	-35	16-	1.394~1.438	0.833~0.885	175	80,850	24-35
1	8	12	8	0.606	0.663	0.606	0.976~1.022	1.575~1.625	0.591~0.700	105	63,630	125	712	50-	-35	16-	1.575~1.625	0.956~1.012	175	106,100	24-35
1 1/8	7	12	8	0.763	0.856	0.790	1.098~1.149	1.756~1.812	0.658~0.780	105	82,950	125	1,044	50-	-35	16-	1.756~1.812	1.079~1.139	175	138,250	24-35
1 1/4	7	12	8	0.969	1.073	1.000	1.223~1.277	1.938~2.000	0.749~0.876	105	105,000	125	1,468	50-	-35	16-	1.938~2.000	1.187~1.251	175	175,000	24-35
1 3/8	6	12	8	1.155	1.315	1.233	1.345~1.404	2.119~2.188	0.810~0.940	105	129,465	125	1,993	50-	-35	16-	2.119~2.188	1.310~1.378	175	215,800	24-35
1 1/2	6	12	8	1.405	1.581	1.492	1.470~1.531	2.300~2.375	0.902~1.036	105	156,660	125	2,629	50-	-35	16-	2.300~2.375	1.433~1.505	175	261,100	24-35
1 5/8			8			1.78	1.591~1.658	2.481~2.562	0.978~1.116	105	186,900	125	3,379	50-	-35	16-	2.481~2.562	1.556~1.632	175	311,500	-35
1 3/4	5		8	1.90		2.08	1.716~1.785	2.662~2.750	1.054~1.196	105	218,400	125	4,276	50-	-35	16-	2.662~2.750	1.679~1.759	175	364,000	-35
1 7/8			8			2.41	1.839~1.912	2.844~2.938	1.130~1.276	105	253,050	125	5,308	50-	-35	16-	2.844~2.938	1.802~1.886	175	421,800	-35
2	4 1/2		8	2.50		2.77	1.964~2.039	3.025~3.125	1.175~1.388	105	290,850	125	6,508	50-	-35	16-	3.025~3.125	1.925~2.013	175	484,800	-35
2 1/4	4 1/2		8	3.25		3.56	2.214~2.305	3.388~3.500	1.327~1.548	105	373,800	125	9,409	50-	-35	16-	3.388~3.500	2.155~2.251	175	623,000	-35
2 1/2	4		8	4.00		4.44	2.461~2.559	3.750~3.875	1.479~1.708	105	466,200	125	13,039	50-	-35	16-	3.750~3.875	2.401~2.505	175	777,000	-35
2 3/4	4		8	4.93		5.43	2.711~2.827	4.112~4.250	1.632~1.869	95	515,850	115	15,870	50-	-35	16-	4.112~4.250	2.647~2.759	175	950,300	-35
3	4		8	5.97		6.51	2.961~3.081	4.475~4.625	1.815~2.060	95	618,450	115	20,757	50-	-35	16-	4.475~4.625	2.893~3.013	175	1,139,300	-35
3 1/4	4		8	7.10		7.69				95	730,550	115	26,562	50-	-35	16-	4.838~5.000	3.124~3.252	175	1,345,800	-35
3 1/2	4		8	8.33		8.96				95	851,200	115	33,330	50-	-35	16-	5.200~5.375	3.370~3.506	175	1,568,000	-35
3 3/4	4		8	9.66		10.34				95	982,300	115	41,211	50-	-35	16-	5.562~5.750	3.616~3.760	175	1,809,500	-35
4	4		8	11.08		11.81				95	1,121,950	115	50,207	50-	-35	16-	5.925~6.125	3.862~4.014	175	2,066,800	-35
Dimension							HEAVY HEX as per ANSI/ASME B18.2.1										HEAVY HEX as per ANSI/ASME B18.2.2				
Marking							'UMI' 'B7'										'UMI' '2H'				
Tempering °F							1100 (593 °C)										850 (455 °C)				
Heating for 24Hours for the Nut °F																	1000 (540 °C)				
Hardness after Heating																	89- HRb <= 1-1/2" 79- HRb > 1-1/2"				
Charpy Test Specimen 10X10X55																					
Charpy V Notch Impact test at																					
Carbon							0.38-0.48										0.4-				
Manganese							0.75-1.00										-1.0				
Sulfur							-0.040										-0.050				
Silicon							0.15-0.35										-0.40				
Chromium							0.8-1.1														
Molybdenum							0.15-0.25														
Nickle																					
Vanadium																					
Boron																					
Copper																					
Nitrogen																					
Phosphorus							-0.035										-0.04				
Material							Chromium-Molybdenum Steel										Medium Carbon Steel				

Notes:

1. 8UN means less than 1" UNC thread and above 1" 8 TPI thread
2. Left hand side of '-' is minium value right hand side of '-' is maximam value

Eg. 0.5-0.7 min is 0.5 and max is 0.7

Eg. -0.8 max is 0.8 no minimam value

Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel

\# Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

	PITCH in TPI			Stress area in in²			BOLT/SCREW & STUD ASTM A193 B7M - 17									NUT ASTM A194 2HM - 17				
BOLT SIZE							SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE*	REDUCTION OF AREA	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
Inch	UNC	UNF	8UN	UNC	UNF	8UN	Inch	Inch	Inch	ksi	8UN lbf	ksi	ft-lbs	%	HRB	%	Inch	Inch	ksi	8UN lbf	HRB
1/4	20	28		0.0318	0.0364																
5/16	18	24		0.0524	0.0580																
3/8	16	24		0.0775	0.0878		0.360~0.388	0.669~0.688	0.226~0.268	80	6,200	100	26	50-	-99	18-	0.669~0.688	0.341~0.377	150	11,630	84~99
7/16	14	20		0.1063	0.1187					80	8,500	100	42	50-	-99	18-			150	15,950	84~99
1/2	13	20		0.1419	0.1599		0.482~0.515	0.850~0.875	0.302~0.364	80	11,350	100	64	50-	-99	18-	0.850~0.875	0.464~0.504	150	21,290	84~99
9/16	12	18		0.182	0.203					80	14,560	100	92	50-	-99	18-			150	27,300	84~99
5/8	11	18		0.226	0.256		0.605~0.642	1.031~1.062	0.378~0.444	80	18,080	100	126	50-	-99	18-	1.031~1.062	0.587~0.631	150	33,900	84~99
3/4	10	16		0.334	0.373		0.729~0.768	1.212~1.250	0.455~0.524	80	26,720	100	224	50-	-99	18-	1.212~1.250	0.710~0.758	150	50,100	84~99
7/8	9	14		0.462	0.509		0.852~0.895	1.394~1.438	0.531~0.604	80	36,960	100	362	50-	-99	18-	1.394~1.438	0.833~0.885	150	69,300	84~99
1	8	12	8	0.606	0.663	0.606	0.976~1.022	1.575~1.625	0.591~0.700	80	48,480	100	542	50-	-99	18-	1.575~1.625	0.956~1.012	150	90,900	84~99
1 1/8	7	12	8	0.763	0.856	0.790	1.098~1.149	1.756~1.812	0.658~0.780	80	63,200	100	795	50-	-99	18-	1.756~1.812	1.079~1.139	150	118,500	84~99
1 1/4	7	12	8	0.969	1.073	1.000	1.223~1.277	1.938~2.000	0.749~0.876	80	80,000	100	1,119	50-	-99	18-	1.938~2.000	1.187~1.251	150	150,000	84~99
1 3/8	6	12	8	1.155	1.315	1.233	1.345~1.404	2.119~2.188	0.810~0.940	80	98,640	100	1,517	50-	-99	18-	2.119~2.188	1.310~1.378	150	185,000	84~99
1 1/2	6	12	8	1.405	1.581	1.492	1.470~1.531	2.300~2.375	0.902~1.036	80	119,360	100	2,003	50-	-99	18-	2.300~2.375	1.433~1.505	150	223,800	84~99
1 5/8			8			1.78	1.591~1.658	2.481~2.562	0.978~1.116	80	142,400	100	2,589	50-	-99	18-	2.481~2.562	1.556~1.632	150	267,000	84~99
1 3/4	5		8	1.90		2.08	1.716~1.785	2.662~2.750	1.054~1.196	80	166,400	100	3,258	50-	-99	18-	2.662~2.750	1.679~1.759	150	312,000	84~99
1 7/8			8			2.41	1.839~1.912	2.844~2.938	1.130~1.276	80	192,800	100	4,044	50-	-99	18-	2.844~2.938	1.802~1.886	150	361,500	84~99
2	4 1/2		8	2.50		2.77	1.964~2.039	3.025~3.125	1.175~1.388	80	221,600	100	4,958	50-	-99	18-	3.025~3.125	1.925~2.013	150	415,500	84~99
2 1/4	4 1/2		8	3.25		3.56	2.214~2.305	3.388~3.500	1.327~1.548	80	284,800	100	7,169	50-	-99	18-	3.388~3.500	2.155~2.251	150	534,000	84~99
2 1/2	4		8	4.00		4.44	2.461~2.559	3.750~3.875	1.479~1.708	80	355,200	100	9,935	50-	-99	18-	3.750~3.875	2.401~2.505	150	666,000	84~99
2 3/4	4		8	4.93		5.43	2.711~2.827	4.112~4.250	1.632~1.869	80	434,400	100	13,365	50-	-99	18-	4.112~4.250	2.647~2.759	150	814,500	84~99
3	4		8	5.97		6.51	2.961~3.081	4.475~4.625	1.815~2.060	80	520,800	100	17,479	50-	-99	18-	4.475~4.625	2.893~3.013	150	976,500	84~99
3 1/4	4		8	7.10		7.69				80	615,200	100	22,368	50-	-99	18-	4.838~5.000	3.124~3.252	150	1,153,500	84~99
3 1/2	4		8	8.33		8.96				80	716,800	100	28,067	50-	-99	18-	5.200~5.375	3.370~3.506	150	1,344,000	84~99
3 3/4	4		8	9.66		10.34				80	827,200	100	34,704	50-	-99	18-	5.562~5.750	3.616~3.760	150	1,551,000	84~99
4	4		8	11.08		11.81				80	944,800	100	42,280	50-	-99	18-	5.925~6.125	3.862~4.014	150	1,771,500	84~99

Dimension	HEAVY HEX as per ANSI/ASME B18.2.1	HEAVY HEX as per ANSI/ASME B18.2.2
Marking	'UMI' 'B7M'	'UMI' '2HM'
Tempering °F	1150 (620 °C)	1150 (620 °C)
Heating for 24Hours for the Nut °F		1000 (540 °C)
Hardness after Heating		84- HRB
Charpy Test Specimen 10X10X55		
Charpy V Notch Impact test at		
Carbon	0.38-0.48	0.4-
Manganese	0.75-1.00	-1.0
Sulfur	-0.040	-0.050
Silicon	0.15-0.35	-0.40
Chromium	0.8-1.1	
Molybdenum	0.15-0.25	
Nickle		
Vanadium		
Boron		
Copper		
Nitrogen		
Phosphorus	-0.035	-0.04
Material	Chromium-Molybdenum Steel	Medium Carbon Steel

Notes:

1. 8UN means less than 1" UNC thread and above 1" 8 TPI thread
2. Left hand side of '-' is minium value right hand side of '-' is maximam value

Eg. 0.5-0.7 min is 0.5 and max is 0.7

Eg. -0.8 max is 0.8 no minimam value

Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel

Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

	PITCH in TPI			Stress area in in²			BOLT/SCREW & STUD ASTM A320 L7 - 17									NUT ASTM A194 GR.7 - 17				
BOLT SIZE							SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE*	REDUCTION OF AREA	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
Inch	UNC	UNF	8UN	UNC	UNF	8UN	Inch	Inch	Inch	ksi	8UN lbf	ksi	ft-lbs	%	HRC	%	Inch	Inch	ksi	8UN lbf	HRC
1/4	20	28		0.0318	0.0364																
5/16	18	24		0.0524	0.0580																
3/8	16	24		0.0775	0.0878		0.360~0.388	0.669~0.688	0.226~0.268	105	8,140	125	34	50-	-35	16-	0.669~0.688	0.344~0.377	175	13,560	24-35
7/16	14	20		0.1063	0.1187					105	11,160	125	55	50-	-35	16-			175	18,600	24-35
1/2	13	20		0.1419	0.1599		0.482~0.515	0.850~0.875	0.302~0.364	105	14,900	125	83	50-	-35	16-	0.850~0.875	0.464~0.504	175	24,830	24-35
9/16	12	18		0.182	0.203					105	19,110	125	120	50-	-35	16-			175	31,850	24-35
5/8	11	18		0.226	0.256		0.605~0.642	1.031~1.062	0.378~0.444	105	23,730	125	166	50-	-35	16-	1.031~1.062	0.587~0.631	175	39,550	24-35
3/4	10	16		0.334	0.373		0.729~0.768	1.212~1.250	0.455~0.524	105	35,070	125	294	50-	-35	16-	1.212~1.250	0.710~0.758	175	58,450	24-35
7/8	9	14		0.462	0.509		0.852~0.895	1.394~1.438	0.531~0.604	105	48,510	125	475	50-	-35	16-	1.394~1.438	0.833~0.885	175	80,850	24-35
1	8	12	8	0.606	0.663	0.606	0.976~1.022	1.575~1.625	0.591~0.700	105	63,630	125	712	50-	-35	16-	1.575~1.625	0.956~1.012	175	106,100	24-35
1 1/8	7	12	8	0.763	0.856	0.790	1.098~1.149	1.756~1.812	0.658~0.780	105	82,950	125	1,044	50-	-35	16-	1.765~1.812	1.079~1.139	175	138,250	24-35
1 1/4	7	12	8	0.969	1.073	1.000	1.223~1.277	1.938~2.000	0.749~0.876	105	105,000	125	1,468	50-	-35	16-	1.938~2.000	1.187~1.251	175	175,000	24-35
1 3/8	6	12	8	1.155	1.315	1.233	1.345~1.404	2.119~2.188	0.810~0.940	105	129,465	125	1,993	50-	-35	16-	2.119~2.188	1.310~1.378	175	215,800	24-35
1 1/2	6	12	8	1.405	1.581	1.492	1.470~1.531	2.300~2.375	0.902~1.036	105	156,660	125	2,629	50-	-35	16-	2.300~2.375	1.433~1.505	175	261,100	24-35
1 5/8			8			1.78	1.591~1.658	2.481~2.562	0.978~1.116	105	186,900	125	3,379	50-	-35	16-	2.481~2.562	1.556~1.632	175	311,500	24-35
1 3/4	5		8	1.90		2.08	1.716~1.785	2.662~2.750	1.054~1.196	105	218,400	125	4,276	50-	-35	16-	2.662~2.750	1.679~1.759	175	364,000	24-35
1 7/8			8			2.41	1.839~1.912	2.844~2.938	1.130~1.276	105	253,050	125	5,308	50-	-35	16-	2.844~2.938	1.802~1.886	175	421,800	24-35
2	4 1/2		8	2.50		2.77	1.964~2.039	3.025~3.125	1.175~1.388	105	290,850	125	6,508	50-	-35	16-	3.025~3.125	1.925~2.013	175	484,800	24-35
2 1/4	4 1/2		8	3.25		3.56	2.214~2.305	3.388~3.500	1.327~1.548	105	373,800	125	9,409	50-	-35	16-	3.388~3.500	2.155~2.251	175	623,000	24-35
2 1/2	4		8	4.00		4.44	2.461~2.559	3.750~3.875	1.479~1.708	105	466,200	125	13,039	50-	-35	16-	3.750~3.875	2.401~2.505	175	777,000	24-35
2 3/4	4		8	4.93		5.43											4.112~4.250	2.647~2.759	175	950,300	24-35
3	4		8	5.97		6.51											4.475~4.625	2.893~3.013	175	1,139,300	24-35
3 1/4	4		8	7.10		7.69											4.838~5.000	3.124~3.252	175	1,345,800	24-35
3 1/2	4		8	8.33		8.96											5.200~5.375	3.370~3.506	175	1,568,000	24-35
3 3/4	4		8	9.66		10.34											5.562~5.750	3.616~3.760	175	1,809,500	24-35
4	4		8	11.08		11.81											5.925~6.125	3.862~4.014	175	2,066,800	24-35
Dimension							HEAVY HEX as per ANSI/ASME B18.2.1										HEAVY HEX as per ANSI/ASME B18.2.2				
Marking							'UMI' 'L7'										'UMI' '7L'				
Tempering °F							1100 (593 °C)										1100 (595 °C)				
Heating for 24Hours for the Nut °F																	1100 (590 °C)				
Hardness after Heating																	94- HRb				
Charpy Test Specimen 10X10X55							27 J min (Avg)										27 J min (Avg)				
Charpy V Notch Impact test at							–101 °C Temp										–101 °C Temp				
Carbon							0.38-0.48										0.37-0.49				
Manganese							0.75-1.0										0.65-1.10				
Sulfur							-0.04										0.04				
Silicon							0.15-0.35										0.15-0.35				
Chromium							0.80-1.1										0.8-1.1				
Molybdenum							0.15-0.25										0.15-0.25				
Nickle																					
Vanadium																					
Boron																					
Copper																					
Nitrogen																					
Phosphorus							-0.035										-0.035				
Material							Chromium-Molybdenum Steel										AISI 4140/4142/4145				

Notes:

1. 8UN means less than 1" UNC thread and above 1" 8 TPI thread
2. Left hand side of '-' is minium value right hand side of '-' is maximam value

Eg. 0.5-0.7 min is 0.5 and max is 0.7

Eg. -0.8 max is 0.8 no minimam value

Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel

Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

	PITCH in TPI			Stress area in in²			BOLT/SCREW & STUD ASTM A320 L7M -17									NUT ASTM A194 GR.7M -17				
BOLT SIZE							SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE*	REDUCTION OF AREA	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
Inch	UNC	UNF	8UN	UNC	UNF	8UN	Inch	Inch	Inch	ksi	8UN lbf	ksi	ft-lbs	%	HRB	%	Inch	Inch	ksi	8UN lbf	HRB
1/4	20	28		0.0318	0.0364																
5/16	18	24		0.0524	0.0580																
3/8	16	24		0.0775	0.0878		0.360~0.388	0.669~0.688	0.226~0.268	80	6,200	100	26	50-	-99	18-	0.669~0.688	0.341~0.377	150	11,630	84~99
7/16	14	20		0.1063	0.1187					80	8,500	100	42	50-	-99	18-			150	15,950	84~99
1/2	13	20		0.1419	0.1599		0.482~0.515	0.850~0.875	0.302~0.364	80	11,350	100	64	50-	-99	18-	0.850~0.875	0.464~0.504	150	21,290	84~99
9/16	12	18		0.182	0.203					80	14,560	100	92	50-	-99	18-			150	27,300	84~99
5/8	11	18		0.226	0.256		0.605~0.642	1.031~1.062	0.378~0.444	80	18,080	100	126	50-	-99	18-	1.031~1.062	0.587~0.631	150	33,900	84~99
3/4	10	16		0.334	0.373		0.729~0.768	1.212~1.250	0.455~0.524	80	26,720	100	224	50-	-99	18-	1.212~1.250	0.710~0.758	150	50,100	84~99
7/8	9	14		0.462	0.509		0.852~0.895	1.394~1.438	0.531~0.604	80	36,960	100	362	50-	-99	18-	1.394~1.438	0.833~0.885	150	69,300	84~99
1	8	12	8	0.606	0.663	0.606	0.976~1.022	1.575~1.625	0.591~0.700	80	48,480	100	542	50-	-99	18-	1.575~1.625	0.956~1.012	150	90,900	84~99
1 1/8	7	12	8	0.763	0.856	0.790	1.098~1.149	1.756~1.812	0.658~0.780	80	63,200	100	795	50-	-99	18-	1.756~1.812	1.079~1.139	150	118,500	84~99
1 1/4	7	12	8	0.969	1.073	1.000	1.223~1.277	1.938~2.000	0.749~0.876	80	80,000	100	1,119	50-	-99	18-	1.938~2.000	1.187~1.251	150	150,000	84~99
1 3/8	6	12	8	1.155	1.315	1.233	1.345~1.404	2.119~2.188	0.810~0.940	80	98,640	100	1,517	50-	-99	18-	2.119~2.188	1.310~1.378	150	185,000	84~99
1 1/2	6	12	8	1.405	1.581	1.492	1.470~1.531	2.300~2.375	0.902~1.036	80	119,360	100	2,003	50-	-99	18-	2.300~2.375	1.433~1.505	150	223,800	84~99
1 5/8			8			1.78	1.591~1.658	2.481~2.562	0.978~1.116	80	142,400	100	2,589	50-	-99	18-	2.481~2.562	1.556~1.632	150	267,000	84~99
1 3/4	5		8	1.90		2.08	1.716~1.785	2.662~2.750	1.054~1.196	80	166,400	100	3,258	50-	-99	18-	2.662~2.750	1.679~1.759	150	312,000	84~99
1 7/8			8			2.41	1.839~1.912	2.844~2.938	1.130~1.276	80	192,800	100	4,044	50-	-99	18-	2.844~2.938	1.802~1.886	150	361,500	84~99
2	4 1/2		8	2.50		2.77	1.964~2.039	3.025~3.125	1.175~1.388	80	221,600	100	4,958	50-	-99	18-	3.025~3.125	1.925~2.013	150	415,500	84~99
2 1/4	4 1/2		8	3.25		3.56	2.214~2.305	3.388~3.500	1.327~1.548	80	284,800	100	7,169	50-	-99	18-	3.388~3.500	2.155~2.251	150	534,000	84~99
2 1/2	4		8	4.00		4.44	2.461~2.559	3.750~3.875	1.479~1.708	80	355,200	100	9,935	50-	-99	18-	3.750~3.875	2.401~2.505	150	666,000	84~99
2 3/4	4		8	4.93		5.43											4.112~4.250	2.647~2.759	150	814,500	84~99
3	4		8	5.97		6.51											4.475~4.625	2.893~3.013	150	976,500	84~99
3 1/4	4		8	7.10		7.69											4.838~5.000	3.124~3.252	150	1,153,500	84~99
3 1/2	4		8	8.33		8.96											5.200~5.375	3.370~3.506	150	1,344,000	84~99
3 3/4	4		8	9.66		10.34											5.562~5.750	3.616~3.760	150	1,551,000	84~99
4	4		8	11.08		11.81											5.925~6.125	3.862~4.014	150	1,771,500	84~99
Dimension							HEAVY HEX as per ANSI/ASME B18.2.1										HEAVY HEX as per ANSI/ASME B18.2.2				
Marking							'UMI' 'L7M'										'UMI '7ML'				
Tempering °F							1150 (620 °C)										1150 (620 °C)				
Heating for 24Hours for the Nut °F																	1100 (590 °C)				
Hardness after Heating																	84- HRb				
Charpy Test Specimen 10X10X55							27 J min (Avg)										27 J min (Avg)				
Charpy V Notch Impact test at							–73 °C Temp										–73 °C Temp				
Carbon							0.38-0.48										0.37-0.49				
Manganese							0.75-1.0										0.65-1.10				
Sulfur							-0.04										0.04				
Silicon							0.15-0.35										0.15-0.35				
Chromium							0.80-1.1										0.8-1.1				
Molybdenum							0.15-0.25										0.15-0.25				
Nickle							-														
Vanadium																					
Boron																					
Copper																					
Nitrogen																					
Phosphorus							-0.035										-0.035				
Material							Chromium-Molybdenum Steel										AISI 4140/4142/4145				

Notes:

1. 8UN means less than 1" UNC thread and above 1" 8 TPI thread
2. Left hand side of '-' is minium value right hand side of '-' is maximam value

Eg. 0.5-0.7 min is 0.5 and max is 0.7

Eg. -0.8 max is 0.8 no minimam value

Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel

Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

	PITCH in TPI			Stress area in in²			BOLT/SCREW & STUD ASTM A193 B16 - 17									NUT ASTM A194 GR.7 - 17				
BOLT SIZE							SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE*	REDUCTION OF AREA	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
Inch	UNC	UNF	8UN	UNC	UNF	8UN	Inch	Inch	Inch	ksi	8UN lbf	ksi	ft-lbs	%	HRC	%	Inch	Inch	ksi	8UN lbf	HRC
1/4	20	28		0.0318	0.0364																
5/16	18	24		0.0524	0.0580																
3/8	16	24		0.0775	0.0878		0.360~0.388	0.669~0.688	0.226~0.268	105	8,140	125	34	50-	-35	18-	0.669~0.688	0.344~0.377	175	13,560	24-35
7/16	14	20		0.1063	0.1187					105	11,160	125	55	50-	-35	18-			175	18,600	24-35
1/2	13	20		0.1419	0.1599		0.482~0.515	0.850~0.875	0.302~0.364	105	14,900	125	83	50-	-35	18-	0.850~0.875	0.464~0.504	175	24,830	24-35
9/16	12	18		0.182	0.203					105	19,110	125	120	50-	-35	18-			175	31,850	24-35
5/8	11	18		0.226	0.256		0.605~0.642	1.031~1.062	0.378~0.444	105	23,730	125	166	50-	-35	18-	1.031~1.062	0.587~0.631	175	39,550	24-35
3/4	10	16		0.334	0.373		0.729~0.768	1.212~1.250	0.455~0.524	105	35,070	125	294	50-	-35	18-	1.212~1.250	0.710~0.758	175	58,450	24-35
7/8	9	14		0.462	0.509		0.852~0.895	1.394~1.438	0.531~0.604	105	48,510	125	475	50-	-35	18-	1.394~1.438	0.833~0.885	175	80,850	24-35
1	8	12	8	0.606	0.663	0.606	0.976~1.022	1.575~1.625	0.591~0.700	105	63,630	125	712	50-	-35	18-	1.575~1.625	0.956~1.012	175	106,100	24-35
1 1/8	7	12	8	0.763	0.856	0.790	1.098~1.149	1.756~1.812	0.658~0.780	105	82,950	125	1,044	50-	-35	18-	1.765~1.812	1.079~1.139	175	138,250	24-35
1 1/4	7	12	8	0.969	1.073	1.000	1.223~1.277	1.938~2.000	0.749~0.876	105	105,000	125	1,468	50-	-35	18-	1.938~2.000	1.187~1.251	175	175,000	24-35
1 3/8	6	12	8	1.155	1.315	1.233	1.345~1.404	2.119~2.188	0.810~0.940	105	129,470	125	1,992	50-	-35	18-	2.119~2.188	1.310~1.378	175	215,800	24-35
1 1/2	6	12	8	1.405	1.581	1.492	1.470~1.531	2.300~2.375	0.902~1.036	105	156,660	125	2,629	50-	-35	18-	2.300~2.375	1.433~1.505	175	261,100	24-35
1 5/8			8			1.78	1.591~1.658	2.481~2.562	0.978~1.116	105	186,900	125	3,398	50-	-35	18-	2.481~2.562	1.556~1.632	175	311,500	24-35
1 3/4	5		8	1.90		2.08	1.716~1.785	2.662~2.750	1.054~1.196	105	218,400	125	4,276	50-	-35	18-	2.662~2.750	1.679~1.759	175	364,000	24-35
1 7/8			8			2.41	1.839~1.912	2.844~2.938	1.130~1.276	105	253,050	125	5,308	50-	-35	18-	2.844~2.938	1.802~1.886	175	421,800	24-35
2	4 1/2		8	2.50		2.77	1.964~2.039	3.025~3.125	1.175~1.388	105	290,850	125	6,508	50-	-35	18-	3.025~3.125	1.925~2.013	175	484,800	24-35
2 1/4	4 1/2		8	3.25		3.56	2.214~2.305	3.388~3.500	1.327~1.548	105	373,800	125	9,409	50-	-35	18-	3.388~3.500	2.155~2.251	175	623,000	24-35
2 1/2	4		8	4.00		4.44	2.461~2.559	3.750~3.875	1.479~1.708	105	466,200	125	13,039	50-	-35	18-	3.750~3.875	2.401~2.505	175	777,000	24-35
2 3/4	4		8	4.93		5.43	2.711~2.827	4.112~4.250	1.632~1.869	95	515,850	110	15,870	45-	-35	17-	4.112~4.250	2.647~2.759	175	950,300	24-35
3	4		8	5.97		6.51	2.961~3.081	4.475~4.625	1.815~2.060	95	618,450	110	20,757	45-	-35	17-	4.475~4.625	2.893~3.013	175	1,139,300	24-35
3 1/4	4		8	7.10		7.69				95	730,550	110	26,562	45-	-35	17-	4.838~5.000	3.124~3.252	175	1,345,800	24-35
3 1/2	4		8	8.33		8.96				95	851,200	110	33,330	45-	-35	17-	5.200~5.375	3.370~3.506	175	1,568,000	24-35
3 3/4	4		8	9.66		10.34				95	982,300	110	41,211	45-	-35	17-	5.562~5.750	3.616~3.760	175	1,809,500	24-35
4	4		8	11.08		11.81				95	1,121,950	110	50,207	45-	-35	17-	5.925~6.125	3.862~4.014	175	2,066,800	24-35
Dimension							HEAVY HEX as per ANSI/ASME B18.2.1										HEAVY HEX as per ANSI/ASME B18.2.2				
Marking							'UMI' 'B16'										'UMI' '7L'				
Tempering °F							1200 (650 °C)										1100 (595 °C)				
Heating for 24Hours for the Nut °F																	1100 (590 °C)				
Hardness after Heating																	94- HRb				
Charpy Test Specimen 10X10X55																	27 J min (Avg)				
Charpy V Notch Impact test at																	–101 °C Temp				
Carbon							0.36-0.47										0.37-0.49				
Manganese							0.45-0.70										0.65-1.10				
Sulfur							-0.04										0.04				
Silicon							0.15-0.35										0.15-0.35				
Chromium							0.80-1.15										0.8-1.1				
Molybdenum							0.50-0.65										0.15-0.25				
Nickle																					
Vanadium							0.25-0.35														
Boron																					
Copper																					
Nitrogen																					
Phosphorus							-0.035										-0.035				
Material							Chromium-Molybdenum Vanadium Steel										AISI 4140/4142/4145				

Notes:

1. 8UN means less than 1" UNC thread and above 1" 8 TPI thread
2. Left hand side of '-' is minium value right hand side of '-' is maximam value

Eg. 0.5-0.7 min is 0.5 and max is 0.7

Eg. -0.8 max is 0.8 no minimam value

Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel

\# Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

			BOLT/SCREW BS EN14399-3 GR. 10.9 -15									NUT BS EN14399-3 Gr. 10 -15					ASSEMBLY K-FACTOR	
BOLT SIZE	PITCH	STRESS AREA	SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	TENSILE STRESS	TORQUE*	HARDNESS	ELONGATION	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS	K1 CLASS	K2 CLASS
mm	mm	mm²	mm	mm	mm	Mpa	KN	Mpa	N-m	HRC	%	mm	mm	Mpa	KN	HRC	K VALUE	K VALUE
M6	1	20.1																
M8	1.25	36.6																
M10	1.5	58.0																
M12	1.75	84.3	11.30~12.70	21.16~22.00	7.05~7.95	830	70.0	1,040	112.7	32-39	9-	21.16~22.00	10.37~10.80	1160	97.8	26-36		
M14	2.0	115.0	13.30~14.70	23.16~24.00	8.35~9.25	830	95.5	1,040	179.4	32-39	9-	23.16~24.00	12.10~12.80	1160	133.4	26-36		
M16	2.0	157.0	15.30~16.70	26.16~27.00	9.25~10.75	830	130.0	1,040	279.9	32-39	9-	26.16~27.00	14.10~14.80	1160	182.1	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M18	2.5	192.0	17.30~18.70	29.16~30.00	10.60~12.40	830	159.0	1,040	385.1	32-39	9-	29.16~30.00	15.10~15.80	1160	222.7	26-36		
M20	2.5	245.0	19.16~20.84	31.00~32.00	11.60~13.40	830	203.0	1,040	546.0	32-39	9-	31.00~32.00	16.90~18.00	1160	284.2	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M22	2.5	303.0	21.16~22.84	35.00~36.00	13.10~14.90	830	252.0	1,040	742.8	32-39	9-	35.00~36.00	18.10~19.40	1160	351.2	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M24	3.0	353.0	23.16~24.84	40.00~41.00	14.10~15.90	830	293.0	1,040	944.0	32-39	9-	40.00~41.00	20.20~21.50	1160	409.5	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M27	3.0	459.0	26.16~27.84	45.00~46.00	16.10~17.90	830	381.0	1,040	1,381	32-39	9-	45.00~46.00	22.50~23.80	1160	532.4	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M30	3.5	561.0	29.16~30.84	49.00~50.00	17.65~19.75	830	466.0	1,040	1,875	32-39	9-	49.00~50.00	24.30~25.60	1160	650.8	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M33	3.5	694.0				830	576.0	1,040	2,552	32-39	9-			1160	805.0	26-36		
M36	4.0	817.0	35.00~37.00	58.80~60.00	21.45~23.55	830	678.0	1,040	3,277	32-39	9-	58.80~60.00	29.40~31.00	1160	947.7	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M39	4.0	976.0																
M42	4.5	1,120.0																
M45	4.5	1,310.0																
M48	5.0	1,470.0																
M52	5.0	1,760.0																
M56	5.5	2,030.0																
M60	5.5	2,360.0																
M64	6.0	2,680.0																
M68	6.0	3,060.0																
M72	6.0	3,460.0																
M76	6.0	3,890.0																
M80	6.0	4,340.0																
M85	6.0	4,950.0																
M90	6.0	5,590.0																
M95	6.0	6,270.0																
M100	6.0	6,990.0																
Dimensions			HSFG HEX as per EN 14399-3									HSFG HEX as per EN 14399-3						
Markings			'UMI' '10.9HR'									'UMI' '10HR'						
Carbon			0.25-0.55									-0.58						
Manganese												0.30-						
Sulfur			-0.025									-0.058						
Silicon																		
Chromium																		
Molybdenum																		
Nickle																		
Vanadium																		
Boron			-0.003															
Copper																		
Nitrogen																		
Phosphorus			-0.025									-0.048						
Material			Carbon steel/Alloy steel quenched & tempered									Medium Carbon steel						

Notes:
Left hand side of '-' is minium value right hand side of '-' is maximam value
Eg. 0.5-0.7 min is 0.5 and max is 0.7
Eg. -0.8 max is 0.8 no minimam value
Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel
K0 - NPD No Performance determined
K1 - Range of individual test value ki
K2 - Mean test value km coefficient of variation of k-factor Vk

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

			BOLT/SCREW BS EN14399-4 GR. 10.9 -15									NUT BS EN14399-4 Gr. 10 -15					ASSEMBLY K-FACTOR	
BOLT SIZE	PITCH	STRESS AREA	SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	TENSILE STRESS	TORQUE*	HARDNESS	ELONGATION	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS	K1 CLASS	K2 CLASS
mm	mm	mm^2	mm	mm	mm	Mpa	KN	Mpa	N-m	HRC	%	mm	mm	Mpa	KN	HRC	K VALUE	K VALUE
M6	1	20.1																
M8	1.25	36.6																
M10	1.5	58.0																
M12	1.75	84.3	11.30~12.70	21.16~22.00	7.55~8.45	830	174.3	1,040	112.7	32-39	9-	21.16~22.00	9.64~10.00	1050	88.5	26-36		
M14	2.0	115.0				830	174.3	1,040	179.4	32-39	9-			1050	120.8	26-36		
M16	2.0	157.0	15.30~16.70	26.16~27.00	9.25~10.75	830	130.0	1,040	279.9	32-39	9-	26.16~27.00	12.30~13.00	1050	164.9	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M18	2.5	192.0				830	159.0	1,040	385.1	32-39	9-			1060	203.5	26-36		
M20	2.5	245.0	19.16~20.84	31.00~32.00	12.10~13.90	830	203.0	1,040	546.0	32-39	9-	31.00~32.00	14.90~16.00	1060	259.7	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M22	2.5	303.0	21.16~22.84	35.00~36.00	13.10~14.90	830	252.0	1,040	742.8	32-39	9-	35.00~36.00	16.90~18.00	1060	321.2	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M24	3.0	353.0	23.16~24.84	40.00~41.00	14.10~15.90	830	174.3	1,040	944.0	32-39	9-	40.00~41.00	18.70~20.00	1060	374.2	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M27	3.0	459.0	26.16~27.84	45.00~46.00	16.10~17.90	830	174.3	1,040	1,381	32-39	9-	45.00~46.00	20.70~22.00	1060	486.5	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M30	3.5	561.0	29.16~30.84	49.00~50.00	17.95~20.05	830	466.0	1,040	1,875	32-39	9-	49.00~50.00	22.70~24.00	1060	594.7	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M33	3.5	694.0				830	174.3	1,040	2,552	32-39	9-			1060	735.6	26-36		
M36	4.0	817.0	35.00~37.00	58.80~60.00	21.95~24.05	830	678.0	1,040	3,277	32-39	9-	58.80~60.00	27.70~29.00	1060	866.0	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M39	4.0	976.0																
M42	4.5	1,120.0																
M45	4.5	1,310.0																
M48	5.0	1,470.0																
M52	5.0	1,760.0																
M56	5.5	2,030.0																
M60	5.5	2,360.0																
M64	6.0	2,680.0																
M68	6.0	3,060.0																
M72	6.0	3,460.0																
M76	6.0	3,890.0																
M80	6.0	4,340.0																
M85	6.0	4,950.0																
M90	6.0	5,590.0																
M95	6.0	6,270.0																
M100	6.0	6,990.0																
Dimensions			HSFG HEX as per EN 14399-4									HSFG HEX as per EN 14399-4						
Markings			'UMI' '10.9HV'									'UMI' '10HV'						
Carbon			0.25-0.55									-0.58						
Manganese												0.30-						
Sulfur			-0.025									-0.058						
Silicon																		
Chromium																		
Molybdenum																		
Nickle																		
Vanadium																		
Boron			-0.003															
Copper																		
Nitrogen																		
Phosphorus			-0.025									-0.048						
Material			Carbon steel/Alloy steel quenched & tempered									Medium Carbon steel						

Notes:

Left hand side of '-' is minium value right hand side of '-' is maximam value

Eg. 0.5-0.7 min is 0.5 and max is 0.7

Eg. -0.8 max is 0.8 no minimam value

Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel

K0 - NPD No Performance determined

K1 - Range of individual test value ki

K2 - Mean test value km coefficient of variation of k-factor Vk

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

			BOLT/SCREW BS EN14399-4 GR. 10.9 -15									NUT BS EN14399-4 Gr. 10 -15					ASSEMBLY K-FACTOR	
BOLT SIZE	PITCH	STRESS AREA	SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	TENSILE STRESS	TORQUE*	HARDNESS	ELONGATION	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS	K1 CLASS	K2 CLASS
mm	mm	mm²	mm	mm	mm	Mpa	KN	Mpa	N-m	HRC	%	mm	mm	Mpa	KN	HRC	K VALUE	K VALUE
M6	1	20.1																
M8	1.25	36.6																
M10	1.5	58.0																
M12	1.75	84.3	11.30~12.70	21.16~22.00	7.55~8.45	830	174.3	1,040	112.7	32-39	9-	21.16~22.00	9.64~10.00	1050	88.5	26-36		
M14	2.0	115.0				830	174.3	1,040	179.4	32-39	9-			1050	120.8	26-36		
M16	2.0	157.0	15.30~16.70	26.16~27.00	9.25~10.75	830	130.0	1,040	279.9	32-39	9-	26.16~27.00	12.30~13.00	1050	164.9	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M18	2.5	192.0				830	159.0	1,040	385.1	32-39	9-			1060	203.5	26-36		
M20	2.5	245.0	19.16~20.84	31.00~32.00	12.10~13.90	830	203.0	1,040	546.0	32-39	9-	31.00~32.00	14.90~16.00	1060	259.7	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M22	2.5	303.0	21.16~22.84	35.00~36.00	13.10~14.90	830	252.0	1,040	742.8	32-39	9-	35.00~36.00	16.90~18.00	1060	321.2	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M24	3.0	353.0	23.16~24.84	40.00~41.00	14.10~15.90	830	174.3	1,040	944.0	32-39	9-	40.00~41.00	18.70~20.00	1060	374.2	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M27	3.0	459.0	26.16~27.84	45.00~46.00	16.10~17.90	830	174.3	1,040	1,381	32-39	9-	45.00~46.00	20.70~22.00	1060	486.5	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M30	3.5	561.0	29.16~30.84	49.00~50.00	17.95~20.05	830	466.0	1,040	1,875	32-39	9-	49.00~50.00	22.70~24.00	1060	594.7	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M33	3.5	694.0				830	174.3	1,040	2,552	32-39	9-			1060	735.6	26-36		
M36	4.0	817.0	35.00~37.00	58.80~60.00	21.95~24.05	830	678.0	1,040	3,277	32-39	9-	58.80~60.00	27.70~29.00	1060	866.0	26-36	0.10 ~ 0.16	0.10 ~ 0.23
M39	4.0	976.0																
M42	4.5	1,120.0																
M45	4.5	1,310.0																
M48	5.0	1,470.0																
M52	5.0	1,760.0																
M56	5.5	2,030.0																
M60	5.5	2,360.0																
M64	6.0	2,680.0																
M68	6.0	3,060.0																
M72	6.0	3,460.0																
M76	6.0	3,890.0																
M80	6.0	4,340.0																
M85	6.0	4,950.0																
M90	6.0	5,590.0																
M95	6.0	6,270.0																
M100	6.0	6,990.0																
Dimensions			HSFG HEX as per EN 14399-4									HSFG HEX as per EN 14399-4						
Markings			'UMI' '10.9HV'									'UMI' '10HV'						
Carbon			0.25-0.55									-0.58						
Manganese												0.30-						
Sulfur			-0.025									-0.058						
Silicon																		
Chromium																		
Molybdenum																		
Nickle																		
Vanadium																		
Boron			-0.003															
Copper																		
Nitrogen																		
Phosphorus			-0.025									-0.048						
Material			Carbon steel/Alloy steel quenched & tempered									Medium Carbon steel						

Notes:

Left hand side of '-' is minium value right hand side of '-' is maximam value

Eg. 0.5-0.7 min is 0.5 and max is 0.7

Eg. -0.8 max is 0.8 no minimam value

Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel

K0 - NPD No Performance determined

K1 - Range of individual test value ki

K2 - Mean test value km coefficient of variation of k-factor Vk

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

			BOLT/SCREW ASTM F3125 A490M-1 - 15									NUT ASTM A563M CL 10S - 07 (2013 Reapproved)						
BOLT SIZE	PITCH	STRESS AREA	SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	TENSILE STRESS	TORQUE*	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS		PROOF LOAD		HARDNESS
mm	mm	mm²	mm	mm	mm	Mpa	KN	Mpa	N-m	HRC	%	mm	mm	Mpa		KN		HRC
														PLAIN	HDG	PLAIN	HDG	
M6	1	20.1																
M8	1.25	36.6																
M10	1.5	58.0																
M12	1.75	84.3	11.3~12.7	20.16~21.00	7.05~7.95	830	70.0	1040-1210	112.7	33-38	14-	20.16~21.00	11.90~12.30	1245	1165	105	98.2	26~38
M14	2.0	115.0				830	95.5	1040-1210	179.4	33-38	14-	23.16~24.00	13.60~14.30	1245	1165	143	134	26~38
M16	2.0	157.0	15.30~16.70	26.16~27.00	9.25~10.75	830	130.0	1040-1210	279.9	33-38	14-	26.16~27.00	16.40~17.10	1245	1165	195	183	26~38
M18	2.5	192.0				830	159.4	1040-1210	385.1	33-38	14-			1245	1165	239	224	26~38
M20	2.5	245.0	19.16~20.84	33.00~34.00	11.60~13.40	830	203.0	1040-1210	546.0	33-38	14-	33.00~34.00	19.40~20.70	1245	1165	305	285	26~38
M22	2.5	303.0	21.16~22.84	35.00~36.00	13.10~14.90	830	251.0	1040-1210	742.8	33-38	14-	35.00~36.00	22.30~23.60	1245	1165	377	353	26~38
M24	3.0	353.0	23.16~24.84	40.00~41.00	14.10~15.90	830	293.0	1040-1210	944.0	33-38	14-	40.00~41.00	22.90~24.20	1245	1165	439	411	26~38
M27	3.0	459.0	26.16~27.84	45.00~46.00	16.1~17.90	830	381.0	1040-1210	1,381	33-38	14-	45.00~46.00	26.30~27.60	1245	1165	571	535	26~38
M30	3.5	561.0	29.16~30.84	49.00~50.00	17.65~19.75	830	466.0	1040-1210	1,875	33-38	14-	49.00~50.00	29.10~30.70	1245	1165	698	654	26~38
M33	3.5	694.0				830	576.0	1040-1210	2,552	33-38	14-			1245	1165	864	809	26~38
M36	4.0	817.0	35.00~37.00	58.80~60.00	21.45~23.55	830	678.0	1040-1210	3,277	33-38	14-	58.80~60.00	35.00~36.60	1245	1165	1,020	952	26~38
M39	4.0	976.0																
M42	4.5	1,120.0																
M45	4.5	1,310.0																
M48	5.0	1,470.0																
M52	5.0	1,760.0																
M56	5.5	2,030.0																
M60	5.5	2,360.0																
M64	6.0	2,680.0																
M68	6.0	3,060.0																
M72	6.0	3,460.0																
M76	6.0	3,890.0																
M80	6.0	4,340.0																
M85	6.0	4,950.0																
M90	6.0	5,590.0																
M95	6.0	6,270.0																
M100	6.0	6,990.0																

Dimensions	HEAVY HEX as per ANSI/ASME B18.2.6M	HEAVY HEX as per ANSI/ASME B18.2.4.6M
Markings	'UMI' 'A490M'	'UMI' '10S'
Carbon	0.30-0.48/0.35-.53	-0.55
Manganese	0.6 -	0.30-
Sulfur	-0.04	-0.05
Silicon	Not Specified	
Chromium		
Molybdenum		
Nickle		
Vanadium		
Boron		
Copper		
Nitrogen		
Phosphorus	-0.035	-0.04
Material	Plain Carbon/Alloy Steel	Plain Carbon Steel or Alloy Steel

Notes:
Left hand side of '-' is minium value right hand side of '-' is maximam value
Eg. 0.5-0.7 min is 0.5 and max is 0.7
Eg. -0.8 max is 0.8 no minimam value
Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel
# Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

			BOLT/SCREW & STUD ISO 4014 / 4017 ISO 898-1 -13 Gr. 10.9										NUT ISO 4032 ISO 898-2 - 12 Gr. 10				
BOLT SIZE	PITCH	STRESS AREA	SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	TENSILE STRESS	TORQUE*	HARDNESS	ELONGATION	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
mm	mm	mm^2	mm	mm	mm	Mpa	KN	Mpa	N-m	HRC	%	mm	mm	Mpa	KN	HRC
			A /B Min~Max	A /B Min~Max	A /B Min~A/B Max											
M6	1	20.1	5.82/5.70~6.00	9.78/9.64~10.00	3.85/3.76~4.15/4.24	830	16.7	1,040	13.4	32-39	9-	9.78~10.00	4.90~5.20	1040	20.9	26-36
M8	1.25	36.6	7.78/7.64~8.00	12.73/12.57~13.00	5.15/5.06~5.45/5.54	830	30.4	1,040	32.6	32-39	9-	12.73~13.00	6.44~6.80	1040	38.1	26-36
M10	1.5	58.0	9.78/9.64~10.00	15.73/15.57~16.00	6.22/6.11~6.58/6.69	830	48.1	1,040	65.5	32-39	9-	15.73~16.00	8.04~8.40	1040	60.3	26-36
M12	1.75	84.3	11.73/11.57~12.00	17.73/17.57~18.00	7.32/7.21~7.68/7.79	830	70.0	1,040	112.7	32-39	9-	17.73~18.00	10.37~10.80	1050	88.5	26-36
M14	2.0	115.0	13.73/13.57~14	20.67/20.16~21.00	8.62/8.51~8.98/9.09	830	95.5	1,040	179.4	32-39	9-	20.67~21.00	12.10~12.80	1050	120.8	26-36
M16	2.0	157.0	15.73/15.57~16.00	23.67/23.16~24.00	9.82/9.71~10.18/10.29	830	130.0	1,040	279.9	32-39	9-	23.67~24.00	14.10~14.80	1050	164.9	26-36
M18	2.5	192.0	17.73/17.57~18	26.67/26.16~27.00	11.285/11.15~11.715/11.85	830	159.0	1,040	385.1	32-39	9-	26.16~27.00	15.10~15.80	1060	203.5	26-36
M20	2.5	245.0	19.67/19.48~20.00	29.67/29.16~30.00	12.285/12.15~12.715/12.85	830	203.0	1,040	546.0	32-39	9-	29.16~30.00	16.90~18.00	1060	259.7	26-36
M22	2.5	303.0	21.67/21.48~22.00	33.38/33.00~34.00	13.785/13.65~14.215/14.35	830	252.0	1,040	742.8	32-39	9-	33.00~34.00	18.10~19.40	1060	321.2	26-36
M24	3.0	353.0	23.67/23.48~24.00	35.38/35.00~36.00	14.785/14.65~15.215/15.35	830	293.0	1,040	944.0	32-39	9-	35.00~36.00	20.20~21.50	1060	374.2	26-36
M27	3.0	459.0	N/26.48~27.00	N/40.00~41.00	N/16.65~N/17.35	830	381.0	1,040	1,381	32-39	9-	40.00~41.00	22.50~23.80	1060	486.5	26-36
M30	3.5	561.0	N/29.48~30.00	N/45.00~46.00	N/18.28~N/19.12	830	466.0	1,040	1,875	32-39	9-	45.00~46.00	24.30~25.60	1060	594.7	26-36
M33	3.5	694.0	N/32.38~33	N/49.00~50.00	N/20.58~N/21.42	830	576.0	1,040	2,552	32-39	9-	49.00~50.00	27.40~28.70	1060	735.6	26-36
M36	4.0	817.0	N/35.38~36.00	N/53.80~55.00	N/22.08~N/22.92	830	678.0	1,040	3,277	32-39	9-	53.80~55.00	29.40~31.00	1060	866.0	26-36
M39	4.0	976.0	N/38.38~39.00	N/58.80~60.00	N/24.58~N/25.42	830	810.0	1,040	4,241	32-39	9-	58.80~60.00	31.80~33.40	1060	1,035	26-36
M42	4.5	1,120.0	N/41.38~42.00	N/63.1.~65.00	N/25.58~N/26.42	830	929.6	1,040	5,242	32-39	9-	63.10~65.00	32.40~34.00	1060	1,187	26-36
M45	4.5	1,310.0	N/44.38~45.00	N/68.10~70.00	N/27.58~N/28.42	830	1,087.3	1,040	6,569	32-39	9-	68.10~70.00	34.40~36.00	1060	1,389	26-36
M48	5.0	1,470.0	N/47.38~48.00	N/73.10~75.00	N/29.58~N/30.42	830	1,220.1	1,040	7,862	32-39	9-	73.10~75.00	36.40~38.00	1060	1,558	26-36
M52	5.0	1,760.0	N/51.26~52.00	N/78.10~80.00	N/32.50~N/33.50	830	1,460.8	1,040	10,198	32-39	9-	78.10~80.00	40.40~42.00	1060	1,866	26-36
M56	5.5	2,030.0	N/55.26~56.00	N/82.80~85.00	N/34.50~N/35.50	830	1,684.9	1,040	12,667	32-39	9-	82.80~85.00	43.40~45.00	1060	2,152	26-36
M60	5.5	2,360.0	N/59.26~60.00	N/87.80~90.00	N/37.50~N38.50	830	1,958.8	1,040	15,778	32-39	9-	87.80~90.00	46.40~48.00	1060	2,502	26-36
M64	6.0	2,680.0	N/63.26~64.00	N/92.80~95.00	N/39.50~N/40.50	830	2,224.4	1,040	19,112	32-39	9-	92.80~95.00	49.10~51.00	1060	2,841	26-36
M68	6.0	3,060.0				830	2,539.8	1,040	23,186	32-39	9-			1060	3,244	26-36
M72	6.0	3,460.0				830	2,871.8	1,040	27,759	32-39	9-			1060	3,668	26-36
M76	6.0	3,890.0				830	3,228.7	1,040	32,942	32-39	9-			1060	4,123	26-36
M80	6.0	4,340.0				830	3,602.2	1,040	38,688	32-39	9-			1060	4,600	26-36
M85	6.0	4,950.0				830	4,108.5	1,040	46,883	32-39	9-			1060	5,247	26-36
M90	6.0	5,590.0				830	4,639.7	1,040	56,059	32-39	9-			1060	5,925	26-36
M95	6.0	6,270.0				830	5,204.1	1,040	66,372	32-39	9-			1060	6,646	26-36
M100	6.0	6,990.0				830	5,801.7	1,040	77,888	32-39	9-			1060	7,409	26-36
Dimensions			HEX as per ISO 4014/4017									HEX as per ISO 4032				
Markings			'UMI' 'M' '10.9'									'UMI' '10'				
Carbon			0.25-0.55/0.20-0.55									-0.58				
Manganese												0.30-				
Sulfur			-0.025									-0.058				
Silicon																
Chromium																
Molybdenum																
Nickle																
Vanadium																
Boron			-0.003													
Copper																
Nitrogen																
Phosphorus			-0.025									-0.048				
Material			Carbon steel/Alloy steel quenched & tempered									Medium Carbon steel				

Notes:
Left hand side of '-' is minium value right hand side of '-' is maximam value
Eg. 0.5-0.7 min is 0.5 and max is 0.7
Eg. -0.8 max is 0.8 no minimam value
Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

	PITCH in TPI			Stress area in in²			BOLT/ ASTM F3125 A490-1 - 15									NUT ASTM A563 GR.DH 07a - (Reapproved 2014)					
BOLT SIZE							SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	TENSILE STRESS	TORQUE*	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS		PROOF LOAD UNC		HARDNESS
Inch	UNC	UNF	8UN	UNC	UNF	8UN	Inch	Inch	Inch	ksi	UNC lbf	ksi	ft-lbs	HRC	%	Inch	Inch	PLAIN	HDG	PLAIN	HDG	HRC
1/4	20	28		0.0318	0.0364																	
5/16	18	24		0.0524	0.0580																	
3/8	16	24		0.0775	0.0878																	
7/16	14	20		0.1063	0.1187																	
1/2	13	20		0.1419	0.1599		0.482 ~ 0.515	0.850 ~ 0.875	0.302 ~0.323	120	17,050	150-173	95	33-38	14-	0.850~0.875	0.464~0.504	175	150	24,830.0	21,290.0	24-38
9/16	12	18		0.182	0.203					120	21,840	150-173	137	33-38	14-			175	150	31,850.0	27,300.0	24-38
5/8	11	18		0.226	0.256		0.605 ~0.642	1.031 ~ 1.063	0.378 ~0.403	120	27,100	150-173	190	33-38	14-	1.031~1.062	0.587~0.631	175	150	39,550.0	33,900.0	24-38
3/4	10	16		0.334	0.373		0.729 ~0.768	1.212 ~1.250	0.455 ~0.483	120	40,100	150-173	336	33-38	14-	1.212~1.250	0.710~0.758	175	150	58,450.0	50,100.0	24-38
7/8	9	14		0.462	0.509		0.852 ~0.895	1.394 ~ 1.437	0.531 ~0.563	120	55,450	150-173	543	33-38	14-	1.394~1.438	0.833~0.885	175	150	80,850.0	69,300.0	24-38
1	8	12	8	0.606	0.663	0.606	0.976 ~1.022	1.575 ~1.625	0.591 ~0.627	120	72,700	150-173	814	33-38	14-	1.575~1.625	0.956~1.012	175	150	106,050.0	90,900.0	24-38
1 1/8	7	12	8	0.763	0.856	0.790	1.098 ~1.149	1.756 ~1.813	0.658 ~0.718	120	91,550	150-173	1,152	33-38	14-	1.756~1.812	1.079~1.139	175	150	133,530.0	114,450.0	24-38
1 1/4	7	12	8	0.969	1.073	1.000	1.223 ~1.277	1.938 ~2.000	0.749 ~0.813	120	116,300	150-173	1,626	33-38	14-	1.938~2.000	1.187~1.251	175	150	169,580.0	145,350.0	24-38
1 3/8	6	12	8	1.155	1.315	1.233	1.345 ~ 1.404	2.119 ~2.188	0.810 ~0.878	120	138,600	150-173	2,132	33-38	14-	2.119~2.188	1.310~1.378	175	150	202,130.0	173,250.0	24-38
1 1/2	6	12	8	1.405	1.581	1.492	1.470 ~ 1.531	2.300 ~ 2.375	0.902 ~ 0.974	120	168,600	150-173	2,829	33-38	14-	2.300~2.375	1.433~1.505	175	150	245,880.0	210,750.0	24-38
1 5/8			8			1.78																
1 3/4	5		8	1.90		2.08																
1 7/8			8			2.41																
2	4 1/2		8	2.50		2.77																
2 1/4	4 1/2		8	3.25		3.56																
2 1/2	4		8	4.00		4.44																
2 3/4	4		8	4.93		5.43																
3	4		8	5.97		6.51																
3 1/4	4		8	7.10		7.69																
3 1/2	4		8	8.33		8.96																
3 3/4	4		8	9.66		10.34																
4	4		8	11.08		11.81																
Dimension							HEAVY HEX per ANSI/ASME B18.2.6									HEAVY HEX per ANSI/ASME B18.2.2						
Marking							'UMI' 'A490'									'UMI' 'DH'						
Carbon							0.30-0.48									0.20-0.55						
Mangaenese							0.60-									0.60-						
Sulfur							-0.04									-0.05						
Silicon																						
Chromium																						
Molybdenum																						
Nickle																						
Vanadium																						
Boron																						
Copper																						
Nitrogen																						
Phosphorus							-0.035									-0.04						
Material							Plain Carbon/Alloy Steel									Plain Carbon Steel or Alloy Steel						

Notes:

1. 8UN means less than 1" UNC thread and above 1" 8 TPI thread
2. Left hand side of '-' is minium value right hand side of '-' is maximam value

Eg. 0.5-0.7 min is 0.5 and max is 0.7

Eg. -0.8 max is 0.8 no minimam value

* ALTERNATIVE ASTM A194 2H CAN BE USED

* Torque value based on 75% of proof load and finish as received steel

Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

BOLT/SCREW & STUD ISO 3506-1 A2(304): 2009																					NUT ISO 3506-2 A2(304):2009				
BOLT SIZE	PITCH	STRESS AREA	SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	TORQUE*	TENSILE STRESS	ELONGATION	PROOF STRESS	PROOF LOAD	TORQUE*	TENSILE STRESS	ELONGATION	PROOF STRESS	PROOF LOAD	TORQUE*	TENSILE STRESS	ELONGATION	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF STRESS	PROOF STRESS
mm	mm	mm²	mm	mm	mm	Mpa	KN	N-m	Mpa	%	Mpa	KN	N-m	Mpa	%	Mpa	KN	N-m	Mpa	%	mm	mm	Mpa	Mpa	Mpa
			A /B Min~Max	A /B Min~Max	A /B Min~A/B Max	CLASS A2-50					CLASS A2-70					CLASS A2-80							A2-50	A2-70	A2-80
M6	1	20.1	5.82/5.70~6.00	9.78/9.64~10.00	3.85/3.76~4.15/4.24	210	4.2	3.4	500	0.6 d-	450	9.0	7.3	700	0.4 d-	600	12.1	9.7	800	0.3 d-	9.78~10.00	4.90~5.20	500	700	800
M8	1.25	36.6	7.78/7.64~8.00	12.73/12.57~13.00	5.15/5.06~5.45/5.54	210	7.7	8.3	500	0.6 d-	450	16.5	17.7	700	0.4 d-	600	22.0	23.6	800	0.3 d-	12.73~13.00	6.44~6.80	500	700	800
M10	1.5	58.0	9.78/9.64~10.00	15.73/15.57~16.00	6.22/6.11~6.58/6.69	210	12.2	16.4	500	0.6 d-	450	26.1	35.0	700	0.4 d-	600	34.8	46.7	800	0.3 d-	15.73~16.00	8.04~8.40	500	700	800
M12	1.75	84.3	11.73/11.57~12.00	17.73/17.57~18.00	7.32/7.21~7.68/7.79	210	17.7	28.5	500	0.6 d-	450	37.9	61.1	700	0.4 d-	600	50.6	81.5	800	0.3 d-	17.73~18.00	10.37~10.80	500	700	800
M14	2.0	115.0	13.73/13.57~14	20.67/20.16~21.00	8.62/8.51~8.98/9.09	210	24.2	45.4	500	0.6 d-	450	51.8	97.3	700	0.4 d-	600	69.0	129.7	800	0.3 d-	20.67~21.00	12.10~12.80	500	700	800
M16	2.0	157.0	15.73/15.57~16.00	23.67/23.16~24.00	9.82/9.71~10.18/10.29	210	33.0	70.8	500	0.6 d-	450	70.7	151.8	700	0.4 d-	600	94.2	202.3	800	0.3 d-	23.67~24.00	14.10~14.80	500	700	800
M18	2.5	192.0	17.73/17.57~18	26.67/26.16~27.00	11.285/11.15~11.715/11.85	210	40.3	97.4	500	0.6 d-	450	86.4	208.8	700	0.4 d-	600	115.2	278.4	800	0.3 d-	26.16~27.00	15.10~15.80	500	700	800
M20	2.5	245.0	19.67/19.48~20.00	29.67/29.16~30.00	12.285/12.15~12.715/12.85	210	51.5	138.1	500	0.6 d-	450	110.3	296.0	700	0.4 d-	600	147.0	394.7	800	0.3 d-	29.16~30.00	16.90~18.00	500	700	800
M22	2.5	303.0	21.67/21.48~22.00	33.38/33.00~34.00	13.785/13.65~14.215/14.35	210	63.6	187.9	500	0.6 d-	450	136.4	402.7	700	0.4 d-	600	181.8	536.9	800	0.3 d-	33.00~34.00	18.10~19.40	500	700	800
M24	3.0	353.0	23.67/23.48~24.00	35.38/35.00~36.00	14.785/14.65~15.215/15.35	210	74.1	238.8	500	0.6 d-	450	158.9	511.8	700	0.4 d-	600	211.8	682.4	800	0.3 d-	35.00~36.00	20.20~21.50	500	700	800
M27	3.0	459.0	N/26.48~27.00	N/40.00~41.00	N/16.65~N/17.35	210	96.4	349.4	500	0.6 d-	450	206.6	748.7	700	0.4 d-						40.00~41.00	22.50~23.80	500	700	
M30	3.5	561.0	N/29.48~30.00	N/45.00~46.00	N/18.28~N/19.12	210	117.8	474	500	0.6 d-	450	252.5	1,017	700	0.4 d-						45.00~46.00	24.30~25.60	500	700	
M33	3.5	694.0	N/32.38~33	N/49.00~50.00	N/20.58~N/21.42	210	145.7	646	500	0.6 d-	450	312.3	1,384	700	0.4 d-						49.00~50.00	27.40~28.70	500	700	
M36	4.0	817.0	N/35.38~36.00	N/53.80~55.00	N/22.08~N/22.92	210	171.6	829	500	0.6 d-	450	367.7	1,777	700	0.4 d-						53.80~55.00	29.40~31.00	500	700	
M39	4.0	976.0	N/38.38~39.00	N/58.80~60.00	N/24.58~N/25.42	210	205.0	1,073	500	0.6 d-											58.80~60.00	31.80~33.40	500		
M42	4.5	1,120.0	N/41.38~42.00	N/63.1.~65.00	N/25.58~N/26.42	210	235.2	1,326	500	0.6 d-											63.10~65.00	32.40~34.00	500		
M45	4.5	1,310.0	N/44.38~45.00	N/68.10~70.00	N/27.58~N/28.42	210	275.1	1,662	500	0.6 d-											68.10~70.00	34.40~36.00	500		
M48	5.0	1,470.0	N/47.38~48.00	N/73.10~75.00	N/29.58~N/30.42	210	308.7	1,989	500	0.6 d-											73.10~75.00	36.40~38.00	500		
M52	5.0	1,760.0	N/51.26~52.00	N/78.10~80.00	N/32.50~N/33.50	210	369.6	2,580	500	0.6 d-											78.10~80.00	40.40~42.00	500		
M56	5.5	2,030.0	N/55.26~56.00	N/82.80~85.00	N/34.50~N/35.50	210	426.3	3,205	500	0.6 d-											82.80~85.00	43.40~45.00	500		
M60	5.5	2,360.0	N/59.26~60.00	N/87.80~90.00	N/37.50~N38.50	210	495.6	3,992	500	0.6 d-											87.80~90.00	46.40~48.00	500		
M64	6.0	2,680.0	N/63.26~64.00	N/92.80~95.00	N/39.50~N/40.50	210	562.8	4,836	500	0.6 d-											92.80~95.00	49.10~51.00	500		
M68	6.0	3,060.0				210	642.6	5,866	500	0.6 d-													500		
M72	6.0	3,460.0				210	726.6	7,023	500	0.6 d-													500		
M76	6.0	3,890.0				210	816.9	8,335	500	0.6 d-													500		
M80	6.0	4,340.0				210	911.4	9,788	500	0.6 d-													500		
M85	6.0	4,950.0				210	1,039.5	11,862	500	0.6 d-													500		
M90	6.0	5,590.0				210	1,173.9	14,184	500	0.6 d-													500		
M95	6.0	6,270.0				210	1,316.7	16,793	500	0.6 d-													500		
M100	6.0	6,990.0				210	1,467.9	19,704	500	0.6 d-													500		
Dimensions			HEX as per ISO 4014/4017:2014(Ed)																		HEX as per ISO 4032:2012(Ed)				
Markings			UMI' 'A2-50'/'UM' 'A2-70/'UM' 'A2-80'																		UMI' 'A2-50'/'UM' 'A2-70/'UM' 'A2-80'				
Carbon			-0.1 #																		-0.1 #				
Manganese			-2.0																		-2.0				
Sulfur			-0.03																		-0.03				
Silicon			-1.0																		-1.0				
Chromium			15.0-20.0																		15.0-20.0				
Molybdenum			-																		-				
Nickle			8.0-19 (If CR < 17, Ni > 12)																		8.0-19 (If CR < 17, Ni > 12)				
Vanadium																									
Boron																									
Copper			-4																		-4				
Nitrogen			-0.22																		-0.22				
Phosphorus			-0.05																		-0.05				
Material			AISI 304																		AISI 304				

Notes:

Left hand side of '-' is minium value right hand side of '-' is maximam value

Eg. 0.5-0.7 min is 0.5 and max is 0.7

Eg. -0.8 max is 0.8 no minimam value

Eg. 2.0- min is 2.0 no maximam value

If carbon is < 0.03 SS304L " Additionally be marked with an L"

* Torque value based on 75% of proof load and finish as received steel

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

BOLT/SCREW & STUD ISO 3506-1 A4(316):2009 (Ed)

HEX NUT ISO 3506-2 A4(316):2009(Ed)

BOLT SIZE	PITCH	STRESS AREA				PROOF STRESS	PROOF LOAD	TORQUE*	TENSILE STRESS	ELONGATION	PROOF STRESS	PROOF LOAD	TORQUE*	TENSILE STRESS	ELONGATION	PROOF STRESS	PROOF LOAD	TORQUE*	TENSILE STRESS	ELONGATION	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF STRESS	PROOF STRESS
mm	mm	mm²	mm	mm	mm	Mpa	KN	N-m	Mpa	%	Mpa	KN	N-m	Mpa	%	Mpa	KN	N-m	Mpa	%	mm	mm	Mpa	Mpa	Mpa
			A /B Min~Max	A /B Min~Max	A /B Min~A/B Max	CLASS A4-50					CLASS A4-70					CLASS A4-80							A4-50	A4-70	A4-80
M6	1	20.1	5.82/5.70~6.00	9.78/9.64~10.00	3.85/3.76~4.15/4.24	210	4.2	3.4	500	0.6 d-	450	9.0	7.3	700	0.4 d-	600	12.1	9.7	800	0.3 d-	9.78~10.00	4.90~5.20	500	700	800
M8	1.25	36.6	7.78/7.64~8.00	12.73/12.57~13.00	5.15/5.06~5.45/5.54	210	7.7	8.3	500	0.6 d-	450	16.5	17.7	700	0.4 d-	600	22.0	23.6	800	0.3 d-	12.73~13.00	6.44~6.80	500	700	800
M10	1.5	58.0	9.78/9.64~10.00	15.73/15.57~16.00	6.22/6.11~6.58/6.69	210	12.2	16.4	500	0.6 d-	450	26.1	35.0	700	0.4 d-	600	34.8	46.7	800	0.3 d-	15.73~16.00	8.04~8.40	500	700	800
M12	1.75	84.3	11.73/11.57~12.00	17.73/17.57~18.00	7.32/7.21~7.68/7.79	210	17.7	28.5	500	0.6 d-	450	37.9	61.1	700	0.4 d-	600	50.6	81.5	800	0.3 d-	17.73~18.00	10.37~10.80	500	700	800
M14	2.0	115.0	13.73/13.57~14	20.67/20.16~21.00	8.62/8.51~8.98/9.09	210	24.2	45.4	500	0.6 d-	450	51.8	97.3	700	0.4 d-	600	69.0	129.7	800	0.3 d-	20.67~21.00	12.10~12.80	500	700	800
M16	2.0	157.0	15.73/15.57~16.00	23.67/23.16~24.00	9.82/9.71~10.18/10.29	210	33.0	70.8	500	0.6 d-	450	70.7	151.8	700	0.4 d-	600	94.2	202.3	800	0.3 d-	23.67~24.00	14.10~14.80	500	700	800
M18	2.5	192.0	17.73/17.57~18	26.67/26.16~27.00	11.285/11.15~11.715/11.85	210	40.3	97.4	500	0.6 d-	450	86.4	208.8	700	0.4 d-	600	115.2	278.4	800	0.3 d-	26.16~27.00	15.10~15.80	500	700	800
M20	2.5	245.0	19.67/19.48~20.00	29.67/29.16~30.00	12.285/12.15~12.715/12.85	210	51.5	138.1	500	0.6 d-	450	110.3	296.0	700	0.4 d-	600	147.0	394.7	800	0.3 d-	29.16~30.00	16.90~18.00	500	700	800
M22	2.5	303.0	21.67/21.48~22.00	33.38/33.00~34.00	13.785/13.65~14.215/14.35	210	63.6	187.9	500	0.6 d-	450	136.4	402.7	700	0.4 d-	600	181.8	536.9	800	0.3 d-	33.00~34.00	18.10~19.40	500	700	800
M24	3.0	353.0	23.67/23.48~24.00	35.38/35.00~36.00	14.785/14.65~15.215/15.35	210	74.1	238.8	500	0.6 d-	450	158.9	511.8	700	0.4 d-	600	211.8	682.4	800	0.3 d-	35.00~36.00	20.20~21.50	500	700	800
M27	3.0	459.0	N/26.48~27.00	N/40.00~41.00	N/16.65~N/17.35	210	96.4	349.4	500	0.6 d-	450	206.6	748.7	700	0.4 d-						40.00~41.00	22.50~23.80	500	700	
M30	3.5	561.0	N/29.48~30.00	N/45.00~46.00	N/18.28~N/19.12	210	117.8	474	500	0.6 d-	450	252.5	1,017	700	0.4 d-						45.00~46.00	24.30~25.60	500	700	
M33	3.5	694.0	N/32.38~33	N/49.00~50.00	N/20.58~N/21.42	210	145.7	646	500	0.6 d-	450	312.3	1,384	700	0.4 d-						49.00~50.00	27.40~28.70	500	700	
M36	4.0	817.0	N/35.38~36.00	N/53.80~55.00	N/22.08~N/22.92	210	171.6	829	500	0.6 d-	450	367.7	1,777	700	0.4 d-						53.80~55.00	29.40~31.00	500	700	
M39	4.0	976.0	N/38.38~39.00	N/58.80~60.00	N/24.58~N/25.42	210	205.0	1,073	500	0.6 d-											58.80~60.00	31.80~33.40	500		
M42	4.5	1,120.0	N/41.38~42.00	N/63.1.~65.00	N/25.58~N/26.42	210	235.2	1,326	500	0.6 d-											63.10~65.00	32.40~34.00	500		
M45	4.5	1,310.0	N/44.38~45.00	N/68.10~70.00	N/27.58~N/28.42	210	275.1	1,662	500	0.6 d-											68.10~70.00	34.40~36.00	500		
M48	5.0	1,470.0	N/47.38~~48.00	N/73.10~75.00	N/29.58~N/30.42	210	308.7	1,989	500	0.6 d-											73.10~75.00	36.40~38.00	500		
M52	5.0	1,760.0	N/51.26~52.00	N/78.10~80.00	N/32.50~N/33.50	210	369.6	2,580	500	0.6 d-											78.10~80.00	40.40~42.00	500		
M56	5.5	2,030.0	N/55.26~56.00	N/82.80~85.00	N/34.50~N/35.50	210	426.3	3,205	500	0.6 d-											82.80~85.00	43.40~45.00	500		
M60	5.5	2,360.0	N/59.26~60.00	N/87.80~90.00	N/37.50~N38.50	210	495.6	3,992	500	0.6 d-											87.80~90.00	46.40~48.00	500		
M64	6.0	2,680.0	N/63.26~64.00	N/92.80~95.00	N/39.50~N/40.50	210	562.8	4,836	500	0.6 d-											92.80~95.00	49.10~51.00	500		
M68	6.0	3,060.0				210	642.6	5,866	500	0.6 d-													500		
M72	6.0	3,460.0				210	726.6	7,023	500	0.6 d-													500		
M76	6.0	3,890.0				210	816.9	8,335	500	0.6 d-													500		
M80	6.0	4,340.0				210	911.4	9,788	500	0.6 d-													500		
M85	6.0	4,950.0				210	1,039.5	11,862	500	0.6 d-													500		
M90	6.0	5,590.0				210	1,173.9	14,184	500	0.6 d-													500		
M95	6.0	6,270.0				210	1,316.7	16,793	500	0.6 d-													500		
M100	6.0	6,990.0				210	1,467.9	19,704	500	0.6 d-													500		

Dimensions	HEX as per ISO 4014/4017	HEX as per ISO 4032
Markings	UMI' 'A4-50'/'UM' 'A4-70/'UM' 'A4-80'	UMI' 'A4-50'/'UMI' 'A4-70/'UMI' 'A4-80'
Carbon	-0.08 #	-0.08 #
Manganese	-2.0	-2.0
Sulfur	-0.03	-0.03
Silicon	-1.0	-1.0
Chromium	16.0-18.5	16.0-18.5
Molybdenum	2.0-3.0	2.0-3.0
Nickle	10.0-15.0	10.0-15.0
Vanadium		
Boron		
Copper	-1	-1
Nitrogen	-0.22	-0.22
Phosphorus	-0.045	-0.045
Material	SS 316	AISI 316

Notes:
Left hand side of '-' is minium value right hand side of '-' is maximam value
Eg. 0.5-0.7 min is 0.5 and max is 0.7
Eg. -0.8 max is 0.8 no minimam value
Eg. 2.0- min is 2.0 no maximam value

If carbon is < 0.03 SS316L '' Additionally be marked with an L''
* Torque value based on 75% of proof load and finish as received steel

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

			BOLT/SCREW & STUD ASTM A193M / ASTM A320M B8-1 - 17										NUT ASTM A194M 8 -17				
BOLT SIZE	PITCH	STRESS AREA	SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE *	REDUCTION OF AREA	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
mm	mm	mm^2	mm	mm	mm	Mpa	KN	Mpa	N-m	%	HRB	%	mm	mm	Mpa	KN	HB
M6	1	20.1				205	4.1	515	3.3	50-	-96	30-			550	11.1	126~300
M8	1.25	36.6				205	7.5	515	8.1	50-	-96	30-			550	20.1	126~300
M10	1.5	58.0				205	11.9	515	16.0	50-	-96	30-			550	31.9	126~300
M12	1.75	84.3	11.73~12.00	20.67~21.00	7.24~7.76	205	17.3	515	27.8	50-	-96	30-	20.16~21.00	11.90~12.30	550	46.4	126~300
M14	2.0	115.0	13.73~14.00	23.67~24.00	8.51~9.09	205	23.6	515	44.3	50-	-96	30-	23.16~24.00	13.60~14.30	550	63.3	126~300
M16	2.0	157.0	15.73~16.00	26.67~27.00	9.68~10.32	205	32.2	515	69.1	50-	-96	30-	26.16~27.00	16.40~17.10	550	86.4	126~300
M18	2.5	192.0				205	39.4	515	95.1	50-	-96	30-			550	105.6	126~300
M20	2.5	245.0	19.67~20.00	33.00~34.00	12.12~12.88	205	50.2	515	134.9	50-	-96	30-	33.00~34.00	19.40~20.70	550	134.8	126~300
M22	2.5	303.0				205	62.1	515	183.5	50-	-96	30-	35.00~36.00	22.30~23.60	550	166.7	126~300
M24	3.0	353.0	23.67~24.00	40.00~41.00	14.56~15.44	205	72.4	515	233.2	50-	-96	30-	40.00~41.00	22.90~24.20	550	194.2	126~300
M27	3.0	459.0				205	94.1	515	341.1	50-	-96	30-	45.00~46.00	26.3~27.60	550	252.5	126~300
M30	3.5	561.0	29.67~30.00	49.00~50.00	17.92~19.48	205	115.0	515	463	50-	-96	30-	49.00~50.00	29.10~30.70	550	308.6	126~300
M33	3.5	694.0				205	142.3	515	630	50-	-96	30-			550	381.7	126~300
M36	4.0	817.0	35.61~36.00	58.80~60.00	21.72~23.38	205	167.5	515	809	50-	-96	30-	58.80~60.00	35.00~36.60	550	449.4	126~300
M39	4.0	976.0				205	200.1	515	1,048	50-	-96	30-			550	536.8	126~300
M42	4.5	1,120.0				205	229.6	515	1,295	50-	-96	30-	67.90~70.00	40.40~42.00	550	616.0	126~300
M45	4.5	1,310.0				205	268.6	515	1,622	50-	-96	30-			550	720.5	126~300
M48	5.0	1,470.0				205	301.4	515	1,942	50-	-96	30-	77.60~80.00	46.40~48.00	550	808.5	126~300
M52	5.0	1,760.0				205	360.8	515	2,519	50-	-96	30-			550	968.0	126~300
M56	5.5	2,030.0				205	416.2	515	3,129	50-	-96	30-	87.20~90.00	54.10~56.00	550	1,116.5	126~300
M60	5.5	2,360.0				205	483.8	515	3,897	50-	-96	30-			550	1,298.0	126~300
M64	6.0	2,680.0				205	549.4	515	4,720	50-	-96	30-	96.80~100.00	62.10~64.00	550	1,474.0	126~300
M68	6.0	3,060.0				205	627.3	515	5,727	50-	-96	30-			550	1,683.0	126~300
M72	6.0	3,460.0				205	709.3	515	6,856	50-	-96	30-	106.40~110.00	70.10~72.00	550	1,903.0	126~300
M76	6.0	3,890.0				205	797.5	515	8,136	50-	-96	30-			550	2,139.5	126~300
M80	6.0	4,340.0				205	889.7	515	9,555	50-	-96	30-	116.00~120.00	78.10~80.00	550	2,387.0	126~300
M85	6.0	4,950.0				205	1,014.8	515	11,580	50-	-96	30-			550	2,722.5	126~300
M90	6.0	5,590.0				205	1,146.0	515	13,846	50-	-96	30-	130.50~135.00	87.80~90.00	550	3,074.5	126~300
M95	6.0	6,270.0				205	1,285.4	515	16,393	50-	-96	30-			550	3,448.5	126~300
M100	6.0	6,990.0				205	1,433.0	515	19,237	50-	-96	30-	145.00~150.00	97.80~100.00	550	3,844.5	126~300
Dimensions			HEAVY HEX as per ANSI/ASME B18.2.3.3M										HEAVY HEX as per ANSI/ASME B18.2.4.6M				
Markings			'UMI' 'B8'										'UMI' '8'				
Heat Treatment			Carbide Solution Treated														
Carbon			-0.08										-0.08				
Manganese			-2.0										-2.0				
Sulfur			-0.03										-0.03				
Silicon			-1.0										-1.0				
Chromium			18.0-20.0										18.0-20.0				
Molybdenum																	
Nickle			8.0-11.0										8.0-11.0				
Vandium																	
Boron																	
Copper																	
Nitrogen																	
Phosphorus			-0.045										-0.045				
Material			AISI 304										AISI 304				

Notes:
Left hand side of '-' is minium value right hand side of '-' is maximam value
Eg. 0.5-0.7 min is 0.5 and max is 0.7
Eg. -0.8 max is 0.8 no minimam value
Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel
# Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

			BOLT/SCREW & STUD ASTM A193M / A320M B8-2 - 17										NUT ASTM A194M 8 - 17				
BOLT SIZE	PITCH	STRESS AREA	SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE*	REDUCTION OF AREA	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
mm	mm	mm^2	mm	mm	mm	Mpa	KN	Mpa	N-m	%	HRC	%	mm	mm	Mpa	KN	HB
M6	1	20.1				690	13.9	860	11.2	35-	-35	12-			550	11.1	126~300
M8	1.25	36.6				690	25.3	860	27.1	35-	-35	12-			550	20.1	126~300
M10	1.5	58.0				690	40.0	860	53.7	35-	-35	12-			550	31.9	126~300
M12	1.75	84.3	11.73~12.00	20.67~21.00	7.24~7.76	690	58.2	860	93.7	35-	-35	12-	20.16~21.00	11.90~12.30	550	46.4	126~300
M14	2.0	115.0	13.73~14.00	23.67~24.00	8.51~9.09	690	79.4	860	149.1	35-	-35	12-	23.16~24.00	13.60~14.30	550	63.3	126~300
M16	2.0	157.0	15.73~16.00	26.67~27.00	9.68~10.32	690	108.3	860	232.7	35-	-35	12-	26.16~27.00	16.40~17.10	550	86.4	126~300
M18	2.5	192.0				690	132.5	860	320.1	35-	-35	12-			550	105.6	126~300
M20	2.5	245.0	19.67~20.00	33.00~34.00	12.12~12.88	690	169.1	860	453.9	35-	-35	12-	33.00~34.00	19.40~20.70	550	134.8	126~300
M22	2.5	303.0				550	166.7	795	492.2	35-	-35	15-	35.00~36.00	22.30~23.60	550	166.7	126~300
M24	3.0	353.0	23.67~24.00	40.00~41.00	14.56~15.44	550	194.2	795	625.6	35-	-35	15-	40.00~41.00	22.90~24.20	550	194.2	126~300
M27	3.0	459.0				450	206.6	725	748.7	35-	-35	20-	45.00~46.00	26.3~27.60	550	252.5	126~300
M30	3.5	561.0	29.67~30.00	49.00~50.00	17.92~19.48	450	252.5	725	1,017	35-	-35	20-	49.00~50.00	29.10~30.70	550	308.6	126~300
M33	3.5	694.0				345	239.4	690	1,061	45-	-35	28-			550	381.7	126~300
M36	4.0	817.0	35.61~36.00	58.80~60.00	21.72~23.38	345	281.9	690	1,362	45-	-35	28-	58.80~60.00	35.00~36.60	550	449.4	126~300
M39	4.0	976.0													550	536.8	126~300
M42	4.5	1,120.0											67.90~70.00	40.40~42.00	550	616.0	126~300
M45	4.5	1,310.0													550	720.5	126~300
M48	5.0	1,470.0											77.60~80.00	46.40~48.00	550	808.5	126~300
M52	5.0	1,760.0													550	968.0	126~300
M56	5.5	2,030.0											87.20~90.00	54.10~56.00	550	1,116.5	126~300
M60	5.5	2,360.0													550	1,298.0	126~300
M64	6.0	2,680.0											96.80~100.00	62.10~64.00	550	1,474.0	126~300
M68	6.0	3,060.0													550	1,683.0	126~300
M72	6.0	3,460.0											106.40~110.00	70.10~72.00	550	1,903.0	126~300
M76	6.0	3,890.0													550	2,139.5	126~300
M80	6.0	4,340.0											116.00~120.00	78.10~80.00	550	2,387.0	126~300
M85	6.0	4,950.0													550	2,722.5	126~300
M90	6.0	5,590.0											130.50~135.00	87.80~90.00	550	3,074.5	126~300
M95	6.0	6,270.0													550	3,448.5	126~300
M100	6.0	6,990.0											145.00~150.00	97.80~100.00	550	3,844.5	126~300
Dimensions			HEAVY HEX as per ANSI/ASME B18.2.3.3M										HEAVY HEX as per ANSI/ASME B18.2.4.6M				
Markings			'UMI'B8SH' / 'UMI' 'B8'										'UMI' '8'				
Heat Treatment			Carbide Solution Treated & Strain Hardened														
Carbon			-0.08										-0.08				
Manganese			-2.0										-2.0				
Sulfur			-0.03										-0.03				
Silicon			-1.0										-1.0				
Chromium			18.0-20.0										18.0-20.0				
Molybdenum																	
Nickle			8.0-11.0										8.0-11.0				
Vandium																	
Boron																	
Copper																	
Nitrogen																	
Phosphorus			-0.045										-0.045				
Material			AISI 304										AISI 304				

Notes:
Left hand side of '-' is minium value right hand side of '-' is maximam value
Eg. 0.5-0.7 min is 0.5 and max is 0.7
Eg. -0.8 max is 0.8 no minimam value
Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel
# Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

			BOLT/SCREW & STUD ASTM A193M / A320M B8M-1 - 17										NUT ASTM A194M 8M - 17				
BOLT SIZE	PITCH	STRESS AREA	SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE *	REDUCTION OF AREA	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
mm	mm	mm^2	mm	mm	mm	Mpa	KN	Mpa	N-m	%	HRB	%	mm	mm	Mpa	KN	HB
M6	1	20.1				205	4.1	515	3.3	50-	-96	30-			550	11.1	126~300
M8	1.25	36.6				205	7.5	515	8.1	50-	-96	30-			550	20.1	126~300
M10	1.5	58.0				205	11.9	515	16.2	50-	-96	30-			550	31.9	126~300
M12	1.75	84.3	11.73~12.00	20.67~21.00	7.24~7.76	205	17.3	515	27.8	50-	-96	30-	20.16~21.00	11.90~12.30	550	46.4	126~300
M14	2.0	115.0	13.73~14.00	23.67~24.00	8.51~9.09	205	23.6	515	44.3	50-	-96	30-	23.16~24.00	13.60~14.30	550	63.3	126~300
M16	2.0	157.0	15.73~16.00	26.67~27.00	9.68~10.32	205	32.2	515	69.1	50-	-96	30-	26.16~27.00	16.40~17.10	550	86.4	126~300
M18	2.5	192.0				205	39.4	515	95.1	50-	-96	30-			550	105.6	126~300
M20	2.5	245.0	19.67~20.00	33.00~34.00	12.12~12.88	205	50.2	515	134.9	50-	-96	30-	33.00~34.00	19.40~20.70	550	134.8	126~300
M22	2.5	303.0				205	62.1	515	183.5	50-	-96	30-	35.00~36.00	22.30~23.60	550	166.7	126~300
M24	3.0	353.0	23.67~24.00	40.00~41.00	14.56~15.44	205	72.4	515	233.2	50-	-96	30-	40.00~41.00	22.90~24.20	550	194.2	126~300
M27	3.0	459.0				205	94.1	515	341.1	50-	-96	30-	45.00~46.00	26.3~27.60	550	252.5	126~300
M30	3.5	561.0	29.67~30.00	49.00~50.00	17.92~19.48	205	115.0	515	463	50-	-96	30-	49.00~50.00	29.10~30.70	550	308.6	126~300
M33	3.5	694.0				205	142.3	515	630	50-	-96	30-			550	381.7	126~300
M36	4.0	817.0	35.61~36.00	58.80~60.00	21.72~23.38	205	167.5	515	809	50-	-96	30-	58.80~60.00	35.00~36.60	550	449.4	126~300
M39	4.0	976.0				205	200.1	515	1,048	50-	-96	30-			550	536.8	126~300
M42	4.5	1,120.0				205	229.6	515	1,295	50-	-96	30-	67.90~70.00	40.40~42.00	550	616.0	126~300
M45	4.5	1,310.0				205	268.6	515	1,622	50-	-96	30-			550	720.5	126~300
M48	5.0	1,470.0				205	301.4	515	1,942	50-	-96	30-	77.60~80.00	46.40~48.00	550	808.5	126~300
M52	5.0	1,760.0				205	360.8	515	2,519	50-	-96	30-			550	968.0	126~300
M56	5.5	2,030.0				205	416.2	515	3,129	50-	-96	30-	87.20~90.00	54.10~56.00	550	1,116.5	126~300
M60	5.5	2,360.0				205	483.8	515	3,897	50-	-96	30-			550	1,298.0	126~300
M64	6.0	2,680.0				205	549.4	515	4,720	50-	-96	30-	96.80~100.00	62.10~64.00	550	1,474.0	126~300
M68	6.0	3,060.0				205	627.3	515	5,727	50-	-96	30-			550	1,683.0	126~300
M72	6.0	3,460.0				205	709.3	515	6,856	50-	-96	30-	106.40~110.00	70.10~72.00	550	1,903.0	126~300
M76	6.0	3,890.0				205	797.5	515	8,136	50-	-96	30-			550	2,139.5	126~300
M80	6.0	4,340.0				205	889.7	515	9,555	50-	-96	30-	116.00~120.00	78.10~80.00	550	2,387.0	126~300
M85	6.0	4,950.0				205	1,014.8	515	11,580	50-	-96	30-			550	2,722.5	126~300
M90	6.0	5,590.0				205	1,146.0	515	13,846	50-	-96	30-	130.50~135.00	87.80~90.00	550	3,074.5	126~300
M95	6.0	6,270.0				205	1,285.4	515	16,393	50-	-96	30-			550	3,448.5	126~300
M100	6.0	6,990.0				205	1,433.0	515	19,237	50-	-96	30-	145.00~150.00	97.80~100.00	550	3,844.5	126~300
Dimensions			HEAVY HEX as per ANSI/ASME B18.2.3.3M										HEAVY HEX as per ANSI/ASME B18.2.4.6M				
Markings			'UMI' 'B8M'										'UMI' '8M'				
Heat Treatment			Carbide Solution														
Carbon			-0.08										-0.08				
Manganese			-2.0										-2.0				
Sulfur			-0.03										-0.03				
Silicon			-1.0										-1.0				
Chromium			16.0-18.0										16.0-18.0				
Molybdenum			2.0-3.0										2.0-3.0				
Nickle			10.0-14.0										10.0-14.0				
Vandium																	
Boron																	
Copper																	
Nitrogen																	
Phosphorus			-0.045										-0.045				
Material			AISI 316										AISI 316				

Notes:
Left hand side of '-' is minium value right hand side of '-' is maximam value
Eg. 0.5-0.7 min is 0.5 and max is 0.7
Eg. -0.8 max is 0.8 no minimam value
Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel
# Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

			BOLT/SCREW & STUD ASTM A193M / A320M B8M-2 - 17										NUT ASTM A194M 8M - 17				
BOLT SIZE	PITCH	STRESS AREA	SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE*	REDUCTION OF AREA	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
mm	mm	mm^2	mm	mm	mm	Mpa	KN	Mpa	N-m	%	HRC	%	mm	mm	Mpa	KN	HB
M6	1	20.1				655	13.2	760	10.6	45-	-35	15-			550	11.1	126~300
M8	1.25	36.6				655	24.0	760	25.7	45-	-35	15-			550	20.1	126~300
M10	1.5	58.0				655	38.0	760	51.7	45-	-35	15-			550	31.9	126~300
M12	1.75	84.3	11.73~12.00	20.67~21.00	7.24~7.76	655	55.2	760	89.0	45-	-35	15-	20.16~21.00	11.90~12.30	550	46.4	126~300
M14	2.0	115.0	13.73~14.00	23.67~24.00	8.51~9.09	655	75.3	760	141.6	45-	-35	15-	23.16~24.00	13.60~14.30	550	63.3	126~300
M16	2.0	157.0	15.73~16.00	26.67~27.00	9.68~10.32	655	102.8	760	220.9	45-	-35	15-	26.16~27.00	16.40~17.10	550	86.4	126~300
M18	2.5	192.0				655	125.8	760	303.9	45-	-35	15-			550	105.6	126~300
M20	2.5	245.0	19.67~20.00	33.00~34.00	12.12~12.88	655	160.5	760	430.9	45-	-35	15-	33.00~34.00	19.40~20.70	550	134.8	126~300
M22	2.5	303.0				550	166.7	690	492.2	45-	-35	20-	35.00~36.00	22.30~23.60	550	166.7	126~300
M24	3.0	353.0	23.67~24.00	40.00~41.00	14.56~15.44	550	194.2	690	625.6	45-	-35	20-	40.00~41.00	22.90~24.20	550	194.2	126~300
M27	3.0	459.0				450	206.6	655	748.7	45-	-35	25-	45.00~46.00	26.3~27.60	550	252.5	126~300
M30	3.5	561.0	29.67~30.00	49.00~50.00	17.92~19.48	450	252.5	655	1,017	45-	-35	25-	49.00~50.00	29.10~30.70	550	308.6	126~300
M33	3.5	694.0				345	239.4	620	1,061	45-	-35	30-			550	381.7	126~300
M36	4.0	817.0	35.61~36.00	58.80~60.00	21.72~23.38	345	281.9	620	1,362	45-	-35	30-	58.80~60.00	35.00~36.60	550	449.4	126~300
M39	4.0	976.0													550	536.8	126~300
M42	4.5	1,120.0											67.90~70.00	40.40~42.00	550	616.0	126~300
M45	4.5	1,310.0													550	720.5	126~300
M48	5.0	1,470.0											77.60~80.00	46.40~48.00	550	808.5	126~300
M52	5.0	1,760.0													550	968.0	126~300
M56	5.5	2,030.0											87.20~90.00	54.10~56.00	550	1,116.5	126~300
M60	5.5	2,360.0													550	1,298.0	126~300
M64	6.0	2,680.0											96.80~100.00	62.10~64.00	550	1,474.0	126~300
M68	6.0	3,060.0													550	1,683.0	126~300
M72	6.0	3,460.0											106.40~110.00	70.10~72.00	550	1,903.0	126~300
M76	6.0	3,890.0													550	2,139.5	126~300
M80	6.0	4,340.0											116.00~120.00	78.10~80.00	550	2,387.0	126~300
M85	6.0	4,950.0													550	2,722.5	126~300
M90	6.0	5,590.0											130.50~135.00	87.80~90.00	550	3,074.5	126~300
M95	6.0	6,270.0													550	3,448.5	126~300
M100	6.0	6,990.0											145.00~150.00	97.80~100.00	550	3,844.5	126~300
Dimensions			HEAVY HEX as per ANSI/ASME B18.2.3.3M										HEAVY HEX as per ANSI/ASME B18.2.4.6M				
Markings			'UMI' 'B8MSH'/ 'UMI' 'B8M'										'UMI' '8M'				
Heat Treatment			Carbide Solution Treated & Strain Hardened														
Carbon			-0.08										-0.08				
Manganese			-2.0										-2.0				
Sulfur			-0.03										-0.03				
Silicon			-1.0										-1.0				
Chromium			16.0-18.0										16.0-18.0				
Molybdenum			2.0-3.0										2.0-3.0				
Nickle			10.0-14.0										10.0-14.0				
Vandium																	
Boron																	
Copper																	
Nitrogen																	
Phosphorus			-0.045										-0.045				
Material			AISI 316										AISI 316				

Notes:
Left hand side of '-' is minium value right hand side of '-' is maximam value
Eg. 0.5-0.7 min is 0.5 and max is 0.7
Eg. -0.8 max is 0.8 no minimam value
Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel
# Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

	PITCH in TPI			Stress area in in²			BOLT/SCREW & STUD ASTM A193/A320 B8-2 - 17									NUT ASTM A194 Gr. 8 - 17				
BOLT SIZE							SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE*	REDUCTION OF AREA	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
Inch	UNC	UNF	8UN	UNC	UNF	8UN	Inch	Inch	Inch	ksi	8UN lbf	ksi	ft-lbs	%	HRC	%	Inch	Inch	ksi	8UN lbf	HB
1/4	20	28		0.0318	0.0364																
5/16	18	24		0.0524	0.0580																
3/8	16	24		0.0775	0.0878		0.360~0.388	0.669~0.688	0.226~0.268	100	7,750	125	33	35-	-35	12-	0.669~0.688	0.341~0.377	80	6,200	126~300
7/16	14	20		0.1063	0.1187					100	10,630	125	52	35-	-35	12-			80	8,500	126~300
1/2	13	20		0.1419	0.1599		0.482~0.515	0.850~0.875	0.302~0.364	100	14,190	125	79	35-	-35	12-	0.850~0.875	0.464~0.504	80	11,350	126~300
9/16	12	18		0.182	0.203					100	18,200	125	115	35-	-35	12-			80	14,560	126~300
5/8	11	18		0.226	0.256		0.605~0.642	1.031~1.062	0.378~0.444	100	22,600	125	158	35-	-35	12-	1.031~1.062	0.587~0.631	80	18,080	126~300
3/4	10	16		0.334	0.373		0.729~0.768	1.212~1.250	0.455~0.524	100	33,400	125	280	35-	-35	12-	1.212~1.250	0.710~0.758	80	26,720	126~300
7/8	9	14		0.462	0.509		0.852~0.895	1.394~1.438	0.531~0.604	80	36,960	115	362	35-	-35	15-	1.394~1.438	0.833~0.885	80	36,960	126~300
1	8	12	8	0.606	0.663	0.606	0.976~1.022	1.575~1.625	0.591~0.700	80	48,480	115	542	35-	-35	15-	1.575~1.625	0.956~1.012	80	48,480	126~300
1 1/8	7	12	8	0.763	0.856	0.790	1.098~1.149	1.756~1.812	0.658~0.780	65	51,350	105	646	35-	-35	20-	1.756~1.812	1.079~1.139	80	63,200	126~300
1 1/4	7	12	8	0.969	1.073	1.000	1.223~1.277	1.938~2.000	0.749~0.876	65	65,000	105	909	35-	-35	20-	1.938~2.000	1.187~1.251	80	80,000	126~300
1 3/8	6	12	8	1.155	1.315	1.233	1.345~1.404	2.119~2.188	0.810~0.940	50	61,650	100	949	45-	-35	28-	2.119~2.188	1.310~1.378	80	98,640	126~300
1 1/2	6	12	8	1.405	1.581	1.492	1.470~1.531	2.300~2.375	0.902~1.036	50	74,600	100	1,252	45-	-35	28-	2.300~2.375	1.433~1.505	80	119,360	126~300
1 5/8			8			1.78															
1 3/4	5		8	1.90		2.08															
1 7/8			8			2.41															
2	4 1/2		8	2.50		2.77															
2 1/4	4 1/2		8	3.25		3.56															
2 1/2	4		8	4.00		4.44															
2 3/4	4		8	4.93		5.43															
3	4		8	5.97		6.51															
3 1/4	4		8	7.10		7.69															
3 1/2	4		8	8.33		8.96															
3 3/4	4		8	9.66		10.34															
4	4		8	11.08		11.81															

Dimension	HEAVY HEX as per ANSI/ASME B18.2.1	HEAVY HEX as per ANSI/ASME B18.2.2
Marking	'UMI' 'B8SH' / 'UMI' 'B8'	'UMI' '8'
Heat Treatment	Carbide Solution Treated & Strain Hardened	
Carbon	-0.08	-0.08
Manganese	-2.0	-2.0
Sulfur	-0.03	-0.03
Silicon	-1.0	-1.0
Chromium	18.0-20.0	18.0-20.0
Molybdenum		
Nickle	8.0-11.0	8.0-11.0
Vanadium		
Boron		
Copper		
Nitrogen		
Phosphorus	-0.045	-0.045
Material	AISI 304	AISI 304

Notes:
1. 8UN means less than 1" UNC thread and above 1" 8 TPI thread
2. Left hand side of '-' is minium value right hand side of '-' is maximam value

Eg. 0.5-0.7 min is 0.5 and max is 0.7
Eg. -0.8 max is 0.8 no minimam value
Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel
# Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

	PITCH in TPI			Stress area in in²			BOLT/SCREW & STUD ASTM A193/A320 B8M-1 - 17										NUT ASTM A194 Gr. 8M - 17				
BOLT SIZE							SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE*	REDUCTION OF AREA	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
Inch	UNC	UNF	8UN	UNC	UNF	8UN	Inch	Inch	Inch	ksi	8UN lbf	ksi	ft-lbs	%	HRB	%	Inch	Inch	ksi	8UN lbf	HB
1/4	20	28		0.0318	0.0364																
5/16	18	24		0.0524	0.0580																
3/8	16	24		0.0775	0.0878		0.360~0.388	0.669~0.688	0.226~0.268	30	2,330	75	10	50-	-96	30-	0.669~0.688	0.341~0.377	80	6,200	126~300
7/16	14	20		0.1063	0.1187					30	3,190	75	16	50-	-96	30-			80	8,500	126~300
1/2	13	20		0.1419	0.1599		0.482~0.515	0.850~0.875	0.302~0.364	30	4,260	75	24	50-	-96	30-	0.850~0.875	0.464~0.504	80	11,350	126~300
9/16	12	18		0.182	0.203					30	5,460	75	34	50-	-96	30-			80	14,560	126~300
5/8	11	18		0.226	0.256		0.605~0.642	1.031~1.062	0.378~0.444	30	6,780	75	47	50-	-96	30-	1.031~1.062	0.587~0.631	80	18,080	126~300
3/4	10	16		0.334	0.373		0.729~0.768	1.212~1.250	0.455~0.524	30	10,020	75	84	50-	-96	30-	1.212~1.250	0.710~0.758	80	26,720	126~300
7/8	9	14		0.462	0.509		0.852~0.895	1.394~1.438	0.531~0.604	30	13,860	75	136	50-	-96	30-	1.394`1.438	0.833~0.885	80	36,960	126~300
1	8	12	8	0.606	0.663	0.606	0.976~1.022	1.575~1.625	0.591~0.700	30	18,180	75	203	50-	-96	30-	1.575~1.625	0.956~1.012	80	48,480	126~300
1 1/8	7	12	8	0.763	0.856	0.790	1.098~1.149	1.756~1.812	0.658~0.780	30	23,700	75	298	50-	-96	30-	1.756~1.812	1.079~1.139	80	63,200	126~300
1 1/4	7	12	8	0.969	1.073	1.000	1.223~1.277	1.938~2.000	0.749~0.876	30	30,000	75	420	50-	-96	30-	1.938~2.000	1.187~1.251	80	80,000	126~300
1 3/8	6	12	8	1.155	1.315	1.233	1.345~1.404	2.119~2.188	0.810~0.940	30	36,990	75	569	50-	-96	30-	2.119~2.188	1.310~1.378	80	98,640	126~300
1 1/2	6	12	8	1.405	1.581	1.492	1.470~1.531	2.300~2.375	0.902~1.036	30	44,760	75	751	50-	-96	30-	2.300~2.375	1.433~1.505	80	119,360	126~300
1 5/8			8			1.78	1.591~1.658	2.481~2.562	0.978~1.116	30	53,400	75	965	50-	-96	30-	2.481~2.562	1.556~1.632	80	142,400	126~300
1 3/4	5		8	1.90		2.08	1.716~1.785	2.662~2.750	1.054~1.196	30	62,400	75	1,222	50-	-96	30-	2.662~2.750	1.679~1.759	80	166,400	126~300
1 7/8			8			2.41	1.839~1.912	2.844~2.938	1.130~1.276	30	72,300	75	1,517	50-	-96	30-	2.844~2.938	1.802~1.886	80	192,800	126~300
2	4 1/2		8	2.50		2.77	1.964~2.039	3.025~3.125	1.175~1.388	30	83,100	75	1,859	50-	-96	30-	3.025~3.125	1.925~2.013	80	221,600	126~300
2 1/4	4 1/2		8	3.25		3.56	2.214~2.305	3.388~3.500	1.327~1.548	30	106,800	75	2,688	50-	-96	30-	3.388~3.500	2.155~2.251	80	284,800	126~300
2 1/2	4		8	4.00		4.44	2.461~2.559	3.750~3.875	1.479~1.708	30	133,200	75	3,725	50-	-96	30-	3.750~3.875	2.401~2.505	80	355,200	126~300
2 3/4	4		8	4.93		5.43	2.711~2.827	4.112~4.250	1.632~1.869	30	162,900	75	5,012	50-	-96	30-	4.112~4.250	2.647~2.759	80	434,400	126~300
3	4		8	5.97		6.51	2.961~3.081	4.475~4.625	1.815~2.060	30	195,300	75	6,555	50-	-96	30-	4.475~4.625	2.893~3.013	80	520,800	126~300
3 1/4	4		8	7.10		7.69				30	230,700	75	8,388	50-	-96	30-	4.838~5.000	3.124~3.252	80	615,200	126~300
3 1/2	4		8	8.33		8.96				30	268,800	75	10,525	50-	-96	30-	5.200~5.375	3.370~3.506	80	716,800	126~300
3 3/4	4		8	9.66		10.34				30	310,200	75	13,014	50-	-96	30-	5.562~5.750	3.616~3.760	80	827,200	126~300
4	4		8	11.08		11.81				30	354,300	75	15,855	50-	-96	30-	5.925~6.125	3.862~4.014	80	944,800	126~300

Dimension	HEAVY HEX as per ANSI/ASME B18.2.1	HEAVY HEX as per ANSI/ASME B18.2.2
Marking	'UMI' 'B8M'	'UMI' '8M'
Heat Treatment	Carbide Solution Treated	
Carbon	-0.08	-0.08
Manganese	-2.0	-2.0
Sulfur	-0.03	-0.03
Silicon	-1.0	-1.0
Chromium	16.0-18.0	16.0-18.0
Molybdenum	2.0-3.0	2.0-3.0
Nickle	10.0-14.0	10.0-14.0
Vanadium		
Boron		
Copper		
Nitrogen		
Phosphorus	-0.045	-0.045
Material	SS-316	SS-316

Notes:

1. 8UN means less than 1" UNC thread and above 1" 8 TPI thread
2. Left hand side of '-' is minium value right hand side of '-' is maximam value

Eg. 0.5-0.7 min is 0.5 and max is 0.7

Eg. -0.8 max is 0.8 no minimam value

Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel

Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

	PITCH in TPI			Stress area in in²			BOLT,SCREW & STUD ASTM A193/A320 B8M-2 - 17									NUT ASTM A194 Gr. 8M- 17				
BOLT SIZE							SHANK DIAMETER	WIDTH ACROSS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE*	REDUCTION OF AREA	HARDNESS	ELONGATION #	WIDTH ACROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
Inch	UNC	UNF	8UN	UNC	UNF	8UN	Inch	Inch	Inch	ksi	8UN lbf	ksi	ft-lbs	%	HRC	%	Inch	Inch	ksi	8UN lbf	HB
1/4	20	28		0.0318	0.0364																
5/16	18	24		0.0524	0.0580																
3/8	16	24		0.0775	0.0878		0.360~0.388	0.669~0.688	0.226~0.268	95	7,360	110	31	45-	-35	15-	0.669~0.688	0.341~0.377	80	6,200	126~300
7/16	14	20		0.1063	0.1187					95	10,100	110	49	45-	-35	15-			80	8,500	126~300
1/2	13	20		0.1419	0.1599		0.482~0.515	0.850~0.875	0.302~0.364	95	13,480	110	75	45-	-35	15-	0.850~0.875	0.464~0.504	80	11,350	126~300
9/16	12	18		0.182	0.203					95	17,290	110	109	45-	-35	15-			80	14,560	126~300
5/8	11	18		0.226	0.256		0.605~0.642	1.031~1.062	0.378~0.444	95	21,470	110	150	45-	-35	15-	1.031~1.062	0.587~0.631	80	18,080	126~300
3/4	10	16		0.334	0.373		0.729~0.768	1.212~1.250	0.455~0.524	95	31,730	110	266	45-	-35	15-	1.212~1.250	0.710~0.758	80	26,720	126~300
7/8	9	14		0.462	0.509		0.852~0.895	1.394~1.438	0.531~0.604	80	36,960	100	362	45-	-35	20-	1.394`1.438	0.833~0.885	80	36,960	126~300
1	8	12	8	0.606	0.663	0.606	0.976~1.022	1.575~1.625	0.591~0.700	80	48,480	100	542	45-	-35	20-	1.575~1.625	0.956~1.012	80	48,480	126~300
1 1/8	7	12	8	0.763	0.856	0.790	1.098~1.149	1.756~1.812	0.658~0.780	65	51,350	95	646	45-	-35	25-	1.756~1.812	1.079~1.139	80	63,200	126~300
1 1/4	7	12	8	0.969	1.073	1.000	1.223~1.277	1.938~2.000	0.749~0.876	65	65,000	95	909	45-	-35	25-	1.938~2.000	1.187~1.251	80	80,000	126~300
1 3/8	6	12	8	1.155	1.315	1.233	1.345~1.404	2.119~2.188	0.810~0.940	50	61,650	90	948	45-	-35	30-	2.119~2.188	1.310~1.378	80	98,640	126~300
1 1/2	6	12	8	1.405	1.581	1.492	1.470~1.531	2.300~2.375	0.902~1.036	50	74,600	90	1,252	45-	-35	30-	2.300~2.375	1.433~1.505	80	119,360	126~300
1 5/8			8			1.78															
1 3/4	5		8	1.90		2.08															
1 7/8			8			2.41															
2	4 1/2		8	2.50		2.77															
2 1/4	4 1/2		8	3.25		3.56															
2 1/2	4		8	4.00		4.44															
2 3/4	4		8	4.93		5.43															
3	4		8	5.97		6.51															
3 1/4	4		8	7.10		7.69															
3 1/2	4		8	8.33		8.96															
3 3/4	4		8	9.66		10.34															
4	4		8	11.08		11.81															
Dimension							HEAVY HEX as per ANSI/ASME B18.2.1										HEAVY HEX as per ANSI/ASME B18.2.2				
Marking							'UMI' 'B8MSH / 'UMI''B8M'										'UMI' '8M'				
Heat Treatment							Carbide Solution Treated & Strain Hardened														
Carbon							-0.08										-0.08				
Manganese							-2.0										-2.0				
Sulfur							-0.03										-0.03				
Silicon							-1.0										-1.0				
Chromium							16.0-18.0										16.0-18.0				
Molybdenum							2.0-3.0										2.0-3.0				
Nickle							10.0-14.0										10.0-14.0				
Vanadium																					
Boron																					
Copper																					
Nitrogen																					
Phosphorus							-0.045										-0.045				
Material							SS-316										SS-316				

Notes:

1. 8UN means less than 1" UNC thread and above 1" 8 TPI thread
2. Left hand side of '-' is minium value right hand side of '-' is maximam value

Eg. 0.5-0.7 min is 0.5 and max is 0.7

Eg. -0.8 max is 0.8 no minimam value

Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel

\# Elongation in length of 4 times Diameter

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217,
New Industires Area, Doha, Qatar.
www.uconqatar.com

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone,
Dubai, United Arabi Emirates.
www.uconmetal.com

Testing Laboratory

Our own in-house Quality control department work in conjunction with several leading external test house to provide certification from initial raw material testing, to verification of finished products, conformity of all in-house processes and coating is ensured through destructive and nondestructive testing.

Operating clearly defined procedures throughout the manufacturing process, we are able to provide 3.1 material certification to ensure full traceability and third party endorsed 3.2 certification as per requirement.

Certified Testing Laboratory

- Tensile/ Proof Load Capacity up to 300,000 lbs
- Thread Mics
- Digital and Analog Vernier calipers
- Ring Gauge
- Hardness material testing
- Salt Spray testing/ ASTM B117
- Charpy Impact Testing to -150 Deg F
- Digital Coating Thickness Gauge

UCON METAL INDUSTRIES
يـــوكون للـــصناعات الـــمعدنية

QATAR

Ucon Metal Industries W.L.L,
Street No 3, Building No 217, New
Industires Area, Doha, Qatar.
www.uconqatar.com

Tel : +974 44430780
FAX : +974 44552044
Email: info@uconqatar.com

Factory Location:
Street #3, Building No 217
Zone 81, New Industrial Area.
Doha, Qatar.

Office Working Hours:
Sat to Thu 8:00 AM to 6:00 PM
Email: sales@uconqatar.com
Tel : +974 44430780
Mob : +974 66860503

UAE

Ucon Metal Industries FZCO,
RA08VC02, Jabel Ali Free Zone
www.uconmetal.com
Email: Info@uconmetal.com
Tel: +971 4 876 9200