



Al Jazeera Steel Products Co. SAOG

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شركة الجزيرة للمنتجات الحديدية ش.م.ع.ع

ص.ب: ٤٠، الرمز البريدي: ٣٢٧، المنطقة الصناعية بصحار - سلطنة عمان
هاتف: ٢٦٧٥١٧٦٣ / ٤ / ٥، فاكس: ٢٦٧٥١٧٦٦ +٩٦٨
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المكتب الإقليمي: ص.ب: ٣٨٦٤٨، جناح رقم: ٦٠١، برج الذهبي كورنيش البحيرة، الشارقة
مستودع الشارقة، صناعية السجاء، بقرب من بئ بزار
ص.ب: ٣٨٦٤٨، الشارقة، الإمارات المتحدة. هاتف: ٠٦-٥٥٨١٩٢٧



CUTTING EDGE TECHNOLOGY FOR **ASSURED QUALITY**



شركة الجزيرة للمنتجات الحديدية ش.م.ع.م.

Jazeera Steel
AL JAZEERA STEEL PRODUCTS CO. SAOG

Suhar Industrial Estate, P.O.Box : 40, Suhar 327, Sultanate of Oman

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INDEX / CONTENTS

» INTRODUCTION.....	1-2
» CERTIFICATION.....	3-4
» QUALITY POLICY / MISSION STATEMENT.....	5
» TECHNICAL DATA-ASTM A53.....	6-8
» TECHNICAL DATA-EN 10219-1&2.....	10-15
» TECHNICAL DATA-EN 39.....	16
» TECHNICAL DATA-ASTM A135/A795.....	17-19
» TECHNICAL DATA-ASTM A500.....	20-27
» TECHNICAL DATA-HOT ROLLED CUT TO LENGTH SHEETS.....	28
» TECHNICAL DATA-HOT ROLLED MERCHANT BAR PRODUCTS.....	29-35
» CHANNELS	
» ANGLES	
» FLAT BARS	
» ROUND BAR	
» SQUARE BAR	
» DEFORMED BAR (REBAR) CHARACTERISTICS.....	36





In the industrial scene of the Sultanate of Oman. For the first time in Oman, Electric Resistance Welded (ERW) tubular products in circular square, and rectangular hollow sections Hot rolled merchant bar products in Angles, Channels, Round, Square, Flat Bars, TMT Bars were manufactured at Al Jazeera Steel Products Co. SAOG (Formerly known as Al Jazeera Tube Mills Company S.A.O.G.)

Promoted by a group of Omani entrepreneurs with a fairly large holdings with the general public of the Sultanate, Al Jazeera has become one of the leading tubing manufacturers in the Middle East. From its modern plant located at Sohar(Oman) Al Jazeera offers Mild Steel ERW tubular products in both Black and Galvanized class with plain end and threaded and coupled ends and Hot Rolled Merchant bar products in AS Rolled and galvanized condition. conforming to ASTM, BS, DIN, EN and other International specifications.

Al Jazeera boasts of installing some of the latest and most modern machineries in the plant. Al Jazeera's manufacturing facilities include four tube production lines supplied by M/s. Abbey Etna Inc., Ohio, USA, M/s. TRM Thailand and M/s. Prasert Machineries Thailand. There are three galvanizing lines with main line supplied by M/s. BERG, Germany. One hot rolling mill supplied from HTC, China Composed of multinational workforce and managed by competent technical and managerial professionals, Al Jazeera has been seized with a vision to becoming one of the leading tubings suppliers in the world. At Al Jazeera, production processes have been integrated with modern quality controls like, e.g., online Eddy Current Testing facility, Universal Testing Machine, Hardness Machine and Inverted Metallurgical Microscope with CCD camera attachment, optical spectrometer, Bend test machine, etc.

Al Jazeera currently export its products to 25 different countries including USA, Canada, Australia, Germany and other European Union countries.



Certifications / Approvals

In its zeal to set higher quality standards Jazeera achieved QMS ISO 9001:2015 certification by GLOBAL GROUP

In addition to above Al Jazeera's Quality Management System conforms to the requirements of

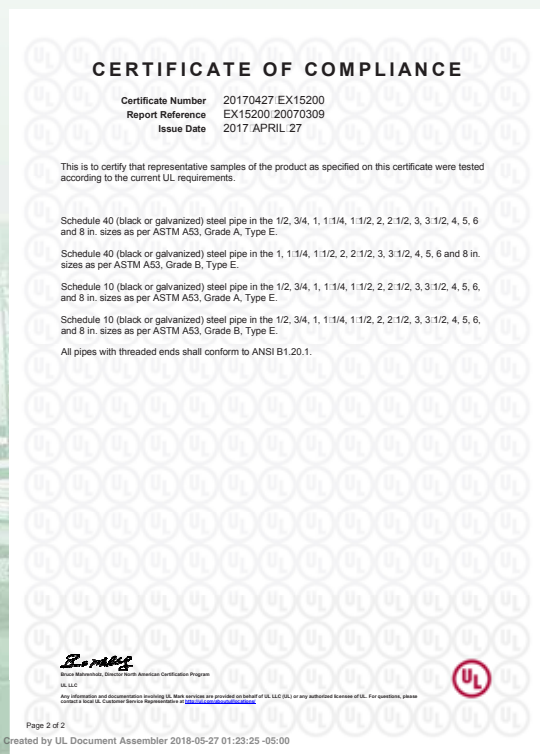
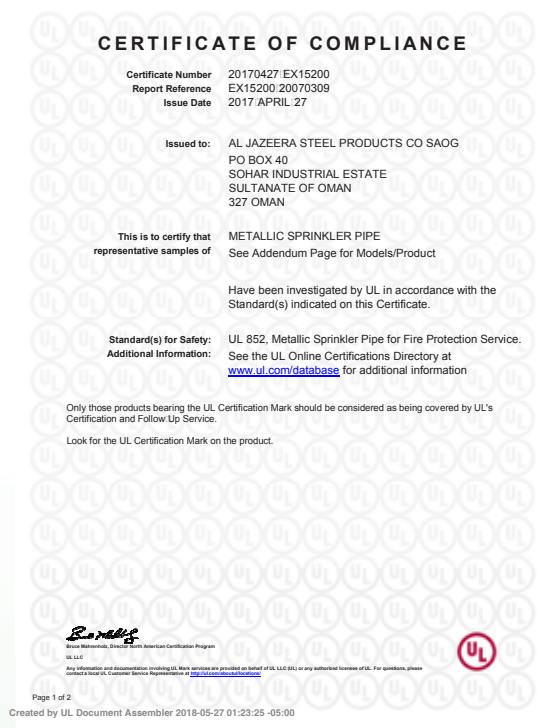
- ▶ UL (Underwriters Laboratories, USA) has also certified Al Jazeera for manufacturing of Metallic Sprinkler Steel Tubes for Fire Protection services.
- ▶ Al Jazeera is also having CE Mark Certification to supply its product in construction field in European Union CPD (Construction Products Directive) 89/106/EEC.
- ▶ Al Jazeera is also certified by FM APPROVALS, USA for manufacturing of steel pipes for Automatic Fire Sprinkler Systems.
- ▶ Jazeera is also having UAE Civil Defense Approval for supplying its product to various projects under Civil Defense in United Arab Emirates.
- ▶ Al Jazeera is also certified by UK CARES & DCL for manufacturing of BS 4449: 2005B 500B REBAR



One of the most significant milestones achieved by Al Jazeera is in the field of customer service. It is a constant effort of Jazeera to shorten the time lag between receipt of techno-commercially acceptable order and its execution. Besides this people at Al Jazeera take utmost care to ensure that the products are delivered according to the needs of customers.

At present Jazeera meets the requirements of tubes & merchant bars conforming to various steel grades and international standard specifications. In our endeavor to cater the wider spectrum of industry's needs we at Jazeera also offer tubes & merchant bars for general engineering purposes. This gives the product range an additional strength.

The company aims to achieve customer satisfaction for every category of customers and to be preferred partner in the region with all relevant principles while creating an environment that provides constant challenges and growth possibilities for all entities involved.



Statement of Compliance

This voluntary certificate attests that all the provisions concerning the attestation of factory production control described in Annexure II of Construction Product Directive as per System of Attestation of Conformity 4. This is to confirm that the technical documentation for the following product:

Mild Steel Electric Resistance Welded Circular, Square and Rectangular Hollow Sections

Manufactured, Supplied and Marked by:
Al Jazeera Steel Products Co. SAOG
 Site: Post Box No. 40, Postal Code 327, Road No. 3, Sohar Industrial Estate, Sohar, Sultanate of Oman

Is found to comply with the requirements of the product standard
EN 10255:2004+A1:2007

The product has been assessed with respect to the requirements of Essential Safety Requirements of Construction Product Regulation CPR (EU) 305/2011 as declared by the manufacturer on EC Declaration of Conformity.

The product description, documents, assessment procedures and evaluations of the examination are presented in the Technical Construction File QAF/01 retained at manufacturers place.

This Certificate is issued under the following conditions:

1. Product Liability rests with the Manufacturer in case of damages caused by defective products.
2. The Certificate validity is conditioned by the positive results of the surveillance audits.
3. The Certificate remains valid until the manufacturing conditions, the quality systems or relevant legislation are not changed.
4. Any significant changes in the design or process used to manufacture the product / equipment, or revision to the directives or standards referred above may render this certificate invalid.
5. Before the above-described equipment are placed on the market and/or put into use, the manufacturer has to ensure that all relevant directives are complied with.

This statement of compliance is for the exclusive use of ECA's client and is provided pursuant to the agreement between ECA and its Client. ECA's responsibility and liability are limited to the terms and conditions of the agreement. ECA assumes no liability for any party, other than to the Client, in accordance with the agreement, for any loss, expense or damage sustained by the use of this statement of compliance. Only the Client is authorized to sign, copy or distribute this statement of compliance. Any use of the ECA name or of its marks for any other use or advertisement of the manufacturer, product or service must first be approved in writing by ECA. At applicable, the observations and investigations results referred in this statement of compliance relevant only to the sample investigated. This certificate is voluntary certificate issued on the request from the customer.



Signed by : Tech. Manager
 Cert. No. : CE19377/02
 First Issue Date : 16 February 2007
 Issue Date : 15 February 2009
 Validity : 5 Years
 Renewal Due Date : 15 February 2020

EUROPEAN COMPLIANCE ASSESSMENT Ltd (7827) Station Tower 5 Place St-Denis De Noy, 91000 Evry-Courcouronnes, France www.eurocompliance.com

This Certificate remains the property of EUROPEAN COMPLIANCE ASSESSMENT Ltd. It should not be altered or reprinted. Please check its validity for the use of the certificate.

CERTIFICATE OF APPROVAL



Product Conformity Certification

This is to certify that
Al Jazeera Steel Products Co. S.A.O.G (Oman)
 at its establishment at
Sultanate of Oman

has satisfied the Authority that it operates a quality management system that complies with the requirements of BS EN ISO 9001 and the relevant CARES Quality and Operations Assessment Schedules. Where appropriate, and as listed below, it has further satisfied the Authority that it manufactures and/or supplies products that conform with the stated product standards and is entitled to use the CARES marks on its products using the processes and procedures registered with the Authority.

Scope of certification:
 BS 4449 2005 Grade B500B Bar 8 to 32mm

This certificate remains the property of the Authority and is issued subject to the Regulations of the Authority. This certificate is uncontrolled when printed. To check the validity of this certificate please visit www.ukcares.com or contact us on +44 1732 450000.

CERTIFICATE NUMBER	FIRST APPROVAL	ISSUE DATE	EXPIRY DATE
161101	December 2016	01 January 2019	31 December 2019

SIGNED FOR UK CERTIFICATION AUTHORITY FOR REINFORCING STEEL


 Lee Bradley
 Chief Executive Officer



The use of the Authority Mark indicates accreditation in respect of those activities covered by the accreditation certificate number 005.
 UK Certification Authority for Reinforcing Steel, Production House, 21 Parkside Road, Gwent, NP23 5LR, UK.
 © Crown Copyright by the Controller of Her Majesty's Stationery Office, 2016.
 Cert Ref: ACC10010-0001-018

Certificate of Compliance



This certificate is issued for the following:
SCHEDULE 40 STEEL SPRINKLER PIPE
 SIZES: 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 3-1/2, 4, 4-1/2, 6, 8 AND 10 INCH NOMINAL

Prepared For:
Al Jazeera Steel Products Co SAOG
 P.O. Box 40, Postal Code 327
 Sohar Industrial Estate
 Sohar
 Sultanate of Oman

FM Approvals Class: M30: "Steel Pipe for Automatic Fire Sprinkler Systems"

Approval Identification: 3208617 Approval Date: August 31, 2010

Steel Approval is subject to satisfactory fire performance according to the applicable standards and standards, and all other conformity to the construction as shown in the Approved Data, and other details of the product.

For many years FM Approvals has partnered with business and industry to realize property benefit.


 Richard B. Dwyer
 General Manager - Mechanical Group
 FM Approvals
 1101 Boulder-Perimeter Turnpike
 Broomfield, MA 02008

August 31, 2019



CERTIFICATE OF COMPLIANCE

Certificate Number 20171226 MH49792
 Report Reference MH49792:20171212
 Issue Date 2017 DECEMBER 26

Issued to: AL JAZEERA STEEL PRODUCTS CO SAOG
 Po Box 40
 Sohar Industrial Estate
 Sultanate Of Oman
 327 OMAN

This is to certify that representative samples of LEAD CONTENT VERIFICATION OF PRODUCTS IN CONTACT WITH POTABLE WATER DRINKING WATER SYSTEM COMPONENTS "Black Steel Pipes" (1/2" - 3"; 5" diameter and greater)

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: NSF 61 -Drinking Water System Components – Health Effects
 NSF/ANSI 372, Drinking Water System Components – Lead Content

Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow Up Service.

Look for the UL Certification Mark on the product.


 Barbara
 Senior Vice President, Global Service Assurance Certification Program
 UL LLC
 Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at UL@ul.com



Page 1 of 1
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CERTIFICATE OF COMPLIANCE

Certificate Number 20140911 MH49792
 Report Reference MH49792:20140905
 Issue Date 2014 SEPTEMBER:11

Issued to: AL JAZEERA STEEL PRODUCTS CO SAOG
 PO BOX 40
 SOHAR INDUSTRIAL ESTATE
 SULTANATE OF OMAN
 327 OMAN

This is to certify that representative samples of LEAD CONTENT VERIFICATION OF PRODUCTS IN CONTACT WITH POTABLE WATER "USC, CNC" Galvanised Steel Pipes, size range 1/2" to 8"

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: NSF 372 -DRINKING WATER SYSTEM COMPONENTS LEAD CONTENT
 Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Classification Mark for the U.S. and Canada should be considered as being covered by UL's Classification and Follow Up Service and meeting the appropriate U.S. and Canadian requirements.

The UL Classification Mark includes: the UL in a circle symbol:  with the word "CLASSIFIED" (as shown); a control number (may be alphanumeric) assigned by UL; a statement to indicate the extent of UL's evaluation of the product; and the product category name (product identity) as indicated in the appropriate UL Directory. The UL Classification Mark for Canada includes: the UL Classification Mark for Canada:  with the word "CLASSIFIED" (as shown); a control number (may be alphanumeric) assigned by UL; a statement to indicate the extent of UL's evaluation of the product; and the product category name (product identity) in English, French, or English/French as indicated in the appropriate UL Directory.

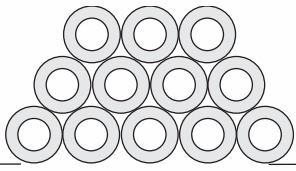
Look for the UL Classification Mark on the product.


 William R. Conroy, Director, Global Service Assurance Certification Program
 UL LLC
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Page 1 of 1

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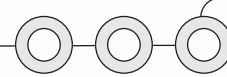
Coil Storage



Inspection



Slitting



Decoiling

Quality Policy

Al Jazeera Steel Products Co SAOG will constantly strive to produce & supply High Quality Steel Pipes & Hot Rolled Steel Products complying with various International Standards. It will be our constant effort to anticipate & exceed customer expectation.

The company will work to achieve sustained growth for its shareholders by constantly engaging and working with our customers as well suppliers in an environment of trust and mutual benefit.

Continual Improvement, innovation, enhancement of employee skills through training, review and adherence to Quality Management System will be integral to our business.

Chief Executive Officer

Mission Statement

We at Jazeera share a common desire to continuously grow and become one of the leading manufacturers of steel products in the region, meeting and exceeding the aspirations of customers, shareholders and employees shall be the guiding principle for our growth.



**TECHNICAL DATA OF BLACK AND HOT DIP GALVANIZED STEEL PIPES CONFORMING TO
ASTM A 53 GRADE A & B SCH-40 ASTM A 795 GRADE A & B SCH - 40**

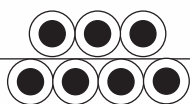
NOMINAL PIPE SIZE		OUTSIDE DIAMETER		WALL THICKNESS		WEIGHT OF BLACK PIPES					TEST PRESSURE				SOCKET DIMENSIONS				NO. OF PCS PER LIFT
INCH	MM	INCH	MM	INCH	MM	KG/MTR	MTR/TON	LB/FT	FT/TON	GRADE A	GRADE B	MIN OUTSIDE DIA	MIN LENGTH	INCH	MM	NO.			
1/2	15	0.840	21.3	0.109	2.77	1.27	787	0.85	2583	PSI	KPA	PSI	KPA	1.063	27.0	1,500	38.1	120	
3/4	20	1.050	26.7	0.113	2.87	1.69	592	1.13	1941	700	4800	700	4800	1.313	33.4	1,563	39.7	84	
1	25	1.315	33.4	0.133	3.38	2.50	400	1.68	1312	700	4800	700	4800	1.576	40.0	1,938	49.2	60	
1.1/4	32	1.660	42.2	0.140	3.56	3.39	295	2.27	968	1200	8300	1300	9000	1.900	48.3	2,000	50.8	42	
1.1/2	40	1.900	48.3	0.145	3.68	4.05	247	2.72	810	1200	8300	1300	9000	2.200	55.9	2,000	50.8	36	
2	50	2.375	60.3	0.154	3.91	5.44	184	3.66	603	2300	15900	2500	17200	2.750	69.8	2,063	52.4	26	
2.1/2	65	2.875	73.0	0.203	5.16	8.63	116	5.80	380	2500	17200	2500	17200	3.250	82.5	3,063	77.8	18	
3	80	3.500	88.9	0.216	5.49	11.29	89	7.58	291	2220	15300	2500	17200	4.000	101.6	3,188	81.0	14	
3.1/2	90	4.000	101.6	0.226	5.74	13.57	74	9.12	242	2030	14000	2370	16300	4.625	117.5	3,313	84.1	12	
4	100	4.500	114.3	0.237	6.02	16.07	62	10.80	204	1900	13100	2210	15200	5.000	127.0	3,438	87.3	10	
5	125	5.563	141.3	0.258	6.55	21.77	46	14.63	151	1670	11500	1950	13400	6.296	159.9	3,688	93.7	7	
6	150	6.625	168.3	0.280	7.11	28.26	35	18.99	116	1520	10500	1780	12300	7.390	187.7	4,938	125.4	7	
8	200	8.625	219.1	0.322	8.18	42.55	24	28.58	79	1340	9200	1570	10800	--	--	--	--	5	

**TECHNICAL DATA OF BLACK AND HOT DIP GALVANIZED STEEL PIPES CONFORMING
TO ASTM A53 GRADE A & B SCHEDULE 80**

NOMINAL PIPE SIZE INCH	OUTSIDE DIAMETER		WALL THICKNESS		WEIGHT OF BLACK PIPES				TEST PRESSURE				NO. OF PCS PER LIFT
	MM	INCH	MM	INCH	KG/MTR	MTR/TON	LB/FT	FT/TON	GRADE A PSI	GRADE A KPA	GRADE B PSI	GRADE B KPA	
2	50	2.375	60.3	0.218	7.48	134	5.03	439	2500	17200	2500	17200	26
2.1/2	65	2.875	73	0.276	11.41	88	7.67	288	2500	17200	2500	17200	18
3	80	3.500	88.9	0.300	15.27	65	10.26	215	2500	17200	2500	17200	14
4	100	4.500	114.3	0.337	22.32	45	15.00	147	2700	18600	2800	19300	10

**TECHNICAL DATA OF BLACK AND HOT DIP GALVANIZED STEEL PIPES CONFORMING
TO ASTM A53 GRADE A & B/ ASTM A 795 GRADE A & B SCH-10**

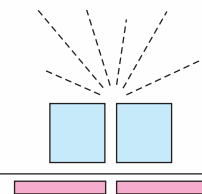
NOMINAL PIPE SIZE INCH	OUTSIDE DIAMETER		WALL THICKNESS		WEIGHT OF BLACK PIPES				TEST PRESSURE				NO. OF PCS PER LIFT
	MM	INCH	MM	INCH	KG/MTR	MTR/TON	LB/FT	FT/TON	GRADE A PSI	GRADE A KPA	GRADE B PSI	GRADE B KPA	
3/4	20	1.050	26.7	0.083	1.28	781	0.86	2563	700	4800	700	4800	84
1	25	1.315	33.4	0.109	2.09	478	1.41	1570	700	4800	700	4800	60
1.1/4	32	1.660	42.2	0.109	2.69	372	1.81	1220	1000	6900	1000	6900	42
1.1/2	40	1.900	48.3	0.109	3.11	322	2.09	1055	1000	6900	1000	6900	36
2	50	2.375	60.3	0.109	3.93	254	2.64	835	1000	6900	1000	6900	26
2.1/2	65	2.875	73	0.120	5.26	190	3.53	624	1000	6900	1000	6900	18
3	80	3.500	88.9	0.120	6.46	155	4.34	508	1000	6900	1000	6900	14
3.1/2	90	4.000	101.6	0.120	7.41	135	4.98	443	1200	8300	1200	8300	12
4	100	4.500	114.3	0.120	8.37	119	5.62	392	1200	8300	1200	8300	10
5	125	5.563	141.3	0.134	11.58	86	7.78	283	1200	8300	1200	8300	7
6	150	6.625	168.3	0.134	13.85	72	9.30	237	1000	6900	1000	6900	7
8	200	8.625	219.1	0.188*	25.26	40	16.96	130	800	5500	800	5500	5
8	200	8.625	219.1	0.148	19.97	50	13.41	164	800	5500	800	5500	5



Strip Levelling



Square end cutting



Butt welding

MECHANICAL PROPERTIES

Properties →	Tensile Strength		Yield Strength	
	psi	MPa	psi	MPa
Grade-A	48000	330	30000	205
Grade-B	60000	415	35000	240

Min Percentage Elongation in 2" [50mm] rounded to nearest 1/2

$$e = 625,000[1940] \times (A^{0.2}/U^{0.9})$$

A= cross sectional area of the tension specimen, rounded to the nearest 0.01 inch²[1mm²],

based on specified outside diameter. If the area is more than 0.75 inch² [500mm²], then

the value 0.75 inch² [500mm²] shall be used.

U= specified minimum tensile strength, psi[MPa].

TOLERANCES

OUTSIDE DIAMETER

SIZE FROM	SIZE TO	TOLERANCE INCH(MM)	
INCH (MM)	INCH (MM)	POSITIVE	NEGATIVE
1/2 (15)	1.1/2(40)	1/64 (0.40)	1/64 (0.40)
2 (50)	8 (200)	1% OF OD	1% OF OD

THICKNESS 12.5% max under the nominal wall thickness.

WEIGHT + / - 10% on calculated standard weight.

END FINISH Square Cut Ends for sizes less than or equal to 1.1/2" NPS
Beveled Ends at 30° -0°/+5° for sizes 2" NPS and above.

BEND TEST Applicable for sizes 2" NPS and below
90° bending radius should be 12 times of the tube diameter.

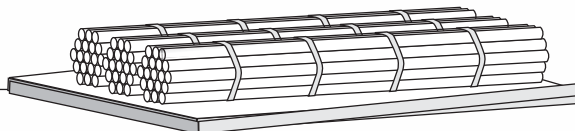
FLATTENING TEST Applicable for sizes 2" NPS and above in three stages.

STAGE-1 For weld ductility until 2/3 of outside dia of specimen tube.
STAGE-2 For ductility of steel until 1/3 of outside dia of specimen tube.
STAGE-3 Full flattening for testing of laminated and unsound material.

ZINC COATING

MINIMUM : 1.60 oz / ft² [490 Gm / Mtr²]
AVERAGE : 1.80 oz / ft² [550 Gm / Mtr²]

MARKING



MARKING:

1. METALLIC SPRINKLER PIPES

For ½" & ¾" ASTM A53 Grade A SCH 40

(UL) LISTED 3KBY STEEL AJSPC/ASTM A53/ASME SA53/SIZE/SCH 40/GRADE A /TYPE E/NDE/LENGTH/ HEAT NO...../OMAN.

For 1" to 8" ASTM A53 Grade A & B SCH 40

(UL) LISTED 3KBY STEEL  AJSPC/ASTM A53/ASTM A795/ ASME SA53/SIZE/ SCH 40/
APPROVED

GRADE /TYPE E /NDE/LENGTH/ HEAT NO/OMAN.

For 1/2" to 6" ASTM A53 Gr A/B & ASTM A795 Grade A/B SCH 10

(UL) LISTED 3KBY STEEL AJSPC/ASTM A53/ASTM A795/SIZE/SCH 10/GRADE/TYPE E/NDE/LENGTH/ HEAT NO/OMAN.

For 8" ASTM A53 Gr A/B & ASTM A795 Grade A/B 0.188" WALL THICKNESS

(UL) LISTED 3KBY STEEL AJSPC/ASTM A53/ASTM A795/SIZE/0.188"/GRADE/TYPE E/NDE/LENGTH/ HEAT NO/OMAN.

NOTE: AJSPC – AL JAZEERA STEEL PRODUCTS CO. SAOG

2. GALVANIZED NSF/ ANSI 372 CERTIFIED PIPES

(Galvanized Steel Pipes: ½" to 3/4" diameter size in Schedule 40)

UND. LAB. CLFD STEEL PIPE NSF 372 MH49792 AJSPC/ASTM A53/ SIZE/SCH 40/GRADE/ TYPE E /NDE/LENGTH/ HEAT NO/OMAN.

(Galvanized Steel Pipes: 1" to 8" diameter size in Schedule 40)

UND. LAB. CLFD STEEL PIPE NSF 372 MH49792  AJSPC/ASTM A53/ASTM A795/SIZE/SCH 40/GRADE/
APPROVED

TYPE E/NDE/LENGTH/ HEAT NO/OMAN.

(Galvanized Steel Pipes: ½" to 8" diameter size in Schedule 10)

UND. LAB. CLFD STEEL PIPE NSF 372 MH49792 AJSPC/ASTM A53/ASTM A795/SIZE/SCH 10/GRADE/TYPE E/ NDE/LENGTH/ HEAT NO/OMAN.

NOTE: A) AJSPC – AL JAZEERA STEEL PRODUCTS CO. SAOG

3. BLACK STEEL NSF/ ANSI 61 AND NSF/ ANSI 372 CERTIFIED PIPES

(Black Steel Pipes) – ½" to 3/4" diameter in Schedule 40)

UL CLFD. PIPE NSF 61/NSF 372 MH49792 AJSPC/ASTM A53/SIZE/ SCH 40/ GRADE /TYPE E/NDE/LENGTH/ HEAT NO/OMAN.

(Black Steel Pipes) – 1" to 3", 5" to 08" diameter in Schedule 40)

UL CLFD. PIPE NSF 61/NSF 372 MH49792  AJSPC/ASTM A53/ASTM A795/ SIZE/ SCH 40/ GRADE/
APPROVED

TYPE E/NDE/LENGTH/ HEAT NO/OMAN.

(Black Steel Pipes – ½" to 3", 5" to 08" diameter in Schedule 10)

UL CLFD. PIPE NSF 61/NSF 372 MH49792 AJSPC/ASTM A53/ASTM A795/ SIZE/SCH 10/ GRADE/ TYPE E/NDE/LENGTH/ HEAT NO/OMAN.

NOTE: A) AJSPC – AL JAZEERA STEEL PRODUCTS CO. SAOG

B. ASTM A53 SCHEDULE 80 PIPES

AJSPC/ASTM A53/SIZE/SCH 80/GRADE/TYPE E/LENGTH/NDE/ HEAT NO. XXXXXXXX/ OMAN



TECHNICAL DATA OF BLACK AND GALVANIZED STEEL PIPES CONFORMING TO EN-10219-1 & 2 CHEMICAL COMPOSITION / MECHANICAL PROPERTIES OF NON ALLOY STEEL

GRADE	% Carbon C (max)	% Silicon Si (max)	% Manganese Mn (max)	% Phosphorus P (max)	% Sulfur S (max)	% Nitrogen N (max)	Max Carbon Eq CEV	Minimum Yield Strength R _{eff} (MPa)	Tensile Strength R _m (MPa)		Min Elongation (%)	Minimum Impact Energy (J)		
									Thk<3mm	Thk≥3mm		-20°C	0°C	20°C
S235JRH	0.17	--	1.40	0.040	0.040	0.009	0.35	235	360-510	360-510	24	--	--	27
S275J0H	0.20	--	1.50	0.035	0.035	0.009	0.40	275	430-580	410-560	20	--	27	--
S275J2H	0.20	--	1.50	0.030	0.030	--	0.40	275	430-580	410-560	20	27	--	--
S355J0H	0.22	0.55	1.60	0.035	0.035	0.009	0.45	355	510-680	470-630	20	--	27	--
S355J2H	0.22	0.55	1.60	0.030	0.030	--	0.45	355	510-680	470-630	20	27	--	--
S355K2H	0.22	0.55	1.60	0.030	0.030	--	0.45	355	510-680	470-630	20	40	--	--

CARBON EQUIVALENT: Max carbon equivalent shall be
 $CEV = C + (Mn/6) + (Cr + Mo + V)/5 + (Ni + Cu)/15$

DIMENSIONS AND TOLERANCES: All dimensions and tolerances shall be according to EN 10219:2006 Part-2

SIZE RANGE

CHS : 21.3 mm OD to 219.1 mm OD

SHS : 12x12, 16x16, 19x19, 25x25, 30x30, 31x31, 38x38, 50x50, 75x75, 80x80, 100x100, 125x125 (mm x mm)

RHS : 31x19, 40x20, 40x25, 50x25, 60x30, 60x40, 80x40, 100x50, 120x60, 120x100, 125x50, 125x75, 150x75, 150x100 (mm x mm)

Cooling by Water/Air

Sizing

Eddy Current Testing

Turk Head

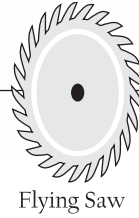
TOLERANCES

CHARACTERIC	CIRCULAR HOLLOW SECTIONS	SQAURE AND RECTANGULAR HOLLOW SECTIONS	
OUTSIDE DIMENSIONS (D, B and H)	+/- 1% with a minimum of +/-0.50 mm &and a maximum of +/-1.0 mm	Side Length (mm)	Tolerance
		H,B<100	+/- 1% with a min +/-0.5mm
		100≤ H,B ≤200	+/- 0.8%
		H,B >200	+/- 0.6%
THICKNESS	For D<406.4mm: +/-10% for Thickness≤5.0mm +/-0.5mm for Thickness>5.0mm	+/-10% for Thickness ≤5.0mm +/-0.5mm for Thickness >5.0mm	
	For D<406.4mm: +/-10% with a maximum of +/- 2.0mm		
OUT OF ROUNDNESS	2% for hollow sections having a diameter to thickness ratio≤100	--	
CONCAVITY / CONVEXITY	--	Max 0.8% with a minimum of 0.5mm	
SQUARENESS OF SIDE	--	90 ⁰ +/- 1 ⁰	
EXTERNAL CORNER PROFILE	--	T≤6.0mm 1.6T to 2.4T	
		6.0<T≤10.0mm 2.0T to 3.0T	
		T>10.0mm 2.4T to 3.6T	
TWIST	--	2mm plus 0.5mm/m length	
STRAIGHTNESS	0.20% of total length and 3mm over any 1m length	0.15% of total length and 3mm over any 1m length	
MASS PER UNIT LENGTH	+/- 6% on individual delivered lengths		
MAX WELD BEAD HEIGHT	3.5mm for T≤14.2mm and 4.8mm for T>14.2mm		

NON DESTRUCTIVE TEST

Eddy Current Testing 100% on-line

MARKING EN 10219 STEEL GRADE / JAZEERA STEEL, OMAN / SIZE / THICKNESS / LENGTH / HEAT NO xxxxxxxx

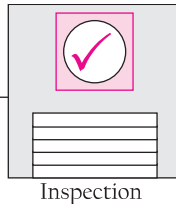


**TABLE-1 : TECHNICAL DATA OF BLACK AND GALVANIZED STEEL PIPES
CONFORMING TO EN 10255:2004 (SUPERCEDES BS 1387 : 1985) / AS 1074 - 1989**

CLASS	SIZE		OUTSIDE DIAMETER		WALL THICKNESS		WEIGHT OF BLACK PIPES				WEIGHT OF GALVANIZED PIPES (CALCULATED)				NO OF PIPES PACKED PER STANDARD BUNDLE TONNE APPROX
	DN	Specified OD	MAX	MIN	Inch	mm	PLAIN ENDED	SCREWED & SOCKETED	PLAIN ENDED	SCREWED & SOCKETED	PLAIN ENDED	SCREWED & SOCKETED	PLAIN ENDED	SCREWED & SOCKETED	
TYPE L2	1/2	21.3	0.843	21.4	0.827	21.0	0.079	2.00	0.947	1056	ft/ton	Kg/Mtr	mtr/ton	ft/ton	3268
	3/4	26.9	1.059	26.9	1.039	26.4	0.091	2.30	1.380	725	2377	1.390	719	2360	2261
	1	33.7	1.331	33.8	1.307	33.2	0.102	2.60	1.980	505	1657	2.000	500	1640	1579
	1 1/4	42.4	1.673	42.5	1.650	41.9	0.102	2.60	2.540	394	1292	2.570	389	1277	1229
	1 1/2	48.3	1.906	48.4	1.882	47.8	0.114	2.90	3.230	310	1016	3.270	306	1003	970
	2	60.3	2.370	60.2	2.346	59.6	0.114	2.90	4.080	245	804	4.150	241	791	764
	2 1/2	76.1	2.992	76.0	2.961	75.2	0.126	3.20	5.710	175	575	5.830	172	563	546
	3	88.9	3.492	88.7	3.461	87.9	0.126	3.20	6.720	149	488	6.890	145	476	462
	4	114.3	4.484	113.9	4.449	113.0	0.142	3.60	9.750	103	336	10.000	100	328	319
	1/2	21.3	0.858	21.8	0.827	21.0	0.102	2.60	1.210	826	2711	1.220	820	2689	2592
MEDIUM SERIES	3/4	26.9	1.075	27.3	1.043	26.5	0.102	2.60	1.560	641	2101	1.570	637	2090	2012
	1	33.7	1.346	34.2	1.311	33.3	0.126	3.20	2.410	415	1361	2.430	412	1350	1309
	1 1/4	42.4	1.689	42.9	1.654	42.0	0.126	3.20	3.100	323	1058	3.130	319	1048	1016
	1 1/2	48.3	1.921	48.8	1.886	47.9	0.126	3.20	3.560	281	922	3.600	278	911	881
	2	60.3	2.394	60.8	2.350	59.7	0.142	3.60	5.030	199	652	5.100	196	643	626
	2 1/2	76.1	3.016	76.6	2.965	75.3	0.142	3.60	6.420	156	511	6.540	153	502	487
	3	88.9	3.524	89.5	3.465	88.0	0.157	4.00	8.360	120	392	8.530	117	385	375
	4	114.3	4.528	115.0	4.453	113.1	0.177	4.50	12.200	82	269	12.500	80	262	258
	5	139.7	5.543	140.8	5.453	138.5	0.197	5.00	16.600	60	198	17.100	58	192	188
	6	165.1	6.555	166.5	6.453	163.9	0.197	5.00	19.800	51	166	20.400	49	161	158
HEAVY SERIES	1/2	21.3	0.858	21.8	0.827	21.0	0.126	3.20	1.440	694	2278	1.450	690	2263	2195
	3/4	26.9	1.075	27.3	1.043	26.5	0.126	3.20	1.870	535	1754	1.880	532	1745	1691
	1	33.7	1.346	34.2	1.311	33.3	0.157	4.00	2.930	341	1120	2.950	339	1112	1081
	1 1/4	42.4	1.689	42.9	1.654	42.0	0.157	4.00	3.790	264	866	3.820	262	859	835
	1 1/2	48.3	1.921	48.8	1.886	47.9	0.157	4.00	4.370	229	751	4.410	227	744	724
	2	60.3	2.394	60.8	2.350	59.7	0.177	4.50	6.190	162	530	6.260	160	524	513
	2 1/2	76.1	3.016	76.6	2.965	75.3	0.177	4.50	7.930	126	414	8.050	124	408	399
	3	88.9	3.524	89.5	3.465	88.0	0.197	5.00	10.300	97	319	10.500	95	312	307
	4	114.3	4.528	115.0	4.453	113.1	0.213	5.40	14.500	69	226	14.800	68	222	218
	5	139.7	5.543	140.8	5.453	138.5	0.213	5.40	17.900	56	183	18.400	54	178	175
	6	165.1	6.555	166.5	6.453	163.9	0.213	5.40	21.300	47	154	21.900	46	150	147

**TABLE-2 : TECHNICAL DATA OF BLACK AND GALVANIZED STEEL PIPES
CONFORMING TO EN 10255:2004 (SUPERCEDES BS 1387 :1985) / AS 1074 - 1989**

CLASS	SIZE		OUTSIDE DIAMETER				WALL THICKNESS		WEIGHT OF BLACK PIPES				WEIGHT OF GALVANIZED PIPES (CALCULATED)				NO OF PIPES PACKED PER STANDARD BUNDLE TONNE APPROX						
	DN	Specified OD	MAX		MIN		THICKNESS		PLAIN ENDED		SCREWED & SOCKETED		PLAIN ENDED		SCREWED & SOCKETED								
			Inch	mm	Inch	mm	Inch	mm	Kg/Mtr	mtr/ton	ft/ton	Kg/Mtr	mtr/ton	ft/ton	Kg/Mtr	mtr/ton		ft/ton					
TYPE L	1/2	21.3	0.854	21.7	0.827	21.0	0.091	2.30	0.091	2.30	1.080	926	3038	1.090	917	3010	1.126	888	2914	1.135	881	2891	160
	3/4	26.9	1.067	27.1	1.039	26.4	0.091	2.30	0.091	2.30	1.400	714	2343	1.410	709	2327	1.441	694	2277	1.451	689	2261	110
	1	33.7	1.339	34.0	1.307	33.2	0.114	2.90	0.114	2.90	2.200	455	1491	2.220	450	1478	2.280	439	1439	2.300	435	1426	80
	1.1/4	42.4	1.681	42.7	1.650	41.9	0.114	2.90	0.114	2.90	2.820	355	1163	2.850	351	1151	2.924	342	1122	2.954	339	1111	61
	1.1/2	48.3	1.913	48.6	1.882	47.8	0.114	2.90	0.114	2.90	3.250	308	1009	3.290	304	997	3.344	299	981	3.384	296	970	51
	2	60.3	2.390	60.7	2.346	59.6	0.126	3.20	0.126	3.20	4.510	222	727	4.580	218	716	4.650	215	706	4.720	212	695	37
	2.1/2	76.1	2.992	76.0	2.961	75.2	0.126	3.20	0.126	3.20	5.750	174	571	5.870	170	559	5.892	170	557	6.012	166	546	27
	3	88.9	3.492	88.7	3.461	87.9	0.126	3.20	0.126	3.20	6.760	148	485	6.930	144	473	6.934	144	473	7.104	141	462	24
	3.1/2	101.6	3.984	101.2	3.949	100.3	0.142	3.60	0.142	3.60	8.700	115	377	8.880	113	369	8.947	112	367	9.126	110	360	18
	4	114.3	4.484	113.9	4.449	113.0	0.142	3.60	0.142	3.60	9.830	102	334	10.100	99	325	10.026	100	327	10.276	97	319	16
	5	139.7	5.543	140.8	5.453	138.5	0.177	4.50	0.177	4.50	15.000	67	219	15.500	65	212	15.344	65	214	15.844	63	207	10
	6	165.1	6.555	166.5	6.453	163.9	0.177	4.50	0.177	4.50	17.800	56	184	18.400	54	178	18.227	55	180	18.827	53	174	7
TYPE LI	1/2	21.3	0.854	21.7	0.827	21.0	0.091	2.30	0.091	2.30	1.080	926	3038	1.090	917	3010	1.126	888	2914	1.135	881	2891	160
	3/4	26.9	1.067	27.1	1.039	26.4	0.091	2.30	0.091	2.30	1.390	719	2360	1.400	714	2343	1.441	694	2277	1.451	689	2261	110
	1	33.7	1.339	34.0	1.307	33.2	0.114	2.90	0.114	2.90	2.200	455	1491	2.220	450	1478	2.280	439	1439	2.300	435	1426	80
	1.1/4	42.4	1.681	42.7	1.650	41.9	0.114	2.90	0.114	2.90	2.820	355	1163	2.850	351	1151	2.924	342	1122	2.954	339	1111	61
	1.1/2	48.3	1.913	48.6	1.882	47.8	0.114	2.90	0.114	2.90	3.240	309	1013	3.280	305	1000	3.344	299	981	3.384	296	970	51
	2	60.3	2.390	60.7	2.346	59.6	0.126	3.20	0.126	3.20	4.490	223	731	4.560	219	719	4.650	215	706	4.720	212	695	37
	2.1/2	76.1	3.004	76.3	2.961	75.2	0.126	3.20	0.126	3.20	5.730	175	573	5.850	171	561	5.892	170	557	6.012	166	546	27
	3	88.9	3.520	89.4	3.461	87.9	0.142	3.60	0.142	3.60	7.550	132	435	7.720	130	425	7.787	128	421	7.957	126	412	24
	4	114.3	4.524	114.9	4.449	113.0	0.157	4.00	0.157	4.00	10.800	93	304	11.100	90	296	11.158	90	294	11.408	88	288	16



TOLERANCES :

OUTSIDE DIAMETER	: As per Table-1 / 2
THICKNESS	: +/-10% for M, H series and Type L -8% with plus tolerance limited by the mass tolerance for Types L1 and L2
MASS	: +/-7.5% for M, H series and Type L (for lot≥10tons) +10 / -8 % on individual tubes for types L1 and L2

MECHANICAL PROPERTIES Steel grade S195T

YIELD STRENGTH	: 195 MPa (Min)
TENSILE STRENGTH	: 320-520 MPa
ELONGATION	: 20% (Min) on Gauge Length 5.65 x Sq. Root of Cross Sectional Area

CHEMICAL PROPERTIES

% C (Max)	% Mn (Max)	% P (Max)	% S (Max)
0.20	1.40	0.035	0.030

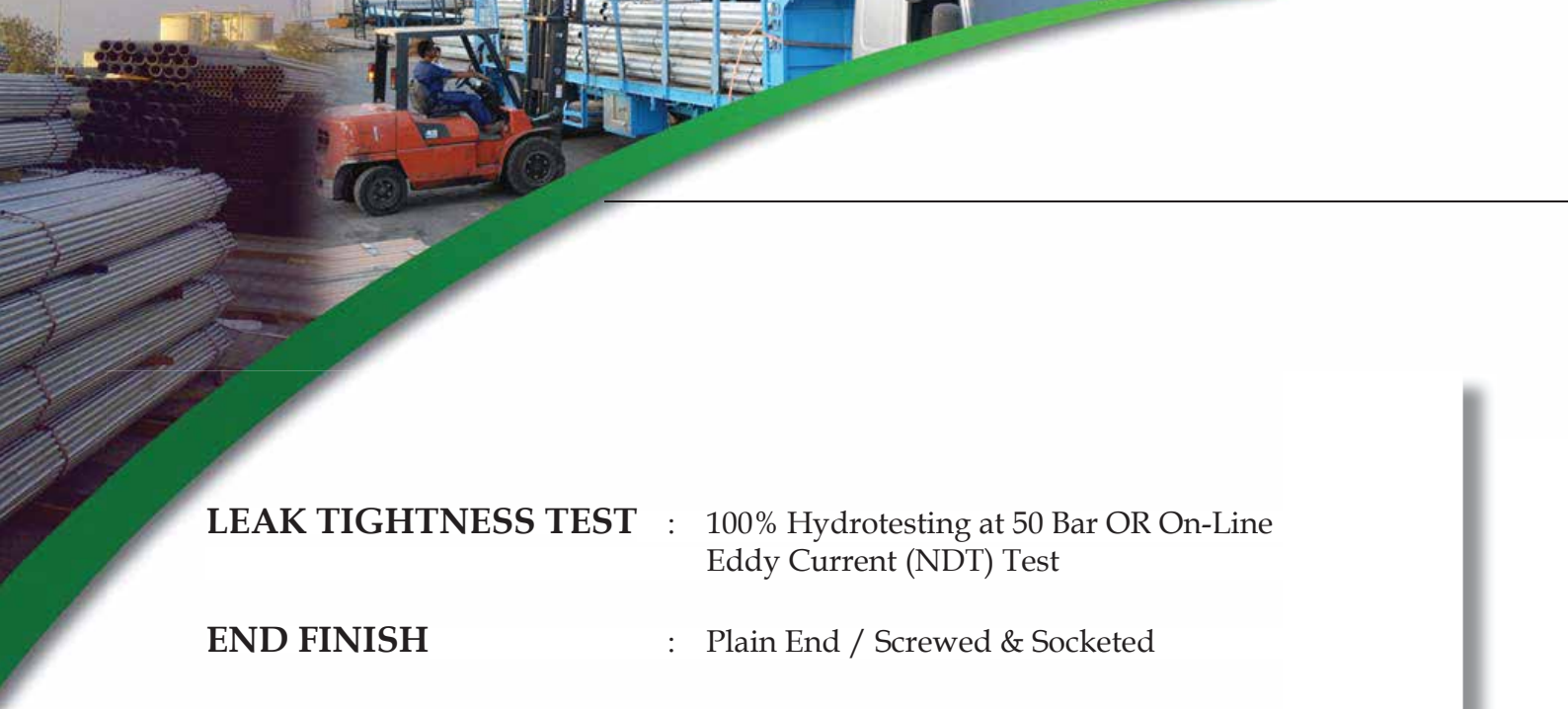
BEND TEST : For sizes 2" and below

Diameter OD	21.3	26.9	33.7	42.4	48.3	60.3
Bending Radius	65	85	100	150	170	220

Note-Weld shall be placed at 90° to the plane of bending.

FLATTENING TEST : For sizes above 2" in Two Stages

- For Weld Test : Flatten upto 75% of Original Tube OD
- For Material other than Weld : Flatten upto 60% of Original Tube OD



LEAK TIGHTNESS TEST : 100% Hydrotesting at 50 Bar OR On-Line Eddy Current (NDT) Test

END FINISH : Plain End / Screwed & Socketed

GALVANIZING : As per EN 10240

BLACK PAINTING : Uniform Black Paint Coating

THREADING : As per EN 10226 - 1 / 2

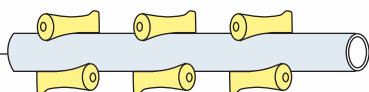
COLOUR CODING

Series / Type	Medium	Heavy	L	L1	L2
Colour Code	Blue	Red	Green	White	Brown

STENCILING : Each Pipe shall be Stenciled with "JAZEERA STEEL OMAN-W-EN 10255-SERIES/TYPE-SIZE-LENGTH"

PACKING : Hexagonal Type





TECHNICAL DATA FOR METAL SCAFFOLDING AS PER SPECIFICATION BS EN 39 : 2001

Outside Diameter		Thickness		Weight per unit length	
Inches	mm	Inches	mm	lbs/foot	kg / m
1.1/2	48.3	0.126	3.2	2.392	3.56
1.1/2	48.3	0.157	4.0	2.937	4.37

TOLERANCES

Outside Diameter	Thickness	Weight
$\pm 0.5\text{mm}$	-10%	-7.5% On Single Tube

STEEL GRADE

: S235GT

CHEMICAL COMPOSITION

% C (Max)	% Si (Max)	% Mn (Max)	% P (Max)	% S (Max)	% Al (Max)
0.20	0.05	1.40	0.040	0.045	0.020

MECHANICAL PROPERTIES

YIELD STRENGTH : 235 MPa (Min)
TENSILE STRENGTH : 340-520 MPa
ELONGATION : 24% (Min) on Gauge Length
5.65 x Sq. Root of Cross Sectional Area

END FINISH

: Square Cut

STRAIGHTNESS

: 1 mm in 500 mm length.

FLATTENING TEST

a. For Weld Test : Flatten upto 75% of Original Tube OD
b. For Material other than Weld : Flatten upto 60% of Original Tube OD

ZINC COATING

: 40 Microns Minimum Outside

MARKING

: "EN 39 AJSP 3" for 3.2mm
"EN 39 AJSP 4" for 4.0mm

DELIVERY CONDITIONS

a. As Rolled Condition (Without Protection)
b. Hot Dip Galvanized

TECHNICAL DATA OF BLACK AND HOT DIP GALVANIZED STEEL PIPES CONFORMING TO ASTM A 135/A795 GRADE A / B

		OUTSIDE DIAMETER		WALL THICKNESS		WEIGHT OF BLACK PIPES				TEST PRESSURE	
NOMINAL PIPE SIZE		STANDARD		STANDARD		PLAIN END PIPES					
INCH	MM	INCH	MM	INCH	MM	KG/MTR	MTR/TON	LB/FT	FT/TON	PSI	KPA
3/4	20	1.050	26.7	0.083 ⁺	2.11	1.28	781	0.86	2562	700	4830
1	25	1.315	33.4	0.109 ⁺	2.77	2.09	478	1.41	1568	700	4830
1.1/4	32	1.660	42.2	0.109 ⁺	2.77	2.69	372	1.81	1221	1000	6890
1.1/2	40	1.900	48.30	0.109 ⁺	2.77	3.11	322	2.09	1056	1000	6890
2	50	2.375	60.3	0.109 ⁺	2.77	3.93	254	2.64	833	1000	6890
2.1/2	65	2.875	73.0	0.120 ⁺	3.05	5.26	190	3.53	623	1000	6890
3	80	3.500	88.9	0.120 ⁺	3.05	6.46	155	4.34	509	1000	6890
3.1/2	90	4.000	101.6	0.120 ⁺	3.05	7.41	135	4.98	443	1200	8270
4	100	4.500	114.3	0.120 ⁺	3.05	8.37	119	5.62	390	1200	8270
5	125	5.563	141.3	0.134 ⁺	3.40	11.58	86	7.78	283	1200	8270
6	150	6.625	168.3	0.134 ⁺	3.40	13.85	72	9.30	237	1000	6890
8	200	8.625	219.1	0.188 ⁺⁺	4.78	25.26	40	16.96	130	800	5520

* Schedule 10 Thickness

** Not Schedule 10

CHEMICAL PROPERTIES

ELEMENT →	Carbon C	Manganese Mn	Phosphorus P	Sulphur S
GRADE-A	0.25	0.95	0.035	0.035
GRADE-B	0.30	1.20	0.035	0.035

MECHANICAL PROPERTIES

Properties →	Tensile Strength		Yield Strength	
	psi	MPa	psi	MPa
Grade-A	48000	330	30000	205
Grade-B	60000	415	35000	240

Min percent elongation in 2" (50mm) is
% El (Grade-A) = 56t + 16.5

% El (Grade-B) = 48t + 14

Where t = specified wall thickness (inch)

TOLERANCES OUTSIDE DIAMETER

SIZE FROM	SIZE TO	TOLERANCE INCH(MM)	
INCH (MM)	INCH (MM)	POSITIVE	NEGATIVE
3/4 (20)	1.1/2(40)	1/64 (0.40)	1/64 (0.40)
2 (50)	8 (200)	1% OF OD	1% OF OD

THICKNESS

12.5% max under the nominal wall thickness.

WEIGHT

+/-10% on calculated standard nominal weight.

MARKING

Each pipe is stenciled as "JAZEERA STEEL OMAN, ASTM A135/ A795 GR A / B-ERW SCH 10(or Thk-Inch) NPS-LENGTH-HEAT NO"

HEAT TREATMENT

Weld seam of the ERW pipe in Grade-B shall be heat treated after welding to a minimum temperature of 1000°F [540°C] so that no untempered martensite remains.

ZINC COATING

MINIMUM: 1.30 oz / ft² [400 Gm / Mtr²]

AVERAGE : 1.50 oz / ft² [460 Gm / Mtr²]

FLATTENING TEST

STAGE-1 : For weld ductility until 2/3 of outside dia of specimen tube.

STAGE-2 : For ductility of steel until 1/3 of outside dia of specimen tube.

STAGE-3 : Full flattening for testing of laminated and unsound material.

TECHNICAL DATA OF BLACK AND HOT DIP GALVANIZED STEEL PIPES CONFORMING TO ISO 65-1981 FOR FABRICATION AND SHAPING BY NATURAL TECHNIQUES

CLASS	NOMINAL PIPE SIZE		OUTSIDE DIAMETER				WALL THICKNESS		WEIGHT OF BLACK PIPES						NO OF PIECES PER LIFT		
			MINIMUM		MAXIMUM				PLAIN END PIPES			SCREWED AND SOCKETED PIPES					
			INCH	MM	INCH	MM			KG/MTR	MTR/TON	LBS/FT	FT/TON	KG/MTR	MTR/TON		LBS/FT	FT/TON
LIGHT - 1	1/2	15	0.827	21.00	0.854	21.70	0.091	2.30	1.080	926	0.726	3038	1.090	917	0.732	3010	130
	3/4	20	1.039	26.40	1.067	27.10	0.091	2.30	1.390	719	0.934	2360	1.400	714	0.941	2343	100
	1	25	1.307	33.20	1.339	34.00	0.114	2.90	2.200	455	1.491	1478	2.220	450	1.492	1478	65
	1 1/4	32	1.650	41.90	1.681	42.70	0.114	2.90	2.820	355	1.895	1163	2.850	351	1.915	1151	51
	1 1/2	40	1.882	47.80	1.913	48.60	0.114	2.90	3.240	309	2.177	1013	3.280	305	2.204	1000	44
	2	50	2.346	59.60	2.390	60.70	0.126	3.20	4.490	223	3.017	731	4.560	219	3.064	719	30
	2 1/2	65	2.961	75.20	3.004	76.30	0.126	3.20	5.730	175	3.850	573	5.850	171	3.931	561	24
	3	80	3.461	87.90	3.520	89.40	0.142	3.60	7.550	132	5.073	435	7.720	130	5.188	425	19
	4	100	4.449	113.00	4.524	114.90	0.157	4.00	10.800	93	7.257	304	11.100	90	7.459	296	14
	5	125	5.453	138.50	5.543	140.80	0.177	4.50	13.305	66	8.958	226	14.500	68	9.945	222	12
LIGHT - 2	1/2	15	0.827	21.00	0.843	21.40	0.079	2.00	0.947	1056	0.636	3464	0.956	1046	0.642	3432	160
	3/4	20	1.039	26.40	1.059	26.90	0.091	2.30	1.380	725	0.927	2377	1.390	719	0.934	2360	110
	1	25	1.307	33.20	1.331	33.80	0.102	2.60	1.980	505	1.330	1657	2.000	500	1.344	1640	80
	1 1/4	32	1.650	41.90	1.673	42.50	0.102	2.60	2.540	394	1.707	1292	2.570	389	1.727	1277	61
	1 1/2	40	1.882	47.80	1.906	48.40	0.114	2.90	3.230	310	2.170	1016	3.270	306	2.197	1003	51
	2	50	2.346	59.60	2.370	60.20	0.114	2.90	4.080	245	2.742	804	4.150	241	2.789	791	37
	2 1/2	65	2.961	75.20	2.992	76.00	0.126	3.20	5.710	175	3.837	575	5.830	172	3.918	563	27
	3	80	3.461	87.90	3.492	88.70	0.126	3.20	6.720	149	4.516	488	6.890	145	4.630	476	24
	4	100	4.449	113.00	4.484	113.90	0.142	3.60	9.750	103	6.552	336	10.000	100	6.720	328	16
	5	125	5.453	138.50	5.543	140.80	0.157	4.00	12.200	82	8.198	269	12.500	80	8.400	262	14
MEDIUM	1/2	15	0.827	21.00	0.858	21.80	0.102	2.60	1.210	826	0.813	2711	1.220	820	0.820	2689	130
	3/4	20	1.043	26.50	1.075	27.30	0.102	2.60	1.560	641	1.048	2103	1.570	637	1.055	2090	100
	1	25	1.311	33.30	1.346	34.20	0.126	3.20	2.410	415	1.619	1361	2.430	412	1.633	1350	65
	1 1/4	32	1.654	42.00	1.689	42.90	0.126	3.20	3.100	323	2.083	1058	3.130	319	2.103	1048	51
	1 1/2	40	1.886	47.90	1.921	48.80	0.126	3.20	3.560	281	2.392	922	3.600	278	2.419	911	44
	2	50	2.350	59.70	2.394	60.80	0.142	3.60	5.030	199	3.380	652	5.100	196	3.427	643	30
	2 1/2	65	2.965	75.30	3.016	76.60	0.142	3.60	6.420	156	4.314	511	6.540	153	4.395	502	24
	3	80	3.465	88.00	3.524	89.50	0.157	4.00	8.360	120	5.618	392	8.530	117	5.732	385	19
	4	100	4.453	113.10	4.528	115.00	0.177	4.50	12.200	82	8.198	269	12.500	80	8.400	262	14
	5	125	5.453	138.50	5.543	140.80	0.197	5.00	16.600	60	11.155	198	17.100	58	11.191	192	10
HEAVY	6	150	6.453	163.90	6.555	166.50	0.197	5.00	19.800	51	13.305	166	20.400	49	13.708	161	7
	1/2	15	0.827	21.00	0.858	21.80	0.126	3.20	1.440	694	0.968	2278	1.450	690	0.974	2263	110
	3/4	20	1.043	26.50	1.075	27.30	0.126	3.20	1.870	535	1.257	1754	1.880	532	1.263	1745	80
	1	25	1.311	33.30	1.346	34.20	0.157	4.00	2.930	341	1.969	1120	2.950	339	1.982	1112	55
	1 1/4	32	1.654	42.00	1.689	42.90	0.157	4.00	3.790	264	2.547	866	3.820	262	2.567	859	44
	1 1/2	40	1.886	47.90	1.921	48.80	0.157	4.00	4.370	229	2.937	751	4.410	227	2.963	744	37
	2	50	2.350	59.70	2.394	60.80	0.177	4.50	6.190	162	4.159	530	6.260	160	4.207	524	27
	2 1/2	65	2.965	75.30	3.016	76.60	0.177	4.50	7.930	126	5.329	414	8.050	124	5.409	408	20
	3	80	3.465	88.00	3.524	89.50	0.197	5.00	10.300	97	6.921	319	10.500	95	7.056	312	16
	4	100	4.453	113.10	4.528	115.00	0.213	5.40	14.500	69	9.744	226	14.800	68	9.945	222	12

Hydro Testing



TECHNICAL DATA

TOLERANCES

CLASS	THICKNESS	WEIGHT/PIECE	WEIGHT / 10 MT
LIGHT 1	-12.50%	+ / - 10.0%	+ / - 7.5%
LIGHT 2	-8.00%	-8.0 / +10.0%	+ / - 5.0%
MEDIUM	-12.50%	+ / - 10.0%	+ / - 7.5%
HEAVY	-12.50%	+ / - 10.0%	+ / - 7.5%

CHEMICAL PROPERTIES

PHOSPHORUS : 0.060% MAX

SULPHUR : 0.060% MAX

MECHANICAL PROPERTIES

TENSILE STRENGTH : 320-520 N/MM2

ELONGATION : 15% MIN on GL 5.65xSq. Root of Cross Sectional Area

LEAK TIGHTNESS TEST

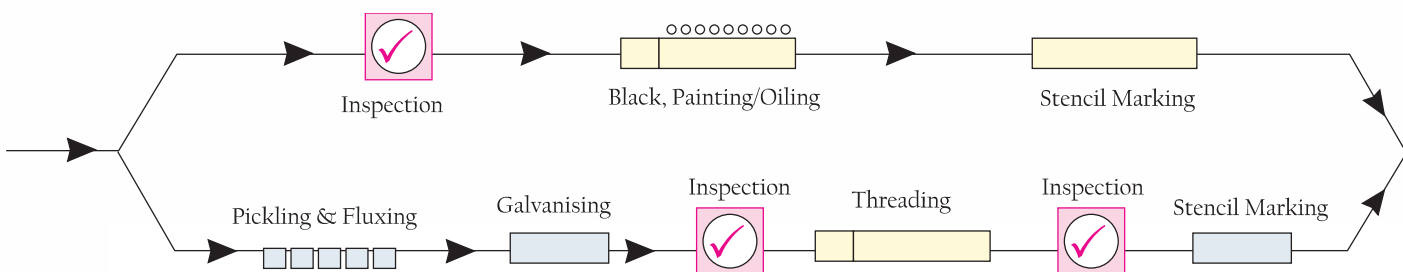
All pipes shall be tested hydrostatically at a pressure of 50 bar OR

shall be 100% on-line eddy current tested.

MARKING : Each pipes is stenciled with
"JAZEERA STEEL OMAN - DN SIZE -SERIES- ISO 65"

PACKING : Hexagonal Type



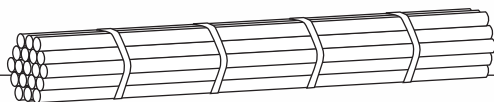


TECHNICAL DATA OF SQUARE AND RECTANGLE HOLLOW SECTION CONFORMING TO THE SPECIFICATION ASTM A500 GRADE A & B

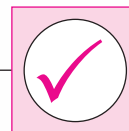
SIZE		THICKNESS		SECTION WEIGHT DETAILS				NO OF PCS PER BUNDLE
MM	INCHES	MM	INCHES	KG/MTR	MTR/TON	LB/FT	FT/TON	
12 X 12	0.472 X 0.472	0.90	0.035	0.297	3367	0.200	11047	400
		1.00	0.039	0.325	3077	0.218	10095	400
		1.20	0.047	0.377	2653	0.253	8702	400
		1.50	0.059	0.449	2227	0.302	7307	400
16 X 16	0.630 X 0.630	0.90	0.035	0.410	2439	0.276	8002	300
		1.00	0.039	0.450	2222	0.302	7291	300
		1.20	0.047	0.528	1894	0.355	6214	300
		1.50	0.059	0.637	1570	0.428	5150	300
19 X 19	0.748 X 0.748	0.90	0.035	0.495	2020	0.333	6628	300
		1.00	0.039	0.545	1835	0.366	6020	300
		1.20	0.047	0.641	1560	0.431	5118	300
		1.50	0.059	0.778	1285	0.523	4217	300
25 X 25	0.984 X 0.984	1.20	0.047	0.867	1153	0.583	3784	144
		1.50	0.059	1.060	943	0.712	3095	144
		1.80	0.071	1.245	803	0.837	2635	144
		2.00	0.079	1.360	735	0.914	2412	144
30 X 30	1.18 X 1.18	1.20	0.047	1.056	947	0.710	3107	81
		1.50	0.059	1.297	771	0.872	2530	81
		1.80	0.071	1.528	654	1.027	2147	81
		2.00	0.079	1.678	596	1.128	1955	81
31 X 31	1.22 X 1.22	1.20	0.047	1.094	914	0.735	2999	81
		1.50	0.059	1.340	746	0.900	2448	81
		1.80	0.071	1.584	631	1.064	2071	81
		2.00	0.079	1.740	575	1.169	1886	81
		2.50	0.098	2.111	474	1.419	1554	81
		3.00	0.118	2.455	407	1.650	1336	81



SIZE		THICKNESS		SECTION WEIGHT DETAILS				NO OF PCS PER BUNDLE
MM	INCHES	MM	INCHES	KG/MTR	MTR/TON	LB/FT	FT/TON	
38 X 38	1.496 X 1.496	1.20	0.047	1.357	737	0.912	2418	64
		1.50	0.059	1.673	598	1.124	1961	64
		1.80	0.071	1.980	505	1.330	1657	64
		2.00	0.079	2.179	459	1.464	1506	64
		2.50	0.098	2.660	376	1.787	1233	64
		3.00	0.118	3.114	321	2.093	1054	64
		3.50	0.138	3.544	282	2.381	926	64
		4.00	0.157	3.946	253	2.652	831	64
50 X 50	1.968 X 1.968	1.50	0.059	2.239	447	1.505	1465	49
		1.80	0.071	2.659	376	1.787	1234	49
		2.00	0.079	2.934	341	1.972	1118	49
		2.50	0.098	3.602	278	2.420	911	49
		2.80	0.110	3.991	251	2.682	822	49
		3.00	0.118	4.246	236	2.853	773	49
		3.50	0.138	4.863	206	3.268	675	30
		4.00	0.157	5.454	183	3.665	602	30
		4.50	0.177	6.020	166	4.045	545	30
		5.00	0.197	6.560	152	4.408	500	30
75 X 75	2.953 X 2.953	1.80	0.071	4.072	246	2.736	806	36
		2.00	0.079	4.504	222	3.027	728	36
		2.30	0.091	5.144	194	3.457	638	36
		2.50	0.098	5.565	180	3.740	590	36
		3.00	0.118	6.601	151	4.436	497	36
		3.50	0.138	7.610	131	5.114	431	20
		4.00	0.157	8.594	116	5.775	382	20
		4.50	0.177	9.552	105	6.419	343	20
		5.00	0.197	10.485	95	7.046	313	20
		6.00	0.236	12.273	81	8.247	267	20
80 X 80	3.149 X 3.149	1.80	0.071	4.354	230	2.926	754	36
		2.00	0.079	4.818	208	3.238	681	36
		2.30	0.091	5.505	182	3.699	596	36
		2.50	0.098	5.958	168	4.004	551	36
		3.00	0.118	7.072	141	4.752	464	36
		3.50	0.138	8.160	123	5.483	402	16
		4.00	0.157	9.223	108	6.198	356	16
		4.50	0.177	10.259	97	6.894	320	16
		5.00	0.197	11.270	89	7.573	291	16
		5.50	0.217	12.256	82	8.236	268	16
		6.00	0.236	13.215	76	8.880	248	16

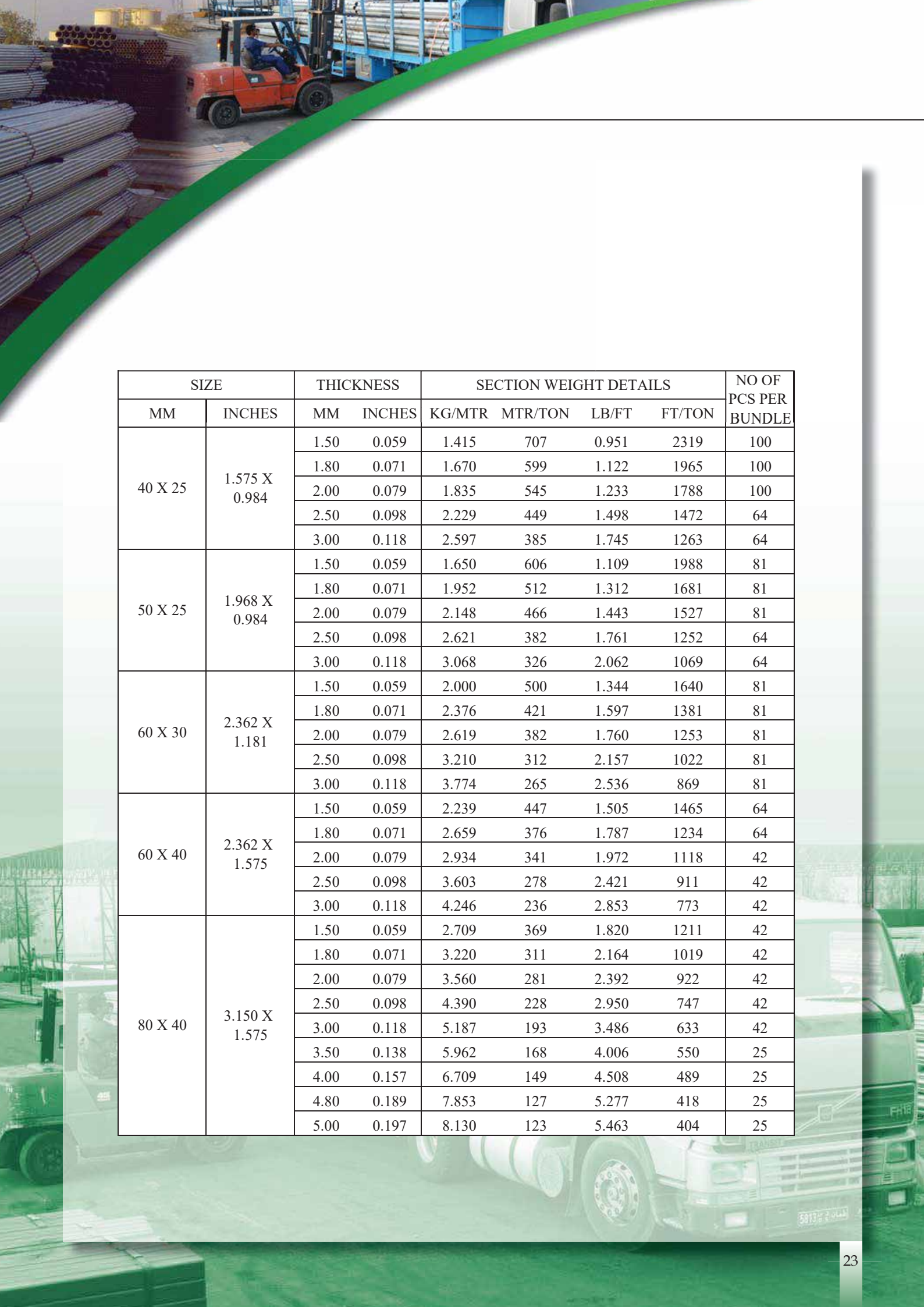


Packing

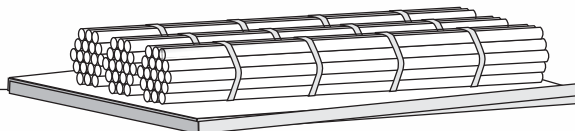


Inspection

SIZE		THICKNESS		SECTION WEIGHT DETAILS				NO OF PCS PER
MM	INCHES	MM	INCHES	KG/MTR	MTR/TON	LB/FT	FT/TON	
100 X 100	3.937 X 3.937	2.00	0.079	6.074	165	4.082	540	16
		2.50	0.098	7.527	133	5.058	436	16
		3.00	0.118	8.956	112	6.018	366	16
		3.50	0.138	10.358	97	6.960	317	16
		4.00	0.157	11.734	85	7.885	280	16
		4.50	0.177	13.085	76	8.793	251	16
		5.00	0.197	14.410	69	9.683	228	9
		5.50	0.217	15.709	64	10.556	209	9
		6.00	0.236	16.982	59	11.411	193	9
		6.50	0.256	18.231	55	12.251	180	9
		7.00	0.276	19.452	51	13.071	169	9
		7.50	0.295	20.648	48	13.875	159	9
		8.00	0.315	21.819	46	14.662	150	9
125 X 125	4.921 X 4.921	2.00	0.079	7.644	131	5.137	429	16
		2.50	0.098	9.490	105	6.377	346	16
		3.00	0.118	11.311	88	7.601	290	16
		3.50	0.138	13.105	76	8.806	250	16
		4.00	0.157	14.874	67	9.995	221	16
		4.50	0.177	16.617	60	11.166	197	9
		5.00	0.197	18.335	55	12.321	179	9
		5.50	0.217	20.026	50	13.457	164	9
		6.00	0.236	21.693	46	14.577	151	9
		6.50	0.256	23.333	43	15.679	141	9
		7.00	0.276	24.947	40	16.764	132	9
		7.50	0.295	26.536	38	17.831	124	9
		8.00	0.315	28.099	36	18.882	117	9
31 X 19	1.220 X 0.748	1.50	0.059	1.061	943	0.713	3092	81
		1.80	0.071	1.246	803	0.837	2633	81
		2.00	0.079	1.363	734	0.916	2407	81
		2.50	0.098	1.640	610	1.102	2001	81
		3.00	0.118	1.890	529	1.270	1736	81
40 X 20	1.575 X 0.787	1.50	0.059	1.297	771	0.872	2530	100
		1.80	0.071	1.528	654	1.027	2147	100
		2.00	0.079	1.678	596	1.128	1955	100
		2.50	0.098	2.032	492	1.365	1615	64
		3.00	0.118	2.362	423	1.587	1389	64



SIZE		THICKNESS		SECTION WEIGHT DETAILS				NO OF PCS PER BUNDLE
MM	INCHES	MM	INCHES	KG/MTR	MTR/TON	LB/FT	FT/TON	
40 X 25	1.575 X 0.984	1.50	0.059	1.415	707	0.951	2319	100
		1.80	0.071	1.670	599	1.122	1965	100
		2.00	0.079	1.835	545	1.233	1788	100
		2.50	0.098	2.229	449	1.498	1472	64
		3.00	0.118	2.597	385	1.745	1263	64
50 X 25	1.968 X 0.984	1.50	0.059	1.650	606	1.109	1988	81
		1.80	0.071	1.952	512	1.312	1681	81
		2.00	0.079	2.148	466	1.443	1527	81
		2.50	0.098	2.621	382	1.761	1252	64
		3.00	0.118	3.068	326	2.062	1069	64
60 X 30	2.362 X 1.181	1.50	0.059	2.000	500	1.344	1640	81
		1.80	0.071	2.376	421	1.597	1381	81
		2.00	0.079	2.619	382	1.760	1253	81
		2.50	0.098	3.210	312	2.157	1022	81
		3.00	0.118	3.774	265	2.536	869	81
60 X 40	2.362 X 1.575	1.50	0.059	2.239	447	1.505	1465	64
		1.80	0.071	2.659	376	1.787	1234	64
		2.00	0.079	2.934	341	1.972	1118	42
		2.50	0.098	3.603	278	2.421	911	42
		3.00	0.118	4.246	236	2.853	773	42
80 X 40	3.150 X 1.575	1.50	0.059	2.709	369	1.820	1211	42
		1.80	0.071	3.220	311	2.164	1019	42
		2.00	0.079	3.560	281	2.392	922	42
		2.50	0.098	4.390	228	2.950	747	42
		3.00	0.118	5.187	193	3.486	633	42
		3.50	0.138	5.962	168	4.006	550	25
		4.00	0.157	6.709	149	4.508	489	25
		4.80	0.189	7.853	127	5.277	418	25
		5.00	0.197	8.130	123	5.463	404	25



Weighment

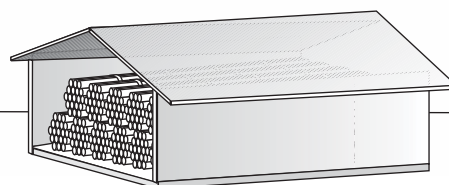
SIZE		THICKNESS		SECTION WEIGHT DETAILS				NO OF PCS PER BUNDLE
MM	INCHES	MM	INCHES	KG/MTR	MTR/TON	LB/FT	FT/TON	
100 X 50	3.937 X 1.968	2.00	0.079	4.504	222	3.027	728	36
		2.30	0.091	5.144	194	3.457	638	36
		2.50	0.098	5.565	180	3.740	590	36
		3.00	0.118	6.601	151	4.436	497	36
		3.50	0.138	7.610	131	5.114	431	20
		4.00	0.157	8.595	116	5.776	382	20
		4.50	0.177	9.553	105	6.419	343	20
		5.00	0.197	10.485	95	7.046	313	20
		6.00	0.236	12.273	81	8.247	267	20
		7.00	0.276	13.957	72	9.379	235	20
		8.00	0.315	15.539	64	10.441	211	20
120 X 60	4.724 X 2.362	2.00	0.079	5.446	184	3.660	602	20
		2.30	0.091	6.227	161	4.184	527	20
		2.50	0.098	6.743	148	4.531	487	20
		3.00	0.118	8.014	125	5.385	409	20
		3.50	0.138	9.259	108	6.222	354	20
		4.00	0.157	10.479	95	7.042	313	20
		4.50	0.177	11.672	86	7.843	281	20
		5.00	0.197	12.840	78	8.628	256	20
		5.50	0.217	13.983	72	9.396	235	12
		6.00	0.236	15.099	66	10.146	217	12
		7.00	0.276	17.254	58	11.594	190	12
		8.00	0.315	19.307	52	12.973	170	12
120 X 100	4.724 X 3.937	2.00	0.079	6.702	149	4.503	490	16
		2.30	0.091	7.671	130	5.155	428	16
		2.50	0.098	8.313	120	5.586	395	16
		3.00	0.118	9.898	101	6.651	331	16
		3.50	0.138	11.457	87	7.699	286	16
		4.00	0.157	12.991	77	8.729	253	16
		4.50	0.177	14.498	69	9.742	226	16
		5.00	0.197	15.980	63	10.738	205	9
		5.50	0.217	17.437	57	11.717	188	9
		6.00	0.236	18.867	53	12.678	174	9
		7.00	0.276	21.650	46	14.548	152	9
		8.00	0.315	24.331	41	16.349	135	9

SIZE		THICKNESS		SECTION WEIGHT DETAILS				NO OF PCS PER BUNDLE
MM	INCHES	MM	INCHES	KG/MTR	MTR/TON	LB/FT	FT/TON	
125 X 50	4.921 X 1.968	2.00	0.079	5.289	189	3.554	620	20
		2.50	0.098	6.546	153	4.399	501	20
		3.00	0.118	7.778	129	5.227	422	20
		3.50	0.138	8.984	111	6.037	365	20
		4.00	0.157	10.165	98	6.830	323	20
		4.50	0.177	11.319	88	7.606	290	20
		5.00	0.197	12.448	80	8.365	264	20
		5.50	0.217	13.551	74	9.106	242	12
		6.00	0.236	14.628	68	9.830	224	12
		7.00	0.276	16.705	60	11.225	196	12
		8.00	0.315	18.679	54	12.551	176	12
125 X 75	4.921 X 2.953	2.00	0.079	6.074	165	4.081	540	20
		2.50	0.098	7.528	133	5.058	436	20
		3.00	0.118	8.956	112	6.018	366	20
		3.50	0.138	10.358	97	6.960	317	12
		4.00	0.157	11.735	85	7.885	280	12
		4.50	0.177	13.085	76	8.793	251	12
		5.00	0.197	14.410	69	9.683	228	12
		5.50	0.217	15.710	64	10.556	209	12
		6.00	0.236	16.983	59	11.412	193	12
		7.00	0.276	19.452	51	13.071	169	12
		8.00	0.315	21.819	46	14.661	150	12
150 X 75	5.906 X 2.953	2.00	0.079	6.859	146	4.609	478	20
		2.50	0.098	8.509	118	5.718	386	20
		3.00	0.118	10.133	99	6.809	324	20
		3.50	0.138	11.732	85	7.883	280	12
		4.00	0.157	13.305	75	8.940	247	12
		4.50	0.177	14.852	67	9.980	221	12
		5.00	0.197	16.373	61	11.002	200	12
		5.50	0.217	17.868	56	12.007	184	12
		6.00	0.236	19.338	52	12.994	170	12
		7.00	0.276	22.200	45	14.918	148	12
		8.00	0.315	24.959	40	16.771	131	12
150 X 100	5.906 X 3.937	2.00	0.079	7.644	131	5.136	429	12
		2.30	0.091	8.755	114	5.883	375	12
		2.50	0.098	9.490	105	6.377	346	12
		3.00	0.118	11.311	88	7.600	290	9
		3.50	0.138	13.106	76	8.807	250	9
		4.00	0.157	14.875	67	9.995	221	9
		4.50	0.177	16.618	60	11.167	197	9
		5.00	0.197	18.335	55	12.321	179	9
		5.50	0.217	20.027	50	13.458	164	9
		6.00	0.236	21.693	46	14.577	151	9
		7.00	0.276	24.947	40	16.764	132	9
		8.00	0.315	28.099	36	18.881	117	9

**TECHNICAL DATA OF SQUARE AND RECTANGULAR HOLLOW SECTION CONFORMING TO
THE SPECIFICATION ASTM A500 GRADE A & B (IN INCHES)**

DIMENSIONS (INCHES)	WALL THICKNESS (INCHES)	
	MIN	MAX
1" x 1"	0.039	0.079
1 1/4" x 1 1/4"	0.047	0.110
1 1/2" x 1 1/2"	0.047	0.118
2" x 2"	0.059	0.185
3" x 3"	0.071	0.185
4" x 4"	0.079	0.236
4" x 2"	0.071	0.197
5" x 3"	0.071	0.236
2" x 1"	0.047	0.102

LBS/FT AND NO. OF PCS PER BUNDLE SHALL BE CONFIRMED AT THE TIME OF ENQUIRY.



Storage

SPECIFICATION DETAILS

TOLERANCES

OUTER DIMENSIONS

Specified Outside Large Flat Dimension Inch [mm]	Permissible Variations Over and Under Specified Outside Flat Dimensions Inch [mm]
2.1/2"[63.5] or under	0.020 [0.51]
Over 2.1/2 to 3.1/2 [63.5 to 88.9], incl	0.025 [0.64]
Over 3.1/2 to 5.1/2 [88.9 to 139.7], incl	0.030 [0.76]
Over 5.1/2 [139.7]	0.01 times large flat dimension

THICKNESS : + / - 10% of Wall Thickness

SQUARENESS OF SIDES : 90° + / - 2°

CORNER RADIUS : 3 times to Wall Thickness (Maximum)

STRAIGHTNESS : 1 in 500 mm

TWIST : 2 mm plus 0.5mm per mtr length (Maximum)

MECHANICAL PROPERTIES

	GRADE A	GRADE B
YIELD STRENGTH Min (MPa)	269	317
TENSILE STRENGTH Min (MPa)	310	400
ELONGATION in 2" Gauge Length min %	25	23

CHEMICAL PROPERTIES

	GRADE A	GRADE B
CARBON %	0.26 % Max	
PHOSPHOROUS %	0.035 % Max	
SULPHUR %	0.035 % Max	

END FINISH

Sections shall be supplied with Mill Finish

SURFACE PROTECTION

All sections shall be supplied with rust protective oil coating.

HOT ROLLED CUT TO LENGTH SHEETS:

DIMENSIONS:

THICKNESS	0.90 TO 12 MM
WIDTH	1000 TO 2000 MM
LENGTH	1900 TO 6000 MM

ABOVE CUT TO LENGTH SHEETS CAN BE SUPPLIED IN ASTM A36/ BS EN 10025-2 GRADE S235JR, S275JR AND S355JR

CHEMICAL COMPOSITION AND MECHANICAL PROPERTIES:

GRADE	C % max	Si % max	Mn % max	P % max	S % max	N % max	CE % max	YIELD STRENGTH Min Mpa	TENSILE STRENGTH Min MPa	ELONGATION % Min
ASTM A36	0.25	0.40	---	0.040	0.050	---	---	250	400 to 550	23
BS EN 10025-2 S235JR	0.17	---	1.40	0.035	0.035	0.012	0.35	235	360 to 510	26
BS EN 10025-2 S275JR	0.21	---	1.50	0.035	0.035	0.012	0.40	275	<3 - 430 to 580 ≥ 3 - 410 to 560	23
BS EN 10025-2 S355JR	0.24	0.55	1.60	0.035	0.035	0.012	0.45	355	<3 - 510 to 680 ≥ 3 - 470 to 630	22

TECHNICAL DATA OF HOT ROLLED / MERCHANT BAR PRODUCTS

PRODUCTS	SIZE RANGE (MM)
Angles	40 100
Channels (UPN/Light)	40 100
Channels PFC	100 125
Rounds	16 50
Squares	12 50
Rebars	8 32

Product Mix

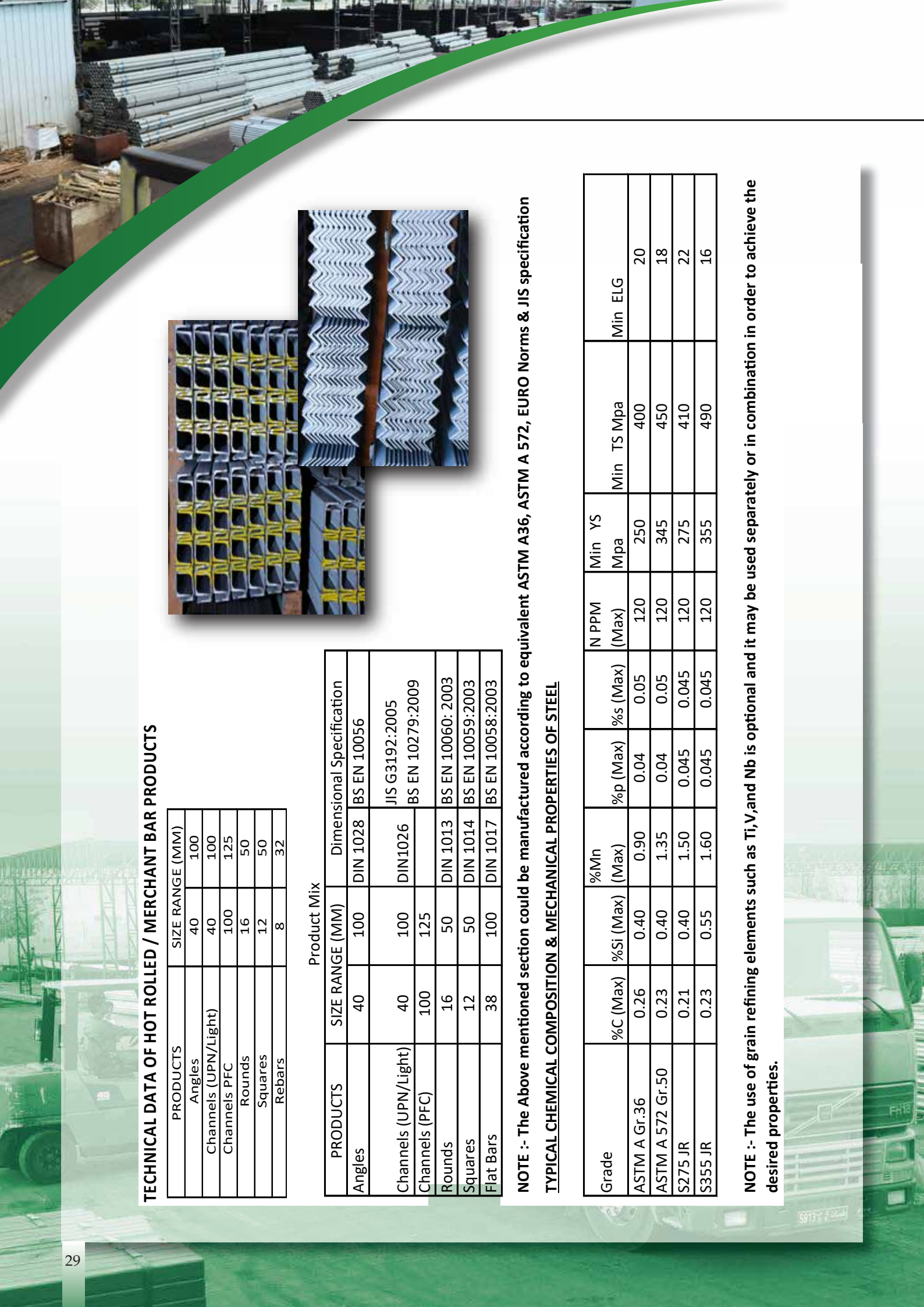
PRODUCTS	SIZE RANGE (MM)	Dimensional Specification
Angles	40 100	DIN 1028 BS EN 10056
Channels (UPN/Light)	40 100	DIN1026 JIS G3192:2005
Channels (PFC)	100 125	BS EN 10279:2009
Rounds	16 50	DIN 1013 BS EN 10060: 2003
Squares	12 50	DIN 1014 BS EN 10059:2003
Flat Bars	38 100	DIN 1017 BS EN 10058:2003

NOTE :- The Above mentioned section could be manufactured according to equivalent ASTM A36, ASTM A 572, EURO Norms & JIS specification

TYPICAL CHEMICAL COMPOSITION & MECHANICAL PROPERTIES OF STEEL

Grade	%C (Max)	%Si (Max)	%Mn (Max)	%p (Max)	%s (Max)	N PPM (Max)	Min YS Mpa	Min TS Mpa	Min ELG
ASTM A Gr.36	0.26	0.40	0.90	0.04	0.05	120	250	400	20
ASTM A 572 Gr.50	0.23	0.40	1.35	0.04	0.05	120	345	450	18
S275 JR	0.21	0.40	1.50	0.045	0.045	120	275	410	22
S355 JR	0.23	0.55	1.60	0.045	0.045	120	355	490	16

NOTE :- The use of grain refining elements such as Ti, V, and Nb is optional and it may be used separately or in combination in order to achieve the desired properties.





Structural Steels

Structural steel grades according to the Following National And International Standards can be supplied

EN 10025	ASTM	JIS 3101 / JIS G 3106	BS 4360	AS/NZS 3679
S235 JR				
S 235 JRG 2	A 36	SS 400SM / 400/A/B/C		
S 235JO				
S 275 JR			43 B	
S 275JO	A 572 Gr.40		43C	
				Grade 300
S 355JR	A 572 Gr.50	Ss490	50B	

Channels

Symbol	Sectional Weight (Kg/M)	Web Width (mm)	Flange Width (mm)	Web Thick. (mm)	Flange Thick. (mm)
C 100x50x6	10.6	100	50	6	8.5
C 100x50x5	9.36	100	50	5	7.5
C 100x50x3.86	7.3	100	50	3.86	6
C 75x40x5	6.92	75	40	5	7
C 75x40x3.86	5.36	75	40	3.86	5.2
PFC 100x50x5	10.20	100	50	5	8.5
PFC 125x65x5.5	15.00	125	65	5.5	9.5

Tolerance

Symbol	WIDTH (MM)		THICKNESS (MM)	
	WEB	FLANGE	WEB	FLANGE
C 100x50	± 2.0	± 1.5	± 0.50	-0.5
C 75x40	± 1.5	± 1.5	± 0.50	-0.5
PFC 100 x 50	± 2.0	± 1.5	± 0.50	- 0.5
PFC 125 x 65	± 2.0	± 2.5	± 1.00	- 1.0

- STRAIGHTNESS ; $H \leq 150\text{mm}$ 0.3% L over full bar length
- HEEL RADIUS ; All SIZES Tolerance $\leq 0.3t$
- WEB FLATNESS ; $H \leq 100$ Tolerance $\pm 0.5\text{ mm}$, $100 < H \leq 200 \pm 1.0\text{ max}$
- TOLERANCE ON LENGTH + 100 mm where minimum length are required
- Out of Squareness : 2mm max.



ANGLES

Thickness (mm)	3.5	3.7	3.8	4	4.5	4.7	4.8	5	5.5	5.8	6	7	7.8	8	9	10	12
40x40				2.42	2.70	2.81		2.97			3.52						
50x50	2.69	2.84	2.91	3.06	3.41	3.56	3.63	3.77	4.12		4.47			5.82			
60x60				3.70	4.13	4.31	4.39	4.57	5.00	5.25	5.42			7.09		8.69	
65x65						4.69	4.79	4.97	5.44	5.72	5.91	6.83	7.55	7.73			
70x70							5.16	5.37	5.88	6.18	6.38	7.38	8.16	8.36			
75x75							5.54	5.76	6.31	6.63	6.85	7.93	8.78	8.99	10.03	11.06	
80x80										7.11	7.34	8.49	9.40	9.63		11.90	
90x90												9.61	10.9	10.9	12.2	13.40	
100x100											9.26	10.73		12.20		15.0	17.80

Tolerance

Symbol	LEG(MM)	THICKNESS (MM)
40x40	± 1	± 0.5
50x50	± 1	± 0.5
60x60	±1.50	±0.75
65x65	±1.50	±0.75
70x70	±1.50	±0.75
75x75	±1.50	±0.75
80x80	±1.50	±0.75
100x100	±1.50	±0.75

- STRAIGHTNESS – LEG LENGTH a < 150 mm Tolerance 0.4% L over full bar length
- TOLERANCE ON MASS – $\pm 4\%$ For thicknesses for t > 4 mm
- TOLERANCE ON LENGTH ... + 100 MM where minimum length are required

FLAT BARS

Thickness (mm)	4	4.5	4.7	5	6	8	9	10	12	16	19	20	25	30
38		1.34		1.49	1.79	2.38	2.68	2.98	3.58					
40	1.26	1.41		1.57	1.88	2.51		3.14						
50	1.57	1.77	1.84	1.96	2.36	3.14	3.53	3.93	4.71	6.28		7.85	9.81	11.8
60				2.36	2.83	3.77	4.24	4.71	5.65			9.42		
65					3.06		4.59	5.10	6.12					
70				2.75	3.30	4.40	4.95	5.50	6.59	8.79	10.44	11.0		
80				3.14	3.77	5.02		6.28				12.56		
100				3.93	4.71	6.28	7.07	7.85	9.42	12.56		15.70	19.60	

Tolerance

Symbol	WIDTH (MM)	THICKNESS (MM)
38	± 1	± 0.5
40	± 1	± 0.5
50	± 1	± 0.5
60	± 1	± 0.5
65	± 1	± 0.5
70	± 1.50	± 0.5
80	± 1.50	± 0.5
100	± 1.50	± 0.5

- STRAIGHTNESS – Nominal cross-section <1000 mm² Tolerance $q \leq 0.4\% L$ over full bar length
- TOLERANCE ON MASS – $\pm 4\%$ For thicknesses for $t > 4$ mm
- TOLERANCE ON LENGTH ... + 100 MM where minimum length are required



ROUNDS

16	20	24	25	30	32	36	40	42	45	48	50
1.58	2.47	3.55	3.85	5.55	6.31	7.99	9.86	10.88	12.48	14.20	15.41
±0.50	±0.50	±0.50	±0.50	±0.60	±0.60	±0.80	±0.80	±0.80	±0.80	±0.80	±0.80

- STRAIGHTNESS ... D ≤ 25mm tolerance Not established
- TOLERANCE ON MASS 10 mm to 50 mm (DIA) ± 4 % section weight
- TOLERANCE ON LENGTH + 100 mm where minimum length are required

SQUARES

Thickness (mm)	Kg/Mtr	Tol.	Twist	CORNER RADIUS
12	1.13	± 0.50	4°/M with a max of 24°	r ≤ 1.1mm
13	1.33	± 0.50		
14	1.54	± 0.50		
15	1.77	± 0.50		
16	2.01	± 0.50	3°/M with a max of 18°	r ≤ 1.5mm
18	2.54	± 0.50		
20	3.14	± 0.50		
25	4.91	± 0.50		
30	7.07	± 0.6		
32	8.04	± 0.6		
35	9.62	± 0.6		
• 40	12.60	± 0.80		
• 45	15.90	± 0.80		r ≤ 2.5mm
50	19.6	± 0.80		

STRAIGHTNESS -Nominal size a ≤ 25 Not fixed 25mm to 80mm Tolerance 0.4% L over full bar length
TOLERANCE ON LENGTH ... + 100 MM where minimum length are required



TECHNICAL DATA OF HOT ROLLED MERCHANT BAR PRODUCTS IN INCHES

SECTIONS	SIZE - MM	SIZE - INCHES (US CUSTOMARY UNITS)	Kg/Mtr	lbs/ft.
CHANNELS	100 x 50 x 6.0 x 8.5(UPN)	4.0 x 2.0 x 0.236 x 0.335	10.60	7.12
	100 x 50 x 5.0 x 8.5(PFC)	4.0 x 2.0 x 0.197 x 0.335	10.20	6.85
	100 x 50 x 5.0 x 7.5	4.0 x 2.0 x 0.197 x 0.295	9.36	6.29
	100 x 50 x 3.8 x 5.2	4.0 x 2.0 x 0.150 x 0.205	7.30	4.91
	75 x 40 x 3.85 x 5.2	3.0 x 1.575 x 0.152 x 0.205	5.36	3.60
	75 x 40 x 5.0x 7.0	3.0 x 1.575 x 0.197 x 0.276	6.92	4.65
ANGLES	40 x 40 x 4.0	1.575 x 1.575 x 0.157	2.42	1.63
	40 x 40 x 4.7	1.575 x 1.575 x 0.185	2.81	1.89
	40 x 40 x 5.0	1.575 x 1.575 x 0.197	2.87	1.93
	40 x 40 x 6.0	1.575 x 1.575 x 0.236	3.52	2.37
	45 x 45 x 6	1.772 x 1.772 x 0.236	3.99	2.68
	50 x 50 x 3.5	2.0 x 2.0 x 0.138	2.69	1.81
	50 x 50 x 4.0	2.0 x 2.0 x 0.157	3.06	2.06
	50 x 50 x 4.7	2.0 x 2.0 x 0.185	3.56	2.39
	50 x 50 x 5.0	2.0 x 2.0 x 0.197	3.77	2.53
	50 x 50 x 5.5	2.0 x 2.0 x 0.217	4.12	2.77
	50 x 50 x 6.0	2.0 x 2.0 x 0.236	4.47	3.00
	50 x 50 x 8.0	2.0 x 2.0 x 0.315	5.82	3.91
	60 x 60 x 4.8	2.36 x 2.36 x 0.189	4.39	2.95
	60 x 60 x 5.0	2.36 x 2.36 x 0.197	4.57	3.07
	60 x 60 x 5.5	2.36 x 2.36 x 0.217	5.00	3.36
	60 x 60 x 6.0	2.36 x 2.36 x 0.236	5.42	3.64
	60 x 60 x 8.0	2.36 x 2.36 x 0.315	7.09	4.76
	60 x 60 x 10.0	2.36 x 2.36 x 0.394	8.69	5.84
	65 x 65 x 5.0	2.55 x 2.55 x 0.197	4.97	3.34
	65 x 65 x 5.5	2.55 x 2.55 x 0.217	5.44	3.66
	65 x 65 x 6.0	2.55 x 2.55 x 0.236	5.91	3.97
	65 x 65 x 7.0	2.55 x 2.55 x 0.276	6.83	4.59
	65 x 65 x 8.0	2.55 x 2.55 x 0.315	7.73	5.19
	70 x 70 x 5.0	2.76 x 2.76 x 0.197	5.37	3.61
	70 x 70 x 5.5	2.76 x 2.76 x 0.217	5.88	3.95
	70 x 70 x 6.0	2.76 x 2.76 x 0.236	6.38	4.29
	70 x 70 x 7.0	2.76 x 2.76 x 0.276	7.38	4.96
	70 x 70 x 8.0	2.76 x 2.76 x 0.315	8.36	5.62
	75 x 75 x 5.0	3.0 x 3.0 x 0.197	5.76	3.87
	75 x 75 x 6.0	3.0 x 3.0 x 0.236	6.85	4.60
	75 x 75 x 9.0	3.0 x 3.0 x 0.354	10.03	6.74
	75 x 75 x 8.0	3.0 x 3.0 x 0.315	8.99	6.04
	75 x 75 x 10.0	3.0 x 3.0 x 0.394	11.06	7.43
	75 x 75 x 12.0	3.0 x 3.0 x 0.472	13.07	8.78
	80 x 80 x 6.0	3.15 x 3.15 x 0.236	7.34	4.93
	80 x 80 x 8.0	3.15 x 3.15 x 0.315	9.63	6.47
	80 x 80 x 10.0	3.15 x 3.15 x 0.394	11.90	8.00
	90 x 90 x 6.0	3.543 x 3.543 x 0.236	8.30	5.58
	90 x 90 x 7.0	3.543 x 3.543 x 0.276	9.61	6.46
	90 x 90 x 8.0	3.543 x 3.543 x 0.315	10.90	7.32
	90 x 90 x 9.0	3.543 x 3.543 x 0.354	12.20	8.20
	90 x 90 x 10.0	3.543 x 3.543 x 0.394	13.40	9.00
	100 x 100 x 6.0	4.0 x 4.0 x 0.236	9.26	6.22
	100 x 100 x 8.0	4.0 x 4.0 x 0.315	12.20	8.20
	100 x 100 x 10.0	4.0 x 4.0 x 0.394	15.00	10.08
	100 x 100 x 12.0	4.0 x 4.0 x 0.472	17.83	11.98
	38 x 4.5	1.496 x 0.177	1.34	0.90
	38 x 12	1.496 x 0.472	3.58	2.41
	40 x 4.0	1.574 x 0.157	1.26	0.85
	40 x 5.0	1.574 x 0.197	1.57	1.06
	50 x 4.0	2.0 x 0.157	1.57	1.06
	50 x 5.0	2.0 x 0.197	1.90	1.28
	50 x 6.0	2.0 x 0.236	2.36	1.59
	50 x 8.0	2.0 x 0.315	3.14	2.11
	50 x 9.0	2.0 x 0.354	3.53	2.37

SECTIONS	SIZE - MM	SIZE - INCHES (US CUSTOMARY UNITS)	Kg/Mtr	lbs/ft.
FLATS	38 x 4.5	1.496 x 0.177	1.34	0.90
	38 x 12	1.496 x 0.472	3.58	2.41
	40 x 4.0	1.574 x 0.157	1.26	0.85
	40 x 5.0	1.574 x 0.197	1.57	1.06
	50 x 4.0	2.0 x 0.157	1.57	1.06
	50 x 5.0	2.0 x 0.197	1.90	1.28
	50 x 6.0	2.0 x 0.236	2.36	1.59
	50 x 8.0	2.0 x 0.315	3.14	2.11
	50 x 9.0	2.0 x 0.354	3.53	2.37
	50 x 10.0	2.0 x 0.394	3.93	2.64
	50 x 12.0	2.0 x 0.472	4.71	3.17
	50 x 20.0	2.0 x 0.787	7.85	5.28
	50 x 25.0	2.0 x 0.984	9.81	6.59
	50 x 30.0	2.0 x 1.181	11.77	7.91
	60 x 5.0	2.36 x 0.197	2.36	1.59
	60 x 6.0	2.36 x 0.236	2.83	1.90
	60 x 10.0	2.36 x 0.394	4.71	3.17
	60 x 12.0	2.36 x 0.472	5.65	3.80
	60 x 20.0	2.36 x 0.787	9.42	6.33
	65 x 6.0	2.559 x 0.236	3.06	2.06
	65 x 9.0	2.559 x 0.354	4.59	3.09
	65 x 10.0	2.559 x 0.394	5.10	3.43
	65 x 12.0	2.559 x 0.472	6.12	4.11
	70 x 5.0	2.76 x 0.197	2.75	1.85
	75 x 6.0	3.0 x 0.236	3.53	2.37
	75 x 8.0	3.0 x 0.315	4.71	3.17
	75 x 12.0	3.0 x 0.472	7.07	4.75
	75 x 19.0	3.0 x 0.748	11.19	7.52
	75 x 20.0	3.0 x 0.787	11.78	7.91
	80 x 5.0	3.14 x 0.197	3.14	2.11
	80 x 6.0	3.14 x 0.236	3.77	2.53
	80 x 8.0	3.14 x 0.315	5.02	3.37
	80 x 10.0	3.14 x 0.394	6.28	4.22
	80 x 20.0	3.14 x 0.787	12.56	8.44
	100 x 5.0	4.0 x 0.197	3.93	2.64
	100 x 6.0	4.0 x 0.236	4.71	3.17
	100 x 8.0	4.0 x 0.315	6.28	4.22
	100 x 9.0	4.0 x 0.354	7.07	4.75
	100 x 10.0	4.0 x 0.394	7.85	5.28
	100 x 12.0	4.0 x 0.472	9.42	6.33
	100 x 25.0	4.0 x 0.984	19.60	13.17
SQUARE	12 x 12	0.472 x 0.472	1.13	0.76
	14 x 14	0.551 x 0.551	1.51	1.01
	16 x 16	0.630 x 0.630	2.01	1.35
	20 x 20	0.787 x 0.787	3.14	2.11
	25 x 25	1.0 x 1.0	4.91	3.30
	30 x 30	1.181 x 1.181	7.07	4.75
	40 x 40	1.575 x 1.575	12.60	8.47
	50 x 50	2.0 x 2.0	19.60	13.17
ROUNDS	16	0.629	1.58	1.06
	20	0.787	2.47	1.66
	25	1.000	3.85	2.59
	30	1.181	5.55	3.73
	32	1.260	6.31	4.24
	36	1.417	7.99	5.37
	40	1.575	9.85	6.62
	42	1.654	10.88	7.31
	45	1.772	12.49	8.39
	48	1.890	14.21	9.55
	50	2.000	15.40	10.35

DEFORMED BAR (RE BAR) Characteristics

Diameter	From 8 mm to 32 mm	
Commercial Length	6 & 12 meters	
Specification	British Standard	BS 449:1997 Grade 460B/B500B
	American Standard	ASTM A 615 Grade 60
	German Standard	DIN 488-1:2009-08 Grade B500B
	ISO	ISO 6935 : 2015 Gr B500BWR

Standard Grade	Chemical Composition % Max				Mechanical Properties				Guage Length	Bending Test		Rebending Test	
	%C	%Mn	%S	%P	Ys N/mm ² Min	T.S. N/mm ² Min.	E at Fracture % Min.	Agt % Min		Bending Angle Degree	Bending Dia mm	RE-bending Angle Degree	Re-bending Dia mm
BS 4449:1997 Gr.460B	0.25	--	0.050	0.050	460	YSx1.08	14	5	Sd	--	--	45 ° to 23°	≤ 16 mm -Sd ≥ 16 mm 7d
BS 4449:2005 Gr.B 500B	0.22	--	0.050	0.050	500	YSx1.08	--	5	--	--	--	90 ° to 20°	≤ 16 mm -4d ≥ 16 mm 7d
ASTM A 615 Grade 60	--	--	0.060	--	420	620	≤ 20 -9 22-25 mm -8	--	200 mm	180 °	≤ 16 mm -3.5d 18-25 mm -5d ≥ 28mm -7d	--	--
DIN 488 :2009 Gr B500B	0.22	--	0.050	0.050	500	YSx1.08	--	5	Sd	--	--	90 ° to 20°	≤ 16 mm -5d 16-28 mm -8d ≥ 28 -32 mm -10d
ISO 6935:2015 Gr. B500B WR	.20	1.6	0.050	0.050	500	YSx1.08	14	5	5d	--	--	90° to 20°	--

YS - Yield Strength : TS- Tensile Strength ,E- Elongation :Agt -Total Elongation at maximum force

Mill Standard Bar Count 12 meter Length

Nominal Dia	Unit Mass (Kg/Mtr)	Nominal Mass (Kg/piece)	Pieces/Bundle	Weight/Bundle (M.T.)
08	0.395	4.74	422	2.000
10	0.617	7.40	270	1.999
12	0.888	10.66	188	2.003
14	1.210	14.52	138	2.004
16	1.580	18.96	106	2.010
18	2.000	24.00	84	2.016
20	2.470	29.64	68	2.016
22	2.980	35.76	56	2.003
25	3.850	46.20	44	2.033
28	4.830	57.96	34	1.971
32	6.310	75.72	26	1.969
Rebar can be Supplied in 6.0 mtr or 12 mtr Length				
Plain Round Bars are produced in 6.0 mtr & 12 Mtrs in 16 to 50 mm Dia				

Permissible Deviation From Nominal Mass

Standard	Size (mm)	Deviation(%)
BS 4449:1997 Gr.460B	8 to 10	± 6.5
	> 10	± 4.5
BS 4449:2005 Gr.B 500B	Up to 8	± 6.0
	> 8	± 4.5
ASTM A 615 Grade 60	Up to 10	± 8.0
	> 10	± 6.0
DIN 488 :2009 Gr B500B	Up to 8	± 6.0
	> 8	± 4.5
ISO 6935:2015 Gr B500BWR	Up to 8	± 8.0
	10 to 12	± 6.0
	14 to 20	± 5.0
	25 to 32	± 4.0



Bundle Characteristics	
Weight	1,2 M.T.
Diameter of Bundle	150 to 300 mm (varies according to dia of rebar 8 mm to 36 mm)
Straps Per Bundle	Minimum 4 (Two end straps will be 0.50 Mtr from the End)











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Jazeera Steel
The Quality Standard in Steel

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