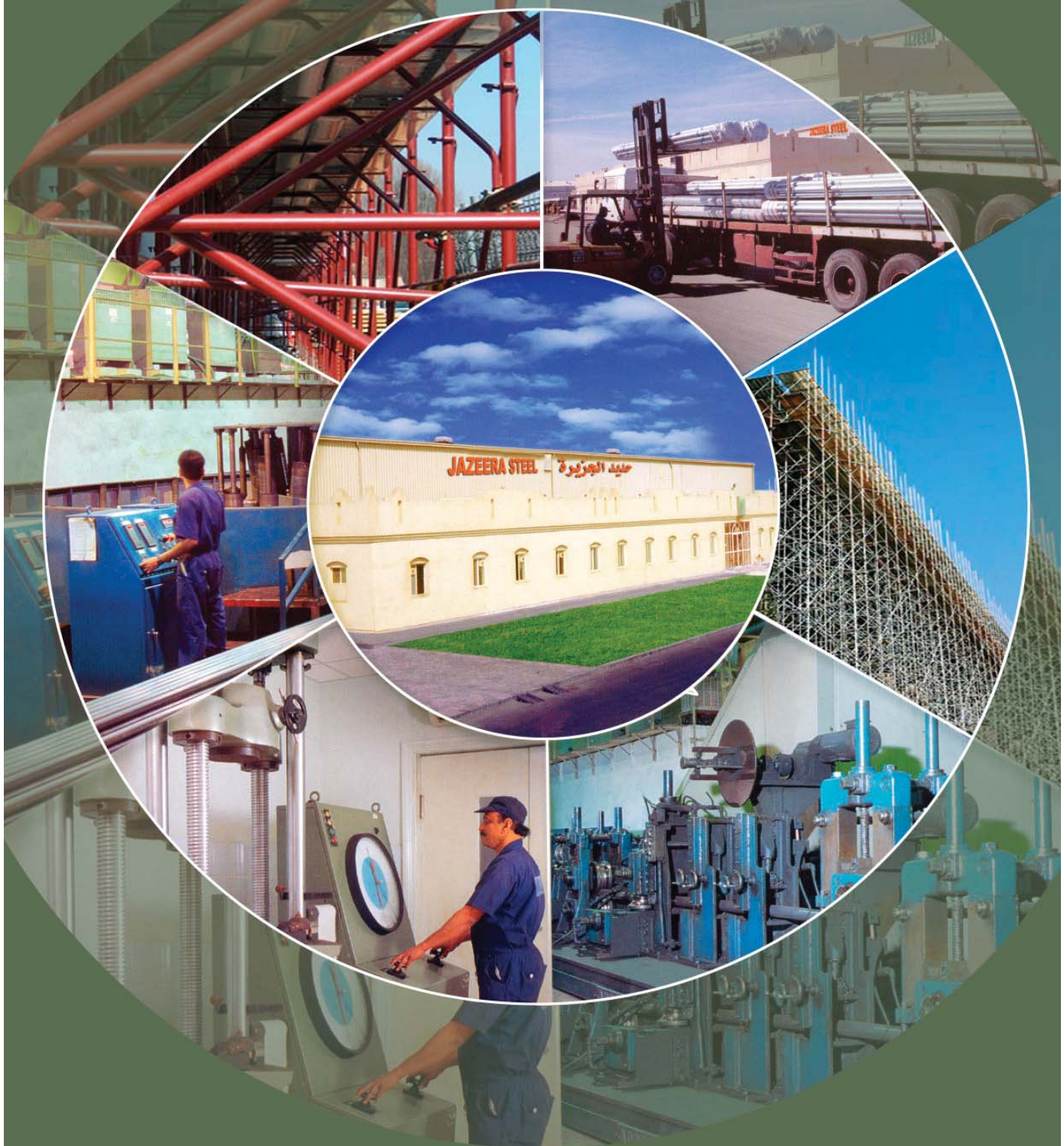


# CUTTING EDGE TECHNOLOGY FOR ASSURED QUALITY





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 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 conforming to API, 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 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. 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 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 certification by BMTRADA within one year of its commencement of production.

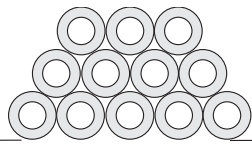
In addition to above Al Jazeera's Quality Management System conforms to the requirements of API Q1/ISO/TS 29001:2003.

- ▶ Al Jazeera is having API (American Petroleum Institute) Certification for manufacturing of line pipes conforming to API 5L under Product Specification Levels PSL-1 and PSL-2.
- ▶ 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.

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 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 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.



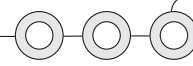
Coil Storage



Inspection



Slitting



Decoiling

## Quality Policy

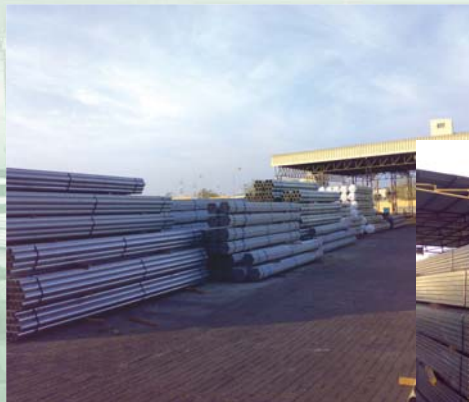
Al Jazeera Steel Products Company SAOG's produces steel pipes to international standard maintains a Quality Management System conforming to ISO 9001:2008 /API Q1

Our Goal is to achieve customer satisfaction and strengthen their confidence by our performance. We shall use quality steel to produce pipes that are technically complete, tested and delivered on time.

To achieve this goal we shall continually improve the effectiveness of our QMS and provide constant challenges and involved growth possibilities to all.

## 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

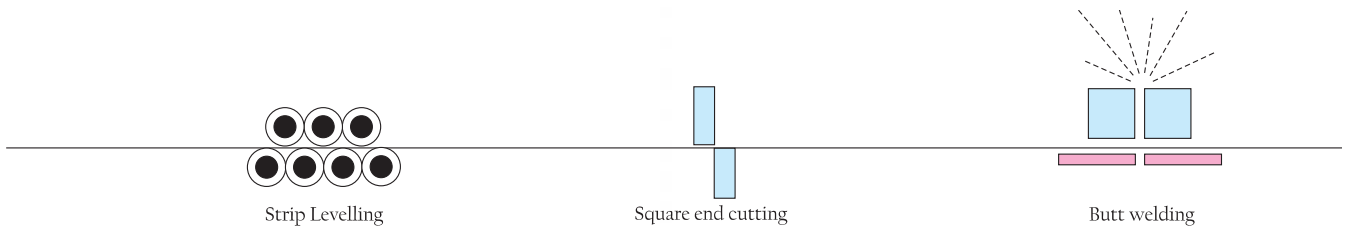
NOMINAL PIPE SIZE INCH	OUTSIDE DIAMETER		WALL THICKNESS		WEIGHT OF BLACK PIPES			TEST PRESSURE				SOCKET DIMENSIONS				NO. OF PCS PER LIFT		
	STANDARD INCH	MM	STANDARD INCH	MM	KG/MTR	MTR/TON	LB/FT	FT/TON	GRADE A PSI	GRADE A KPA	GRADE B PSI	GRADE B KPA	MIN OUTSIDE DIA INCH	MIN OUTSIDE DIA MM	MIN LENGTH INCH		MIN LENGTH MM	
1/2	15	0.840	21.3	0.109	2.77	1.27	787	0.85	2583	700	4800	700	4800	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	7.38	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	--	--	--	--	3

### CHEMICAL COMPOSITION (% MAX)

ELEMENT	Carbon C	Manganese		Phosphorus P	Sulphur S	Copper Cu	Nickel Ni	Chromium Cr	Molybdenum		Vanadium	
		Mn	Mn						Mo	Mo	V	V
GRADE-A	0.25	0.95	0.05	0.045	0.40	0.40	0.40	0.40	0.15	0.15	0.08	0.08
GRADE-B	0.30	1.20	0.05	0.045	0.40	0.40	0.40	0.40	0.15	0.15	0.08	0.08

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.





## 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 inch<sup>2</sup>[1mm<sup>2</sup>],

based on specified outside diameter. If the area is more than 0.75 inch<sup>2</sup> [500mm<sup>2</sup>], then

the value 0.75 inch<sup>2</sup> [500mm<sup>2</sup>] shall be used.

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

## TOLERANCES

### OUTSIDE DIAMETER

SIZE FROM INCH (MM)	SIZE TO INCH (MM)	TOLERANCE 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 / ft<sup>2</sup> [490 Gm / Mtr<sup>2</sup>]  
**AVERAGE** : 1.80 oz / ft<sup>2</sup> [550 Gm / Mtr<sup>2</sup>]

### MARKING

Each pipe is stenciled as "JAZEERA STEEL OMAN, ASTM A 53 GR A / B-ERW SCH 40 NPS-LENGTH-HEAT NO"





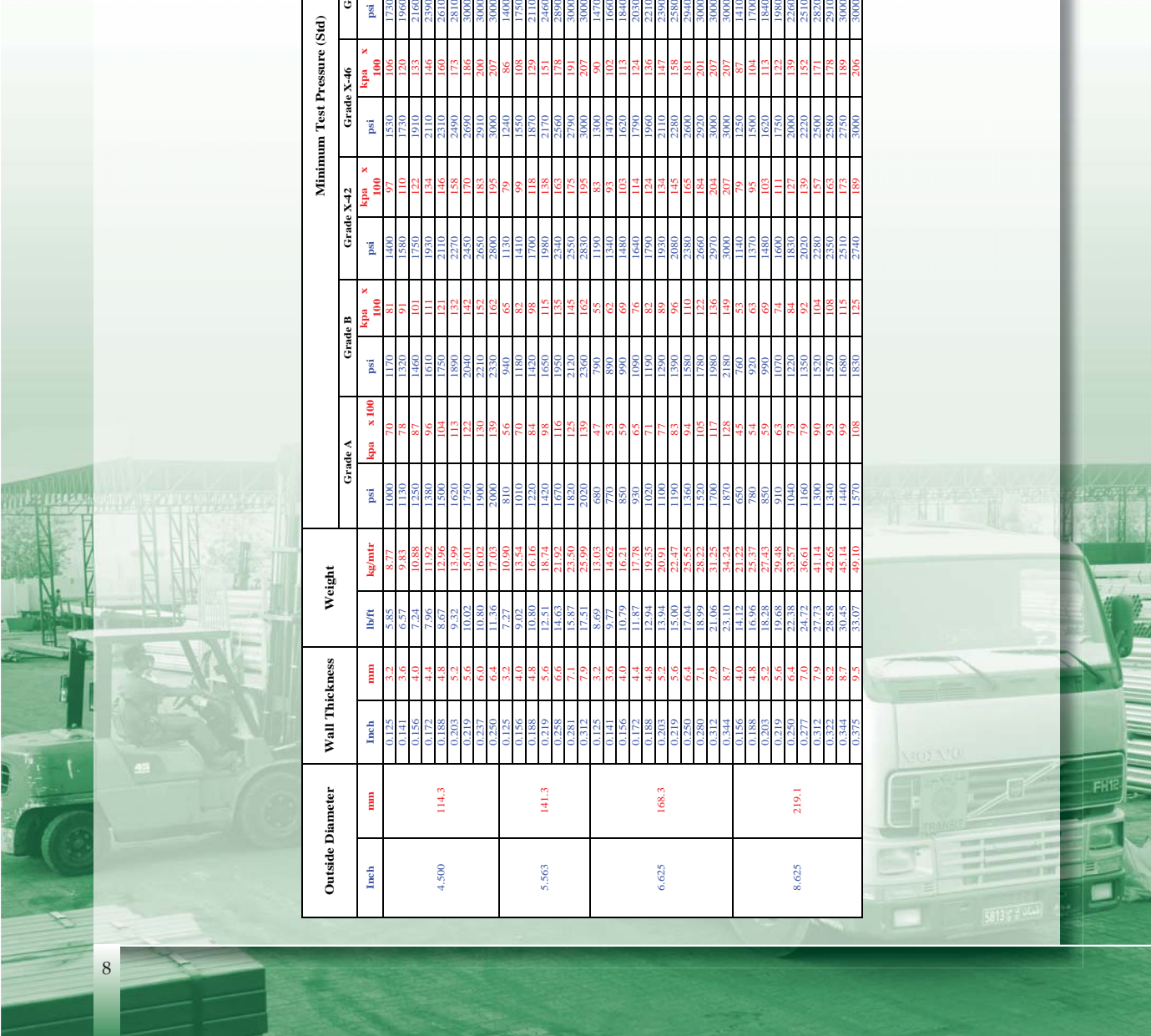
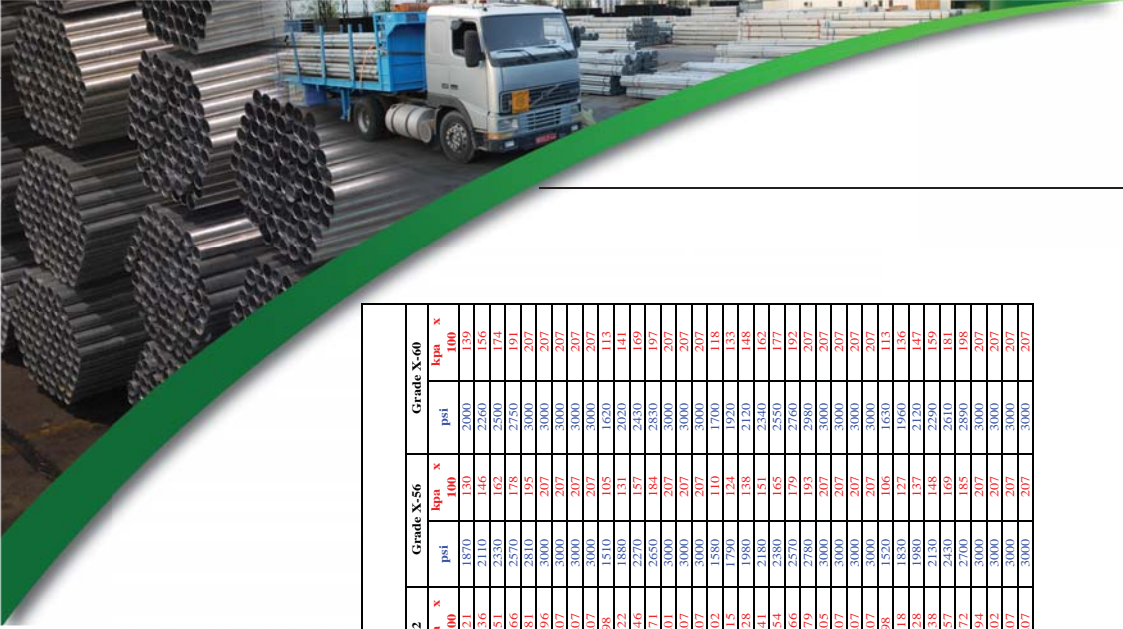


Loop Pit

**TECHNICAL DATA OF BLACK STEEL PIPES CONFORMING TO API 5L PSL-1 & PSL-2**

Outside Diameter	Wall Thickness		Weight		Minimum Test Pressure (Std)														
					Grade A		Grade B		Grade X-42		Grade X-46		Grade X-52		Grade X-56		Grade X-60		
					psi	kpa x 100	psi	kpa x 100	psi	kpa x 100	psi	kpa x 100	psi	kpa x 100	psi	kpa x 100	psi	kpa x 100	
2.375	Inch	0.109	1650	115	1930	134	2310	162	2530	177	2860	207	3000	207	3000	207	3000		
		0.125	1890	132	2210	153	2650	185	2910	202	3000	207	3000	207	3000	207	3000		
	mm	2.71	1650	115	1930	134	2310	162	2530	177	2860	207	3000	207	3000	207	3000		
		3.18	1890	132	2210	153	2650	185	2910	202	3000	207	3000	207	3000	207	3000		
	2.875	Inch	0.141	2140	148	2490	172	2900	207	3000	207	3000	207	3000	207	3000	207	3000	
			0.154	2380	161	2500	172	3000	207	3000	207	3000	207	3000	207	3000	207	3000	
		mm	3.58	2140	148	2490	172	2900	207	3000	207	3000	207	3000	207	3000	207	3000	
			3.91	2380	161	2500	172	3000	207	3000	207	3000	207	3000	207	3000	207	3000	
		3.500	Inch	0.188	2500	172	2500	172	3000	207	3000	207	3000	207	3000	207	3000	207	3000
				0.203	2800	185	2500	172	3000	207	3000	207	3000	207	3000	207	3000	207	3000
			mm	4.78	2500	172	2500	172	3000	207	3000	207	3000	207	3000	207	3000	207	3000
				5.16	2800	185	2500	172	3000	207	3000	207	3000	207	3000	207	3000	207	3000
4.000			Inch	0.216	1770	123	2060	130	2250	157	2460	171	2780	194	3000	207	3000	207	3000
				0.216	1930	134	2260	156	2710	188	2970	205	3000	207	3000	207	3000	207	3000
			mm	5.49	1770	123	2060	130	2250	157	2460	171	2780	194	3000	207	3000	207	3000
				5.49	1930	134	2260	156	2710	188	2970	205	3000	207	3000	207	3000	207	3000
	4.000		Inch	0.216	2220	154	2500	172	3000	207	3000	207	3000	207	3000	207	3000	207	3000
				0.216	2500	172	2500	172	3000	207	3000	207	3000	207	3000	207	3000	207	3000
			mm	5.49	2220	154	2500	172	3000	207	3000	207	3000	207	3000	207	3000	207	3000
				5.49	2500	172	2500	172	3000	207	3000	207	3000	207	3000	207	3000	207	3000
		4.000	Inch	0.216	2800	185	2500	172	3000	207	3000	207	3000	207	3000	207	3000	207	3000
				0.216	3000	207	2500	172	3000	207	3000	207	3000	207	3000	207	3000	207	3000
			mm	5.49	2800	185	2500	172	3000	207	3000	207	3000	207	3000	207	3000	207	3000
				5.49	3000	207	2500	172	3000	207	3000	207	3000	207	3000	207	3000	207	3000





**Minimum Test Pressure (Std)**

Outside Diameter	Wall Thickness		Weight		Grade A		Grade B		Grade X-42		Grade X-46		Grade X-52		Grade X-56		Grade X-60		
	Inch	mm	lb/ft	kg/mtr	psi	kpa x 100	psi	kpa x 100	psi	kpa x 100	psi	kpa x 100	psi	kpa x 100	psi	kpa x 100	psi	kpa x 100	
4.500	0.135	3.2	5.85	8.77	1090	70	1170	81	1400	100	1530	100	1730	100	1870	100	2000	100	2140
	0.143	3.2	6.25	9.23	1170	78	1260	87	1530	110	1590	110	1870	110	1970	110	2140	110	2240
	0.156	4.0	7.24	10.88	1250	87	1460	101	1750	122	1910	122	2160	122	2330	122	2500	122	2670
	0.172	4.4	7.96	11.92	1380	96	1610	111	1930	134	2110	134	2360	134	2570	134	2750	134	2930
	0.188	4.8	8.67	12.96	1500	104	1750	121	2110	146	2310	146	2560	146	2810	146	3000	146	3190
	0.203	5.2	9.32	13.99	1620	113	1890	132	2270	158	2490	158	2740	158	3000	158	3250	158	3460
	0.219	5.6	10.02	15.01	1750	122	2040	143	2450	170	2690	170	2940	170	3190	170	3440	170	3690
	0.237	6.0	10.80	16.02	1900	130	2200	152	2650	183	2910	183	3160	183	3410	183	3660	183	3910
	0.250	6.4	11.36	17.03	2000	139	2330	162	2800	195	3000	195	3250	195	3500	195	3750	195	4000
	0.255	6.4	11.56	17.36	2040	140	2360	164	2840	197	3040	197	3290	197	3540	197	3790	197	4040
5.563	0.125	3.2	7.27	10.90	810	56	940	65	1130	79	1240	86	1400	98	1510	105	1620	113	1730
	0.135	3.2	7.67	11.23	870	60	1000	70	1180	84	1270	92	1360	103	1450	111	1540	120	1630
	0.143	3.2	8.07	11.57	930	64	1060	74	1240	88	1330	96	1420	107	1510	115	1600	124	1690
	0.156	4.0	9.02	13.54	1010	70	1130	82	1420	98	1510	108	1600	118	1690	128	1780	138	1870
	0.166	4.0	9.62	14.16	1070	74	1190	86	1480	103	1570	113	1660	122	1750	131	1840	141	1930
	0.172	4.4	9.96	14.46	1130	78	1250	90	1540	107	1630	116	1720	125	1810	134	1900	143	1990
	0.188	4.8	10.80	15.66	1250	87	1370	101	1690	119	1780	129	1870	139	1960	148	2050	157	2140
	0.203	5.2	11.64	16.86	1380	96	1500	111	1810	129	1900	141	1990	151	2080	160	2170	169	2260
	0.219	5.6	12.51	18.24	1420	98	1540	115	1850	135	1940	145	2030	155	2120	164	2210	173	2300
	0.237	6.0	13.56	19.64	1560	107	1670	125	2000	145	2090	155	2180	165	2270	174	2360	184	2450
6.625	0.231	7.1	15.87	23.50	1820	125	2120	145	2530	175	2790	191	3000	207	3000	207	3000	207	3000
	0.243	7.1	16.57	24.12	1920	131	2220	151	2630	181	2890	197	3100	213	3100	213	3100	213	3100
	0.255	7.9	17.51	25.99	2020	139	2320	162	2830	195	3000	207	3000	207	3000	207	3000	207	3000
	0.271	8.2	18.46	27.12	2140	147	2440	173	2940	207	3100	219	3100	219	3100	219	3100	219	3100
	0.287	8.2	19.41	28.25	2260	155	2560	181	3050	213	3150	225	3150	225	3150	225	3150	225	3150
	0.303	8.2	20.36	29.38	2380	163	2680	189	3160	221	3200	233	3200	233	3200	233	3200	233	3200
	0.319	8.2	21.31	30.51	2500	171	2800	197	3270	229	3250	241	3250	241	3250	241	3250	241	3250
	0.335	8.2	22.26	31.64	2620	179	2920	205	3380	237	3300	249	3300	249	3300	249	3300	249	3300
	0.351	8.2	23.21	32.77	2740	187	3040	213	3490	245	3350	261	3350	261	3350	261	3350	261	3350
	0.375	9.5	33.07	49.10	3570	208	3440	235	3700	266	3600	282	3600	282	3600	282	3600	282	3600
8.625	0.203	5.2	18.28	27.43	850	59	990	69	1480	103	1620	113	1840	128	1980	138	2130	148	2290
	0.219	5.6	19.68	29.48	910	63	1070	74	1600	111	1750	122	1980	138	2130	148	2290	159	2450
	0.231	6.4	22.38	33.57	1040	73	1220	84	1830	127	2000	139	2260	157	2430	169	2610	181	2770
	0.243	7.0	24.72	36.61	1160	79	1350	92	2020	139	2220	152	2510	172	2700	185	2890	198	3050
	0.255	7.9	27.43	41.14	1280	87	1480	104	2180	157	2400	173	2830	194	3000	207	3000	207	3000
	0.271	8.2	29.88	44.68	1400	94	1620	111	2300	173	2520	193	3060	213	3060	213	3060	213	3060
	0.287	8.2	32.33	48.22	1520	101	1760	118	2420	181	2640	201	3000	207	3000	207	3000	207	3000
	0.303	8.2	34.78	51.76	1640	108	1900	126	2540	190	2760	210	3000	207	3000	207	3000	207	3000
	0.319	8.2	37.23	55.30	1760	115	2040	133	2660	199	2980	219	3000	207	3000	207	3000	207	3000
	0.335	8.2	39.68	58.84	1880	122	2180	141	2780	208	3000	207	3000	207	3000	207	3000	207	3000

## CHEMICAL COMPOSITION / MECHANICAL PROPERTIES FOR PSL-1

GRADE	% Carbon C (max)	% Manganese Mn (max)	% Phosphorus P (max)	% Sulfur S (max)	% Titanium Ti (max)	Yield Strength psi (MPa)		Tensile Strength psi (MPa)		Elongation in 2" (50.8mm)	
						Min	Max	Min	Max	Min Percent	Max
L210 or A	0.22	0.90	0.030	0.030	--	30,500 (210)	--	48,600 (335)	--	--	*
L245 or B	0.26	1.20	0.030	0.030	0.040	35,500 (245)	--	60,200 (415)	--	--	*
L290 or X42	0.26	1.30	0.030	0.030	0.040	42,100 (290)	--	60,200 (415)	--	--	*
L320 or X46	0.26	1.40	0.030	0.030	0.040	46,400 (320)	--	63,100 (435)	--	--	*
L360 or X52	0.26	1.40	0.030	0.030	0.040	52,200 (360)	--	66,700 (460)	--	--	*
L390 or X56	0.26	1.40	0.030	0.030	0.040	56,600 (390)	--	71,100 (490)	--	--	*
L415 or X60	0.26 <sup>e</sup>	1.40 <sup>e</sup>	0.030	0.030	0.040	60,200 (415)	--	75,400 (520)	--	--	*

e = Unless otherwise agreed

## CHEMICAL COMPOSITION / MECHANICAL PROPERTIES FOR PSL-2

GRADE	% Carbon C (max)	% Manganese Mn (max)	% Phosphorus P (max)	% Sulfur S (max)	% Titanium Ti (max)	Yield Strength psi (MPa)		Tensile Strength psi (MPa)		Charpy Impact Energy ft-lb (J) min	
						Min	Max	Min	Max	Long.	Trans.
L245 or B	0.22	1.20	0.025	0.015	0.040	35,500 (245)	65,300 (450)	60,200 (415)	110,200 (760)	30 (40)	20 (27)
L290 or X42	0.22	1.30	0.025	0.015	0.040	42,100 (290)	71,800 (495)	60,200 (415)	110,200 (760)	30 (40)	20 (27)
L320 or X46	0.22	1.30	0.025	0.015	0.040	46,400 (320)	76,100 (525)	63,100 (435)	110,200 (760)	30 (40)	20 (27)
L360 or X52	0.22	1.40	0.025	0.015	0.040	52,200 (360)	76,900 (530)	66,700 (460)	110,200 (760)	30 (40)	20 (27)
L390 or X56	0.22	1.40	0.025	0.015	0.040	56,600 (390)	79,000 (545)	71,100 (490)	110,200 (760)	30 (40)	20 (27)
L415 or X60	0.12 <sup>f</sup>	1.60 <sup>f</sup>	0.025	0.015	0.040	60,200 (415)	81,900 (565)	75,400 (520)	110,200 (760)	30 (40)	20 (27)

f = Unless otherwise agreed

\* The minimum elongation in 2" (50.8mm) shall be determined by the following equation

U.S. Customary Unit Equation

$$e = 625,000(A^{0.2}) / (U^{0.9})$$

where e=minimum elongation in 2" (50.8mm)

A=applicable tensile test specimen area inch<sup>2</sup> (mm<sup>2</sup>)

U=specified minimum ultimate tensile strength psi (MPa)

SI Unit Equation

$$e = 1,940(A^{0.2}) / (U^{0.9})$$

## MAXIMUM CARBON EQUIVALENT (PSL-2 only)

For %C ≤ 0.12; CE(IIW) shall be applicable

$$CE(Pcm) = C + (Si/30) + (Mn/20) + (Cu/20) + (Ni/60) + (Cr/20) + (Mo/15) + (V/10) + 5B$$

$$\text{Max CE}(Pcm) = 0.25\%$$

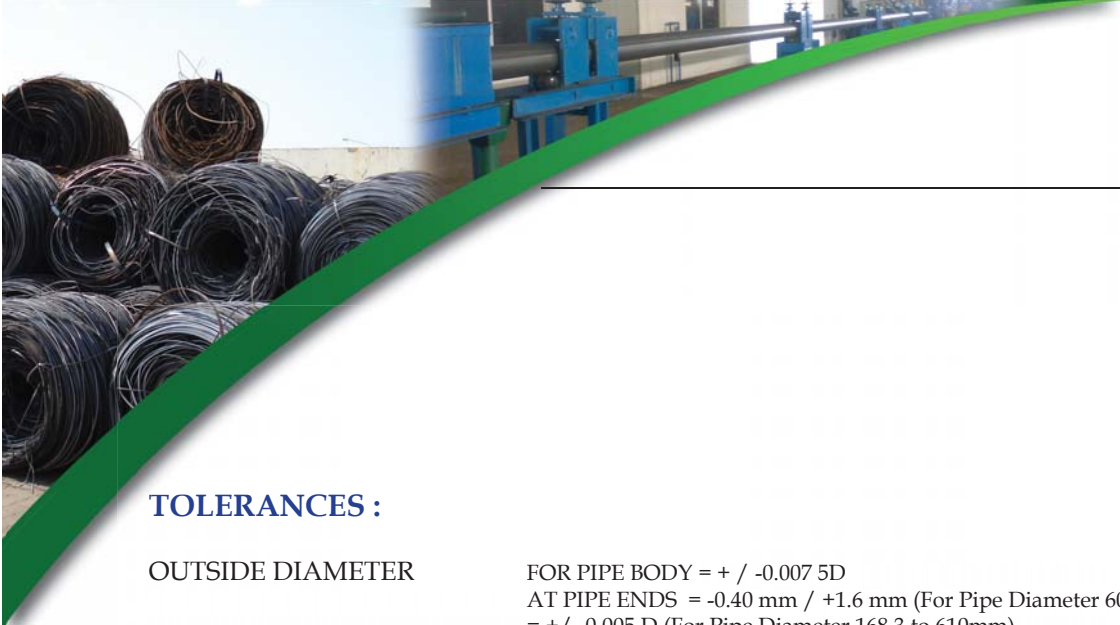
For %C > 0.12; CE(IIW) shall be applicable

$$CE(IIW) = C + (Mn/6) + (Cr + Mo + V)/5 + (Ni + Cu)/15$$

$$\text{Max CE}(IIW) = 0.43\%$$

Forming





**TOLERANCES :**

**OUTSIDE DIAMETER**

FOR PIPE BODY = + / -0.007 5D  
 AT PIPE ENDS = -0.40 mm / +1.6 mm (For Pipe Diameter 60.3 to 168.3mm)  
 = +/- 0.005 D (For Pipe Diameter 168.3 to 610mm)

**THICKNESS**

Thickness (mm)	Tolerances (mm)
≤ 5.0	+/- 0.5
> 5.0 to < 15.0	+/- 0.1 t

**WEIGHT**

For single lengths +10 / -3.5%  
 Order Items, Carloads ≥ 40,000 lb (18144 kg) -1.75%  
 Order Items, Carloads < 40,000 lb (18144 kg) -0.04%

**FLATTENING TEST**

Applicable for sizes ≥ 2-7/8  
 For Weld : Flatten upto 1/2 of OD  
 For Material : Flatten upto 1/3 of OD

**BEND TEST**

Applicable for sizes ≤ 2-3/8  
 Cold bending through 90° around mandrel having dia ≤ 12times pipe OD

**NON DESTRUCTIVE TEST**

Eddy Current Testing 100% on-line OR  
 Ultrasonic Testing 100% online or combination of both.

**HEAT TREATMENT**

For Grades higher than L245 or B - seam normalizing heat treatment  
 For Grades L245 or B and lower - seam should be heat treated or processed in a way that no untempered martensite remains

**HYDROSTATIC TEST**

100% hydrotesting at standard test pressures

**END FINISH**

Bevel Ends at an angle 30° / +5° / -0°

**API MONOGRAM MARKING** Following sequence is being followed



LICENCE NO 5L - 0594  
 Month & Year

AJSP SPEC 5L / SIZE/THK/LENGTH/GRADE/PSL/E/HN/xxxx TESTED



## 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 <sub>eH</sub> (MPa)	Tensile Strength R <sub>m</sub> (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  
 $CEV = C + (Mn/6) + (Cr + Mo + V)/5 + (Ni + Cu)/15$

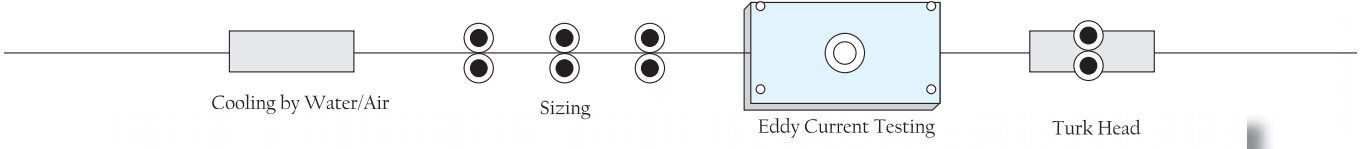
**DIMENSIONS AND TOLERANCES:** All dimensions and tolerances shall be according to EN 10219:2006 Part-2

### SIZE RANGE

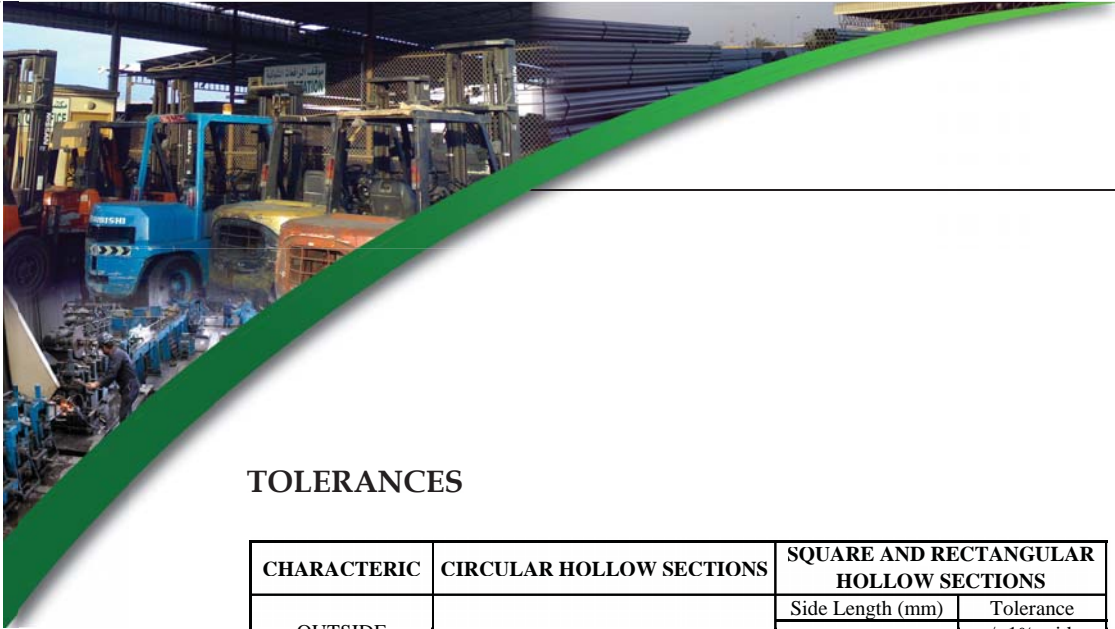
CHS : 21.3 mm OD to 219.1 mm OD

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)







## TOLERANCES

CHARACTERIC	CIRCULAR HOLLOW SECTIONS	SQUARE AND RECTANGULAR HOLLOW SECTIONS	
		Side Length (mm)	Tolerance
OUTSIDE DIMENSIONS (D, B and H)	+/- 1% with a minimum of +/-0.50 mm & a maximum of +/-1.0 mm	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° +/- 1°	
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 xxxxxxx

Length Control



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

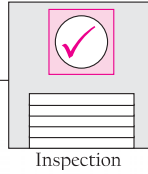
CLASS	SIZE		OUTSIDE DIAMETER				WALL THICKNESS		WEIGHT OF BLACK PIPES						WEIGHT OF GALVANIZED PIPES (CALCULATED)						NO OF PIPES PACKED PER BUNDLE STANDARD TONNE APPROX			
	DN	Specified OD	MAX		MIN		THICKNESS		PLAIN ENDED		SCREWED & SOCKETED		PLAIN ENDED		SCREWED & SOCKETED		PLAIN ENDED		SCREWED & 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	Kg/Mtr	mtr/ton	ft/ton		Kg/Mtr	mtr/ton	ft/ton
TYPE L2	1/2	21.3	0.843	21.4	0.827	21.0	0.079	2.00	0.947	1056	3464	0.956	1046	3432	0.995	1005	3297	1.004	996	3268	1.004	996	3268	160
	3/4	26.9	1.059	26.9	1.039	26.4	0.091	2.30	1.380	725	2377	1.390	719	2360	1.441	694	2277	1.451	689	2261	1.451	689	2261	110
	1	33.7	1.331	33.8	1.307	33.2	0.102	2.60	1.980	505	1657	2.000	500	1640	2.058	486	1594	2.078	481	1579	2.078	481	1579	80
	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	2.640	379	1243	2.670	375	1229	2.670	375	1229	61
	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	3.344	299	981	3.384	296	970	3.384	296	970	51
	2	60.3	2.370	60.2	2.346	59.6	0.114	2.90	4.080	245	804	4.150	241	791	4.223	237	777	4.293	233	764	4.293	233	764	37
	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	5.892	170	557	6.012	166	546	6.012	166	546	27
	3	88.9	3.492	88.7	3.461	87.9	0.126	3.20	6.720	149	488	6.890	145	476	6.934	144	473	7.104	141	462	7.104	141	462	24
	4	114.3	4.484	113.9	4.449	113.0	0.142	3.60	9.750	103	336	10.000	100	328	10.026	100	327	10.276	97	319	10.276	97	319	16
	1/2	21.3	0.858	21.8	0.827	21.0	0.102	2.60	1.210	826	2711	1.220	820	2689	1.257	796	2610	1.266	790	2592	1.266	790	2592	130
3/4	26.9	1.075	27.3	1.043	26.5	0.102	2.60	1.560	641	2103	1.570	637	2090	1.621	617	2024	1.631	613	2012	1.631	613	2012	100	
1	33.7	1.346	34.2	1.311	33.3	0.126	3.20	2.410	415	1361	2.430	412	1350	2.487	402	1319	2.507	399	1309	2.507	399	1309	65	
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	3.199	313	1026	3.229	310	1016	3.229	310	1016	51	
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	3.684	271	891	3.724	269	881	3.724	269	881	44	
2	60.3	2.394	60.8	2.350	59.7	0.142	3.60	5.030	199	652	5.100	196	643	5.172	193	634	5.242	191	626	5.242	191	626	30	
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	6.612	151	496	6.732	149	487	6.732	149	487	24	
3	88.9	3.524	89.5	3.465	88.0	0.157	4.00	8.360	120	392	8.550	117	385	8.583	117	382	8.753	114	375	8.753	114	375	19	
4	114.3	4.528	115.0	4.453	113.1	0.177	4.50	12.200	82	269	12.500	80	262	12.476	80	263	12.726	79	258	12.726	79	258	14	
5	139.7	5.543	140.8	5.453	138.5	0.197	5.00	16.600	60	198	17.100	58	192	16.938	59	194	17.438	57	188	17.438	57	188	10	
6	165.1	6.555	166.5	6.453	163.9	0.197	5.00	19.800	51	166	20.400	49	161	20.102	50	163	20.702	48	158	20.702	48	158	7	
1/2	21.3	0.858	21.8	0.827	21.0	0.126	3.20	1.440	694	2278	1.450	690	2263	1.486	673	2208	1.495	669	2195	1.495	669	2195	110	
3/4	26.9	1.075	27.3	1.043	26.5	0.126	3.20	1.870	535	1754	1.880	532	1745	1.930	518	1700	1.940	515	1691	1.940	515	1691	80	
1	33.7	1.346	34.2	1.311	33.3	0.157	4.00	2.930	341	1120	2.950	339	1112	3.015	332	1088	3.035	329	1081	3.035	329	1081	55	
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	3.897	257	842	3.927	255	835	3.927	255	835	44	
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	4.492	223	730	4.532	221	724	4.532	221	724	37	
2	60.3	2.394	60.8	2.350	59.7	0.177	4.50	6.190	162	530	6.260	160	524	6.330	158	518	6.400	156	513	6.400	156	513	27	
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	8.110	123	405	8.230	122	399	8.230	122	399	20	
3	88.9	3.524	89.5	3.465	88.0	0.197	5.00	10.300	97	319	10.500	95	312	10.510	95	312	10.680	94	307	10.680	94	307	16	
4	114.3	4.528	115.0	4.453	113.1	0.213	5.40	14.500	69	226	14.800	68	222	14.774	68	222	15.024	67	218	15.024	67	218	12	
5	139.7	5.543	140.8	5.453	138.5	0.213	5.40	17.900	56	183	18.400	54	178	18.238	55	180	18.738	53	175	18.738	53	175	10	
6	165.1	6.555	166.5	6.453	163.9	0.213	5.40	21.300	47	154	21.900	46	150	21.702	46	151	22.302	45	147	22.302	45	147	7	





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

CLASS	SIZE		OUTSIDE DIAMETER		WALL THICKNESS		WEIGHT OF BLACK PIPES				WEIGHT OF GALVANIZED PIPES (CALCULATED)				NO. OF PIPES PACKED PER BUNDLE APPROX TONNE				
	DN	Specified OD	MAX	MIN	Inch	mm	PLAIN ENDED	SCREWED & SOCKETED	PLAIN ENDED	SCREWED & SOCKETED	PLAIN ENDED	SCREWED & SOCKETED	PLAIN ENDED	SCREWED & SOCKETED					
			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	1.080	926	3038	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	1.400	714	2343	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	2.200	455	1491	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	2.820	355	1163	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	3.250	308	1009	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	4.510	222	727	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	5.750	174	571	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	6.760	148	485	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	8.700	115	377	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	9.830	102	334	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	15.000	67	219	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	17.800	56	184	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	1.080	926	3038	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	1.390	719	2360	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	2.200	455	1491	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	2.820	355	1163	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	3.250	308	1009	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	4.510	222	727	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	5.750	174	571	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	6.760	148	485	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	8.700	115	377	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	9.830	102	334	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	15.000	67	219	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	17.800	56	184	178	18.227	55	180	18.827	53	174	7	
1/2	21.3	0.854	21.7	0.827	21.0	0.091	2.30	1.080	926	3038	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	1.390	719	2360	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	2.200	455	1491	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	2.820	355	1163	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	3.250	308	1009	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	4.490	223	731	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	5.730	175	573	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	7.550	132	435	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	10.800	93	304	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

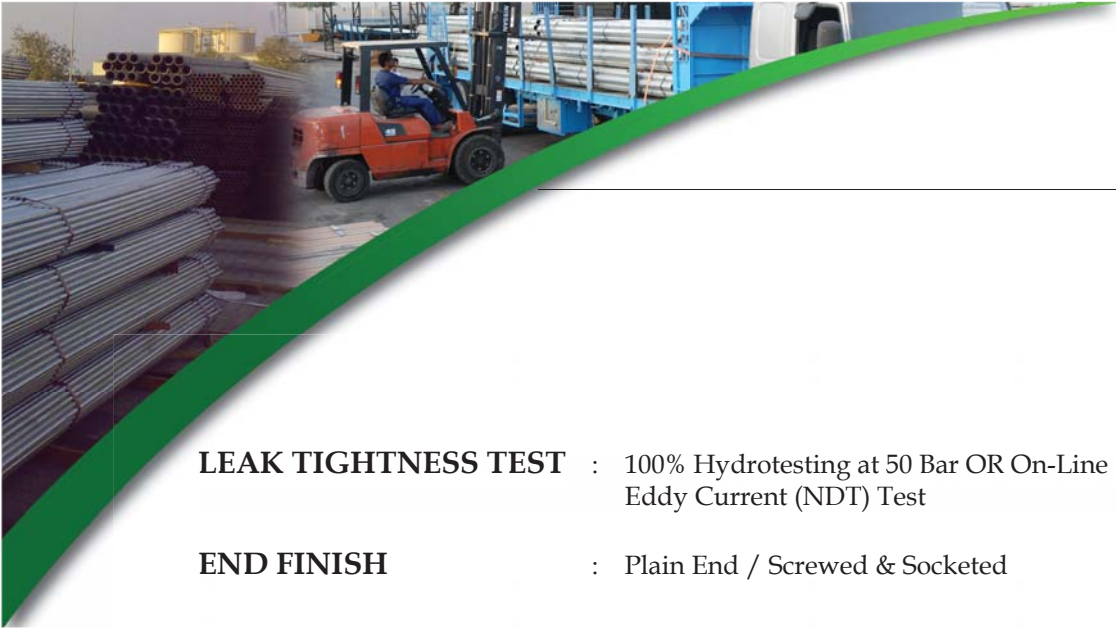
Diameter D	21.3	26.9	33.7	42.4	48.3	60.3
Bending Radius	65	85	100	150	170	220

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

**FLATTENING TEST** : For sizes above 2" in Two Stages

- a. For Weld Test : Flatten upto 75% of Original Tube OD
- b. 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

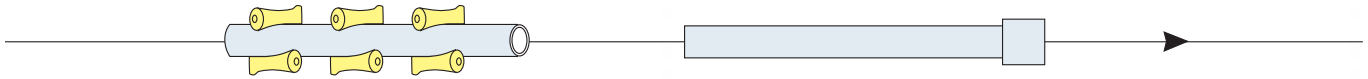
#### COLOUR CODING

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
± 0.5mm	-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

NOMINAL PIPE SIZE		OUTSIDE DIAMETER		WALL THICKNESS		WEIGHT OF BLACK PIPES				TEST PRESSURE	
		STANDARD		STANDARD		PLAIN END PIPES				PSI	KPA
INCH	MM	INCH	MM	INCH	MM	KG/MTR	MTR/TON	LB/FT	FT/TON		
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 / ft<sup>2</sup> [400 Gm / Mtr<sup>2</sup>]

AVERAGE : 1.50 oz / ft<sup>2</sup> [460 Gm / Mtr<sup>2</sup>]

### FLATTENING TEST

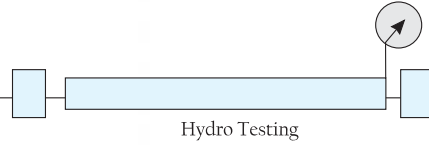
STAGE-1 : For weld ductility until 2/3 of outside dia of specimen tube.

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

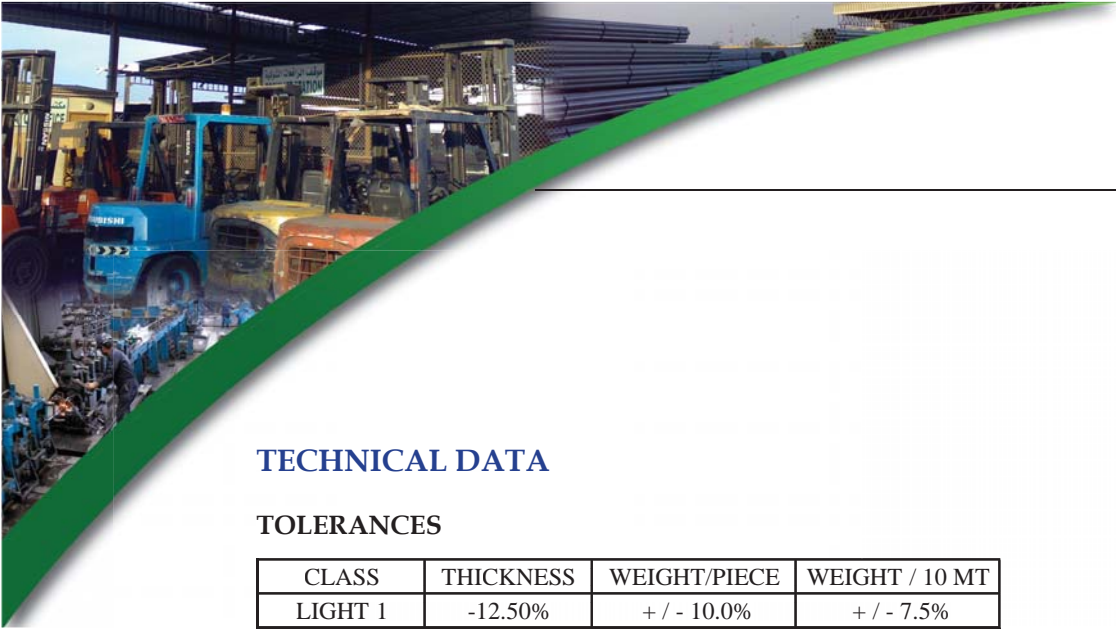
STAGE-3 : Fullflattening for testing of laminated and unsound material.

## 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				SCREWED AND SOCKETED PIPES				NO OF PIECES PER LIFT				
	INCH	MM	MINIMUM	MAXIMUM	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	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	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	0.114	2.90	2.200	455	1.478	1491	2.220	450	1.492	1478	65
	1.1/4	32	1.650	41.90	1.681	42.70	0.114	2.90	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	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	0.126	3.20	4.490	223	3.017	731	4.560	219	3.064	719	30
LIGHT - 2	2.1/2	65	2.961	75.20	3.004	76.30	0.126	3.20	0.126	3.20	5.730	175	3.850	573	5.850	171	3.931	561	24
	3	80	3.461	87.90	3.570	89.40	0.142	3.60	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	0.157	4.00	10.800	93	7.257	304	11.100	90	7.459	296	14
	1/2	15	0.827	21.00	0.843	21.40	0.079	2.00	0.079	2.00	0.927	1056	0.636	3064	0.956	1046	0.682	3432	160
	3/4	20	1.039	26.40	1.059	26.90	0.091	2.30	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	0.102	2.60	1.980	505	1.330	1657	2.000	500	1.344	1640	80
MEDIUM	1.1/4	32	1.650	41.90	1.673	42.50	0.114	2.90	0.114	2.90	3.230	310	2.170	1016	3.270	389	2.197	1003	51
	1.1/2	40	1.882	47.80	1.906	48.40	0.114	2.90	0.114	2.90	4.080	245	2.742	804	4.150	241	2.789	791	37
	2	50	2.346	59.60	2.370	60.20	0.126	3.20	0.126	3.20	5.710	175	3.837	575	5.830	172	3.918	563	27
	2.1/2	65	2.961	75.20	2.992	76.00	0.126	3.20	0.126	3.20	6.720	149	4.516	488	6.890	145	4.630	476	24
	3	80	3.461	87.90	3.492	88.70	0.142	3.60	0.142	3.60	9.750	103	6.552	336	10.000	100	6.720	328	16
	4	100	4.449	113.00	4.484	113.90	0.157	4.00	0.157	4.00	12.200	82	8.198	269	12.500	80	8.400	262	14
HEAVY	1/2	15	0.827	21.00	0.858	21.80	0.102	2.60	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	0.102	2.60	1.560	641	1.048	2161	1.570	637	1.055	2090	100
	1	25	1.311	33.30	1.346	34.20	0.126	3.20	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	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	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	0.142	3.60	5.080	199	3.380	652	5.100	196	3.427	643	30
HEAVY	2.1/2	65	2.965	75.30	3.016	76.60	0.142	3.60	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	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	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	0.197	5.00	16.600	60	11.155	198	17.100	58	11.491	192	10
	6	150	6.453	163.90	6.555	166.50	0.197	5.00	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	0.126	3.20	1.440	694	0.968	2278	1.450	690	0.974	2263	110
HEAVY	3/4	20	1.043	26.50	1.075	27.30	0.126	3.20	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	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	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	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	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	0.177	4.50	7.930	126	5.329	414	8.050	124	5.409	408	20
HEAVY	3	80	3.465	88.00	3.524	89.50	0.197	5.00	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	0.213	5.40	14.500	69	9.744	226	14.800	68	9.945	222	12
	5	125	5.453	138.50	5.543	140.80	0.213	5.40	0.213	5.40	17.900	56	12.028	183	18.400	54	12.564	178	10
	6	150	6.453	163.90	6.555	166.50	0.213	5.40	0.213	5.40	21.300	47	14.313	154	21.900	46	14.716	150	7







## 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

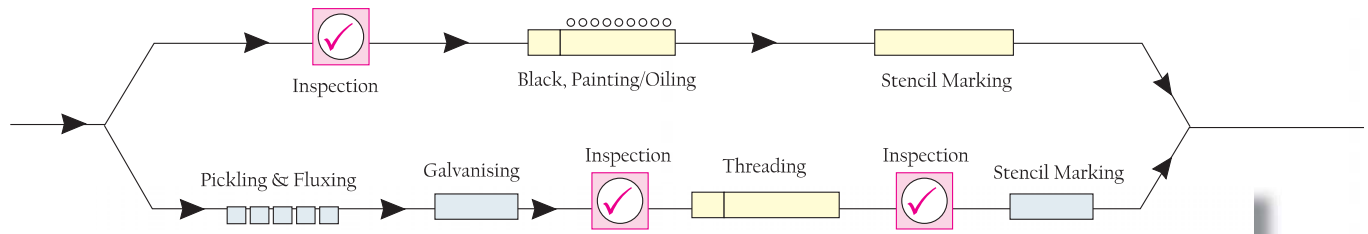
All pipes shall be tested hydrostatically at a pressure of 50 bar OR

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





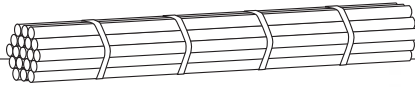
**TECHNICAL DATA OF SQUARE AND RECTANGLE  
HOLLOW SECTION CONFORMING TO THE SPECIFICATION  
ASTM A 500 GRADE-A**

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

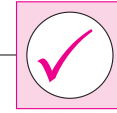




SIZE		THICKNESS		SECTION WEIGHT DETAILS				NO OF PCS PER BUNDLE
MM	INCHES	MM	INCHES	KG/MTR	MTR/TON	LB/FT	FT/TON	
38 X 38	1.496 X 1.496	1.20	0.047	1.357	737	0.912	2418	64
		1.50	0.059	1.673	598	1.124	1961	64
		1.80	0.071	1.980	505	1.330	1657	64
		2.00	0.079	2.179	459	1.464	1506	64
		2.50	0.098	2.660	376	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
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



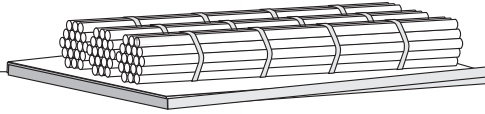
Inspection

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
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
		3.50	0.138	2.160	450	1.428	1521	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





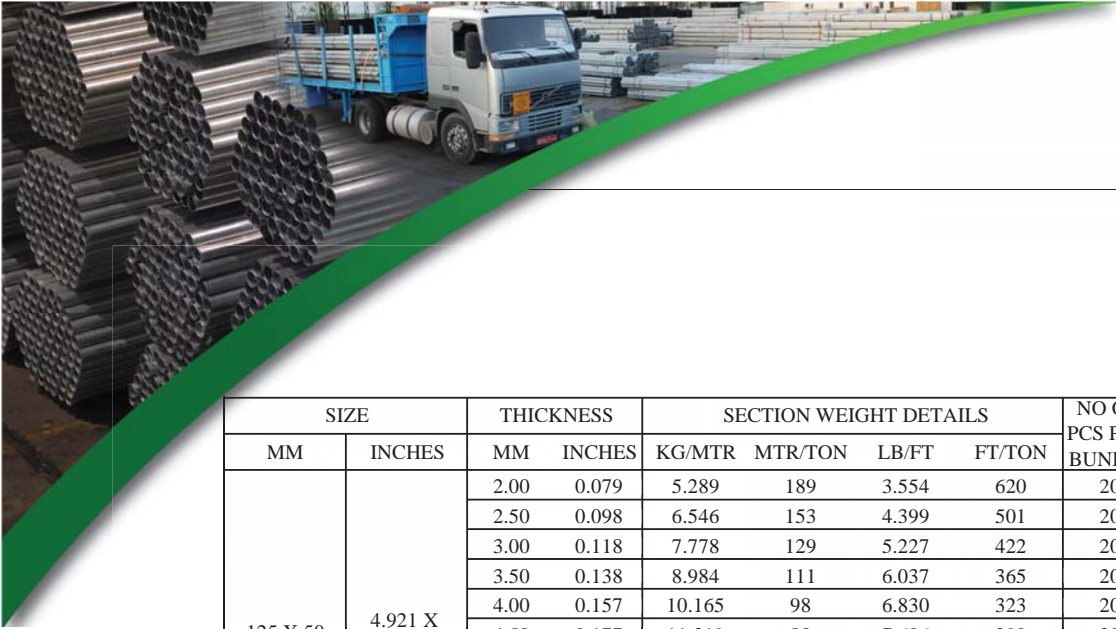
SIZE		THICKNESS		SECTION WEIGHT DETAILS				NO OF PCS PER BUNDLE
MM	INCHES	MM	INCHES	KG/MTR	MTR/TON	LB/FT	FT/TON	
40 X 25	1.575 X 0.984	1.50	0.059	1.415	707	0.951	2319	100
		1.80	0.071	1.670	599	1.122	1965	100
		2.00	0.079	1.835	545	1.233	1788	100
		2.50	0.098	2.229	449	1.498	1472	64
		3.00	0.118	2.597	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



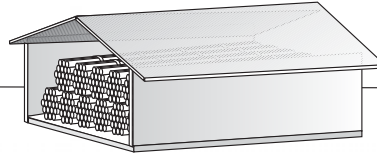
Weighthment

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
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
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
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
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
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		



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

YIELD STRENGTH : 269 N/MM2 (Min)

TENSILE STRENGTH : 310 N/MM2 (Min)

ELONGATION : 25 % Minimum on 2.0" Gauge Length

### CHEMICAL PROPERTIES

CARBON : 0.26 % MAX

PHOSPHORUS : 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.



## Al Jazeera Steel Products Co. SAOG

PRODUCTS	SIZE RANGE (MM)
Angles	38 100
Channels (UPN/Light)	40 100
Rounds	16 50
Squares	12 75
Flat Bars	40 100
Rebars	8 36

### Product Mix

PRODUCTS	SIZE RANGE (MM)	Dimensional Specification
Angles	38 100	DIN 1028 BS EN 10056
Channels (UPN/Light)	40 100	DIN 1026 GIS G3192:2005
Rounds	16 50	DIN 1013 BS 4449:2005
Squares	12 75	DIN 1014 BS EN 10059:2003
Flat Bars	40 100	DIN 1017 BS EN 10058:2003
Rebars	8 36	DIN 448:1 BS 4449:1997 Gr. 460B

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	0.4	0.9	0.04	0.05	120	250	400	20
ASTM A 572 Gr.50	0.23	0.4	1.35	0.04	0.05	120	345	450	18
S275 JR	0.21	0.4	1.5	0.045	0.045	120	275	410	22
S355 JR	0.23	0.55	1.6	0.045	0.045	120	355	490	16

## 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
38x38				2.42	2.55	2.81		2.81			3.32						
40x40		2.84	2.91	3.06	3.41	3.56	3.63	3.77	4.12		4.47			5.82			
50x50	2.69						4.39	4.57	5.00	5.25	5.42	6.83		7.09		8.69	
60x60								4.97	5.44	5.91	6.38	7.38		7.73			
65x65							5.16	5.37	5.88	6.18	6.38	7.38		8.36			
75x75								5.76	6.31	7.11	7.34	8.49	9.40	8.99	10.03	11.06	
80x80											9.61	10.9	12.2	12.20	13.40	15.0	17.80
90x90																	
100x100											9.26	10.73					

### Tolerance

Symbol	LEG(MM)	THICKNESS (MM)
38x38	± 1	±0.5
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 – ± 4 % For thicknesses for t > 4 mm
- TOLERANCE ON LENGTH ... + 100 MM where minimum length are required

## ROUNDS

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

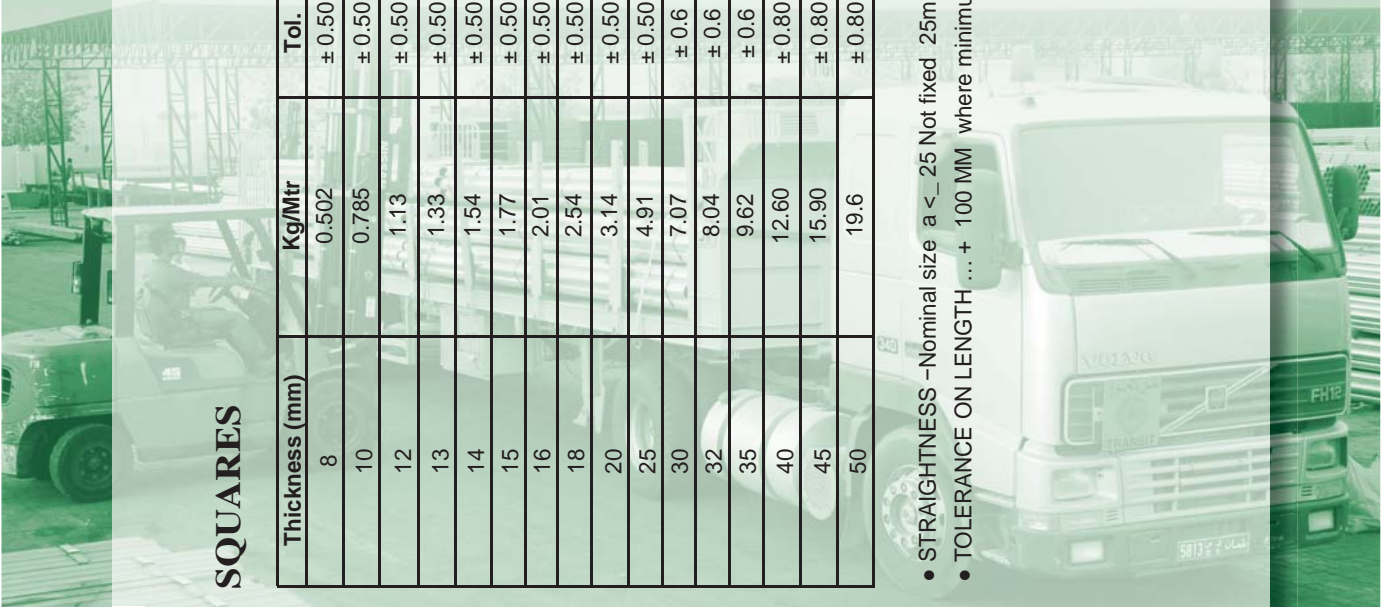
- STRAIGHTNESS ... D < 25mm tolerance Not established
- TOLERANCE ON MASS 10 mm to 16mm (DIA) ± 5 % section weight
- TOLERANCE ON LENGTH + 100 mm where minimum length are required



## SQUARES

Thickness (mm)	Kg/Mtr	Tol.	Twist	CORNER RADIUS
8	0.502	± 0.50	4°/M with a max of 24°	r <_ 1.mm
10	0.785	± 0.50		
12	1.13	± 0.50		
13	1.33	± 0.50		
14	1.54	± 0.50	3°/M with a max of 18°	r <_ 1.5mm
15	1.77	± 0.50		
16	2.01	± 0.50		
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	r <_ 2 mm	
40	12.60	± 0.80		
45	15.90	± 0.80		
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





## 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	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	5.70	6.28	7.42	12.56		12.56		
100				3.93	4.71	6.28	7.07	7.85	9.42	15.70		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 mm<sup>2</sup> Tolerance q < 0.4% L over full bar length
- TOLERANCE ON MASS – ± 4 % For thicknesses for t > 4 mm
- TOLERANCE ON LENGTH ... + 100 MM where minimum length are required



## 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

### 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

- STRAIGHTNESS ;  $H < 150\text{mm}$   $0.3\% L$  over full bar length
- HEEL RADIUS ; All SIZES Tolerance  $< 0.3t$
- WEB FLATNESS ;  $H < 100$  Tolerance  $\pm 0.5 \text{ mm}$
- TOLERANCE ON LENGTH + 100 mm where minimum length are required

## DEFORMED BAR (RE BAR)

Diameter	From 8 mm to 36 mm		
Commercial Length	6 & 12 meters		
Specification	British Standard	BS 449:1997 Grade 460B	
	American Standard	ASTM A 615 Grade 60	
	German Standard	DIN 488-1:2009-08 Grade B500B	

Standard Grade	Chemical Composition % Max				Mechanical Properties				Bending Test			Rebending Test	
	%C	%Mn	%S	%P	Ys N/mm <sup>2</sup> Min	T.S. N/mm <sup>2</sup> Min.	E at Fracture % Min.	Agt % Min	Guage Length	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

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

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)



## 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
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
S 355JR	A 572 Gr.50	Ss490	50B

**UKAS**  
REGISTRATION  
012

**REGISTRATION CERTIFICATE**

Certificate Number: 7674  
Date of initial registration: 27 May 2010  
Date of last issue: 28 May 2013  
Date of expiry: 28 May 2015

**BM TRADA**  
CERTIFICATION

**BM TRADA certify that the Quality Management System of**  
**Al Jazeera Steel Products Co. SAOG**  
– Merchant Bar Mill  
Road No. 3, PB-40, PC-327  
Sohar Industrial Estate  
Sultanate of Oman

complies with the requirements of ISO 9001:2008

**Scope of Certification**  
Manufacturing & Selling of Hot Rolled Structural Steel Products such as Angles, Channels, Squares, Flats and Round Bars, conforming to BS, EN, JIS, DIN, ASTM & other relevant International Standards

Signed on behalf of BM TRADA Certification Ltd  
Hayden Davies, Group Director  
Oxford House, Stratford Road, High Wycombe, Buckinghamshire, HP12 3EF

Further certification regarding the scope of this certificate and conditions of the certificate is available through the BM TRADA website at [www.bmtrada.com](http://www.bmtrada.com)  
This certificate remains the property of BM TRADA Certification Ltd. The certificate and all copies of this certificate shall be returned immediately if requested by BM TRADA Certification Ltd.  
For multiple copies the price of additional copies shall be payable in advance at the rate of 20 pence per certificate plus postage and handling charges.

The use of the accreditation mark involves accreditation in respect of those activities covered by the accreditation certificate 012

**Certificate of Compliance**

Certificate Number: 20090401-EX15200  
Report Reference: EX15200, 2007 March 09  
Issue Date: 2009 April 01

Page 1 of 1

**UL Underwriters Laboratories Inc.**

**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** **Metallic Sprinkler Pipe**  
Schedule 40, Grade A, steel pipe in the 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 3-1/2, 4, 5, 6 and 8 in. sizes.  
Schedule 40, Grade B, steel pipe in the 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 3-1/2, 4, 5, 6 and 8 in. sizes.

**Have been investigated by Underwriters Laboratories Inc.® in accordance with the Standard(s) indicated on this Certificate.**

**Standard(s) for Safety:** UL 852 - The Standard for Metallic Sprinkler Pipe For Fire Protection - Edition 1, revised July 11, 2005.

**Additional Information:** All pipes with threaded ends shall conform to ANSI B1.20.1.

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

The UL Listing Mark generally includes the following elements: the symbol UL in a circle with the word "LISTED", a control number (may be alphanumeric) assigned by UL, and the product category name (product identifier) as indicated in the appropriate UL Directory.

**Look for the UL Listing Mark on the product**

Issued by: *Lavanya Govardhanam* Reviewed by: *Daniel R. Weaver*  
Lavanya Govardhanam, Customer Service Professional Daniel R. Weaver, Project Engineer  
UL, India Private Limited Underwriters Laboratories Inc.

For information only: Underwriters Laboratories (U.L.) Mark services are provided on behalf of Underwriters Laboratories Inc. (U.L.) or any authorized licensee of U.L. For questions in Singapore you may call 65-63787002.

**UKAS**  
REGISTRATION  
012

**REGISTRATION CERTIFICATE**

Certificate Number: 885  
Date of initial registration: 4 July 2012  
Date of last issue: 4 July 2015  
Date of expiry: 15 July 2015

**BM TRADA**  
CERTIFICATION

**BM TRADA certify that the Quality Management System of**  
**Al Jazeera Steel Products Co. SAOG**  
P.O. Box 40  
Postal Code 327  
Sohar Industrial Estate  
Sultanate of Oman

complies with the requirements of ISO 9001:2008

**Scope of Certification**  
Manufacturing of Steel Tube Products Conforming to BS, ASTM, EN, DIN Standards

Signed on behalf of BM TRADA Certification Ltd  
Hayden Davies, Group Director  
Oxford House, Stratford Road, High Wycombe, Buckinghamshire, HP12 3EF

Further certification regarding the scope of this certificate and conditions of the certificate is available through the BM TRADA website at [www.bmtrada.com](http://www.bmtrada.com)  
This certificate remains the property of BM TRADA Certification Ltd. The certificate and all copies of this certificate shall be returned immediately if requested by BM TRADA Certification Ltd.  
For multiple copies the price of additional copies shall be payable in advance at the rate of 20 pence per certificate plus postage and handling charges.

The use of the accreditation mark involves accreditation in respect of those activities covered by the accreditation certificate 012

**SGS**

**Certificate of Conformity**  
GB1182993

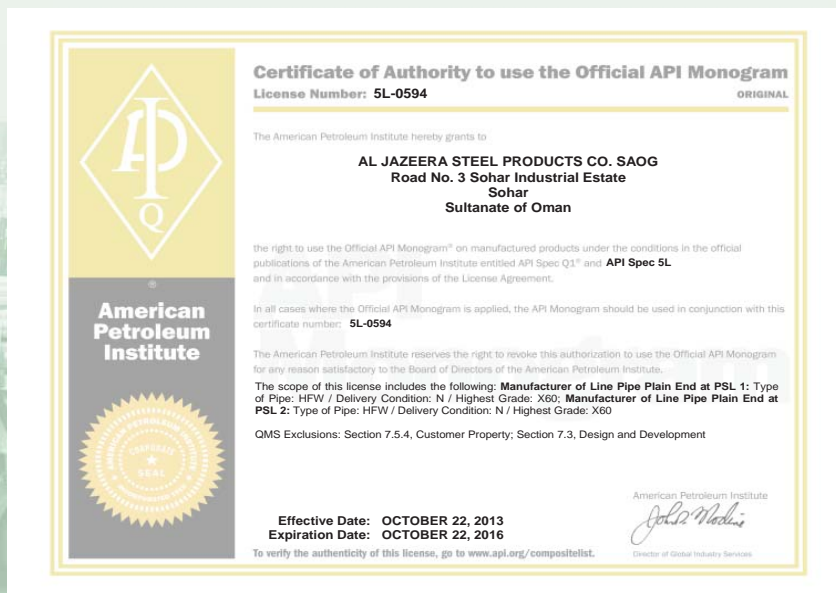
It has been stated that the construction product  
**Mid Steel Electric Resistance Pipes Type W**  
placed on the market by  
**Al Jazeera Steel Products Co SAOG**  
Post Box No. 40, Postal Code 327, Road No. 3, Sohar Industrial Estate,  
Sohar, Sultanate of Oman  
and produced in the factory at  
Post Box No. 40, Postal Code 327, Road No. 3, Sohar Industrial Estate,  
Sohar, Sultanate of Oman

is submitted by the manufacturer to a factory production control and to the further testing of samples taken at the factory in accordance with a prescribed test plan and that the certification body - SGS United Kingdom Limited has confirmed the initial type testing for the relevant characteristics of the product has been undertaken as required for Directive 89/106/EEC attestation of conformity system 4. The initial inspection of the factory and of the factory production control and performs the subsequent surveillance, assessment and approval of the factory production control.

This certificate attests that all provisions concerning the attestation of conformity and the performances described in Annex ZA of the standards  
**EN 10255 : 2004 A1 : 2007**  
were applied and that the product fulfils all the prescribed requirements.  
This certificate is valid from 27 April 2011 until 30 January 2014 and remains valid subject to satisfactory surveillance audits and the conditions laid down in the harmonised technical specifications in reference to the manufacturing conditions in the factory or the PPC itself are not modified significantly.  
Re certification audit due before 24 January 2014  
Issue 1. Certified since 27 April 2011  
Authorized by

*[Signature]*  
Systems & Service Certificate Business Manager

**SGS**  
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Notes

