

ARAD
STEEL
COMPLEX
collection 2017

مجتمع فولاد آراد



pipe
کاتالوگ اختصاصی لوله

ARAD
ARAD STEEL COMPLEX



floor 5, Kooch e noor complex,
Kavian Alley, Chaharbagh e
bala Ave., Isfahan, Iran
Tel: +98 31 3620 62 60
Postal code: 8173999336
www.fooladarad.com
info@fooladarad.com



Trading and Manufacturing of Steel Products



International
Organization for
Standardization

Welded Pipe

Welded pipes are now produced by two different methods of SAW (submerged arc welding) and ERW (electric resistance welding) in size range from ¾" to 28", through observing the following standards:

- DIN 2440
- DIN 2458
- DIN 17174
- ASTM A312

Spiral Pipe

This category of pipes is produced by SAW (submerged arc welding) and by spiral technique from the size of 8" to 120", through observing the following standards:

- AWWA C-200
- ASTM A53
- ASTM A139

Seamless Pipe

Seamless steel pipe is referred to the pipe with no seams or welds in their production. These pipes are generally produced and supplied in ½" to 24" diameters and they are mainly applied in networking facilities, high-pressure transfer lines, gas pipes, refineries, petrochemical plants, etc.

Seamless steel pipes are manufactured by observing the following standards:

- DIN 17273
- ASTM A106
- ASTM A312
- ASTM A335



PRODUCTS
STEEL PIPES



PRODUCTS

STEEL PIPES

Greenhouse Pipe

Galvanized pipes with 1/2" - 2" and 2-2.5 mm thickness are usually used for constructing greenhouse structures.

Our suggestion is using original galvanized pipes in which galvanized plates are directly used according to standards, instead of plating ordinary carbon steel pipes.

The advantages of original galvanized pipes are as follows:

- 1- More age and better quality than carbon steel pipes
- 2- Possibility of being produced with 1.5mm thickness, and thus, being lighter and more economical
- 3- Possibility of production with desired lengths to reduce wastage
- 4- Due to smoother surface of the pipe, accumulation of contaminants and fungi is prevented, and the risk of blights of agricultural products is reduced

Casing Pipe

These pipes are used to prevent collapsing of well walls, having the role of protecting the main transfer pipe of the fluid. Among their advantages are reducing costs related to dredging, operating, and repairing the related pumps 10, 12, 14, and 16" sizes with the lowest possible thicknesses are the mostly used sizes for this particular application

Scaffolding Pipe

Scaffolding pipes are referred to the pipes that have no possibility for passage of fluids inside them, and they are mainly used for structures and scaffoldings. The common sizes for this application are 1/2" to 5" with the thicknesses of 2-2.5 mm.

Concrete Pipe

Concrete pipes used for water and sewerage transfer are manufactured in simple and reinforced types.

Reinforced concrete pipes contain concrete and steel reinforcing bars. Steel rods, welded steel networks and steel bars with specific resistances are made as cages and placed in their proper positions in the pipe wall. Combination of concrete and steel materials increases the pipe resistance against tension forces. Concrete pipes are manufactured due to observing the following standards:

- ASTM-C497
- ASTM-C76
- ASTM-C361
- ASTM-C14
- BS-556

Pipe jacking technique

Pipe jacking indicates placement of pipes under the ground without interference or damaging the facilities and traffic aspects above the ground levels. This method is mainly used for installing reinforced concrete pipes for using for surface waters, drainage waters, and sewerage.

Due to little excavation requirement as compared to other methods, this technique is quite economical, and because of the traffic and also building compactions in cities, it has replaced other traditional methods, as a suitable economic solution.

Specifications of suitable concrete pipes for pipe jacking purposes

- 1- Pipes are produced according to ASTM-C76 standard
- 2- Pipes contain metal rings and sealing washers
- 3- Pipes are produced with the purity grade of 350 and with anti-sulfate cement
- 4- Inside the pipes are covered by PE or GRP plates due to customers' requests



PRODUCTS
CONCRETE PIPES



PRODUCTS

DUCTILE IRON PIPE

Ductile Iron Pipe

Material of these pipes is of cast iron type, and regarding their applications, types and rates of alloys, formation, and lengths of pipes and the fittings, they differ with each other. Ductile cast iron pipes that are often used for sewerage networks are manufactured according to the following standards:

- ISO 7268
- ISO 6708
- ISO 8179
- ISO 4179
- ISO 2531
- ISO 4633
- EN 545

Specifications

- 1- Natural resistance against corrosion
- 2- Appropriate resistance and flexibility against landslide
- 3- Resistance against the electric fields
- 4- High resistance against impacts and damages due to transportations and displacements
- 5- Suitable for mountainous regions due to not requiring specific infrastructures
- 6- Tolerable against high working pressures
- 7- Easy mounting

Internal and External Coating

Types of internal coatings:

- 1- Internal coating with cement covering
- 2- Polyurethane
- 3- Epoxy

Types of external coatings:

- 1- Zinc
- 2- Bitumen
- 3- Polyethylene casing (for extremely corrosive grounds)
- 4- Epoxy
- 5- polyurethane



Table Of Hydrostatic Pressure Test

nominal	inch	mm	4	5	6	6.3	7.9	8	9.5	10	12	12.7	14	16
400	16	406	37.7	43.4	52.1	54.7	68.6	69.5	82.5	86.8				
			52.5	65.6	78.7	82.6	103.6	104.9	124.6	131.2				
450	18	457	30.9	38.6	46.3	48.6	60.9	61.7	73.3	77.1				
			46.6	58.3	69.9	73.4	92.1	93.2	110.7	116.5				
500	20	508	27.8	34.7	41.6	43.7	54.8	55.5	65.9	69.4	83.3			
			41.9	52.4	62.9	66	82.8	83.9	99.6	104.8	125.8			
550	22	558.8	25.2	31.5	37.8	39.7	49.8	50.5	59.9	63.1	75.7			
			38.1	47.6	57.2	60	75.3	76.2	90.5	95.3	114.4			
600	24	609.6	23.1	28.9	34.7	36.4	45.7	46.3	54.9	57.8	69.4	73.4		
			34.9	43.7	52.4	55	69	69.9	83	87.4	104.8	110.9		
650	26	660.4	21.4	26.7	32	33.6	42.2	42.7	50.7	53.4	64.1	67.8		
			32.3	40.3	48.4	50.8	63.7	64.5	76.6	80.6	96.8	102.4		
700	28	711.2	19.8	24.8	29.7	31.2	39.2	39.7	47.1	49.6	59.5	62.9		
			29.9	37.4	44.9	47.2	59.2	59.9	71.1	74.9	89.8	95.1		
750	30	762	18.5	23.1	27.8	29.1	36.5	37	43.9	46.3	55.5	58.8		
			28	34.9	41.9	44	55.2	55.9	66.4	69.9	83.9	88.8		
800	32	812.8	17.3	21.7	26	27.3	34.3	34.7	41.2	43.4	52	55.1		
			26.2	32.8	39.3	41.3	51.8	52.4	62.2	65.5	78.6	83.2		
850	34	863.8	16.3	20.4	24.5	25.7	32.2	32.6	38.8	40.8	49	51.8		
			24.7	30.8	37	38.8	48.7	49.3	58.6	61.6	74	78.3		
900	36	914.4	15.4	19.3	23.1	24.3	30.5	30.8	36.6	38.5	46.3	49		
			23.3	29.1	34.9	36.7	46	46.6	55.3	58.2	69.9	74		
950	38	965	14.6	18.3	21.9	23	28.9	29.2	34.7	36.5	43.8	46.4		
			22.1	27.6	33.1	34.8	43.6	44.1	52.4	55.2	66.2	70.1		
1000	40	1016	13.9	17.3	20.8	21.9	27.4	27.8	33	34.7	41.6	44.1		
			21	26.2	31.4	33	41.4	41.9	49.8	52.4	62.9	66.6		
1050	42	1066.8				20.8	26.1	26.4	31.4	33	39.7	42	46.3	52.9
						31.4	39.4	39.9	47.4	49.9	59.9	63.4	69.9	79.9
1100	44	1118				19.9	24.9	25.2	30	31.5	37.8	40	44.1	50.4
						30	37.6	38.1	45.2	47.6	57.2	60.5	66.7	76.2
1200	48	1219.2				18.2	22.8	23.1	27.5	28.9	34.7	36.7	40.5	46.3
						27.5	34.5	34.9	41.5	43.7	52.4	55.5	61.1	69.9
1300	52	1321				16.8	21.1	21.3	25.4	26.7	32	33.9	37.4	42.7
						25.4	31.8	32.2	38.3	40.3	48.4	51.2	56.4	64.5
1400	56	1423				15.6	19.6	19.8	23.5	24.8	29.7	31.5	34.7	39.6
						23.6	29.6	29.9	35.5	37.4	44.9	47.5	52.4	59.9
1500	60	1524				14.6	18.3	18.5	22	23.1	27.8	29.4	32.4	37
						22	27.6	28	33.2	34.9	41.9	44.4	48.9	55.9

ST 37
ST 44

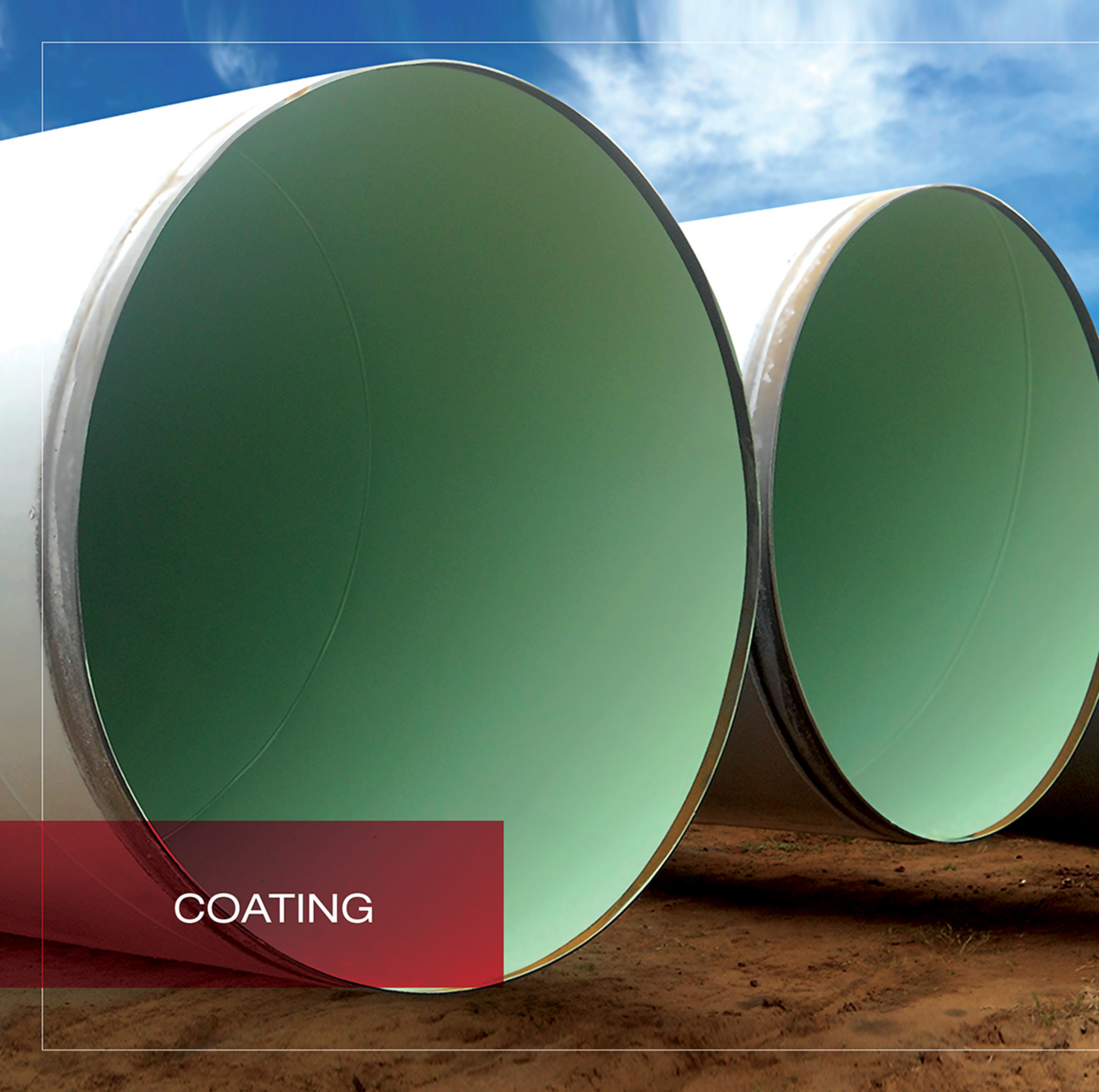
Table of weight per meter length of seamless steel pipe

SIZE		10	20	30	STD	40	60	xs	80	100	120	140	160	xxs	5s	10s	40s	80s	M ³
اینچ	میلیمتر																		
1/8	10.3	1.24 0.28		1.45 0.32	1.73 0.37	1.73 0.37		2.41 0.47	2.41 0.47							1.24 0.28	1.73 0.36	2.41 0.48	0.0001
1/4	13.7	1.65 0.49		1.85 0.54	2.24 0.63	2.24 0.63		3.02 0.8	3.02 0.8							1.65 0.51	2.24 0.64	3.02 0.82	0.0001
3/8	17.1	1.65 0.63		1.85 0.70	2.31 0.84	2.31 0.84		3.20 1.10	3.20 1.10							1.65 0.64	2.31 0.86	3.20 1.12	0.0003
1/2	21.3	2.11 1.00		2.41 1.12	2.77 1.27	2.77 1.27		3.73 1.62	3.73 1.62				4.78 1.95	7.47 2.55	1.65 0.82	2.11 1.01	2.77 1.30	3.73 1.65	0.0004
3/4	26.7	2.11 1.28		2.41 1.44	2.87 1.69	2.87 1.69		3.90 2.20	3.90 2.20				5.56 2.90	7.82 3.64	1.65 1.04	2.11 1.31	2.87 1.71	3.91 2.24	0.0007
1	33.4	2.77 2.09		2.90 2.18	3.38 2.50	3.38 2.50		4.55 3.24	4.55 3.24				6.35 4.24	9.09 5.45	1.65 1.33	2.77 2.13	3.38 2.55	4.55 3.29	0.0011
1 1/4	42.2	2.77 2.70		2.97 2.87	3.56 3.39	3.56 3.39		4.85 4.47	4.85 4.47				6.35 5.61	9.70 7.77	1.65 1.68	2.77 2.76	3.56 3.46	4.85 4.56	0.0018
1 1/2	48.3	2.77 3.11		3.18 3.53	3.68 4.05	3.68 4.05		5.08 5.41	5.08 5.41				7.14 7.25	10.15 9.56	1.65 1.95	2.77 3.17	3.68 4.13	5.08 5.51	0.0023
2	60.3	2.77 3.93		3.18 4.48	3.91 5.44	3.91 5.44		5.54 7.48	5.54 7.48				8.74 11.11	11.07 13.44	1.65 2.44	2.77 4.01	3.91 5.54	5.54 7.63	0.0036
2 1/2	73	3.05 5.26		4.78 8.04	5.16 8.63	5.16 8.63		7.01 11.41	7.01 11.41				9.53 14.92	14.02 20.39	2.11 3.77	3.05 5.36	5.16 8.81	7.01 11.64	0.0053
3	88.9	3.05 6.45		4.78 9.92	5.49 11.29	5.49 11.29		7.62 15.27	7.62 15.27				11.13 21.35	15.24 27.68	2.11 4.60	3.05 6.59	5.49 11.52	7.62 15.59	0.0079
3 1/2	101.6	3.05 7.40		4.78 11.41	5.74 13.57	5.74 13.57		8.08 18.63	8.08 18.63						2.11 5.29	3.05 7.55	5.74 13.84	8.08 19.01	0.0103
4	114.3	3.05 8.36		4.78 12.91	6.02 16.07	6.02 16.07		8.56 22.32	8.56 22.32		11.13 28.32		13.49 33.54	17.12 41.03	2.11 5.96	3.05 8.52	6.02 16.40	8.56 22.77	0.0130
5	141.3	3.40 11.57			6.55 21.77	6.55 21.77		9.53 30.97	9.53 30.97		12.7 40.28		15.88 49.11	19.05 57.43	2.77 9.67	3.40 11.82	6.55 22.20	9.53 31.59	0.0199
6	168.3	3.40 13.84			7.11 28.26	7.11 28.26		10.97 42.56	10.97 42.56		14.27 54.20		18.26 67.56	21.95 79.22	2.77 11.55	3.40 14.13	7.11 28.83	10.97 43.42	0.028
8	219.1	3.76 19.96	6.35 33.31	7.04 36.81	8.18 42.55	8.18 42.55	10.31 53.08	12.70 64.64	12.70 64.64	15.09 75.92	18.26 90.44	20.62 100.92	23.01 111.27	22.23 107.92	2.77 15.09	3.76 20.37	8.18 43.39	12.70 65.59	0.048
10	273.1	4.19 27.78	6.35 41.77	7.80 51.03	9.27 60.31	9.27 60.31	12.70 81.55	15.09 114.75	15.09 114.75	18.26 133.06	21.44 155.15	25.40 172.33	28.58 155.15	25.40 23.08	3.40 23.08	4.19 28.34	9.27 61.52	12.70 83.19	0.074
12	323.9	4.57 36.00	6.35 49.73	8.38 65.20	9.53 73.88	9.53 73.88	12.70 108.96	15.09 132.08	15.09 132.08	18.26 159.91	21.44 186.97	25.40 208.14	28.58 238.76	25.40 186.97	3.96 31.89	4.57 36.73	9.53 75.52	12.70 99.43	0.104
14	355.6	6.35 54.69	7.92 67.90	9.53 81.33	9.53 94.55	11.13 126.71	15.09 158.10	12.70 194.96	12.70 194.96	19.05 224.65	23.88 253.56	27.79 281.70	31.75 357.1	35.71 281.70	4.78 35.06	4.78 42.14			0.126
16	406.4	6.35 62.64	7.92 77.83	9.53 93.27	9.53 123.30	12.70 160.12	16.66 194.96	12.70 203.53	12.70 203.53	21.44 245.56	26.19 286.64	30.96 333.19	40.49 365.35		4.19 42.41	4.78 48.26			0.165
18	457	6.35 70.57	7.92 87.71	9.53 122.38	9.53 105.16	11.13 155.80	14.27 205.74	12.70 139.15	12.70 139.15	23.88 254.55	29.36 309.62	34.93 363.56	45.24 408.26	45.24 459.37	4.19 47.77	7.78 60.46			0.208
20	508	6.35 78.55	9.53 117.15	12.70 155.12	9.53 117.15	15.09 183.42	20.62 247.83	12.70 155.12	12.70 155.12	26.19 311.17	32.54 381.53	38.10 441.49	44.45 508.11	50.01 564.81	4.78 60.46	5.54 70.00			0.258
22	559	6.35 86.54	9.53 129.13	12.70 171.09	9.53 129.13		22.23 294.25	12.70 171.09	12.70 171.09	28.58 373.83	34.93 451.42	41.28 527.02	47.63 600.63	53.98 672.26	4.78 66.57	5.54 77.06			0.0312
24	610	6.35 94.53	9.53 141.12	12.70 209.64	9.53 141.12	17.48 255.41	24.61 355.26	12.70 187.06	12.70 187.06	30.96 442.08	38.89 547.71	46.02 640.03	52.37 720.15	59.54 808.22	5.54 84.16	6.35 96.37			0.372
26	660	7.92 127.36	12.70 202.72		9.53 152.87			12.70 202.72											0.435
28	711	7.92 137.32	12.70 218.69	15.88 271.21	9.53 164.85			12.70 218.69											0.505
30	762	7.92 147.28	12.70 234.67	15.88 292.18	9.53 176.84			12.70 234.67							6.35 120.72	7.92 150.36			0.580
32	813	7.92 157.24	12.70 250.64	15.88 312.15	9.53 188.82	17.48 342.91		12.70 250.64											0.660
34	864	7.92 167.20	12.70 266.61	15.88 332.12	9.53 200.31	17.48 364.90		12.70 266.61											0.746
36	914	7.92 176.96	12.70 282.27	15.88 351.70	9.53 212.56	19.05 420.42		12.70 282.27											0.865
38	965				9.53 224.54			12.70 298.24											0.931
40	1016				9.53 236.53			12.70 314.22											1.032
42	1067				9.53 248.52			12.70 330.19											1.138
44	1118				9.53 260.50			12.70 346.16											1.249
46	1168				9.53 272.25			12.70 351.82											1.364
48	1219				9.53 284.24			12.70 377.79											1.485

Table of weight per meter length of welded steel pipe

اسمی	Inch	mm	1.4	1.5	1.6	1.75	1.8	2	2.3	2.35	2.5	2.9	3	3.2	3.5	3.65	3.8	4	4.37	4.5	4.85	5	5.4	5.6	6	6.35	7.11
6	1/8	10.3	0.31	0.33	0.34	0.37	0.38	0.41	0.45	0.46	0.48	0.53	0.54														
8	1/4	13.7	0.42	0.45	0.48	0.52	0.53	0.58	0.65	0.66	0.69	0.77	0.79	0.83	0.88												
10	3/8	17.1	0.54	0.58	0.61	0.66	0.68	0.74	0.84	0.85	0.90	1.02	1.04	1.10	1.17	1.21											
15	1/2	21.3	0.69	0.73	0.78	0.84	0.87	0.95	1.08	1.10	1.16	1.32	1.35	1.43	1.54	1.59	1.64										
20	3/4	26.7	0.87	0.93	0.99	1.08	1.11	1.22	1.38	1.41	1.49	1.70	1.75	1.85	2.00	2.07	2.15	2.24									
25	1	33.4	1.10	1.18	1.25	1.37	1.40	1.55	1.76	1.80	1.90	2.18	2.25	2.38	2.58	2.68	2.77	2.90	3.13	3.21	3.41						
32	1 1/4	42.2	1.41	1.51	1.60	1.75	1.79	1.98	2.26	2.31	2.45	2.81	2.90	3.08	3.34	3.47	3.60	3.77	4.08	4.18	4.47	4.59	4.90				
40	1 1/2	48.3	1.62	1.73	1.84	2.01	2.06	2.28	2.61	2.66	2.82	3.25	3.35	3.56	3.87	4.02	4.17	4.37	4.73	4.86	5.20	5.34	5.71	5.90	6.26		
50	2	60.3	2.03	2.18	2.32	2.53	2.60	2.88	3.29	3.36	3.56	4.10	4.24	4.51	4.90	5.10	5.29	5.55	6.03	6.19	6.63	6.82	7.31	7.55	8.03	8.45	9.33
65	2 1/2	73	2.47	2.64	2.82	3.07	3.16	3.50	4.01	4.09	4.35	5.01	5.18	5.51	6.00	6.24	6.48	6.81	7.40	7.60	8.15	8.38	9.00	9.31	9.91	10.44	11.55
80	3	88.9		3.23	3.44	3.76	3.87	4.29	4.91	5.02	5.33	6.15	6.35	6.76	7.37	7.67	7.97	8.37	9.11	9.37	10.05	10.34	11.12	11.50	12.27	12.93	14.34
90	3 1/2	101.6			3.95	4.31	4.43	4.91	5.63	5.75	6.11	7.06	7.29	7.76	8.47	8.82	9.16	9.63	10.48	10.78	11.57	11.91	12.81	13.26	14.14	14.92	16.57
100	4	114.3				4.86	4.99	5.54	6.35	6.49	6.89	7.97	8.23	8.77	9.56	9.96	10.35	10.88	11.85	12.18	13.09	13.48	14.50	15.01	16.02	16.90	18.79
125	5	141.3					6.19	6.87	7.88	8.05	8.56	9.90	10.23	10.90	11.89	12.39	12.88	13.54	14.76	15.18	16.32	16.81	18.10	18.74	20.02	21.13	23.53
150	6	168.3						8.20	9.42	9.62	10.22	11.83	12.23	13.03	14.22	14.82	15.41	16.21	17.67	18.18	19.55	20.13	21.69	22.47	24.01	25.36	28.26

اسمی	Inch	mm	4	4.37	4.5	4.85	5	5.4	5.6	6	6.35	7.11	7.8	8	8.4	8.8	9	9.5	10	10.3	11.1	12	12.5	12.7	14	14.27	16
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A photograph showing the ends of two large pipes. The interior surfaces of the pipes are coated with a smooth, green material. The pipes are resting on a dirt surface, and a blue sky with clouds is visible in the background.

COATING

Coating Preparations

Preparation of the pipe surface is done according to the conditions regarding temperature, roughness, and cleanness from saline contamination.

Important factors for selecting internal and external coatings:

- 1 - Type of land (where the pipes are laid)
- 2 - Type and conditions of the fluid inside the pipe
- 3 - Electrical resistance of the coating is also an important factor for the pipes that undergo cathodic protection. The better the quality and the higher the electrical resistance of the coating, lower rate of current shall be required for the cathodic protection

Steel Pipes Coating

Corrosion protection is not only limited to the outside surface of the pipe. In case the fluid inside the pipe is corrosive or when it is containing dispersed particles, it can cause corrosion inside the pipe. Thus, preserving the internal surface is also an important aspect.

Types of internal coatings:

- 1- Liquid epoxy for facilitating the fluid flow, according to AWWA C-210 standard
- 2- Hygienic liquid epoxy for the drinking water transfer line
- 3- Anti-static electricity epoxy
- 4- Cement mortar internal coating
- 5- Fusion Bonded Epoxy (FBE) coating

Types of external coatings:

- 1- Polyurea and polyurethane liquid epoxy two-partite coating
- 2- Oil-base bitumen enamel
- 3- Oil-base polymer modified bitumen (PMB)
- 4- Three-layer polyethylene
- 5- Three-layer polypropylene
- 6- Fusion Bonded Epoxy (FBE) coating

Galvanization

Generally, the steel pipes of the size range (3.4-20") are galvanized in basins containing molten zinc, by observing ASTM A153 standard, and after applying this coating, the pipes shall be resistant against corrosion.

Perforation

It is a process, which returns the fluid (water) to the main tank by making grooves on the pipe surface. This can be done both manually and mechanically. Perforation is usually done on the pipes in the diameter range of 8-16"

Threaded and Socket

Since factories usually produce the pipes for welded connections, when there is the need to use the connecting piece (socket), both ends of the pipe are threaded, mainly done either with fine threads or with coarse threads

Flanges Installition

Installing flanges is done either by welding or by threaded flanges on threaded pipes, for higher strength and better connectivity of the pipelines



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