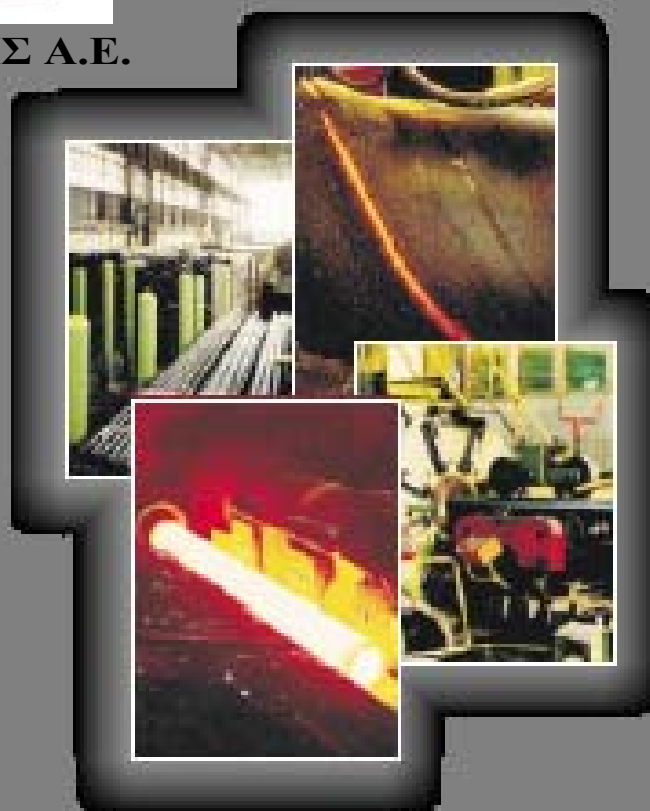




Μ.Γ.ΧΡΥΣΑΦΙΔΗΣ Α.Ε.

ΧΡΥΣΑΦΙΔΗΣ Α.Ε.



Production programme
Tubes and pipes





Certification

The Tube Plant quality of production is on the top level and is certificated by a lot of reputable external and inland institutions.



ΧΡΥΣΑΦΙΔΗΣ Α.Ε.



31/1/2003

Plain-end seamless tubes and pipes

Dimensional standards

ISO 4200:1989	"Plain-end steel tubes, welded and seamless"
ČSN 42 5715:1985	"Hot-rolled seamless steel tube"
ČSN 42 5716:1985	"Hot-rolled seamless steel tube with small tolerances"
DIN 2448:1981	"Seamless steel tubes"
ASTM A 53:1996	"Standard specification for pipe, steel, black and hot-dipped zinc-coated welded and seamless"
GOST 8732:1978	"Hot-rolled seamless steel pipes"



ΧΡΥΣΑΦΙΔΗΣ Α.Ε.

Technical supply regulations

for tubes and pipes of carbon steel

ČSN 42 0250:1989	"Hot rolled seamless tubes of class 10 to 16 steels"
ČSN 42 0165:1991	"Sheets and pipes of ferritic-pearlitic steels with guaranteed impact properties at low temperatures"
DIN 1629:1984	"Seamless circular tubes of non-alloy steels with special quality requirements"
DIN 1630:1984	"Seamless circular tubes of non-alloy steels for extra-high requirements"
DIN 17 121:1984	"Seamless structural steel circular tubes for structural engineering purposes"
NF A 49 – 112:1987	"Plain-end seamless hot rolled steel tubes with guaranteed room temperature properties and with special delivery conditions", all sizes that comply with DIN 2448
GOST 8731:1987	"Hot-rolled seamless steel pipes"

for tubes and pipes of high-grade carbon steel – for boilers

ČSN 42 0251:1989	"Seamless steel tubes with guaranteed properties at elevated temperatures"
DIN 17 175:1979	"Seamless steel tubes for elevated temperatures" quality grade I
ASTM A 106:1995	"Standard specification for seamless carbon steel pipe for high temperature service"
ASTM A 192:1991 ¹	"Standard specification for seamless carbon steel boiler tubes for high-pressure service"
ASTM A 210:1996 ¹	"Standard specification for seamless medium-carbon steel boiler and super heater tubes"
ASTM A 333:1991a	"Standard specification for seamless and welded steel pipes for low-temperature service"
ASTM A 530:1992a	"Standard specification for general requirements for specialized carbon and alloy steel pipe"
ASME SA 106:1995	"Standard specification for seamless carbon steel pipe for high temperature service"
BS 3059 part 2:1990	"Steel boiler and superheated tubes, Part 2: Carbon, alloy and austenitic stainless steel tubes with specified elevated temperature properties"
NF A 49 – 211 ¹	"Steel tubes – seamless plain-end unalloyed steel tubes for fluid piping at elevated temperatures"
EN 10 208-1:1997	"Steel pipes for pipelines for combustible fluids"
EN 10 210:1994	"Hot finished structural hollow sections of no-alloy and fine grain steels"

By agreement, Tube Plant is able to supply plain-end seamless tubes and pipes of either carbon steel or high-grade carbon steel complying with other foreign standards as long as their dimensions correspond to the dimensional range of tubes and pipes made in accordance with DIN 2448, ASTM A 53 and ČSN 42 5715 or ČSN 42 5716.

¹ The tubes according to this norm may be ordered only by previous agreement.

Tube dimensions

According to ISO 4200
 According to ČSN 42 5715 (42 5716)
 According to DIN 2448
 According to ASTM A 53, A 106, A 333
 According to ASTM A 192¹
 According to ASTM A 210¹
 According to NF A 49 – 112, A 49 – 211¹
 According to GOST 8732:1978

see following charts
 see following charts
 see following charts
 see following charts
 Ø 21.3 – 127.0 mm, wall thickness 2.3 – 20.0 mm
 Ø 21.3 – 127.0 mm, wall thickness 2.3 – 12.7 mm
 see following charts, wall thickness max. 20 mm
 see following charts



Steel grades

According to ČSN 42 0250
 According to ČSN 42 0251
 According to ČSN 42 0165
 According to DIN 1629
 According to DIN 1630
 According to DIN 17 121 (only by prior agreement)
 According to DIN 17 175 – grade I
 According to GOST 8731:1987
 According to ASTM A 53, ASTM A 106,
 According to ASTM A 333
 According to ASTM A 192¹
 According to ASTM A 210¹
 According to NF A 49 – 112
 According to NF A 49 – 211¹

11 353.0, 11 353.1, 11 453.0, 11 453.1, 11 523.1, 11 550.0, 11 550.1, 11 650.0, 11 650.1
 12 021.1, 12 022.1
 11 369.1, 11 503.1
 St 37.0, St 44.0, St 52.0
 St 52.4
 RSt 37–2, St 37–3, St 44–2, St 44–3, St 52–3
 St 35.8, St 45.8
 10, 20
 A, B
 Gr 1, Gr 6
 A
 A1, C
 TU E 220A, TU E 235A
 TU E 220, TU E 250, TU E 275

each the grade can be required by modification:

- B (test of notch impact strength at +20°C)
- B1 (test of notch impact strength at 0°C)
- B2 (test of notch impact strength at -20°C)

According to EN 10 208-1
 According to EN 10 210

L210GA, L235GA, L290GA, L360GA, L245NB
 S235JRH, S275JOH, S275J2H, S355JOH, S355J2H

Lengths

Plain-end tubes and pipes are supplied of carbon or high-grade carbon steel in the following lengths:

Production length – in a range of 4 – 14 m, lengths selected by the producer by technological possibilities
 Set length – nominal length selected by the customer from the range of production lengths with a tolerance of ± 500 mm (according to DIN 1629, DIN 17 121 and DIN 17 175).
 Exact length – nominal length selected by the customer following agreement with the producer.
 Max. lengths for tubes: < Ø60.3 mm 9.5 m
 ≥ Ø60.3 mm 12 m

Finish of surface and ends of tubes and pipes

Plain-end seamless tubes and pipes are supplied with the following types of surface finish:

- scaled outside and inside
- stained outside and inside
- external short-term protective coat.

The tubes and pipes are supplied with the ends cut off perpendicular to the tube and pipe axis and de-burred. Other types of finishing may be negotiated with producer.

The tubes can be supplied with following kinds of anticorrosion protection:

1. Outside surface – bitumen overcoat, outside bitumen insulation according to ČSN 42 0022:1977, KN 42 0023:1994
2. Inside surface – bitumen overcoat ALIT.

Seamless tubes can be also delivered with following kind of coating. The adjustment can be delivered in all combination of outside and inside kind of surface including of surface without protection.

Tube diameter (mm)	Outside insulation	Inside insulation	Lengths	Producer of insulation
57 – 168	Extruded polyethylene coating (DIN 30 670)		6 – 18 m	IZOSTAL Poland
219 – 273	Extruded polyethylene coating (DIN 30 670)		8 – 18 m	NOVÁ HUŤ, a.s.
	Concrete-plastic (according to technical conditions)		8 – 12 m	NOVÁ HUŤ, a.s.
108 – 273		Compo thickness 5 – 20 mm (DIN 2614) ¹	8 – 12 m	NOVÁ HUŤ, a.s.
		Bitumen overcoat or alternatively other		

¹ This kind of insulation is delivered out of winter period (it is approx. from 1st of April to 31st of November in current year).

¹ The tubes according to this norm may be ordered only by previous agreement.

Dimensional range, weight and maximum length according to DIN 2448

Outside diameter (mm)	Wall thickness (mm)									
	2.3	2.6	2.9	3.2	3.6	4	4.5	5	5.6	6.3
	Weight (kg/m) / max. lengths (m)									
21.3	1.08/9.5 ¹	1.2/9.5	1.32/9.5	1.43/9.5	1.57/9.5	1.71/9.5				
25	1.29/9.5 ¹	1.44/9.5	1.58/9.5	1.72/9.5	1.9/9.5	2.07/9.5				
26.9	1.4/9.5 ¹	1.56/9.5	1.72/9.5	1.87/9.5	2.07/9.5	2.26/9.5	2.49/9.5			
31.8		1.87/9.5	2.07/9.5	2.26/9.5	2.5/9.5	2.74/9.5	3.03/9.5			
33.7		1.99/9.5	2.2/9.5	2.41/9.5	2.67/9.5	2.93/9.5	3.24/9.5	3.54/9.5		
(38)		2.27/9.5	2.51/9.5 ¹	2.75/9.5	3.05/9.5	3.35/9.5	3.72/9.5	4.07/9.5		
42.4		2.55/9.5 ¹	2.82/9.5 ¹	3.09/9.5	3.44/9.5	3.79/9.5	4.21/9.5	4.61/9.5	5.09/9.5 ¹	
44.5 ¹		2.69/9.5	2.98/9.5	3.26/9.5	3.63/9.5	4.00/9.5	4.44/9.5	4.87/9.5	5.38/9.5 ¹	
48.3		2.93/9.5 ¹	3.25/9.5	3.56/9.5	3.97/9.5	4.37/9.5	4.86/9.5	5.34/9.5	5.91/9.5 ¹	6.53/9.5 ¹
57			3.87/9.5	4.25/9.5	4.74/9.5	5.23/9.5	5.83/9.5	6.41/9.5	7.10/9.5 ¹	7.89/9.5 ¹
60.3			4.11/10 ¹	4.51/10	5.03/10	5.55/10	6.19/11.5	6.82/11.5	7.55/11.5	8.39/11.5
73			5.01/9 ¹	5.51/9	6.16/10	6.81/11.5	7.6/11.5	8.38/12	9.31/12	10.4/12
76.1			5.24/10 ¹	5.75/10	6.44/11.5	7.11/11.5	7.95/11.5	8.77/12	9.74/12	10.8/12
88.9				6.76/12	7.57/12.5	8.38/12.5	9.37/12.5	10.37/12.5	11.5/12.5	12.8/12.5
101.6					8.7/12	9.63/12	10.8/12	11.9/12	13.3/12	14.8/12
108					9.27/11.5	10.3/11.5	11.5/11.5	12.7/11.5	14.1/11.5	15.8/11.5
114.3					9.83/11.5	10.9/11.5	12.2/11.5	13.5/12	15/12	16.8/12
127						12.1/12	13.6/12	15/12	16.8/12	18.8/12
133						12.7/12 ¹	14.3/12	15.8/12	17.6/12	19.7/12
139.7						13.4/11.5 ¹	15/11.5	16.6/11.5	18.5/11.5	20.7/11.5
152.4							16.4/12.5	18.2/12.5	20.3/12	22.7/12
159							17.1/12.5	19/12.5	21.2/12.5	23.7/12.5
168.3							18.2/12.5	20.1/12.5	22.5/12.5	25.2/12.5
177.8								21.3/12.5	23.8/12.5	26.6/12.5
193.7									26/12.5	29.1/12.5
219.1										33.1/12.5
244.5										37/12

¹ The tubes may be ordered only by previous agreement.

**Dimensional range, weight and maximum length
according to DIN 2448**

Outside diameter (mm)	Wall thickness (mm)											
	7.1	8	8.8	10	11	12.5	14.2	16	17.5	20	22.2 ¹	25 ¹
	Weight (kg/m) / max. lengths (m)											
60.3	9.32/11	10.3/11										
73	11.5/12	12.8/11										
76.1	12.1/12	13.4/11	14.6/11									
88.9	14.3/12	16/12	17.4/11.5	19.5/11.5	21.1/10.5	23.6/10	26.2/8 ¹	28.8/7 ¹	30.8/6.5 ¹			
101.6	16.5/12	18.5/12	20.1/12	22.6/11	24.6/10	27.5/8.5 ¹	30.6/7 ¹	33.8/7 ¹	36.3/6.5 ¹			
108	17.7/11.5	19.7/10.5	21.5/10.5	24.2/9.5	26.3/9	29.4/8	32.9/7 ¹	36.3/6.5 ¹	39.1/6 ¹	43.4/5.5 ¹		
114.3	18.8/12	21/12	22.9/12	25.7/12	28/12	31.4/11.5 ¹	35.1/7 ¹	38.8/6.5 ¹	41.8/6 ¹	46.5/5.5 ¹		
127	21/12	23.5/12	25.7/12	28.9/12	31.5/11	35.3/10.5 ¹	39.5/7 ¹	43.8/6.5 ¹	47.3/6.5 ¹	52.8/6.5 ¹		
133	22/12	24.7/12	27/12	30.3/11.5	33.1/11	37.2/10 ¹	41.6/9 ¹	46.2/6.5 ¹	49.9/6.5 ¹	55.7/6.5 ¹		
139.7	23.2/11.5	26/11.5	28.4/11.5	32/11.5	34.9/11	39.2/10.5	44.0/9.5 ¹	48.8/8.5 ¹	52.7/7.5 ¹	59.0/7 ¹		
152.4	25.4/12	28.5/12	31.2/12	35.1/11.5	38.4/11	43.1/10	48.4/9	53.8/8	58.2/7	65.3/6.5	71.3/6	
159	26.6/12.5	29.8/12	32.6/12	36.7/12	40.1/12	45.2/12	50.7/11	56.4/10	61.1/9	68.6/8	74.9/7	82.6/6.5
168.3	28.2/12.5	31.6/12.5	34.6/12.5	39/12	42.7/12	48/11.5	54/10.5	60.1/9.5	65.1/8.5	73.1/7.5	80.0/7	88.4/6.5
177.8	29.9/12.5	33.5/12.5	36.7/12.5	41.4/12	45.2/12	51/11.5	57.3/10.5	63.8/9	69.2/8	77.8/7	85.2/6.5	94.2/6
193.7	32.7/12.5	36.6/12.5	40.1/12.5	45.3/12	49.6/12	55.9/11.5	62.9/11	70.1/10	76/9	85.7/8	93.9/7	104/6.5
219.1	37.1/12.5	41.6/12.5	45.6/12.5	51.6/12	56.5/12	63.7/11.5	71.8/11	80.1/10	87/9	98.2/8	108/7	120/6.5
244.5	41.6/12	46.7/12	51.2/12	57.8/12	63.3/12	71.5/11	80.6/9.5	90.2/8	98/8	111/7.5	122/7	135/6
273	46.6/12	52.3/12	57.3/12	64.9/12	71.1/12	80.3/11	90.6/9.5	101/8.5	110/7.8	125/7	137/6	

¹ The tubes may be ordered only by previous agreement.

Line Pipe according to API Spec 5L
Dimensional range, weight

Nominal size	Size NPS (ASTM)	Outside diameter		Wall thickness			Weight of plain-end pipe		Max. production length	
in	in	in	mm	in	mm	mm (ASTM)	lb/ft	kg/m	ft	m
1/2	1/2	0.840	21.3	0.109	2.8	2.77	0.85	1.28	31.17	9.5
				0.147	3.7	3.73	1.09	1.61	31.17	9.5
3/4	3/4	1.050	26.7	0.113	2.9	2.87	1.13	1.70	31.17	9.5
				0.154	3.9	3.91	1.47	2.19	31.17	9.5
1	1	1.315	33.4	0.133	3.4	3.38	1.68	2.52	31.17	9.5
				0.179	4.5	4.55	2.17	3.21	31.17	9.5
1 1/4	1 1/4	1.660	42.2	0.140	3.6	3.56	2.27	3.43	31.17	9.5
				0.191	4.9	4.85	3.00	4.51	31.17	9.5
1 1/2	1 1/2	1.900	48.3	0.145	3.7	3.68	2.72	4.07	31.17	9.5
				0.200	5.1	5.08	3.63	5.43	31.17	9.5
2 3/8	2	2.375	60.3	0.125	3.2	3.18	3.00	4.51	29.53	9.0
				0.141	3.6	3.58	3.36	5.03	32.81	10.0
				0.154	3.9	3.91	3.65	5.42	37.73	11.5
				0.172	4.4	4.37	4.05	6.07	37.73	11.5
				0.188	4.8	4.78	4.39	6.57	37.73	11.5
				0.218	5.5	5.54	5.02	7.43	37.73	11.5
				0.250	6.4	6.35	5.67	8.51	37.73	11.5
				0.281	7.1	7.14	6.28	9.31	37.73	11.5
2 7/8	2 1/2	2.875	73	0.125	3.2	3.18	3.67	5.51	29.53	9.0
				0.141	3.6	3.58	4.12	6.16	32.81	10.0
				0.156	4.0	3.96	4.53	6.81	37.73	11.5
				0.172	4.4	4.37	4.97	7.44	37.73	11.5
				0.188	4.8	4.78	5.40	8.07	37.73	11.5
				0.203	5.2	5.16	5.79	8.69	39.37	12.0
				0.216	5.5	5.49	6.13	9.16	39.37	12.0
				0.250	6.4	6.35	7.01	10.51	39.37	12.0
3 1/2	3	3.500	88.9	0.276	7.0	7.01	7.66	11.39	39.37	12.0
				0.125	3.2	3.18	4.51	6.76	39.37	12.0
				0.141	3.6	3.58	5.06	7.57	39.37	12.0
				0.156	4.0	3.96	5.57	8.37	39.37	12.0
				0.172	4.4	4.37	6.11	9.17	39.37	12.0
				0.188	4.8	4.78	6.65	9.95	39.37	12.0
				0.216	5.5	5.49	7.58	11.31	41.01	12.5
				0.250	6.4	6.35	8.68	13.02	39.37	12.0
4	3 1/2	4.000	101.6	0.281	7.1	7.14	9.66	14.32	39.37	12.0
				0.300	7.6	7.62	10.25	15.24	39.37	12.0
				0.141	3.6	3.58	5.81	8.70	37.73	11.5
				0.156	4.0	3.96	6.40	9.63	39.37	12.0
				0.172	4.4	4.37	7.03	10.55	39.37	12.0
				0.188	4.8	4.78	7.65	11.46	39.37	12.0
				0.226	5.7	5.74	9.11	13.48	39.37	12.0
				0.250	6.4	6.35	10.01	15.02	39.37	12.0
				0.281	7.1	7.14	11.16	16.55	39.37	12.0
				0.318	8.1	8.08	12.50	18.68	39.37	12.0

Line Pipe according to API Spec 5L**Dimensional range, weight**

Nominal size	Size NPS (ASTM)	Outside diameter		Wall thickness			Weight of plain-end pipe		Max. production length	
in	in	in	mm	in	mm	mm (ASTM)	lb/ft	kg/m	ft	m
4 ^{1/2}	4	4.500	114.3	0.141	3.6	3.58	6.56	9.83	37.73	11.5
				0.156	4.0	3.96	7.24	10.88	37.73	11.5
				0.172	4.4	4.37	7.95	11.92	37.73	11.5
				0.188	4.8	4.78	8.66	12.96	37.73	11.5
				0.203	5.2	5.16	9.32	13.99	37.73	11.5
				0.219	5.6	5.56	10.01	15.01	39.37	12.0
				0.237	6.0	6.02	10.79	16.02	41.01	12.5
				0.250	6.4	6.35	11.35	17.03	39.37	12.0
				0.281	7.1	7.14	12.66	18.77	39.37	12.0
				0.312	7.9	7.92	13.96	20.73	39.37	12.0
				0.337	8.6	8.56	14.98	22.42	39.37	12.0
				0.438	11.1	11.13	19.00	28.25	36.08	11.0
5 ^{9/16}	5	5.563	141.3	0.156	4.0	3.96	9.01	13.54	36.08	11.0
				0.188	4.8	4.78	10.79	16.16	39.37	12.0
				0.219	5.6	5.56	12.50	18.74	39.37	12.0
				0.258	6.7	6.65	14.62	21.92	39.37	12.0
				0.281	7.1	7.14	15.85	23.50	39.37	12.0
				0.312	7.9	7.92	17.50	25.99	37.73	11.5
				0.344	8.7	8.74	19.17	28.45	37.73	11.5
				0.375	9.5	9.53	20.78	30.88	36.08	11.0
6 ^{5/8}	6	6.625	168.3	0.188	4.8	4.78	12.92	19.35	39.37	12.0
				0.203	5.2	5.16	13.92	20.91	39.37	12.0
				0.219	5.6	5.56	14.98	22.47	39.37	12.0
				0.250	6.4	6.35	17.02	25.55	39.37	12.0
				0.280	7.1	7.11	18.97	28.22	39.37	12.0
				0.312	7.9	7.92	21.04	31.25	39.37	12.0
				0.344	8.7	8.74	23.08	34.24	39.37	12.0
				0.375	9.5	9.53	25.03	37.20	39.37	12.0
				0.432	11.0	10.97	28.57	42.67	39.37	12.0
				0.500	12.7	12.70	32.71	48.73	39.37	12.0
8 ^{5/8}	8	8.625	219.1	0.250	6.4	6.35	22.36	33.57	39.37	12.0
				0.277	7.0	7.04	24.70	36.61	39.37	12.0
				0.312	7.9	7.92	27.70	41.14	39.37	12.0
				0.322	8.2	8.18	28.55	42.65	39.37	12.0
				0.344	8.7	8.74	30.42	45.14	39.37	12.0
				0.375	9.5	9.53	33.04	49.10	39.37	12.0
				0.438	11.1	11.13	38.30	56.94	39.37	12.0
				0.500	12.7	12.70	43.39	64.64	39.37	12.0
10 ^{3/4}	10	10.750	273	0.279	7.1	7.09	31.20	46.57	39.37	12.0
				0.307	7.8	7.80	34.24	51.03	39.37	12.0
				0.344	8.7	8.74	38.23	56.72	39.37	12.0
				0.365	9.3	9.27	40.48	60.50	39.37	12.0
				0.438	11.1	11.13	48.24	71.72	39.37	12.0
				0.500	12.7	12.70	54.74	81.55	36.09	11.0

Finishing of ends, threads, couplings

Casing:

Supplied with threaded ends and galvanized couplings.

The threads are: *short round, long round, buttress, gastight connection*.

H grade pipes supplied only with short round thread.

C, L, N and P grade casing supplied only with long round or buttress thread.

The supply of casing with gastight connection shall be negotiated beforehand.



ΧΡΥΣΑΦΙΔΗΣ Α.Ε.

Tubing:

Supplied with round threads and galvanized couplings or with round threads, galvanized couplings and Teflon rings or with gastight connection.

Drill pipe:

Supplied with upset ends and weld-on tool joints. The dimensions and type of weld-on tool joints shall be negotiated with the producer beforehand and the specification should be included on the order form.

Any other type of end finishing may also be negotiated with the producer beforehand.

Threads on pipes and couplings are protected against damage during transportation and handling.

Line pipe:

Supplied with plain-ends. External and internal end edges are de-burred. Pipes of an outside diameter up to 1.900" (ø48.3 mm) are supplied with ends cut off perpendicularly to the pipe axis. Pipes of an outside diameter of 2 3/8" (ø60.3 mm) and over are supplied either with perpendicularly cut off ends or with beveled ends at an angle of 30° +5° -0° (API bevel), possibly beveled ends according to other standards (ASME B16.25, ANSI B16.25, ASTM A106).

Lengths

Casing:

Range 2	25 – 34 ft	7.62 – 10.36 m
Range 3	34 ft and over	10.36 m and over

Tubing:

Range 1	20 – 24 ft	6.10 – 7.32 m
Range 2	28 – 32 ft	8.53 – 9.75 m

Drill Pipe:

Range 2	27 – 30 ft	8.23 – 9.14 m
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Line Pipe¹:

Tube Plant recommends the following length range:

8 – 12 m (26.3 – 39.4 ft) for pipes with an outside diameter of 3 1/2" (ø88.9 mm) and over for 90 % of ordered quantity and sizes, and 6 – 8 m (19.7 – 26.3 ft) for 10 % of ordered quantity and sizes.

5 – 9 m (16.4 – 29.5 ft) for pipes with an outside diameter of 0.840"– 2 7/8" (ø21.3 – ø73 mm) .

The requirement for supply in single or double random ("nominal") lengths (only for pipes with a diameter of 3 1/2" and over) shall be negotiated beforehand.

Surface protection

Unless otherwise stipulated in the order form, pipes are supplied with an external short-term anticorrosive surface finishing.

Bundling

The tubes are supplied also in hexagonal packs with the same conditions as for the above mentioned plain-end tubes.

¹ Whole size range of the Line Pipe is possible to supply also at exact lengths – tolerance min. +100/-0 mm