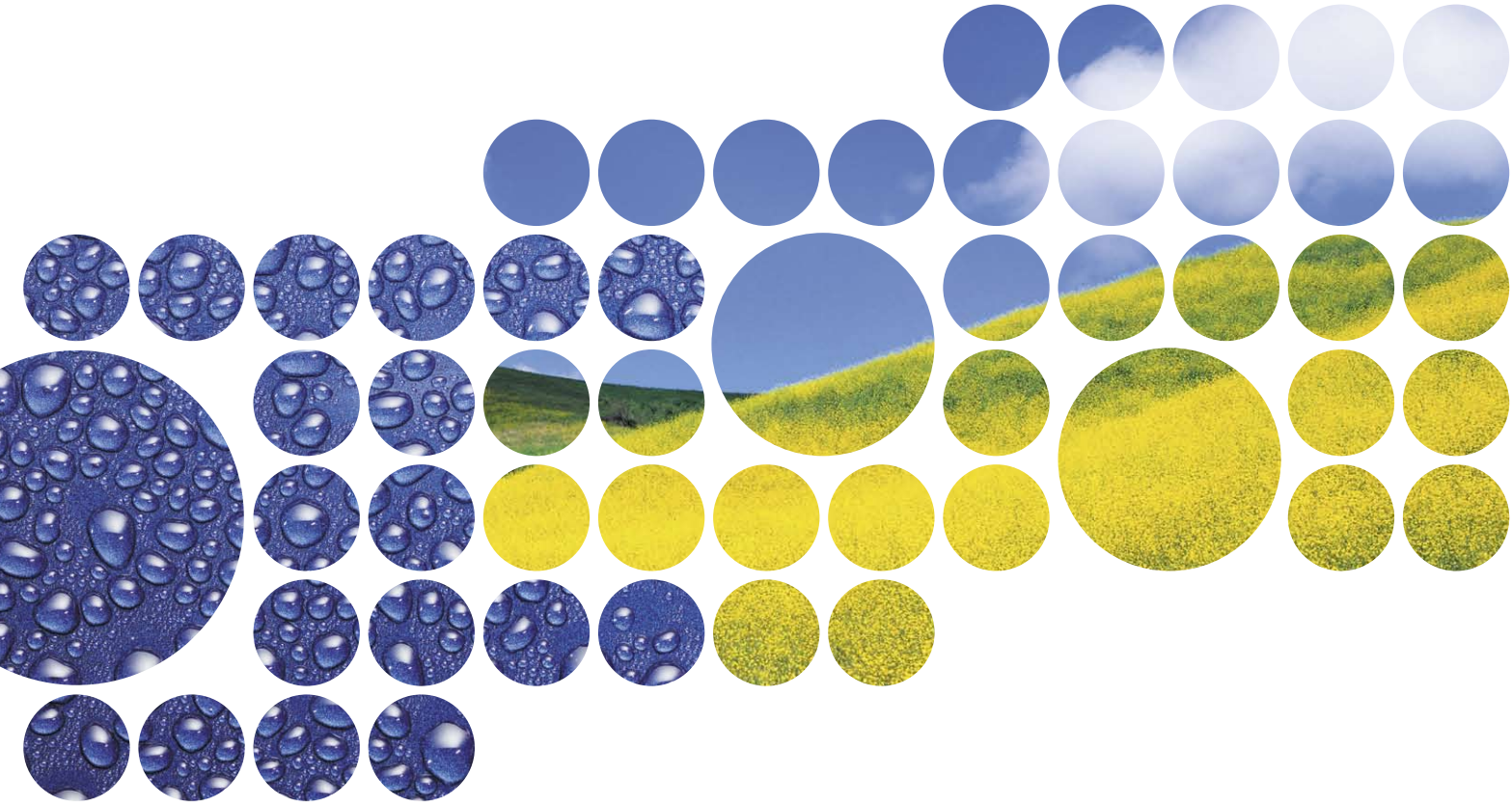
CHTPZGROUP

CHELYABINSK TUBE ROLLING PLANT • PERVOURALSK NEW PIPE PLANT



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COMPANY OVERVIEW

ChTPZ Group is one of the major Russian manufacturers of seamless and welded tubes and pipes. The Group incorporates Chelyabinsk Pipe Rolling Plant (ChTPZ) and Pervouralsk New Pipe Plant (PNTZ), Uraltrubostal Trade House as a steel trading division and oil service division is called Rimera.

During a 70-year presence on the market the company has gained rich experience in manufacturing and developing quality products for many sectors and the reputation of a reliable partner. The key customers of ChTPZ Group are the major oil-and-gas, industrial, and construction companies in Russia, CIS, EU, the Middle East, Africa, North America and South-East Asia.

Quality inspections and control is one of the key elements in a production process that ensures loyalty and trust of our customers. The regular certification and technical audits held at the production mills guarantee that company's products conform to various domestic and international standards. The Group holds ISO 9001:2000 quality management certification.

In line with industry demands the board of the Group has implemented a programme to enable the ChTPZ Group to improve the quality and update the product range to meet new requirements of the market.

Uraltrubostal Trade House is the marketing and sales arm of the Group. Uraltrubostal has representation across the CIS and all major world markets. The company prides itself on building strong close relationship with its customers so as to be able to quickly identify and deliver each clients' needs.

QUALITY MANAGEMENT SYSTEM

All products manufactured at the ChTPZ Group's plants (PNTZ and ChTPZ) have passed certification by Russian and international certification bodies. Pipe quality is certified by the German company TÜV for compliance with the requirements of the standards DIN, EN, API, Russian GOST and other internationally know standards.

The following documents and certification are available:

- International certificates on QC management system compliance with requirements of ISO 9001 issued by German (at PNTZ) and Canadian (at ChTPZ) certification bodies;
- American Petroleum Institute licenses on the right to use API monograms for plants products meeting API 5L, API 5CT, API Q1;
- TÜV certificates, confirming compliance of products and production of plants with European requirements (DIN, EN);
- Certification of conformity to the requirements of the Russian Maritime Registry of Shipping (RMRS) for marine vessels;
- The license of the Federal Service on Technological, Environmental and Nuclear Supervision (Rostekhnadzor) confirming the Group's products for use in nuclear plants;
- Conformity certificate for the Group's products that they meet the requirements of the Aviation Register

The responsibility, authority and interaction between our quality management team are a crucial part of our success in developing and maintaining the high standard of not only our product range but of our client relations.

Our products are delivered to the customer only after successfully passing through the required controls and tests relevant to the standards and clients' needs. These tests include non-destructive, pipe chemical analysis, metallographic and mechanical tests in our in-house certified testing centre which is fitted with all the required high technology equipment.

PRODUCT QUALITY CONTROL

The following types of pipe control are used:

- Outside surface quality control;
- Inside surface quality control;
- Geometry control: outside and (or) inside diameters, wall thickness, straightness, faces perpendicularity to pipe axis, bevel parameters (pursuant to normative documentation);
- Steel grade control.

In accordance with industry norms the Chemistry, Mechanical and Technological properties of the pipes as well as any other relevant parameters are subject to our quality control.

Outside surface visual inspection

Pipe outside surface visual inspection is an obligatory type of inspection for all sizes and purposes of pipes manufactured by the plant. Performed directly on the inspection tables by inspectors. Surface is inspected area by area by turning over each pipe in such a way so as to have the whole pipe surface inspected.

Pipe inside surface visual inspection

Pipe inside surface inspection is traditional for pipes for general industrial purpose. The point is that each pipe having sufficiently large internal diameter is illuminated with an electric lamp or reflecting lamp from the side opposite to the inspector to make inside surface investigation along the whole pipe length.

Inspection with application of periscopes under a special procedure with magnification by 4 times of the area of inspected surface is also carried out.

Control of pipes with small inside section (e.g., capillary) is made with the naked eye or with application of a magnifier (depending on requirements of normative documentation) on samples cut along the pipe ("boat").

Surface instrument inspection

Ultrasonic, Magnetic Induction and Eddy Current inspection are used for this inspection.

Wall thickness control

Wall thickness is checked at both pipe ends with a micrometer of a MT pipe type and the second accuracy rating or with a spring-loaded pressure indicator at least in two diametrically opposite points. Wall thickness instrument inspection is performed at ultrasonic units.

Outside diameter/Wall thickness control

Outside diameter is manually controlled with a smooth-action micrometer of MK type of the second accuracy rating or with calibrated braces at least in two sections. At least two measurements are made in each section in mutually perpendicular plates. If non-compliance or maximum permissible figures are depicted, the number of sections and measurements is increased.

Instrument inspection is applied for pipes of responsible purpose and made simultaneously with surface discontinuity control, wall thickness at ultrasonic units. To control diameter of pipes of high accuracy compact electromagnetic diameter meter (CED) is used.

Pipe straightness control

Pipe straightness is usually ensured during the manufacturing procedure.

In cases of doubt actual straightness is measured with a gauging ruler of 1 m length and a set of probes #4 (2nd accuracy rating)

Bevel root face control

Performed upon requirement of normative documentation with a gauging ruler or a profile gauge.

Bevel angle control

Performed upon requirement with two angle meters or a profile gauge.

Pipe length measurement

Performed with rulers, gauge lines or automatically on special units with incremental transducers.

Steel grade control

Performed by the following methods:

- Metallographic arc spectroscope (for alloyed steels);
- Chemical and spectral analyses.

TABLE OF CONFORMITY OF RUSSIAN AND FOREIGN STEEL GRADES

№	Steel Grade				Chemical Composition Content of elements, %							
					C	Si	Mn	Cr	Ni	Mo	Nb	Co
	GOST	DIN	ASTM	API	maximum							
1	Ст1кп, Ст1пс				0,06-0,12	0,05-0,15	0,25-0,50	0,30				
2	Ст1пс				0,06-0,12	0,15-0,30	0,25-0,50	0,30				
3	Ст2кп				0,09-0,15	0,05	0,25-0,50	0,30				
4	Ст2пс, Ст2сп				0,09-0,15	0,05-0,30	0,25-0,50	0,30				
5	Ст3кп				0,14-0,22	0,05	0,30-0,60	0,30				
6		Ust 37.0 (1.0253)			0,20							
7	Ст3пс, Ст3сп				0,14-0,22	0,05-0,30	0,40-0,65	0,30				
8	Ст4кп, Ст4пс				0,18-0,27	0,05-0,15	0,40-0,70	0,30				
9	Ст4сп				0,18-0,27	0,15-0,30	0,40-0,70	0,30				
10	Ст5сп				0,28-0,37	0,15-0,30	0,50-0,80					
11	8				0,05-0,12	0,17-0,37	0,35-0,65	0,10	0,30			
12	08кп				0,05-0,12	0,03	0,25-0,50	0,10	0,30			
13	08пс				0,05-0,11	0,05-0,17	0,35-0,65	0,10	0,30			
14		RSt 34-2 (1.0034)			0,15	0,30	0,60					
15	08Ю				0,07	0,01	0,20-0,35	0,03	0,06			
16	10				0,07-0,14	0,17-0,37	0,35-0,65	0,15	0,3			
17		RSt 37-2 (1.0038)			0,17	0,30	0,70					
18		St 33 (1.0035)			not specified							
19		St 35 (1.0308)			0,17	0,35	0,40					
20		St 37.0 (1.0254)			0,17							
21			A		0,25	Min 0,10	0,27-0,93	0,40	0,40	0,15		
22				A	0,22		0,90					
23				A25	0,21		0,3-0,6					
24	10кп, 10пс				0,07-0,14	0,05-0,17	0,25-0,65	0,15	0,30			
25	15				0,12-0,19	0,17-0,37	0,35-0,65	0,25	0,30			
26	15кп, 15пс				0,12-0,19	0,05-017	0,25-0,65	0,25	0,30			
27	20				0,17-0,24	0,17-0,37	0,35-0,65	0,25	0,30			
28		St 44.0 (1.0256)			0,21							
29		St 44-2 (1.0044)			0,21	0,30	1,1					
30		St 45 (1.0408)			0,21	0,35	0,40					
31			B		0,30	Min 0,10	0,29-1,06	0,40				
32				B	0,28		1,2					
33	20кп, 20пс				0,17-0,24	0,05-0,17	0,25-0,65	0,25	0,30			
34	20-ПВ				0,18-0,24	0,17-0,37	0,35-0,65	0,15	0,15			
35	20А				0,17-0,24	0,17-0,37	0,35-0,65	0,25	0,25			
36	35				0,32-0,40	0,17-0,37	0,50-0,80	0,25	0,30			
37	45				0,42-0,50	0,17-0,37	0,50-0,80	0,25	0,30			
38	Д				0,41-0,48	0,17-0,37	0,65-0,90					
39	09Г2С				0,12	0,5-0,8	1,3-1,7	0,30	0,30			
40	10Г2, 10Г2А				0,07-0,15	0,17-0,37	1,20-1,60	0,30	0,30			
41	15ГС				0,12-0,18	0,7-1,0	0,9-1,3	0,30	0,30			
42	17ГС				0,14-0,20	0,4-0,6	1,0-1,4	0,30	0,30			
43	17Г1С				0,15-0,20	0,4-0,6	1,15-1,60	0,30	0,30			
44		St 52.0 (1.0580)			0,22	0,55	1,60					
45	10ХСНД				0,12	0,8-1,1	0,5-0,8	0,6-0,9	0,5-0,8			
46	14ХГС				0,11-0,16	0,4-0,7	0,9-1,3	0,5-0,8	0,30	0,08		
47	15Х				0,12-0,18	0,17-0,37	0,4-0,7	0,7-1,0	0,30			
48	15ХМ				0,11-0,18	0,17-0,37	0,40-0,70	0,80-1,10	0,30	0,40-0,55		
49	20Х				0,17-0,23	0,17-0,37	0,50-0,80	0,70-1,00	0,30			
50	30ХГСА				0,28-0,34	0,90-1,20	0,80-1,10	0,80-1,10	0,30			
51	30ХМА				0,26-0,33	0,17-0,37	0,40-0,70	0,80-1,10		0,15-0,25		
52	30ХМ				0,26-0,33	0,17-0,37	0,40-0,70	0,80-1,10	0,30	0,15-0,25		
53	38ХА				0,35-0,42	0,17-0,37	0,50-0,80	0,80-1,10				
54	38ХН3МФА				0,33-0,40	0,17-0,37	0,25-0,50	1,20-1,50	3,00-3,50	0,35-0,45		
55	40Х				0,36-0,44	0,17-0,37	0,50-0,80	0,8-1,10	0,30			
56	20ЮЧ				0,16-0,22	0,17-0,37	0,50-0,80	0,25				
57	36Г2С				0,32-0,40	0,4-0,7	1,50-1,80	0,25				
58	ШХ15				0,95-1,05	0,07-0,37	0,20-0,40	1,30-1,65	0,30			

№	Steel Grade				Chemical Composition Content of elements, %							
					S	P	Cu	V	Ti	N	Al	W
	GOST	DIN	ASTM	API	maximum							
1	Ст1кп, Ст1пс				0,050	0,040						
2	Ст1пс				0,050	0,040			0,010			
3	Ст2кп				0,050	0,040						
4	Ст2пс, Ст2сп				0,050	0,040			0,010			
5	Ст3кп				0,050	0,040			0,010			
6		Ust 37.0 (1.0253)			0,040	0,040			0,007			
7	Ст3пс, Ст3сп				0,050	0,040			0,010			
8	Ст4кп, Ст4пс				0,050	0,040						
9	Ст4сп				0,050	0,040						
10	Ст5сп				0,050	0,040						
11	8				0,040	0,035	0,30					
12	08кп				0,040	0,035				0,006		
13	08пс				0,040	0,035				0,006		
14		RSt 34-2 (1.0034)			0,025	0,025						
15	08Ю				0,025	0,020					0,02-0,07	
16	10				0,040	0,035						
17		RSt 37-2 (1.0038)			0,025	0,025						
18		St 33 (1.0035)			not specified							
19		St 35 (1.0308)			0,025	0,025						
20		St 37.0 (1.0254)			0,040	0,040				0,009		
21			A		0,035	0,035	0,40	0,08				
22				A	0,030	0,030						
23				A25	0,030	0,030						
24	10кп, 10пс				0,040	0,035	0,30					
25	15				0,040	0,035				0,006		
26	15кп, 15пс				0,040	0,035			0,006			
27	20				0,040	0,035	0,30		0,008			
28		St 44.0 (1.0256)			0,040	0,040				0,009		
29		St 44-2 (1.0044)			0,025	0,025						
30		St 45 (1.0408)			0,025	0,025						
31			B		0,035	0,035						
32				B	0,030	0,030						
33	20кп, 20пс				0,040	0,035						
34	20-ПВ				0,015	0,015	0,15					
35	20А				0,035	0,035	0,20		0,008			
36	35				0,040	0,035	0,30					
37	45				0,040	0,035	0,30					
38	Д				0,045	0,045	0,25					
39	09Г2С				0,040	0,035	0,30					
40	10Г2, 10Г2А				0,035	0,035	0,30					
41	15ГС				0,025	0,035	0,30					
42	17ГС				0,040	0,040						
43	17Г1С				0,035	0,035	0,30				0,020	
44		St 52.0 (1.0580)			0,025	0,025					0,020	
45	10ХСНД				0,040	0,035	0,4-0,6					
46	14ХГС				0,040	0,035	0,30					
47	15Х				0,035	0,035	0,30					
48	15ХМ				0,035	0,035	0,30					
49	20Х				0,035	0,035	0,30					
50	30ХГСА				0,025	0,025						
51	30ХМА				0,025	0,025	0,30					
52	30ХМ				0,025	0,025	0,30					
53	38ХА				0,025	0,025	0,30					
54	38ХН3МФА				0,025	0,025	0,30	0,10-0,18				
55	40Х				0,035	0,035	0,30				0,03-0,10	
56	20ЮЧ				0,012	0,020						
57	36Г2С				0,035	0,035	0,20					
58	ШХ15				0,020	0,027	0,25					

TABLE OF CONFORMITY OF RUSSIAN AND FOREIGN STEEL GRADES (cont'd)

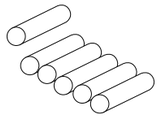
№	Steel Grade				Chemical Composition Content of elements, %							
					C	Si	Mn	Cr	Ni	Mo	Nb	Co
	GOST	DIN	ASTM	API	maximum							
59	ШХ15СГ				0,95-1,05	0,40-0,65	0,90-1,20	1,30-1,65	0,30			
60	12Х1МФ, 12Х1МФ-ПВ				0,10-0,15	0,17-0,37	0,40-0,70	0,90-1,20	0,30	0,25-0,35		
61	15Х5				0,15	0,5	0,5	4,5-6,0	0,60			
62	15Х5М				0,15	0,50	0,50	4,5-6,0	0,60	0,45-0,60		
63	15Х5ВФ				0,15	0,3-0,6	0,5	4,5-6,0	0,60			
64	08Х13				0,08	0,8	0,8	12-14				
65	08Х17Т				0,08	0,8	0,8	16-18				
66	12Х17				0,12	0,8	0,8	16-18				
67	15Х25Т				0,15	1	0,8	24-27				
68	15Х2В				0,15	1	0,8	27-30				
69	12Х13				0,09-0,15	0,8	0,8	12-14				
70	08Х20Н14С2				0,08	2,0-3,0	1,5	19-22	12-15			
71	08Х22Н6Т				0,08	0,8	0,8	21-23	5,3-6,3			
72	03Х17Н14М3				0,03	0,4	1-2	16,8-18,3	13,5-15	2,2-2,8		
73		X2CrNiMo17132 (1.4404)			0,03	1	2	16,5-18,5	11-14	2,0-2,5		
74			TP 316L		0,035	0,75	2	16-18	10-15	2,0-3,0		
75	03Х18Н11				0,03	0,8	0,7-0,2	17-19	10,5-12,5			
76		X2CrNi1911 (1.4306)			0,030	1	2	18-20	10-12,5			
77			TP 304L		0,035	0,75	2	18-20	8-13			
78	04Х18Н10				0,04	0,8	2	17-19	9-11			
79	06Х18Н10Т				0,06	0,8	1-2	17-19	9-11			
80	08Х16Н11М3				0,08	0,4-0,8	1,0-1,7	15-17	10-12	2,0-2,5		
81		X5CrNiMo17122 (1.4401)			0,07	1	2	16,5-18,5	10,5-13,5	2,0-2,5		
82			TP 316		0,08	0,75	2	16-18	11-14	2,0-3,0		
83	08Х17Н15М3Т				0,08	0,8	2	16-18	14-16	3,0-4,0		
84	08Х18Н10				0,08	0,8	2	17-19	9-11			
85		X5CrNi1810 (1.4301)			0,07	1	2	17-19	8,5-10,5			
86			TP 304		0,08	0,75	2	18-20	8-11			
87	08Х18Н10Т				0,08	0,8	2	17-19	9-11			
88		X6CrNiTi1810 (1.4541)			0,08	1	2	17-19	9-12			
89			TP 321		0,08	0,75	2	17-20	9-13			
90	08Х18Н12Т				0,08	0,8	2	17-19	11-13			
91	08Х18Н12Б				0,08	0,8	2	17-19	11-13		10С-1,1	
92	09Х18Н10Т				0,07-0,10	0,8	1-2	17-19	9-11			
93	10Х13Г12БС2Н2Д2				0,06-0,10	1,8-2,2	12,0-13,50	11,5-13,0	1,8-2,5		0,6-1,0	
94	10Х17Н13М2Т				0,10	0,8	2	16-18	12-14	2,0-3,0		
95		X6CrNiMoTi17122 (1.4571)			0,08	1	2	16,5-18,5	10,5-13,5	2,0-2,5		
96	10Х23Н18				0,10	1	2	22-25	17-20			
97	12Х18Н9				0,12	0,8	2	17-19	8-10			
98	12Х18Н10Т				0,12	0,8	2	17-19	9-11			
99	12Х18Н10Т-ВД				0,12	0,80	2	17-19	9-11			
100	12Х18Н12Т				0,12	0,80	2	17-19	11-13			
101	17Х18Н9				0,13-0,21	0,8	2,0	17-19	8-10			
102	Сплав 29НК, 29НК-ВИ				0,03	0,30	0,40	0,1	28,5-29,5			17-18
103	06ХН28МДТ				0,06	0,8	0,8	22-25	25-29	2,5-3,0		

№	Steel Grade				Chemical Composition Content of elements, %							
					S	P	Cu	V	Ti	N	Al	W
	GOST	DIN	ASTM	API	maximum							
59	ШХ15СГ				0,020	0,027	0,25					
60	12Х1МФ, 12Х1МФ-ПВ				0,025	0,025	0,20					
61	15Х5				0,025	0,030	0,20					
62	15Х5М				0,025	0,030	0,20					
63	15Х5ВФ				0,025	0,030		0,4-0,6				0,4-0,7
64	08Х13				0,025	0,030	0,30		0,2			
65	08Х17Т				0,025	0,035			5С-0,8			
66	12Х17				0,025	0,035						
67	15Х25Т				0,025	0,035			5*С-0,9			
68	15Х2В				0,025	0,035	0,30					
69	12Х13				0,025	0,030						
70	08Х20Н14С2				0,025	0,035						
71	08Х22Н6Т				0,025	0,035			5С-0,65			
72	03Х17Н14М3				0,020	0,030						
73		X2CrNiMo17132 (1.4404)			0,030	0,045						
74			TP 316L		0,030	0,040						
75	03Х18Н11				0,020	0,030						
76		X2CrNi1911 (1.4306)			0,030	0,045						
77			TP 304L		0,030	0,040						
78	04Х18Н10				0,020	0,030						
79	06Х18Н10Т				0,02	0,035			5*С-0,6			
80	08Х16Н11М3				0,020	0,020						
81		X5CrNiMo17122 (1.4401)			0,030	0,045						
82			TP 316		0,030	0,040						
83	08Х17Н15М3Т				0,020	0,035			0,3-0,6			
84	08Х18Н10				0,020	0,035						
85		X5CrNi1810 (1.4301)			0,030	0,045						
86			TP 304		0,030	0,040						
87	08Х18Н10Т				0,020	0,035			5С-0,7			
88		X6CrNiTi1810 (1.4541)			0,030	0,045			5С-0,8			
89			TP 321		0,030	0,040			А213 5С-0,6 А312 5С-0,7			
90	08Х18Н12Т				0,020	0,035			5С-0,6			
91	08Х18Н12Б				0,020	0,035						
92	09Х18Н10Т				0,020	0,035			5С-0,7			
93	10Х13Г12БС2Н2Д2				0,020	0,030	2,0-2,5					
94	10Х17Н13М2Т				0,020	0,035			5С-0,7			
95		X6CrNiMoTi17122 (1.4571)			0,030	0,045			5С-0,8			
96	10Х23Н18				0,020	0,035						
97	12Х18Н9				0,020	0,035						
98	12Х18Н10Т				0,020	0,035			ГОСТ9941 5С-0,8 ГОСТ10498 5 (С-00,2)-0,7			
99	12Х18Н10Т-ВД				0,015	0,015	0,25		(С-0,02)*5-0,7			
100	12Х18Н12Т				0,020	0,035	0,30		С*5-0,7			
101	17Х18Н9				0,020	0,035						
102	Сплав 29НК, 29НК-ВИ				0,015	0,015	0,2				0,2	
103	06ХН28МДТ				0,020	0,035	2,5-3,5		0,5-0,9			

MANUFACTURING TECHNOLOGY (PROCESS FLOW SCHEMES)

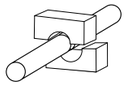
Hot-rolled Tubes and Pipes

1



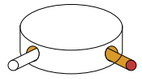
Billet storage

2



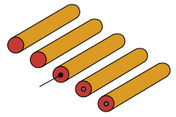
Cutting of billets into pieces on cold shearing press

3



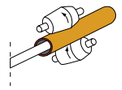
Heating of billets in furnace

4



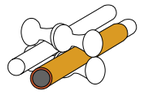
Centering of billets at pneumatic centering unit

5



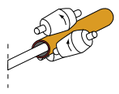
Piercing of billets into shells at piercing mill

6



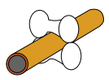
Rolling of pipes at Automatic Mill

7



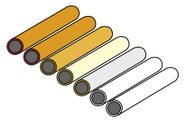
Rolling of pipes at reeling mill

8



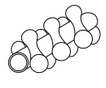
Rolling of pipes at sizing mill

9



Cooling of pipes on drag-over units

10

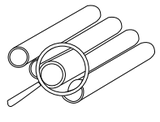


Straightening of pipes on obliqueroll straightening machine

11

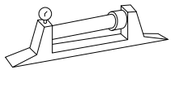
Cutting of pipe ends with plasma, finishing of pipe ends, beveling

12



Visual control of pipes

13

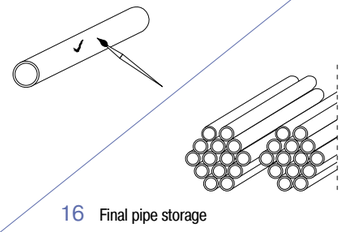


Hydraulic pressure testing of pipes

14

Non-destructive inspection (if necessary)

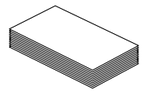
15 Acceptance, marking and packaging of pipes



16 Final pipe storage

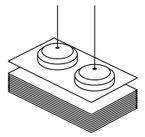
Longitudinal Welded Large-Diameter Pipes (LSAW)

1



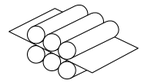
Storage area

2



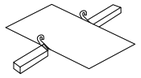
Feeding of sheets

3



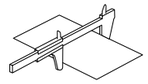
Straightening of sheets

4



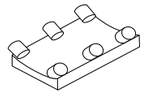
Machining of sheet edges

5



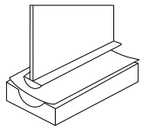
Control of sheet width

6



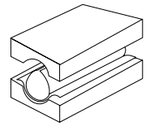
Bending of sheet edges

7



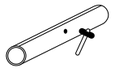
Preliminary forming of pipes

8



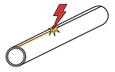
Final forming of pipes

9



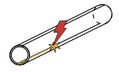
Stamping of pipes

10



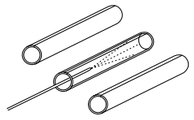
Welding of pipes

11



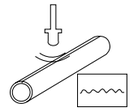
Internal seam welding

12



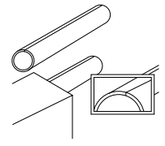
Washing of pipes

13



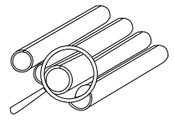
Seam technological ultrasonic testing

14



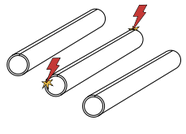
Seam technological X-ray testing

15



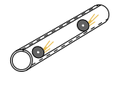
Visual inspection and repair of weld seam

16



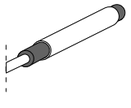
Cutting of pipe ends with plasma

17



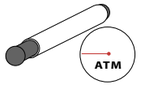
Beveling

18



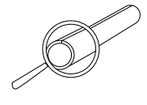
Mechanical expanding of pipes

19



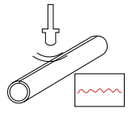
Hydraulic testing of pipes

20



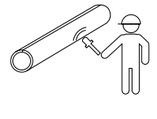
Quality control of pipes

21



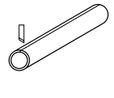
100% Automatic ultrasonic testing of weld seams

22



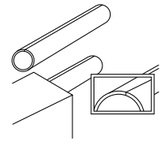
Manual ultrasonic testing of weld seams

23



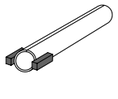
Beveling

24



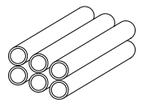
X-ray control of pipe ends

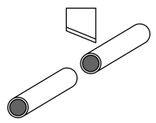
25

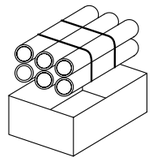


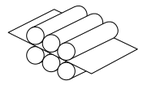
Magnaflux inspection of pipe ends

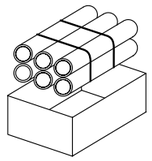
Cold-formed Tubes and Pipes

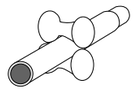
1

Pipe

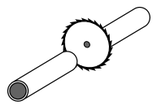
2

Cutting

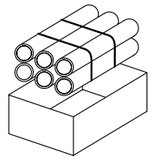
3

Chemical treatment

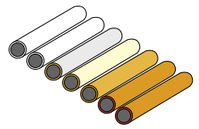
4

Visual control at the technological control area

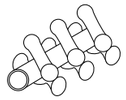
5

Lubrication coating

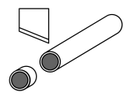
6

Rolling on cold-rolling mill

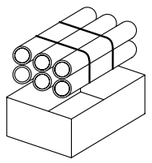
7

Cutting

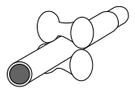
8

Chemical treatment

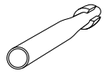
9

Heat treatment

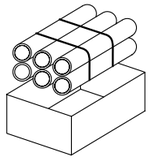
10

Straightening of pipes

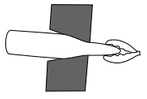
11a

Face cutting

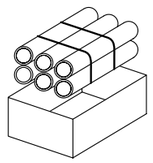
12a

Chemical treatment

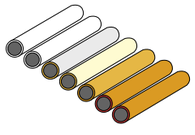
13a

Rolling on cold-rolling mill

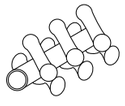
11b

Head-forming

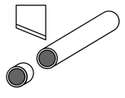
12b

Chemical treatment

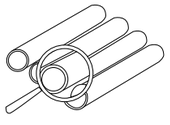
13b

Drawing

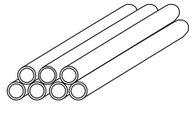
14

Chemical treatment

15

Heat treatment

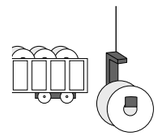
16

Straightening of pipes

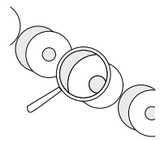
17

Face cutting

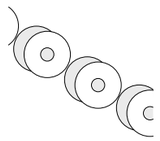
18

Quality control

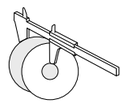
19

Packaging

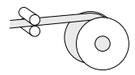
Butt-welded Pipes for Water and Gas Transmission

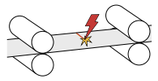
1

Unloading of steel coils at the storage area

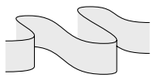
2

Inspection of steel coils for conformance with the required properties set forth in certificates

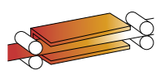
3

Transportation of coils to coils preparation area

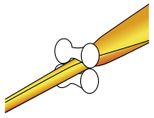
4

Control of coils geometry and steel grade

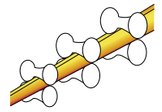
5

Charging of a coil into furnace pressure welding mill

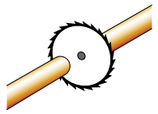
6

Cutting of coil ends and welding

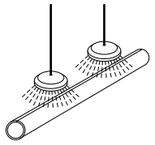
7

Accumulation of steel strip to ensure continuity of pipe manufacturing process

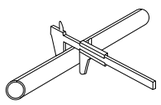
8

Heating of steel strip in a furnace

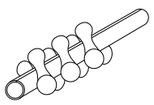
9

Strip forming and pipe welding in a forming and welding mill

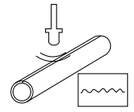
10

Pipe reduction as to diameter at reduction-sizing mill

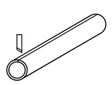
11

Continuous pipe cutting onto measured pieces

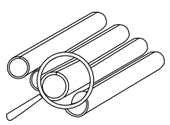
12

Pipe cooling at water-spray units

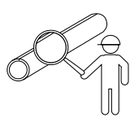
13

Preliminary control of pipe geometry and primary technological testing

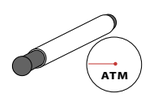
14

Straightening of pipes at obliqueroll straightening machine

15

Electromagnetic control of the weld seam

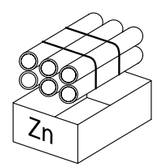
16

Finishing of the pipe ends

17

Final acceptance of pipe geometry and surface

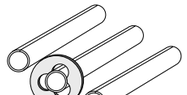
18

Acceptance technological testing

19


Hydraulic testing of pipes

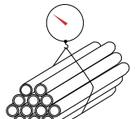
20


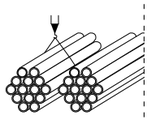
Galvanizing of pipes upon customer's request

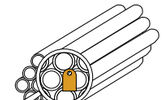
21

Threading and coupling upon customer's request

22

Upon customer's request pipes are marked with the marking of the manufacturing plant

23

Bundling, weighting and labeling

24

Preparation and transportation of pipes to the final storage

25

Visual inspection of bundles, certification and shipment

PRODUCT RANGE

OCTG

Seamless Tubing

API 5CT

Label			OD, mm	Nominal weight, kg/m		Wall thickness, mm	Type of end-finish				
1	2			NU T&C	EU T&C		H40	J55	L80 Type1	N80 Type 1,Q	P110
	NU T&C	EU T&C									
2-3/8	4.00	—	60,32	5,95	—	4,24	PN	PN	PN	PN	—
2-3/8	4.60	4.70	60,32	6,85	6,99	4,83	PNU	PNU	PNU	PNU	PNU PNU
2-3/8	5.80	5.95	60,32	8,63	8,85	6,45	—	—	PNU	PNU	
2-7/8	6.40	6.50	73,02	9,52	9,67	5,51	PNU	PNU	PNU	PNU	PNU
2-7/8	7.80	7.90	73,02	11,61	11,76	7,01	—	—	PNU	PNU	PNU
2-7/8	8.60	8.70	73,02	12,80	12,95	7,82	—	—	PNU	PNU	PNU
3-1/2	7.70	—	88,90	11,46	—	5,49	PN	PN	PN	PN	—
3-1/2	9.20	9.30	88,90	13,69	13,84	6,45	PNU	PNU	PNU	PNU	PNU
3-1/2	10.20	—	88,90	15,18	—	7,34	PN	PN	PN	PN	—
4-1/2	12.60	12.75	114,30	18,75	—	6,88	PN	PN	PN	PN	—

Thread type – 10R.
P – Plain end, N – Non-upset threaded and coupled, U – External upset threaded and coupled.
Tubes are produced in accordance with PSL1,2,3.
Length: R2.

Seamless Casing

API 5CT

Label		OD,mm	Nominal weight, kg/m	Wall thickness, mm	Type of end-finish				
1	2				J55 K55	M65	L80 Type1	N80 Type1,Q	P110
4-1/2	10.50	114,30	15,63	5,69	B	B	—	—	—
	11.60		17,26	6,35	B	B	B	B	B
	13.50		20,09	7,37	—	B	B	B	B
	15.10		22,47	8,56	—	—	—	—	B
5-1/2	15.50	139,70	23,07	6,98	B	B	—	—	—
	17.00		25,30	7,72	B	B	B	B	B
	20.00		29,76	9,17	—	B	B	B	B
	23.00		34,23	10,54	—	B	B	B	B
6-5/8	20.00	168,28	29,76	7,32	B	B	—	—	—
	24.00		35,72	8,94	B	B	B	B	B
	28.00		41,67	10,59	—	B	B	B	B
	32.00		47,62	12,06	—	—	B	B	B
7	23.00	177,80	34,23	8,05	B	B	B	B	—
	26.00		38,69	9,19	B	B	B	B	B
	29.00		43,16	10,36	—	B	B	B	B
	32.00		47,62	11,51	—	B	B	B	B
	35.00		52,09	12,65	—	—	B	B	B
	38.00		56,55	13,72	—	—	B	B	B

B – Buttress thread.
Tubes are produced in accordance with PSL1,2,3.
Length: R2 .

Line pipes

Seamless Line Pipe

API 5L

NPS	OD		Wall thickness	
	inch	mm	inch	mm
2 3/8	2.375	60,30	0.142	3,60
			0.157	4,00
			0.177	4,50
			0.189	4,80
			0.197	5,00
			0.213	5,40
			0.220	5,60
			0.248	6,30
2 7/8	2.875	73,00	0.157	4,00
			0.177	4,50
			0.189	4,80
			0.197	5,00
			0.213	5,40
			0.220	5,60
			0.248	6,30
3 1/2	3.500	88,90	0.157	4,00
			0.177	4,50
			0.189	4,80
			0.197	5,00
			0.213	5,40
			0.220	5,60
			0.248	6,30
			0.279	7,10
4 1/2	4.500	114,30	0.189	4,80
			0.197	5,00
			0.213	5,40
			0.220	5,60
			0.248	6,30
			0.279	7,10

PSL 1,2: A-X80[1].
Length: 5,8-11,8 m.
Pipes are not threaded and coupled.

[1] Steel grades in accordance with API 5L 43th edition. Steel grades in accordance with API 5L 44th edition are as follows - PSL1: L210(A); L245(B); L320(X46); L360(X52); L390(X56); L415(X60); L450(65); L485(X70); PSL2 - L245N (BN); L245Q (BQ); L290N (X42N); L290Q (X42Q); L320N (X46N); L320Q (X46Q); L360N (X52N); L360Q (X52Q); L390N (X56N); L390Q (X56Q); L415N (X60N); L415Q (X60Q); L450Q (X65Q); L485Q (X70Q); L555Q (X80Q).

Welded Line Pipe (LSAW)

API 5L

OD		Wall thickness	
inch	mm	inch	mm
24	610,00	0,313	7,90
		0,343	8,70
		0,375	9,50
		0,406	10,30
		0,438	11,10
		0,469	11,90
28	711,00	0,343	8,70
		0,375	9,50
		0,406	10,30
		0,438	11,10
		0,469	11,90
30	762,00	0,343	8,70
		0,375	9,50
		0,406	10,30
		0,438	11,10
		0,469	11,90
32	813,00	0,375	9,50
		0,406	10,30
		0,438	11,10
		0,469	11,90
40	1016,00	0,406	10,30
		0,438	11,10
		0,469	11,90
		0,500	12,70
		0,563	14,30
		0,625	15,90
		0,689	17,50
		0,750	19,10
		0,811	20,60
42	1067,00	0,438	11,10
		0,469	11,90
		0,500	12,70
		0,563	14,30
		0,625	15,90
		0,689	17,50
		0,750	19,10
		0,811	20,60
48	1219,00	0,469	11,90
		0,500	12,70
		0,563	14,30
		0,625	15,90
		0,689	17,50
		0,750	19,10
		0,811	20,60

PSL1, 2: B-X70[2].
Length: 10.5 – 12.0 m.
Pipes are supplied both with external anticorrosion coating and the internal flow coating.

[2] Steel grades in accordance with API 5L 43th edition. Steel grades in accordance with API 5L 44th edition are as follows - PSL1: L245 (B), L360 (X52), L390 (X56), L415 (X60), L450 (65), L485 (X70); PSL2: L245M (BM),L360M (X52M), L390M (X56M); L415M (X60M); L450M (X65M); L485M (X70M).

Seamless pipes and tubes

Seamless Mechanical and Structural Tubes and Pipes

ASTM A53/A106

	cold-formed
	hot-rolled

Nominal size	Outside diameter	Wall thickness		Schedule No.	Weight Class	Weight per meter, kg
inch	mm	mm	inch			
1/8	10,30	1,73	0,068	40	STD	0,37
		2,41	0,095	80	XS	0,47
1/4	13,70	2,24	0,088	40	STD	0,63
		3,02	0,119	80	XS	0,80
3/8	17,10	2,31	0,091	40	STD	0,84
		3,20	0,126	80	XS	1,10
1/2	21,30	2,77	0,109	40	STD	1,27
		3,73	0,147	80	XS	1,62
3/4	26,70	2,87	0,113	40	STD	1,69
		3,91	0,154	80	XS	2,20
		5,56	0,219	160		2,90
1	33,40	3,38	0,133	40	STD	2,50
		4,55	0,179	80	XS	3,24
		6,35	0,250	160		4,24
1 1/4	42,20	3,56	0,140	40	STD	3,39
		4,85	0,191	80	XS	4,47
		6,35	0,250	160		5,61
		9,70	0,382		XXS	7,77
1 1/2	48,30	3,68	0,145	40	STD	4,05
		5,08	0,200	80	XS	5,41
		7,14	0,281	160		7,25
		10,15	0,400		XXS	9,55
2	60,30	2,11	0,083			3,03
		2,77	0,109			3,93
		3,18	0,125			4,48
		3,58	0,141			5,01
		3,91	0,154	40	STD	5,44
		4,37	0,172			6,03
		4,78	0,188			6,54
		5,54	0,218	80	XS	7,48
		6,35	0,250			8,45
		7,14	0,281			9,36
		8,74	0,344	160		11,11
		11,07	0,436		XXS	13,44

Seamless Mechanical and Structural Tubes and Pipes (cont'd)

ASTM A53/A106

Nominal size	Outside diameter	Wall thickness		Schedule No.	Weight Class	Weight per meter, kg
inch	mm	mm	inch			
2 1/2	73,00	2,11	0,083			3,69
		2,77	0,109			4,80
		3,05	0,120			5,26
		3,18	0,125			5,48
		3,58	0,141			6,13
		3,96	0,156			6,74
		4,37	0,172			7,40
		4,78	0,188			8,04
		5,16	0,203	40	STD	8,63
		5,49	0,216			9,14
		6,35	0,250			10,44
		7,01	0,276	80	XS	11,41
		9,53	0,375	160		14,92
		14,02	0,552		XXS	20,39
3	88,90	3,58	0,141			7,53
		3,96	0,156			8,30
		4,37	0,172			9,11
		4,78	0,188			9,92
		5,49	0,216	40	STD	11,29
		6,35	0,250			12,93
		7,14	0,281			14,40
		7,62	0,300	80	XS	15,27
		11,13	0,438	160		21,35
		15,24	0,600		XXS	27,68
3 1/2	101,60	3,96	0,156			9,54
		4,37	0,172			10,48
		4,78	0,188			11,41
		5,74	0,226	40	STD	13,57
		6,35	0,250			14,92
		7,14	0281			16,63
		8,08	0,318	80	XS	18,64
4	114,30	4,78	0,188			12,91
		5,16	0,203			13,89
		5,56	0,219			14,91
		6,02	0,237	40	STD	16,08
		6,35	0,250			16,91
		7,14	0,281			18,87
		7,92	0,312			20,78
		8,56	0,337	80	XS	22,32
		11,13	0,438	120	XS	28,32
		13,49	0,531	160		33,54
		17,12	0,674		XXS	41,03
5	141,30	5,56	0,219			18,61
		6,55	0,258	40	STD	21,77
		7,14	0,281			23,62
		7,92	0,312			26,05
		8,74	0,344			28,57
		9,53	0,375	80	XS	30,97
		12,70	0,500	120		40,28
		15,88	0,625	160		49,12
		19,05	0,750		XXS	57,43
6	168,30	7,11	0,280	40	STD	28,26
		7,92	0,312			31,33
		8,74	0,344			34,39
		9,53	0,375			37,31
		10,97	0,432	80	XS	42,56
		12,70	0,500			48,73
		14,27	0,562	120		54,21
		15,88	0,625			59,69
		18,26	0,719	160		67,57
		19,05	0,750			70,12
		21,95	0,864		XXS	79,22
		22,23	0,875			80,08
8	219,10	8,18	0,322	40	STD	42,55
		8,74	0,344			45,34
		9,53	0,375			49,25
		10,31	0,406	60		53,09
		11,13	0,438			57,08
		12,70	0,500	80	XS	64,64
		14,27	0,562			72,08
		15,09	0,594	100		75,92
		15,88	0,625			79,59
		18,26	0,719	120		90,44
		19,05	0,750			93,98
		20,62	0,812	140		100,93
		22,23	0,875		XXS	107,93
		23,01	0,906	160		111,27
		25,40	1,000			121,33
10	273,00	8,74	0,344			56,96
		9,27	0,365	40	STD	60,29
		11,13	0,438			71,88
		12,70	0,500	60	XS	81,53
		15,09	0,594	80		95,98
		18,26	0,719	100		114,71

Seamless Mechanical and Structural Tubes and Pipes (cont'd)

ASTM A53/A106

Nominal size	Outside diameter	Wall thickness		Schedule No.	Weight Class	Weight per meter, kg
inch	mm	mm	inch			
10	273,00	20,62	0,812			128,34
		21,44	0,844	120		133,01
		25,40	1,000	140	XXS	155,1
		28,58	1,125	160		172,27
12	323,80	8,38	0,330	30		65,19
		8,74	0,344			67,91
		9,53	0,375		STD	73,86
		10,31	0,406	40		79,71
		11,13	0,438			85,82
		12,70	0,500		XS	97,44
		14,27	0,562	60		108,93
		17,48	0,688	80		132,05
		21,44	0,844	100		159,87
		25,40	1,000	120		186,92
		28,58	1,125	140		208,08
		33,32	1,312	160		238,69
14	355,60	8,74	0,344			74,76
		9,53	0,375	30	STD	81,33
		11,13	0,438	40		94,55
		11,91	0,469			100,95
		12,70	0,500		XS	107,40
		15,09	0,594	60		126,72
		19,05	0,750	80		158,11
		23,83	0,938	100		194,98
		27,79	1,094	120		224,66
		31,25	1,250	140		253,58
		35,71	1,406	160		281,72
		50,80	2,000			381,85
		53,98	2,125			401,52
		55,88	2,200			413,04
16	406,40	9,53	0,375	30	STD	93,27
		11,13	0,438			108,49
		11,91	0,469			115,87
		12,70	0,500	40	XS	123,31
		16,66	0,656	60		160,13
		21,44	0,844	80		203,54
		22,23	0,875			210,61
		26,19	1,031	100		245,57
		30,96	1,219	120		286,66
		36,53	1,438	140		333,21
		40,49	1,594	160		365,38
18	457,00	14,27	0,562	40		155,81
		19,05	0,750	60		205,75
		23,83	0,938	80		254,57
		29,36	1,156	100		309,64
		34,93	1,375	120		363,58
		39,67	1,562	140		408,28
		45,24	1,781	160		459,39
20	508,00	26,19	1,031	80		311,19
		32,54	1,281	100		381,55
		38,10	1,500	120		441,52
		44,45	1,750	140		508,15
		50,01	1,969	160		564,85

Steel grades: A, B.
Pipes are subjected to 100% non-destructive testing in accordance with ASTM E309, ASTM E213 instead of hydrotesting.
Limit deviations of the outside diameter is +/- 1,25 % for pipes with nominal outside diameter is 355,6, 406,4, 457 and 508 mm.

Seamless Mechanical and Structural Tubes and Pipes

EN 10210-1,2

	cold-formed
	hot-rolled

Outside diameter, mm	Wall thickness,mm													
	2,3	2,6	3,2	4,0	5,0	6,0	6,3	8,0	8,8	10,0	12,5	14,2	16,0	
21,30														
26,90														
33,70														
42,40														
48,30														
60,30														
76,10														
88,90														
101,60														
114,30														
139,70														
168,30														
177,80														
193,70														
219,10														
273,00														
323,90														
355,60														
406,40														
457,00														
508,00														

	Wall thickness,mm													Outside diameter, mm
	20,0	22,5	25,0	28,0	30,0	32,0	36,0	40,0	45,0	50,0	55,0	60,0	65,0	
21,30														21,30
26,90														26,90
33,70														33,70
42,40														42,40
48,30														48,30
60,30														60,30
76,10														76,10
88,90														88,90
101,60														101,60
114,30														114,30
139,70														139,70
168,30														168,30
177,80														177,80
193,70														193,70
219,10														219,10
273,00														273,00
323,90														323,90
355,60														355,60
406,40														406,40
457,00														457,00
508,00														508,00

Steel grades: S235JRH; S275JOH; S275J2H; S355JOH; S355J2H.
The manufacture of dimensions different to those indicated can be agreed upon.
Limit deviations of the outside diameter is +/- 1,25 % for pipes with nominal outside diameter of 355,6, 406,4, 457 and 508 mm.

Seamless Mechanical and Structural Tubes and Pipes

EN 10216-1

	cold-formed
	hot-rolled

outside diameter, mm	outside diameter tolerances	wall thickness, mm and tolerances ± 12,5 % , but not less than 0.4 mm														
		1,6	1,8	2,0	2,3	2,6	2,9	3,2	3,6	4,0	4,5	5,0	5,6	6,3	7,1	
10,20	± 1,0%, but not less than 0,5 mm															10,20
13,50																13,50
16,00																16,00
17,20																17,20
19,00																19,00
20,00																20,00
21,30																21,30
25,00																25,00
25,40																25,40
26,90																26,90
30,00																30,00
31,80																31,80
32,00																32,00
33,70																33,70
38,00																38,00
42,40																42,40
48,30																48,30
51,00																51,00
54,00																54,00
57,00																57,00
60,30																60,30
63,50																63,50
70,00																70,00
73,00																73,00
76,10																76,10
82,50																82,50
88,90																88,90
101,60																101,60
108,00																108,00
114,30																114,30
127,00																127,00
133,00																133,00
139,70																139,70
152,40																152,40
159,00																159,00
168,30																168,30
177,80																177,80
193,70																193,70
219,10																219,10

	wall thickness, mm and tolerances ± 12,5 % , but not less than 0.4 mm													outside diameter tolerances	outside diameter, mm
	8,0	8,8	10,0	11,0	12,5	14,2	16,0	17,5	20,0	22,2	25,0	28,0	30,0		
10,20														± 1,0%, but not less than 0,5 mm	10,20
13,50															13,50
16,00															16,00
17,20															17,20
19,00															19,00
20,00															20,00
21,30															21,30
25,00															25,00
25,40															25,40
26,90															26,90
30,00															30,00
31,80															31,80
32,00															32,00
33,70															33,70
38,00															38,00
42,40															42,40
48,30															48,30
51,00															51,00
54,00															54,00
57,00															57,00
60,30															60,30
63,50															63,50
70,00															70,00
73,00															73,00
76,10															76,10
82,50															82,50
88,90															88,90
101,60															101,60
108,00															108,00
114,30															114,30
127,00															127,00
133,00															133,00
139,70															139,70
152,40															152,40
159,00															159,00
168,30															168,30
177,80															177,80
193,70															193,70
219,10															219,10

Steel grade: P195TR1; P195TR2; P235TR1; P235TR2; P265TR1; P265TR2
The manufacture of dimensions different to those indicated can be agreed upon.

Seamless Mechanical and Structural Tubes and Pipes

DIN 1629/2448

	cold-formed
	hot-rolled

Outside diameter, mm	Sn, mm	Wall thickness, mm																Sn, mm	Outside diameter, mm
		1,6	1,8	2,0	2,3	2,6	2,9	3,2	3,6	4,0	4,5	5,0	5,6	6,3	7,1	8,0	8,8	10,0	
10,20	1,60																		1,60	10,20
13,50	1,80																		1,80	13,50
16,00	1,80																		1,80	16,00
17,20	1,80																		1,80	17,20
19,00	2,00																		2,00	19,00
20,00	2,00																		2,00	20,00
21,30	2,00																		2,00	21,30
25,00	2,00																		2,00	25,00
25,40	2,00																		2,00	25,40
26,90	2,30																		2,30	26,90
30,00	2,60																		2,60	30,00
31,80	2,60																		2,60	31,80
33,70	2,60																		2,60	33,70
38,00	2,60																		2,60	38,00
42,40	2,60																		2,60	42,40
44,50	2,60																		2,60	44,50
48,30	2,60																		2,60	48,30
51,00	2,60																		2,60	51,00
54,00	2,60																		2,60	54,00
57,00	2,90																		2,90	57,00
60,30	2,90																		2,90	60,30
63,50	2,90																		2,90	63,50
70,00	2,90																		2,90	70,00
73,00	2,90																		2,90	73,00
76,10	2,90																		2,90	76,10
82,50	3,20																		3,20	82,50
88,90	3,20																		3,20	88,90
101,60	3,60																		3,60	101,60
108,00	3,60																		3,60	108,00
114,30	3,60																		3,60	114,30
127,00	4,00																		4,00	127,00
133,00	4,00																		4,00	133,00
139,70	4,00																		4,00	139,70
152,40	4,50																		4,50	152,40
159,00	4,50																		4,50	159,00
168,30	4,50																		4,50	168,30
177,80	5,00																		5,00	177,80
193,70	5,60																		5,60	193,70
219,10	6,30																		6,30	219,10
273,00																				273,00
323,90																				323,90
355,60																				355,60
406,40																				406,40
457,00																				457,00
508,00																				508,00

	Wall thickness, mm																	Sn, mm	Outside diameter, mm
	11,0	12,5	14,2	16,0	17,5	20,0	22,2	25,0	28,0	30,0	32,0	36,0	40,0	45,0	50,0	55,0	60,0	65,0	
																			1,60	10,20
																			1,80	13,50
																			1,80	16,00
																			1,80	17,20
																			2,00	19,00
																			2,00	20,00
																			2,00	21,30
																			2,00	25,00
																			2,00	25,40
																			2,30	26,90
																			2,60	30,00
																			2,60	31,80
																			2,60	33,70
																			2,60	38,00
																			2,60	42,40
																			2,60	44,50
																			2,60	48,30
																			2,60	51,00
																			2,60	54,00
																			2,90	57,00
																			2,90	60,30
																			2,90	63,50
																			2,90	70,00
																			2,90	73,00
																			2,90	76,10
																			3,20	82,50
																			3,20	88,90
																			3,60	101,60
																			3,60	108,00
																			3,60	114,30
																			4,00	127,00
																			4,00	133,00
																			4,00	139,70
																			4,50	152,40
																			4,50	159,00
																			4,50	168,30
																			5,00	177,80
																			5,60	193,70
																			6,30	219,10
																				273,00
																				323,90
																				355,60
																				406,40
																				457,00
																				508,00

Steel grades: St 37.0, St 44.0, St 52.0.
For tubes with OD ∅57; 60,3; 63,5 and wall thickness ≥ 12,5 mm the wall thickness tolerance is +12,5%, -10%.
Limit deviations of the outside diameter is +/- 1,25 % for pipes with nominal outside diameter of 355,6, 406,4, 457 and 508 mm.
Leakage test of pipes is made using non-destructive methods

Seamless Water and Gas Transmission Pipes

EN 10255, DIN 2440/2441

	cold-formed
	hot-rolled

Outside diameter, mm		Wall thickness, mm									
		1,80	2,00	2,30	2,35	2,60	2,65	2,90	3,20	3,25	
10,20	EN 10255										
	DIN 2440										
	DIN 2441										
13,50	EN 10255										
	DIN 2440										
	DIN 2441										
17,20	EN 10255										
	DIN 2440										
	DIN 2441										
21,30	EN 10255										
	DIN 2440										
	DIN 2441										
26,90	EN 10255										
	DIN 2440										
	DIN 2441										
33,70	EN 10255										
	DIN 2440										
	DIN 2441										
42,40	EN 10255										
	DIN 2440										
	DIN 2441										
48,30	EN 10255										
	DIN 2440										
	DIN 2441										
60,30	EN 10255										
	DIN 2440										
	DIN 2441										
76,10	EN 10255										
	DIN 2440										
	DIN 2441										
88,90	EN 10255										
	DIN 2440										
	DIN 2441										
101,60	EN 10255										
114,30	EN 10255										
	DIN 2440										
	DIN 2441										
139,70	EN 10255										
	DIN 2440										
	DIN 2441										

Wall thickness, mm									Outside diameter, mm
3,60	3,65	4,00	4,05	4,50	4,85	5,00	5,40		
								EN 10255	10,20
								DIN 2440	
								DIN 2441	
								EN 10255	13,50
								DIN 2440	
								DIN 2441	
								EN 10255	17,20
								DIN 2440	
								DIN 2441	
								EN 10255	21,30
								DIN 2440	
								DIN 2441	
								EN 10255	26,90
								DIN 2440	
								DIN 2441	
								EN 10255	33,70
								DIN 2440	
								DIN 2441	
								EN 10255	42,40
								DIN 2440	
								DIN 2441	
								EN 10255	48,30
								DIN 2440	
								DIN 2441	
								EN 10255	60,30
								DIN 2440	
								DIN 2441	
								EN 10255	76,10
								DIN 2440	
								DIN 2441	
								EN 10255	88,90
								DIN 2440	
								DIN 2441	
								EN 10255	101,60
								EN 10255	114,30
								DIN 2440	
								DIN 2441	
								EN 10255	139,70
								DIN 2440	
								DIN 2441	

Steel grade: St 33, S195T.
Length up to 9 m.
Length of tubes with conservation coating up to 7.5 m.
The pipes are supplied without thread and couplings

Industrial tubes and pipes

Seamless Precision Tube

EN 10305-1, DIN 2391

nominal size	Wall thickness, mm														
	0,50	0,80	1,00	1,20	1,50	1,80	2,00	2,20	2,50	2,80	3,00	3,50	4,00	4,50	
6,00															6,00
7,00															7,00
8,00															8,00
9,00															9,00
10,00															10,00
12,00															12,00
14,00															14,00
15,00															15,00
16,00															16,00
18,00															18,00
20,00															20,00
22,00															22,00
25,00															25,00
26,00															26,00
28,00															28,00
30,00															30,00
32,00															32,00
35,00															35,00
38,00															38,00
40,00															40,00
42,00															42,00
45,00															45,00
48,00															48,00
50,00															50,00
56,00															56,00
60,00															60,00
65,00															65,00
70,00															70,00
75,00															75,00
80,00															80,00
85,00															85,00
90,00															90,00
95,00															95,00
100,00															100,00
110,00															110,00
120,00															120,00
130,00															130,00
140,00															140,00
150,00															150,00
160,00															160,00
170,00															170,00
180,00															180,00
190,00															190,00
200,00															200,00
220,00															220,00
240,00															240,00
260,00															260,00
280,00															280,00
300,00															300,00

	Wall thickness, mm														nominal size
	5,00	5,50	6,00	7,00	8,00	9,00	10,00	12,00	14,00	16,00	18,00	20,00	22,00	25,00	26,00	
																6,00
																7,00
																8,00
																9,00
																10,00
																12,00
																14,00
																15,00
																16,00
																18,00
																20,00
																22,00
																25,00
																26,00
																28,00
																30,00
																32,00
																35,00
																38,00
																40,00
																42,00
																45,00
																48,00
																50,00
																56,00
																60,00
																65,00
																70,00
																75,00
																80,00
																85,00
																90,00
																95,00
																100,00
																110,00
																120,00
																130,00
																140,00
																150,00
																160,00
																170,00
																180,00
																190,00
																200,00
																220,00
																240,00
																260,00
																280,00
																300,00

Steel grades: EN 10305-1 - E235, E355; DIN 2391 - St35, St45, St52.
Length up to 9 m.
Delivery condition: EN 10305-1: +A, +N, +SR; DIN 2391: GBK,NBK, BKS, for

Seamless Precision Tubes

EN 10305-4, DIN 2391

nominal size	1,00	1,20	1,50	1,80	2,00	2,20	2,50	2,80	3,00	3,50	4,00	4,50	5,00	5,50	
12,00															
14,00															
15,00															
16,00															
18,00															
20,00															
22,00															
25,00															
26,00															
28,00															
30,00															
32,00															
35,00															
38,00															
40,00															
42,00															
45,00															
48,00															
50,00															
56,00															
60,00															
65,00															
70,00															
75,00															
80,00															
85,00															
90,00															

	6,00	7,00	8,00	9,00	10,00	12,00	14,00	16,00	18,00	20,00	22,00	25,00	26,00	nominal size
														12
														14
														15
														16
														18
														20
														22
														25
														26
														28
														30
														32
														35
														38
														40
														42
														45
														48
														50
														56
														60
														65
														70
														75
														80
														85
														90

Steel grades: EN 10305-4 - E235, E355; DIN 2391 -St35, St45, St52.
Length up to 9m.
Delivery condition: EN 10305-4: +A, +N, +SR; DIN 2391: GBK,NBK, BKS.

Seamless Pipes for Boilers

DIN 17175

Outside diameter, mm	Wall thickness, mm															
	2,30	2,60	2,90	3,20	3,60	4,00	4,50	5,00	5,60	6,30	7,10	8,00	8,80	10,00	11,00	12,00
25,00																
25,40																
26,90																
30,00																
31,80																
33,70																
38,00																
42,40																
44,50																
48,30																
51,00																
54,00																
57,00																
60,30																
63,50																
70,00																
73,00																
76,10																
88,90																

Steel grades: St 35.8, St 45.8, 15Mo3, 13CrMo44, 10GMo910.
Cold-formed pipes are manufactured
Length up to 11.5 m.
Quality level: I, II and III.
Dimensions: in accordance with DIN 2448.

Seamless Stainless Tubes and Pipes

ASTM A213/A312

HPS	Outside diameter		Nominal wall thickness							
			line 5S		line 10S		line 40S		line 80S	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
1/8	0,405	10,29			0,049	1,24	0,068	1,73	0,095	2,41
1/4	0,540	13,73			0,065	1,65	0,088	2,24	0,119	3,02
3/8	0,675	17,15			0,065	1,65	0,091	2,31	0,126	3,2
1/2	0,840	21,34	0,065	1,65	0,083	2,11	0,109	2,77	0,147	3,73
3/4	1,050	26,67	0,065	1,65	0,083	2,11	0,113	2,87	0,154	3,91
1	1,315	33,40	0,065	1,65	0,109	2,77	0,133	3,38	0,179	4,55
1 1/4	1,660	42,16	0,065	1,65	0,109	2,77	0,140	3,56	0,191	4,85
1 1/2	1,900	48,26			0,109	2,77	0,145	3,68	0,200	5,08
2	2,375	60,33					0,154	3,91	0,218	5,54
2 1/2	2,875	73,03					0,203	5,16	0,276	7,01

Steel grades: TP 304, TP304L, TP316, TP316L, TP321.
Random length, fixed length from 1.5 up to 12 m, depending on pipe dimensions.
Pipes are subjected to ultrasonic testing instead of hydrostatic test.
At customer's request pipes are subjected to intergranular corrosion test in accordance with ASTM A262, Practice E.
Supply of dimensions different to those indicated can be agreed upon.

Seamless Stainless Tubes and Pipes

EN 10216-5, DIN 17458

outside diameter, mm	Wall thickness, mm															
	1,00	1,20	1,60	2,00	2,30	2,60	2,90	3,20	3,60	4,00	4,50	5,00	5,60	6,30	7,10	8,00
6,00																
8,00																
10,00																
10,20																
12,00																
13,50																
14,00																
16,00																
17,20																
18,00																
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25,40																
26,90																
30,00																
31,80																
32,00																
33,70																
35,00																
38,00																
40,00																
42,40																
44,50																
48,30																
51,00																
54,00																
57,00																
60,30																
63,50																
70,00																
76,10																

Steel grades: pursuant to DIN and EN: X5CrNi18-10 (1.4301), X2CrNi19-111(1.4306), X6CrNiTi18-10 (1.4541), X6CrNiMoTi17-12-2 (1.4571); additionally only pursuant to DIN: X5CrNiMo17-12-2(1.4401), X2CrNiMo17-12-2 (1.4404).
Random, fixed length from 1.5 to 12 m, depending on tube dimensions.
Leakage test of pipes is made using non-destructive methods
Supply of dimensions different to those indicated can be agreed upon.

Welded Precision Tubes

EN 10305-2, DIN 2393

Outside diameter,mm	Wall thickness, mm						
Nominal size	1,00	1,20	1,50	1,80	2,00	2,20	2,50
	Nominal inside diameter and tolerances, mm						
20,00							
22,00							
25,00							
26,00							
28,00							
30,00							
32,00							
35,00							
38,00							
40,00							
42,00							
45,00							
48,00							
50,00							

Steel grades: EN 10305-2: E195, E235, E275; DIN 2394: RSt 34-2, RSt37-2, St 44-2.
Length up to 9 m, length of pipes with conservation coating up to 7,5 m
Delivery condition: EN 10305-2: +C; +N; DIN 2393: BK, NBK

Welded Precision Tubes

EN 10305-3, DIN 2394

Outside diameter,mm	Wall thickness, mm								
Nominal size	0,80	1,00	1,20	1,50	1,80	2,00	2,20	2,50	3,00
12,00									
16,00									
18,00									
19,00									
20,00									
22,00									
25,00									
28,00									
30,00									
32,00									
35,00									
38,00									
40,00									
42,00									
42,40									
45,00									
48,30									
51,00									
57,00									
60,00									
63,50									
76,00									

Steel grades: EN 10305-3: E195, E235, E275; DIN 2394: RSt 34-2, RSt37-2, St 44-2
Length up to 9 m, length of pipes with conservation coating up to 7,5 m
Delivery condition: EN 10305-3: +CR1; +CR2; +N; as per DIN 2394: BK, NBK.

Welded Precision Tubes

EN 10305-5, DIN 2395

Outside diameter, mm		Wall thickness, mm					
A	B	1,00	1,25	1,50	2,00	2,50	3,00
15	15						
20	10						
	15						
	20						
25	15						
	25						
30	15						
	20						
	30						
35	20						
	35						
40	20						
	25						
	30						
	40						
50	25						
	30						
	50						
60	20						
	30						
	40						
80	40						

Steel grades: as per DIN 2395: RSt 37-2, St 44-2, RSt 34-2; as per EN 10305-5: E195, E235, E275.
Length up to 9m.
Length of tubes with conservation coating up to 7.5m.
Delivery condition: as per DIN 2395: BKM; as per EN 10305-5: +CR1.
Manufacture of dimensions different to those indicated can be agreed upon.

Other

Welded Tubes and Pipes (Butt-welded)

EN 10255, DIN 2439/2440/2441

NPS		Dimensions, mm		
mm	inch	Light series	Medium series	Heavy series
15,00	1/2	21,3 x 2,35	21,3 x 2,65	21,3 x 3,25
20,00	3/4	26,9 x 2,35	26,9 x 2,65	26,9 x 3,25
25,00	1	33,7 x 2,90	33,7 x 3,25	33,7 x 4,05
32,00	1 1/4	42,4 x 2,90	42,4 x 3,25	42,4 x 4,05
40,00	1 1/2	48,3 x 2,90	48,3 x 3,25	48,3 x 4,05
50,00	2	60,3 x 3,25	60,3 x 3,65	60,3 x 4,50
65,00	2 1/2	76,1 x 3,25	76,1 x 3,65	76,1 x 4,50
80,00	3	88,9 x 3,65	88,9 x 4,05	88,9 x 4,85

Steel grades: 33, 37, 37.2.
Manufacture of light series in accordance with EN 10255 subject to agreement.
Pipes are supplied without thread and couplings.
Pipes are supplied galvanized or ungalvanized.

Welded Tubes and Pipes (HFI)

EN 10296-1, DIN 1626/2458

Outside diameter, mm	wall thickness, mm										
	0,80	1,00	1,20	1,40	1,60	1,80	2,00	2,30	2,60	2,90	3,20
12,00											
14,00											
16,00											
18,00											
19,00											
20,00											
21,30											
22,00											
25,00											
26,90											
30,00											
31,80											
32,00											
33,70											
35,00											
38,00											
40,00											
42,40											
44,50											
48,30											
51,00											
54,00											
57,00											
60,30											
63,50											
76,10											

Length up to 9 m.
Maximum length of tubes with conservation coating is 7.5 m.
Delivery condition: EN 10296-1: +U, +CR, +N; DIN 1626: BK, NBK

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