



**LIBERTY**

**Liberty Tubular Products  
Ostrava a.s.  
CARBON & ALLOY BOILER  
SEAMLESS PIPES**



# CARBON & ALLOY BOILER SEAMLESS PIPES

STANDARD	GRADES	APPLICATION
ASTM A 106 (ASME SA106)	A, B, C	Standard specification for seamless carbon steel pipe for high temperature service
ASTM A 192 (ASME SA192)	A 192	Standard specification for seamless carbon steel boiler tubes for high-pressure service
ASTM A 210 (ASME SA210)	A-1	Standard specification for seamless medium-carbon steel boiler and super heater tubes
ASTM A 333 (ASME SA333)	Gr 1, Gr 6	Standard specification for seamless and welded steel pipes for low-temperature service
ASTM A 335 (ASME SA335)	P1, P5, P9, P11, P12, P22, P91	Standard specification for seamless Ferritic Alloy-Steel pipes for High-temperature service
ČSN 42 0251	12 021.1, 12 022.1	Seamless steel tubes with guaranteed properties at elevated temperatures
DIN 17175	St 35.8, St 45.8 – (only in category I.)	Seamless steel tubes for elevated temperatures" quality grade I
EN 10216-1	P195TR1, P195TR2, P235TR1, P235TR2, P265TR1, P265TR2	Seamless steel tubes for pressure purposes" Part 1: Non-alloy steel tubes with specified room temperature properties
EN 10216-2	P195GH, P235GH, P265GH, 16Mo3, 10CrMo5-5, 10CrMo9-10, 13CrMo4-5, X11CrMo5+NT1, X11CrMo9-1+NT1, X10CrMoVNb9-1	Seamless steel tubes for pressure purposes" Part 2: Non-alloy and alloy steel tubes with specified elevated temperature properties
EN 10216-3	P275NL1, P275NL2, P355N, P355NH, P355NL1, P355NL2; P355NL2, P460N, P460NH, P460NL1, P460NL2	Seamless steel tubes for pressure purposes" Part 3 – Alloy and fine grain steel tubes
EN 10216-4	P215NL, P265NL	Seamless steel tubes for pressure purposes" Part 4 – Non-alloy and alloy steel tubes with specified low temperature properties

## Lengths

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

Production length – in a range of 4-12,5m, 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  $\pm 500$  mm

Exact length – nominal length selected by the customer following agreement with the producer.

Max. length of tubes:  $< \varnothing 60,3$  mm 9,5 m  
 $\geq \varnothing 60,3$  mm 12,5 m by technological possibility – see tables of sizes

## Ends of tubes and pipes

The tubes and pipes are standardly supplied with the square cut and de-burred ends. Other types of pipe end finish can be supplied after agreement with the producer (e.g. bevelled ends).

Pipes with WT  $\leq 3,18$ mm are supplied only with square cut ends. Pipes with WT  $> 3,18$ mm can be supplied either with perpendicularly cut off ends or with beveled ends at an angle of  $30^\circ (-0/+5^\circ)$  as per API Spec 5L, or ISO 3183, or ASTM A 106, or according to other standards (e.g. ASME B16.25, DIN 2559) with prior agreement.





## Dimensional range and weight according to ASME B36.10M

Specified diameter	Size NPS (ASTM)	Outside diameter		Wall thickness		Weight category	Schedule No. (ASTM)	Weight of pipe with plain ends	
		in	mm	in	mm			lb/ft	kg/m
1,2	1,2	0,84	21,3	0,109	2,77	STD	40	0,85	1,27
				0,147	3,73	XS	80	1,09	1,62
3,4	3,4	1,05	26,7	0,113	2,87	STD	40	1,13	1,69
				0,154	3,91	XS	80	1,48	2,2
1	1	1,315	33,4	0,133	3,38	STD	40	1,68	2,5
				0,179	4,55	XS	80	2,17	3,24
1 1/4	1 1/4	1,66	42,2	0,14	3,56	STD	40	2,27	3,39
				0,191	4,85	XS	80	3	4,47
1 1/2	1 1/2	1,9	48,3	0,145	3,68	STD	40	2,72	4,05
				0,2	5,08	XS	80	3,63	5,41
2 3/8	2	2,375	60,3	0,125	3,18	...	30	3,01	4,48
				0,141	3,58	...	...	3,37	5,01
				0,154	3,91	STD	40	3,66	5,44
				0,172	4,37	...	...	4,05	6,03
				0,188	4,78	...	...	4,4	6,54
				0,218	5,54	XS	80	5,03	7,48
				0,25	6,35	...	...	5,68	8,45
				0,281	7,14	...	...	6,29	9,36
2 7/8	2 1/2	2,875	73	0,125	3,18	...	...	3,67	5,48
				0,141	3,58	...	...	4,12	6,13
				0,156	3,96	...	...	4,53	6,74
				0,172	4,37	...	...	4,97	7,4
				0,188	4,78	...	30	5,4	8,04
				0,203	5,16	STD	40	5,8	8,63
				0,216	5,49	...	...	6,14	9,14
				0,25	6,35	...	...	7,02	10,44
3 1/2	3	3,5	88,9	0,125	3,18	...	...	4,51	6,72
				0,141	3,58	...	...	5,06	7,53
				0,156	3,96	...	...	5,58	8,3
				0,172	4,37	...	...	6,12	9,11
				0,188	4,78	...	30	6,66	9,92
				0,216	5,49	STD	40	7,58	11,29
				0,25	6,35	...	...	8,69	12,93
				0,281	7,14	...	...	9,67	14,4
4	3 1/2	4	101,6	0,3	7,62	XS	80	10,26	15,27
				0,438	11,13	...	160	14,34	21,35
				0,141	3,58	...	...	5,82	8,65
				0,156	3,96	...	...	6,41	9,54
				0,172	4,37	...	...	7,04	10,48
				0,188	4,78	...	30	7,66	11,41
				0,226	5,74	STD	40	9,12	13,57
				0,25	6,35	...	...	10,02	14,92
4 1/2	4	4,5	114,3	0,281	7,14	...	...	11,17	16,63
				0,318	8,08	XS	80	12,52	18,64
				0,141	3,58	...	...	6,57	9,78
				0,156	3,96	...	...	7,24	10,78
				0,172	4,37	...	...	7,96	11,85
				0,188	4,78	...	30	8,67	12,91
				0,203	5,16	...	...	9,32	13,89
				0,219	5,56	...	...	10,02	14,91
4 1/2	4	4,5	114,3	0,237	6,02	STD	40	10,8	16,08
				0,25	6,35	...	...	11,36	16,91
				0,281	7,14	...	...	12,67	18,87
				0,312	7,92	...	...	13,97	20,78
				0,337	8,56	XS	80	15	22,32
				0,438	11,13	...	120	19,02	28,32
				0,531	13,49	...	160	22,51	33,54

## Dimensional range and weight according to ASME B36.10M

Specified diameter	Size NPS (ASTM)	Outside diameter		Wall thickness		Weight category	Schedule No. (ASTM)	Weight of pipe with plain ends	
		in	mm	in	mm			lb/ft	kg/m
5 9/16	5	5,563	141,3	0,156	3,96	...	...	9,02	13,41
				0,188	4,78	...	...	10,8	16,09
				0,219	5,56	...	...	12,51	18,61
				0,258	6,55	STD	40	14,63	21,77
				0,281	7,14	...	...	15,87	23,62
				0,312	7,92	...	...	17,51	26,05
				0,344	8,74	...	...	19,19	28,57
				0,375	9,53	XS	80	20,8	30,97
6 5/8	6	6,625	168,3	0,5	12,7	...	120	27,06	40,28
				0,188	4,78	...	...	12,94	19,28
				0,203	5,16	...	...	13,94	20,76
				0,219	5,56	...	...	15	22,31
				0,25	6,35	...	...	17,04	25,36
				0,28	7,11	STD	40	18,99	28,26
				0,312	7,92	...	...	21,06	31,33
				0,344	8,74	...	...	23,1	34,39
8 5/8	8	8,625	219,1	0,375	9,53	...	...	25,05	37,31
				0,432	10,97	XS	80	28,6	42,56
				0,5	12,7	...	...	32,74	48,73
				0,562	14,27	...	120	36,43	54,21
				0,625	15,88	...	...	40,09	59,69
				0,719	18,26	...	160	45,39	67,57
				0,25	6,35	...	20	22,38	33,32
				0,277	7,04	...	30	24,72	36,82
10 3/4	10	10,75	273	0,312	7,92	...	...	27,73	41,25
				0,322	8,18	STD	40	28,58	42,55
				0,344	8,74	...	...	30,45	45,34
				0,375	9,53	...	...	33,07	49,25
				0,406	10,31	...	60	35,67	53,09
				0,438	11,13	...	...	38,33	57,08
				0,5	12,7	XS	80	43,43	64,64
				0,562	14,27	...	...	48,44	72,08
10 3/4	10	10,75	273	0,594	15,09	...	100	51	75,92
				0,625	15,88	...	...	53,45	79,59
				0,719	18,26	...	120	60,77	90,44
				0,25	6,35	...	20	28,06	41,76
				0,279	7,09	...	...	31,23	46,49
				0,307	7,8	...	30	34,27	51,01
				0,344	8,74	...	...	38,27	56,96
				0,365	9,27	STD	40	40,52	60,29
10 3/4	10	10,75	273	0,438	11,13	...	...	48,28	71,88
				0,5	12,7	XS	60	54,79	81,53
				0,562	14,27	...	...	61,21	91,05
				0,594	15,09	...	80	64,49	95,98
				0,625	15,88	...	...	67,65	100,69
				0,719	18,26	...	100	77,1	114,71





## Product group

Size-grade group	OD ≥ 60,3 and WT ≥ 4,5		OD ≥ 60,3; WT ≥ 3,6		OD ≥ 60,3 and WT ≥ 4,5		OD ≥ 88,9; WT ≥ 6,3		OD = 88,9 - 245 and WT ≥ 8	
	A	N	Z	J	U	T	Q			
Norm	Re<320MPa (NDT 12,5%)	+NR / +N (KCV NDT 12,5%)	+N (add. +N + NDT 12,5%)	TC2 +Nr (NDT 5%)	TC2 + add +N (NDT 5%)	+NT (TC2)	+QT /spec +NT (TC2)			
ČSN 412021	12021.1									
ČSN 412022	12022.1									
DIN 17175	St 35.8, St 45.8									
EN 10216-2	P195GH, P235GH, P265GH			P195GH, P235GH, P265GH, 16Mo3		10CrMo5-5, 10CrMo9-10, 13CrMo4-5	X11CrMo5+NT1 (NT2), X11CrMo9-1+NT, X10CrMoVnB9-1			
EN 10216-3		P355N, P355NH	P275NL1, P275NL2, P355NL1, P355NL2, P460N, P460NH, P460NL1, P460NL2		P275NL1 /NL2, P355N/ NH, P355NL1 /NL2, P460N/NH, P460NL1 /2					
EN 10216-4			P215NL, P265NL		P215NL, P265NL					
ASTM A106/ ASME SA106	A, B									
ASTM A333/ ASME SA333		Gr.1, Gr.6								
ASTM A335/ ASME SA335						P1, P11, P12, P22	P5, P9, P91 (= +NT)			
ASTM A 192/ (ASME SA192)	A 192									

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