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## SEAMLESS STEEL PIPE FOR LOW TEMPERATURE SERVICE

### 1. Standards

EN 10216-4, ASTM A333, ASTM A334.

### 2. Used for

Low-temperature service.

### 3. Dimensions

According Tab.1 and Tab.2

### 4. Tolerances

Standard	Outside Diameter	Wall Thickness
EN 10216-4, hot finished	±1.0% or ±0.5mm (which is higher)	±12.5% or ±0.4mm (which is higher)
EN 10216-4, cold finished	±0.5% or ±0.3mm (which is higher)	±10% or ±0.2 mm (which is higher)
ASTM A333	OD≤48.3; +0.4/-0.8mm 48.3<OD≤114.3; ±0.8mm 114.3<OD≤219.1; +1.6/-0.8mm	+12.5%/-10%
ASTM A334 , hot finished	OD≤100; +0.4/-0.8mm 100<OD≤200; +0.4/-1.2mm 200<OD≤225; +0.4/-1.6mm	OD≤100 and WT≤2.4; +40%/0 OD≤100 and 2.4<WT≤3.8; +35%/0 OD≤100 and 3.8 <WT≤4.6; +33%/0 OD≤100 and WT>4.6; +28%/0 OD>100 and 2.4<WT≤3.8; +35%/0 OD>100 and 3.8 <WT≤4.6 ; +33%/0 OD>100 and WT>4.6; +28%/0
ASTM A334 , cold finished	OD<25; +0.1/-0.1mm 25≤OD≤40; +0.15/-0.15mm 40<OD≤50; +0.2/-0.2mm 50≤OD≤65; +0.25/-0.25mm 65≤OD≤75; +0.3/-0.3mm 75≤OD≤100; +0.38/-0.38mm 100<OD≤200; +0.38/-0.64mm 200<OD≤225; +0.38/-1.14mm	OD≤38.1; +20%/0 OD>38.1; +22%/0

### 5. Chemical Composition (%)

Steel group	C max	Mn max	Si max	S max	P max	Cr max	Cu max	Mo max	Ni max	Ti max	V max
P215NL	0.15	0.40±1.20	0.35	0.020	0.025	0.30	0.30	0.08	0.30	0.04	0.02
P265NL	0.2	0.60±1.40	0.4	0.020	0.025	0.30	0.30	0.08	0.30	0.04	0.02
Grade 6	0.30	0.29±1.06	0.10 min	0.025	0.025						

## 6. Mechanical Properties

Steel group	Tensile Strength	Yield Strength min.	Elongation min.	Min. impact energy	
	MPa	MPa	%	J	°C
P215NL	360÷480	215	25	40	-40
P265NL	410÷570	265	24	40	-40
Grade 6	min. 415	240	30	18	-45

## 7. Lengths

Standard	Nominal Length	Min. Length		Average Length		Max. Length	
		ft	m	ft	m	ft	m
EN 10216-4, ASTM A333 & ASTM A334	20ft (6m) 40ft (12m)	16 22	4.88 6.71	17.5 35.0	5.33 10.67	22.5 39.4	6.86 12.00

## 8. Protection

- unprotected;
- external varnished with black or clear lacquer;
- if required, the plain end pipes can be delivered with plastic caps at both ends.

## 9. Marking

According to standard or per customer request.

## 10. Delivery

In bundles up to 4000 kg (8800 lbs) tied in minimum six places with steel strip.  
Quantity tolerances: ±5% per size or / and per total.

## 11. Mill test report

Mill test reports are issued to customer requirements. Usually they comply with DIN 50049, EN 10204.

## 12. Quality certified

LR, TUV, PED, DNV, GL.

Tab. 2.1 HOT ROLLED MECHANICAL TUBES acc. EUROPEAN NORMS - ASSEL MILL

WT	6.3	7.1	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	32.0	35.0	36.0	40.0	45.0	50.0	55.0	60	
OD	Min-max Length (m)																							
60.3					9-11	9-11	9-11	8-10	7.5-10															
63.5					9.5-11	9-11	8-11	7.2-10	7-10	7-10														
70.0					9-10.5	9-11	7-11	6.5-11	6-10	6-10	6-9													
73.0					8-10	7.5-10	7-10.5	6.5-10.5	6-10	5.6-10	5.6-9													
76.1					8-10	7-10	6.5-10	5.8-10.5	5.5-10.5	5.5-10	5.5-9													
82.5					6.9-10.5	6.5-10	5.9-10	5.6-10	5.4-10	5.3-10	4.5-9	5.2-9	5.5-9											
88.9					6.3-10	5.8-10	5.6-10	5.4-10	5.2-10	5.0-10	4.9-9	4-9	4.5-9											
95.0					5.8-10	5.6-10	5.3-10	5.2-9	5.0-9.0	4.8-9.0	4.0-9.0	4.0-9.0	4.0-9.0											
101.6					5.5-7	5-7	4.5-7	4.3-8.0	4.2-8.0	4.0-7.0	4.0-7.0	4.0-7.0	4.0-7.0											
108.0					5.5-7	4.8-7	4.7-7	4.4-8.0	4.1-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.0	4.0-7.0								
114.3					5.5-7	5.0-7	5.0-7.0	4.2-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.0	4.0-7.0	4.0-7.0							
121.0	10-11	9.5-11	9-11	8.5-11	5.5-7.0	5.0-7.0	4.3-7.0	4.2-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.0	4.0-7.0	4.0-7.0	4.0-6.5	4.0-6.5					
127.0	9.5-11	9.0-11	8.5-11	8-11	7.5-11	5.0-7.0	4.5-7.0	4.3-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4-7.5	4.0-7.0	4.0-7.0	4.0-6.5	4.0-6.5					
133.0	9.5-11	9.0-11	8.5-11	8-11	7.5-11	5.0-7.0	4.3-7.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.5	4.0-7.0	4.0-6.5	4.0-6.5					
139.7	9.5-11	9.0-11	8.5-11	8-11	7.5-11	6-9.0	5.0-7.0	4.5-8.0	4.2-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.0	4.0-7.0	4.0-6.5	4.0-6.5					
146.0	9-11	8.5-11	8.0-11	7.5-11	7.5-11	7.0-11	5-7.0	4.5-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.5	4.0-7.5	4.0-7.0	4.0-6.5	4.0-6.5				
152.4	9-11	8.5-11	8.0-11	7.5-11	7.0-11	6.6-11	4.5-7.0	4.5-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.5	4.0-7.5	4.0-7.0	4.0-6.5	4.0-6.3				
159.0	9-11	8.0-11	7.5-11	7.5-11	7.0-11	6.5-11	4.5-7.0	4.5-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.5	4.0-7.5	4.0-7.0	4.0-6.5	4.0-6.5	4.0-6.3				
165.1	9-11	8.6-11	8.0-11	7.5-11	7.0-11	6.7-11	6.4-11	4.5-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.5	4.0-7.5	4.0-7.0	4.0-6.5	4.0-6.3				
168.3		8.5-11	8.0-11	7.5-11	7.0-11.5	6.5-11.5	6.2-11.5	4.5-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.5	4.0-7.5	4.0-7.0	4.0-6.5				
177.8		8.5-11	7.5-11	7.5-11	7.0-11.5	6.5-11.5	6.2-11.5	4.5-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.5	4.0-7.5	4.0-7.0	4.0-6.5	4.0-6.2			
193.7			8.5-11	7.5-11	7.0-11.5	6.5-11.5	6.2-11	6-10	4.2-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.9	4.0-7.5	4.0-7.5	4.0-7.0	4.0-6.5	4.0-6	4.0-5.7	
203.0			8.0-11	7.5-11	7.0-11.5	6.5-11.5	6.2-11	6-10	4.2-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.5	4.0-7.5	4.0-7.5	4.0-7.0	4.0-6.5	4.0-6.0		
216.0			8.0-11	7.5-11	7.0-11.5	6.5-11	6.2-11	6-10	7-9.0	4.2-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.9	4.0-7.5	4.0-7.5	4.0-7.5	4.0-7.5	4.0-7.0	4.0-6.5	4.0-6.3	4.0-5.9	
219.1			8.0-11	7.5-11	7.0-11.5	6.5-11	5.8-10.8	6-10	7-9.0	4.2-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.8	4.0-7.5	4.0-7.5	4.0-7.5	4.0-7.5	4.0-7.0	4.0-6.5	4.0-6.0	4.0-5.7	
224.0											4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.5	4.0-7.5	4.0-7.5	4.0-7.5	4.0-7.0	4.0-7.0	4.0-6.5	4.0-6.0	4.0-5.6	
229.0											4.0-8.0	4.0-8.0	4.0-8.0	4.0-8.0	4.0-7.5	4.0-7.5	4.0-7.5	4.0-7.5	4.0-7.0	4.0-6.7	4.0-6.2	4.0-5.7	4.0-5.4	
244.5															4,5-7,5	4,5-7,5	4,5-7,0	4,5-7	4,5-7	4,0-6,5	4,5-6,5	4,5-6,2	4,5-5,7	4,5-5,4

category H1-OD/WT&gt;12.5 and Mannesmann ASSEL mill;

category H2-OD&gt;=60 and reducing mill;

polygonal appearance

category H4-OD/WT&lt;4 and calibrating mill;

category H3- 4&lt;OD/WT&lt;12.5 and calibrating mill;

**Notes:**

1. Intermediate sizes are available as follow:

- for OD<82,5 and OD/WT<12,5, any time
- or OD<82,5 or OD/WT>12,5, subject of agreement before ordering

Tab. 2.2 HOT ROLLED MECHANICAL TUBES acc. EUROPEAN NORMS - CPE MILL


WT	mm	2.3	2.6	2.77	2.87	2.9	3.2	3.6	3.91	4	4.5	5	5.5	6.02	6.3	7.1	7.62	8.0	8.56	8.8	9.5	10.0	11.0	11.13
	in	0.091	0.102	0.109	0.113	0.114	0.126	0.142	0.154	0.157	0.177	0.197	0.217	0.237	0.248	0.280	0.300	0.315	0.337	0.346	0.375	0.394	0.433	0.438
OD		Min-max. Length (m)																						
mm	in																							
21.3	0.839	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12															
26.7	1.051	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12														
26.9	1.059	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12														
30.0	1.181		6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12													
31.8	1.252		6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12												
33.4	1.315		6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12												
33.7	1.327		6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12												
38.0	1.496		6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12											
42.2	1.661		6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12										
42.4	1.669		6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12										
48.3	1.902		6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12								
51.0	2.008		6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12							
54.0	2.126					6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12						
57.0	2.244					6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12						
60.3	2.374					6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12				
63.5	2.500					6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12			
70.0	2.756					6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	
73.0	2.874					7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	
76.1	2.996					7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	6÷12	6÷12
82.5	3.248						7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	6÷12	6÷12
88.9	3.500						6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12
95.0	3.740							7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13
101.6	4.000							7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	6÷12
108.0	4.252							7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	6÷12
114.3	4.500							7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	7÷13	6÷12
121.0	4.760														6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	6÷12	5.5÷11	5.5÷11

**HP1** - rolling R1 (OD<33.7)

**HP2** - rolling R1 or R2 (OD≥33.7, WT<3)

**HP3** - rolling R1 or R2 (OD≥33.7 and OD/WT≥10)

**HP4** - rolling R1 or R2 (OD≥33.7 and OD/WT<10)

 Polygonal appearance