



MECHANICAL TUBES

1. Standards

- DIN 1629 (has been partially replaced by EN 10297-1);
- DIN 1630 (has been partially replaced by EN 10297-1);
- DIN 17124 (has been partially replaced by EN 10297-1);
- DIN 17204 (has been partially replaced by EN 10297-1);
- DIN 17121 (has been with EN 10210);
- EN 10297-1;
- EN 10210-1, 2;
- EN 10216-1,3;
- ASTM A519;
- ASTM A105;
- NFA 49-311;
- UNI 7729;
- STAS 530/1.

2. Used for

- Mechanical application;
- General engineering purposes.

3. Dimensions

- Cold rolled tubes acc. DIN - Tab.1;
- Hot rolled tubes acc. DIN - Tab. 2.1; Tab. 2.2;
- Hot rolled tubes acc. ASTM A519 - Tab.3;
- Cold rolled tubes acc. ISO 2938 & MBS-92/3.99 - Tab.4;
- Hot rolled tubes acc. ISO 2938 & MBS-92/3.99 - Tab.5.

4. Tolerances

Standard	Outside Diameter	Tolerances	Wall Thickness	Tolerances	Weight
DIN 1629, DIN 1630	OD≤130	±1% (but ± 0.5mm is permitted)	WT≤ 2Sn	+15/-10%	+12/-8% for each tube +10/-5% for lots over 10t
	130<OD≤320		2Sn<WT≤4Sn	+12.5/-10%	
WT>4Sn		±9%			
WT≤0.05OD		+17.5/-12.5%			
	0.05OD <WT≤0.11OD	±12.5%			
		WT>0.11OD	±10%		
EN 10210-1,2		±1% or ±0.5mm (which is higher)		-10%	+8% / -6%
EN 10297-1, EN 10216-1		±1% or ±0.5mm (which is higher)		±12.5% or ±0.4mm (which is higher)	-
EN 10216-3-hot rolled		±1% or ±0.5mm (which is higher)		±12.5% or ±0.4mm (which is higher)	-
EN 10216-3- cold rolled		±0.5% or ±0.3mm (which is higher)		±10% or ±0.2mm (which is higher)	-
ASTM A519, hot rolled	OD<76.17	±0.51 mm	WT<15	±12.5%	-
			WT≥15	±10%	
	76.2<OD<114.27	±0.64 mm	WT<15	±10%	
			WT≥15	±7.5%	
	114.3<OD<152.37	±0.79 mm			
	152.4<OD<190.47	±0.94 mm			
	190.5<OD<228.57	±1.14 mm			





ASTM A519, cold rolled	OD≤53.31	OD: +0.30mm	ID: -0.30mm	WT≤25%OD & ID<38.1	±10%
	53.31<OD≤63.47	OD: +0.35mm	ID: -0.35mm	WT≤25%OD & ID≥38.1	±7.5%
	63.47<OD≤73.63	OD: +0.40mm	ID: -0.40mm	WT>25%OD & ID<38.1	±12.5%
	73.63<OD≤83.79	OD: +0.45mm	ID: -0.45mm	WT>25%OD & ID≥38.1	±10%
	83.79<OD≤93.95	OD: +0.55mm	ID: -0.55mm		
	93.95<OD≤104.11	OD: +0.65mm	ID: -0.65mm		
	104.11<OD≤114.27	OD: +0.75mm	ID: -0.75mm		
Sn - Nominal wall thickness according to DIN 2448					

5. Chemical Composition (%)

Steel group	C	Mn	P max	S max	N max	Cr	Si	Mo	Al min
St37.0, St37.4, S235, P195, P235, P275, E235, OLT35, C10E, C15E, 1010	max 0.17		0.040	0.040	0.009				
St44.0, St44.4, S275, P265, E 275, OLT45, 1020	max 0.21		0.040	0.040	0.009				
St52.0, St52.4, S355, E355, Tu52-b, P265, P355, Fe510, OL52.3,1022	max 0.22	max 1.70	0.040	0.035			max 0.60		0.020
C45, C35E, OLT65, 1035, 1045	max 0.50	max 0.9	0.040	0.040			max 0.40		
16MnCr5	0.14-0.19	1.0-1.3	0.035	0.035		0.8-1.1	max 0.4		
4140, 42CrMo4	0.38-0.43	0.75-1.0	0.040	0.040		0.8-1.1	0.15-0.30	0.15-0.25	
4130	0.28-0.33	0.4-0.6	0.040	0.040		0.8-1.1	0.15-0.35	0.15-0.25	
20MnV6, E470	0.16-0.22	1.3-1.7	0.03	0.035	0.02		0.1-0.50		0.01

6. Mechanical Properties

Steel group	Tensile Strength	Yield Limit	Elongation
	N/mm ²	N/mm ²	min (%)
St37.0, St37.4, S235, P195, P235, P275, E235, OLT35, C10E, C15E, 1010	350÷480	min 235	25
St44.0, St44.4, S275, P265, E 275, OLT45, 1020	420÷550	min 275	21
St52.0, St52.4, S355, E355, Tu52-b, P265, P355, Fe510, OL52.3,1022	500÷650	min 355	21
C45, C35E, OLT65, 1035, 1045	min 580	min 305	16
16MnCr5	HB =max 207 (Delivery status: Annealed)		
4140, 42CrMo4	HRB =max 85 (Delivery status: Annealed)		
4130	HRB =max 81 (Delivery status: Annealed)		
20MnV6, E470	min 600	min 430	17

7. Lengths

- Random lengths: 4÷12m (13.12÷39.7 ft), acc. Tab 1÷5;
- Fixed lengths within the random lengths range;

8. Protection

- Unprotected;
- External varnished with black or clear lacquer;
- If required, the tubes can be delivered with plastic caps at both ends.

9. Marking

According to standard or per customer request.

10. Delivery

Bundles up to: - 2000 kg (4400 lbs) - cold drawn tubes;
- 4000 kg (8800 lbs) - hot rolled tubes.

Quantity tolerances: ±5% per size or / and per total.

The bundles will have one tag applied at each end, marked according to standard or at customer's request.

11. Mill test report

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

12. Quality certified:

LR, ZUS, TUV, UHP, PED, CE, MLPTL, DNV, GL, CE.



Tab. 2.1 HOT ROLLED MECHANICAL TUBES acc. DIN 2448 - ASSEL MILL

WT	mm	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	
	in	0.248	0.280	0.315	0.346	0.394	0.433	0.492	0.559	0.630	0.689	0.787	0.874	0.984	1.102	1.181	1.260	1.378	1.417	1.575	1.772	1.969	2.165	2.362	
OD																									
		<i>Max Length [m]</i>																							
mm	in																								
70.0	2.756						11.0	11.0	11.0	11.0	10.0	10.0													
73.0	2.874						10.5	10.5	10.5	10.5	10.0	10.0													
76.1	2.996						11.0	10.5	10.5	10.0	10.0	10.0													
82.5	3.248						10.0	10.0	10.0	10.0	9.5	9.5	9.0	8.0											
88.9	3.500							10.0	10.0	9.0	9.0	9.0	9.0	8.0											
95.0	3.740							9.0	9.0	9.0	9.0	9.0	8.5	8.0											
101.6	4.000							9.0	9.0	9.0	8.5	8.0	8.0	8.0											
108.0	4.252							9.0	9.0	9.0	9.0	8.5	8.5	8.0	8.0	8.0									
114.3	4.500							9.0	9.0	9.0	8.0	8.0	7.5	7.0	7.0	6.5	6.5								
121.0	4.764	12.0	12.0	12.0	12.0	9.0	9.0	9.0	9.5	9.5	8.5	7.5	7.5	7.0	7.0	6.5	6.0	6.0	6.0						
127.0	5.000	12.0	12.0	12.0	12.0	11.0	9.0	9.0	9.0	9.0	8.5	8.0	8.0	7.5	7.5	7.5	7.0	7.0	7.0						
133.0	5.236	12.0	12.0	12.0	12.0	11.0	9.0	9.0	9.0	9.0	8.5	8.0	8.0	7.5	7.0	7.0	7.0	7.0	7.0						
139.7	5.500	12.0	12.0	12.0	12.0	11.0	11.0	9.0	9.0	9.0	8.5	8.0	8.0	7.5	7.0	7.0	7.0	6.5	6.5	6.0					
146.0	5.748	12.0	12.0	12.0	12.0	11.0	11.0	9.0	9.0	9.0	8.5	8.0	8.0	8.0	7.5	7.0	7.0	6.5	6.3	6.0					
152.4	6.000	12.0	12.0	12.0	12.0	11.0	11.0	9.0	9.0	9.0	8.5	8.0	8.0	8.0	7.5	7.0	7.0	7.0	7.0	6.5					
159.0	6.260	12.0	12.0	12.0	12.0	11.0	11.0	9.0	9.0	9.0	8.5	8.0	8.0	8.0	7.5	7.0	7.0	7.0	7.0	6.5	6.0				
165.1	6.500	12.0	12.0	12.0	11.5	11.0	11.0	10.0	9.0	8.5	8.5	8.0	8.0	8.0	8.0	7.5	7.0	7.0	7.0	7.0	6.5				
168.3	6.626		12.0	12.0	11.5	11.0	11.2	10.0	9.0	8.5	8.5	8.0	8.0	8.0	8.0	7.5	7.0	7.0	7.0	7.0	7.0				
177.8	7.000		12.0	12.0	11.5	11.0	10.5	10.0	9.0	8.4	8.2	8.0	8.0	8.0	7.5	7.0	7.0	7.0	7.0	6.5	6.5	6.3			
193.7	7.626			11.0	10.5	10.0	10.0	9.5	9.0	8.3	8.2	8.0	8.0	7.5	7.5	7.0	7.0	7.0	7.0	7.0	6.5	6.1	6.0		
203.0	7.992			11.0	11.0	10.5	10.5	10.5	10.0	8.5	8.5	8.5	8.5	8.0	7.5	7.0	7.0	7.0	6.5	6.5	6.0	6.0	6.0		
216.0	8.504			10.5	10.5	10.0	9.5	9.0	9.0	8.8	8.5	8.5	8.5	8.0	7.5	7.0	7.0	7.0	6.5	6.0	6.0	6.0	5.5	5.0	
219.1	8.626			10.5	10.5	10.0	9.5	9.0	9.0	8.8	8.5	8.5	8.5	8.0	7.5	7.0	7.0	7.0	6.5	6.0	6.0	6.0	5.5	5.0	
224.0	8.819												8.0	8.0	7.5	7.0	6.5	6.5	6.5	6.0	5.5	5.5	5.5	5.0	5.0
229.0	9.016												8.0	8.0	7.5	7.0	6.5	6.5	6.5	6.0	5.5	5.5	5.5	5.0	5.0

- category H1 (OD/WT>12.5 and Mannesmann ASSEL mill)
- category H3 (4<OD/WT<12.5 and calibrating mill)
- category H2 (reducing mill)
- category H4 (OD/WT<4 and calibrating mill)

Notes: 1. Intermediate sizes are available as follow:
 - for OD<82,5 and OD/WT<12.5, any time;
 - for OD<82,5 or OD/WT>12.5, subject of agreement before ordering.

2. Weight:
 - $We=10.68 (OD-WT)xWT$ [lbs/ft.];
 - $We=0.0246615x(OD-WT)xWT$ [kg/m].



Tab. 2.2 HOT ROLLED MECHANICAL TUBES acc. DIN 2448 - 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		Max Length (m)																								
mm	in																									
21.3	0.839	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0																	
26.7	1.051	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0																	
26.9	1.059	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0																	
30.0	1.181		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0														
33.4	1.315		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0														
33.7	1.327		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0														
38.0	1.496		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0												
42.2	1.661		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0												
42.4	1.669		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0												
48.3	1.902		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0										
51.0	2.008		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0									
54.0	2.126					12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0									
57.0	2.244					12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0									
60.3	2.374					12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0					
63.5	2.500					12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0			
70.0	2.756					12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		
73.0	2.874					12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		
76.1	2.996					12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		
82.5	3.248						12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		
88.9	3.500						12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
95.0	3.740							12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
101.6	4.000								12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	10.0	10.0
108.0	4.252									12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	10.0	10.0
114.3	4.500										12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	10.0	10.0

- 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)



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