

## Dozvoljene tolerancije dimenzija prema standardima

ASTM A 53		
Permissible Variations of Dimension over 60,3 mm (including)	± 1 %	
Permissible Variations of Wall thickness	- 12.5 %	
Permissible Variations of Weight	Weight in the dimensional standard ASME B36.10M can not differ by more than ±10 %	
ASTM A 106		
Outside diameter (mm)	Permissible Variations of Outside diameter	
	upper	lower
	mm	mm
from 48,3 to 114,3 (including)	+ 0.8	- 0.8
from 114,3 to 219,1 (including)	+ 1.6	- 0.8
from 219,1 to 457 (including)	+ 2.4	- 0.8
Permissible Variations of Wall thickness	- 12.5 %	
Permissible Variations of Weight	+ 10 % / - 3.5 %	
ASTM A 450		
Outside diameter (mm)	Permissible Variations of Outside diameter	
	over	under
seamless hot rolled tubes		
up to 101,6 (including)	+ 0.4	- 0.8
from 101,6 to 190,5 (including)	+ 0.4	- 1.2
from 190,5 to 228,6 (including)	+ 0.4	- 1.6
Permissible Variations of Wall thickness		
Outside diameter (mm)	Wall thickness %	
	over 4,6	
seamless hot rolled tubes		
up to 101,6 (including)	+ 28 / - 0	
over 101,6	+ 28 / - 0	
Production	Permissible Variations of Weight per feet, %	
	over	under
seamless hot rolled tubes	+ 16	- 0
ASTM A 530		
Outside diameter (mm)	Permissible Variations of Outside diameter	
	upper	lower
	mm	mm
from 48.3 to 114.3 (including)	+ 0.8	- 0.8
from 114.3 to 219.1 (including)	+ 1.6	- 0.8
from 219.1 to 457 (including)	+ 2.4	- 0.8
Permissible Variations of Wall thickness		- 12.5 %
Permissible Variations of Weight		
up to ø 323.8 mm (including)	+ 10 % / - 3.5 %	
over ø 323.8 mm	+ 10 % / - 5 %	
DIN 1629, 1630		
Permissible Variations of Outside diameter		
Outside diameter (mm)	Permissible Variations	Tube end
≤ 100	± 1 % D (but ± 0.5 mm is allowed)	± 0.4 mm
100 < D ≤ 200	± 1 % D	± 0.5 % D
> 200	± 1 % D	± 0.6 % D
Permissible Variations of Wall thickness		
D ≤ 130 mm	t ≤ 2 *t <sub>n</sub>	+ 15 % / - 10 %
	2*t <sub>n</sub> < t ≤ 4*t <sub>n</sub>	+ 12.5 % / - 10 %
	t > 4 *t <sub>n</sub>	± 9 %

130 < D ≤ 320 mm 320 < D ≤ 660 mm	t ≤ 0.05 D	+ 17.5 % / - 12.5 %
	0.05 D < t ≤ 0.11 D	± 12.5 %
	t > 0.11 D	± 10 %
	t ≤ 0.05 D	+ 20 % / - 15 %
	0.05 D < t ≤ 0.09 D	+ 15 % / - 12.5 %
	t > 0.09 D	+ 12.5 % / - 10 %
*t <sub>n</sub> – basic wall thickness according to DIN 2448		
Permissible Variations of Weight		
for individual tubes		+ 12 % / - 8 %
for delivery of at least 10 tons		+ 10 % / - 5 %
<b>DIN 17 121</b>		
Permissible Variations of Outside diameter		± 1 % (but ± 0.5 mm is allowed)
Permissible Variations of Wall thickness		the same as according to DIN 1629
Permissible Variations of Weight		
for individual tubes		+ 12 % / - 8 %
for delivery of at least 10 tons		+ 10 % / - 5 %
<b>DIN 17 172</b>		
Outside diameter (mm)	Permissible Variations of Outside diameter	
	Tube	Tube end
< 200	± 1 % D (max. ± 0.5 mm)	± 1 % D (max. ± 0.5 mm) possible to agree ± 0.5 % D (max. ± 0.4 mm)
200 ≤ D < 500 500 ≤ D < 1200	± (0.4%D+1mm) ± 0.5 % D (max. ± 5 mm)	± 0.7 % D ± 1.6 mm
Permissible Variations of Wall thickness		
for D ≤ 130 mm		± 10 %
for D > 130 mm		± 12.5 %
On various parts wall thickness can fall under by about 0,5 %, but only in lengths shorter than twice the outside diameter of the tube (max. 300 mm).		
Permissible Variations of Weight		
for individual tubes		+ 10 % / - 8.5 %
for waggon delivery of at least 10 tons		± 7.5 %
<b>DIN 17 173</b>		
Outside diameter (mm)	Permissible Variations of Outside diameter	
	Tube	Tube end
< 100	± 1 % D (max. ± 0.5 mm)	max. ± 0.4 mm
100 ≤ D < 200	± 1 % D	± 0.5 % D
D > 200	± 1 % D	± 0.6 % D
Permissible Variations of Wall thickness		
D ≤ 130 mm	t ≤ 2 * t <sub>n</sub>	+ 15 % / - 10 %
	2 * t <sub>n</sub> < t ≤ 4 * t <sub>n</sub>	+ 12.5 % / - 10 %
	t > 4 * t <sub>n</sub>	± 9 %
130 < D ≤ 320	t ≤ 0.05 D	+ 17.5 % / - 12.5 %
mm	0.05 D < t ≤ 0.11 D	± 12.5 %
	t > 0.11 D	± 10 %
	320 < D ≤ 660	+ 22.5 % / - 12.5 %
mm	t ≤ 0.05 D	+ 15 % / - 12.5 %
	0.05 D < t ≤ 0.09 D	- 12.5 %
	t > 0.09 D	+ 12.5 % / - 10 %
	t <sub>n</sub> – basic wall thickness according to DIN 2448	
Permissible Variations of Weight		
for individual tubes		+ 12 % / - 8 %
for waggon delivery of at least 10 tons		+ 10 % / - 5 %



D > 219.1	± 1 % or ± 0.5 mm (higher value is always valid)	± 20 % ± 12.5 %	± 15 % ± 10 %*
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\* For D ≥ 355.6 mm it is possible to increase the local tolerance by about 5 %

### EN 10 216-2 and 3

Outside dia- meter (mm)	Permissible Variations of Outside diameter	Permissible Variations of Wall thickness according to ratio t/D	
		t/D ≤ 0.025 t/D ≤ 0.05	0.025 < t/D ≤ 0.1 t/D > 0.1
D ≤ 219.1	± 1 % or ± 0.5 mm (higher value is always valid)	± 12.5 % or ± 0.4 mm (higher value is always valid)	
D > 219.1		± 20 % ± 12.5 %	± 15 % ± 10 %*

There are also tolerances for combination of tolerances for inner diameter and wall thickness, outside diameter and minimum wall thickness, inner diameter and minimum wall thickness.

### EN 10297-1

Outside dia- meter (mm)	Permissible Variations of Outside diameter	Permissible Variations of Wall thickness according to ratio t/D	
		t/D ≤ 0.025	0.025 < t/D ≤ 0.05 t/D > 0.05
D ≤ 219.1	± 1 % or ± 0.5 mm (higher value is always valid)	± 12.5 % or ± 0.4 mm (higher value is always valid)	
D > 2,191		± 20 %	± 15 %
		± 12.5 %	
Wall thickness (mm)	Permissible Variations of Wall thickness		
	with higher accuracy	with common accuracy	
up to 15 including	± 12.5 %	+ 12.5 % / - 15.0 %	
from 15 to 30	+ 10.0 % /	± 12.5 %	
	- 12.5 %		
over 30	± 10.0 %	+ 10.0 % / - 12.5 %	
up to 15 including	+ 12.5 % / - 15.0 %		
from 15 to 30	± 12.5 %		
over 30	+ 10.0 % / - 12.5 %		
<b>Legend: D = outside diameter, t = wall thickness</b>			