

DIN 17120-84 WELDED CIRCULAR STEEL TUBES FOR STRUCTURAL STEEL WORK

1. Field of application

1.1 This standard applies to welded circular tubes made from the steels listed in tables 1 and 2 These tubes are used in structural steelwork (as in building and civil engineering, tubular steel construction, bridge and crane construction, etc.).

Table 2. Mechanical properties of welded circular tubes for structural steelwork

The values of wall thickness exceeding 40mm shall be agreed t the time of ordering.

Steel grade		Upper yield stress ReH 1) for wall thicknesses, in mm.		Tensile strength Rm N/mm ²	Elongation after fracture A 5		Impact energy Av 2) (ISO V-notch longitudinal test pieces)	
Symbol	Material number	up to 16 N/mm ² min	over 16 up to 40		Longitudinal % min	Transverse	Test temperature °C	J min
USt37.2 3)	1.0036	235	-	340 to 470	26	24	+20	27
RSt37.2	1.0038	235	225	340 to 470	26	24	+20	27
St37.3	1.0116	235	225	340 to 470	26	24	-20	27
St44.2	1.0044	275	265	410 to 540	22	20	+20	27
St44.3	1.0144	275	265	410 to 540	22	20	-20	27
St52.3	1.0570	355	345	490 to 630	22	20	-20	27

1) If the yield stress is not marked, the 0.2% proof stress (Rp 0.2) shall be determined.
 2) Average value from three only one individual value may fall short of the minimum average value of 27 J, and this by not more than 30%, See subclause 5.4.2. and subclause 5.5.2 for narrower test pieces.
 3) Only for tubes with a wall thickness not greater than 16mm.

Table 3. Types of length and permissible deviations in length

Type of length	Permissible deviations mm
Manufacturing length 1)	1)
Specified length	± 500

Exact length	up to 6m	+10 0
	over 6 up to 12m	+15 0
	over 12m	By agreement
1) The products are supplied in the manufacturing lengths occurring in production. The lengths differ according to the diameter, wall thickness and manufacturer's works and shall be agreed at the time of ordering.		

Testing			Scope of test programme	Responsibility for carrying out the tests	Type of document on materials testing
No	Type of test	As in subclause			
1	Tensile test	5.4.1 5.5.1	1 sample tube per batch, 1 test piece	By agreement	DIN 50049 - 3.1 B or DIN 50049 - 3.1 C
2	Impact test	5.4.2 5.5.2	At one end of sample tube specified above (No.1) (for a wall thickness $\geq 5\text{mm}$); 1 set of 3 separate test pieces	By agreement	DIN 50049 - 3.1 B or DIN 50049 - 3.1 C
3	Inspection of surface	5.5.4	All tubes	By agreement	DIN 50049 - 3.1 B or DIN 50049 - 3.1 C
4	Check on dimensions	5.5.5 to 5.5.7	All tubes	By agreement	DIN 50049 - 3.1 B or DIN 50049 - 3.1 C
5	Product analysis 1)	5.4.3 5.5.3	By agreement	Manufacturer	DIN 50049 - 3.1 B
1) The product analysis is only to be carried out subject to agreement between the manufacturer and purchaser.					

The type of document required and the test house being considered where acceptance inspection is to be carried out by a third party shall be stated at the time of ordering.