DIN 2460 STEEL PIPES FOR WATER PIPELINES

1. Scope

This Standard applies to welded and seamless types of steel pipes ready for laying, for the construction of water pipelines.

The Standard is especially designed for use in connection with pipes for drinking water pipelines.

Nonetheless, it is also applicable to the construction of other water pipelines.

This Standard does not apply to pipes for installation inside buildings.

Pipes for installation inside buildings are standardized in DIN 2440, DIN 2441 and DIN 2442.

2. Field of application

The pipes listed in Tables 2 and 3 are designed for permissible operation over pressures up to the stated nominal pressure of the pipeline. There is no need to calculate the wall thickness provided that, when the steels listed in the two tables are used, the nominal pressures associated there with are not exceeded or the wall thicknesses fall below the nominal values.

In the case of buried pipes, the design of the pipes takes account not only of the maximum internal pressure but also of the stresses due to the soil cover, including the live load (SLW 60 in accordance with DIN 1072):

DIN ≤ 500 0.6 m to 6 m soil cover

DIN > 500 0.6 m to 4 m soil cover.

Where pipes are laid above ground, additional stresses, such as dead weight, the distance between supports, wind loads and snow loads, must be taken into consideration, where necessary.

The possible drop in the water pressure to the absolute pressure Pabs = 2.0 bar must also be taken into account in the design of the pipes.

Symbols	for	
HL6 to HL 14,5	minimum average length, e.g., 6 m to 14,5 m	Lengths
FL 6,5	fixed length, e.g., 6,5 m	
GL 6400	exact length, e.g., 6400 mm	
-	plain	Finish of pipe ends
V	with welding bevel	
M	with socket	
ZM	cement mortar in accordance with DVGW data sheet W 342	Lining
BiI1 to BiI4	bitumen, e.g., type I1 to type I4 in accordance with DIN 30673	
Y	others	

PE normal PE reinforced	polyethylene normal = in accordance polyethylene reinforced = with DIN 30670	Coating
BiE1 to BiE 6	bitumen, e.g., type E1 to type E6 in D accordance with DIN 30673	
W	others	
2.2 3 8	works certificate 2.2 in accordance with DIN 50 049 acceptance test certificate 3.1 8 in accordance with DIN 50 049	Certificates on material testing

4 Designation and details required for ordering

4.1 Designation

The designation of a welded pipe conforming to this Standard, made of steel grade St 37-2, with and outside diameter of 273 mm and a wall thickness of 4.0 mm IDN 250 according to Table 2} reads:

Pipe DIN 2450 - St ·37 - DN 250

Table 2. Dimensions and masses per unit length of welded pipes and nominal pressures of pipelines

Nominal size DN	Outside diameter of pipe α a	Wall thickness[1])	Mass per unit length[2]) kg/m	Nominal pressure Pn of pipeline[1])		
				Steel grade: St 37·2[4])	Steel grade: St 37·2[4])	Steel grade: St 52·3[4])
				v N = 0.8[3]) Works certificate 2.2	v N = 0.9[3]) Acceptance test certificate 3.1 B	v N = 0.9[3]) Acceptance test certificate 3.1 B
80	88.9	3.2	6.76	63	80	
100	114.3	3.2	8.77	50	63	
125	139.7	3.6	12.1	50	63	
150	168.3	3.6	14.6	40	50	
200	219.1	3.6	19.1	32	40	
250	273	4.0	26.5	25	32	
300	323.9	4.5	35.4	25	32	
350	355.6	4.5	39.0	24	32	
400	406.4	5.0	49.5	25	25	40
500	508	5.6	69.4	20	25	40

600	610	6.3	109	16	20	32
700	711	6.3	141	16	20	32
800	813	7.1	179	16	20	32
900	914	8.0	219	16	20	32
1000	1016	8.8	328	16	20	32
1200	1220	11.0	434	16	20	32
1400	1420	12.5	562	16	20	32
1600	1620	14.2	712	16	20	32
1800	1820	16	864	16	20	32
2000	2020	17.5				

1) Calculation in accordance with DIN 2413, June 1972 edition, field of application I, (predominantly static stressing, up to 120°C) with the following safety coefficient: S = 1,72 for St 37-2 with works certificate 2.2, S - 1,54 for St 37-2 with acceptance test certificate 3.1 B, S - 1,56 for St 52-3 with acceptance test certificate 3,1 B, without supplement for corrosion or wear, As a rule, no corrosion supplement is necessary for lined and coated pipes.

The calculated permissible operating overpressure has been rounded onto the next lower pressure stage in accordance with DIN 2401 Part 1. The nominal pressure shown applies to pipelines with welded joints as follows:

- up to DN 500, for a live load up to SLW 60,a soil cover of 0.6 to 6 m and in addition, the possible drop in the water pressure to the absolute pressure Pabs = 0,2 bar
- above DN 500, for a live load up to SLW 60, a soil cover of 0,6 to 4 m and, in addition, the possible drop in the water pressure to the absolute pressure Pabs = 0,2 bar.

2) Masses per unit length, disregarding the coating, lining and socket joint.

3) Efficiency rating of the weld uN in accordance with DIN 1626 Part 1.

4) Steel grades St 52-3 in accordance with DIN 1626 Part 3, January 1965 adition.

Table 3. Dimensions and masses per unit length of seamless pipes and nominal pressures of pipelines, pipes of steel grade St 35

Nominal size DN	Outside diameter of pipe α a	Wall thickness 6)	Mass per unit length 7)	Nominal pressure 8) PN of pipeline Works certificate 2.2
80	88,9	3,2	6,76	80
100	114,3	3,6	9,83	63
125	139,7	4	13,4	63

150	168,3	4,5	18,2	63
200	219,1	6,3	33,1	63
250	273	6,3	41,4	50
300	323,9	7,1	55,5	50
350	355,6	8	68,6	50
400	406,4	8,8	86,3	50
500	508	11	135	50

5) Steel grade St 35 in accordance with DIN 1629 Part 3, January 1961 edition.

6) Normal wall thickness in accordance with DIN 2448.

7) Masses per unit length, disregarding the coating, lining and socket joint.

8) Calculation in accordance with DIN 2413, June 1972 edition, field of application I, (predominantly static stressing, up to 120°C) safety coefficient S = 1,7, without supplement for corrosion end wear, The calculated permissible operating overpressure has been rounded to the next lower pressure stage in accordance with permissible operating overpressure has been rounded to the next lower pressure stage in accordance with DIN 2401 Part 1. The nominal pressure shown applies to pipelines with welded joints as follows: for a live load up to SLW 60, a soil cover of 0.6 to 6 m and, in addition, a possible drop in the water pressure to the absolute pressure Pabs = 0,2 bar

Table 4. Minimum average length and length group for manufacturing lengths

Minimum average length m	Length group m
6	3 to 8
8	4 to 11
11	5,5 to 14
13,5	6,5 to 16,5
14,5	7,5 to 18

Figure 1. Slip-in weld socket joint

Table 5. Insertion depths and socket clearances

Nominal size DN	Outside diameter of pipe α a	Slip-in weld socket	
80	88,9	50	1

100	114,3	55	1,5
125	139,7	60	1,5
150	168,3	65	1,5
200	219,1	80	2
250	273	90	2
300	323,9	105	2
350	355,6	115	2,5
400	406,4	120	2,5
500	508	130	3
600	610	130	3
700	711	130	3
800	813	130	3
900	914	130	3
1000	1016	130	3