UDC 669.14-426.2 November 1988

Cold drawn round steel wire
Nominal diameters, limit deviations, mass

DIN 177

Runder Stahldraht, kaltgezogen; Maße, Grenzabmaße, Gewichte

Supersedes March 1971 edition.

In keeping with current practice in standards published by the International Organization for Standardization (ISO), a comma has been used throughout as the decimal marker.

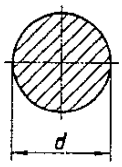
Dimensions in mm

1 Field of application

This standard specifies requirements for cold drawn round steel wire ('wire', for short) with diameters as given in clause 3 and preferably made from steel as specified in clause 4.

It does not cover cold drawn round steel which must be made to closer tolerances, such as round steel as specified in DIN 175, DIN 668, DIN 669, DIN 670 and DIN 671.

2 Designation



Cold drawn round steel wire with a nominal diameter, *d*, of 2 mm, made from steel grade D 5-2 (material number 1.0288), having a dry bright finish (tr bk) *) shall be designated:

Wire DIN 177 – 2 – D 5-2 – tr bk
or Wire DIN 177 – 2 – 1.0288 – tr bk

*) See DIN 1653 for symbols denoting the finish of steel wire.

Continued on pages 2 and 3

3 Nominal diameters, limit deviations, mass

Nominal diameter d[1]	Limit deviations for surface finish: bright, annealed, coppered, drawn zinc-coated, drawn tinned[3]	Limit deviations for surface finish: finally zinc-coated, finally tinned[4]	Mass[2] (7,85 kg/dm³), in kg per 1000 m ≈
0,1	± 0,01		0,0616
0,11			0,0746
0,12			0,0887
0,14			0,121
0,16	± 0,01	± 0,02	0,158
0,18			0,199
0,2			0,246
0,22			0,298
0,25	± 0,015	± 0,025	0,385
0,28			0,484
0,32			0,631
0,36			0,798
0,4	± 0,02	± 0,035	0,989
0,45			1,25
0,5			1,54
0,56			1,93
0,63	± 0,03	± 0,05	2,45
0,71			3,11
0,8			3,95
0,9			4,99
1	± 0,04	± 0,065	6,16
1,12			7,69
1,25			9,66
1,4			12,1
1,6	± 0,06	± 0,09	15,8
1,8			19,9
2			24,6
2,24			30,9
2,5	± 0,08	± 0,12	38,5
2,8			48,4
3,15			61,2
3,55			77,7
4	± 0,10	± 0,16	98,9
4,5			125
5			154
5,6			193
6,3	± 0,15	± 0,23	245
7,1			311
8			395
9			499
10	± 0,20	± 0,30	616
11,2			773
12,5			966
14			1210
16	± 0,25		1580
18			1990
20			2460
–			–

[1] The limit deviations for the next smallest nominal diameter specified shall apply for intermediate values.

[2] The values specified refer to the nominal diameter (i.e. without allowance for limit deviations).

[3] Including all types of finish classified in these categories in DIN 1653.

[4] Hot-dip or electrolytic process.

Ovality

The ovality, i.e. the difference between the minimum and maximum diameter of wire at the same cross section, shall not exceed 50% of the range defined by the limit deviations given in the table. In the case of finally zinc-coated or finally tinned wire, greater differences in diameter and a local increase in diameter exceeding the limit deviations are permitted for short lengths unless they adversely affect the performance of the wire for a given application.

4 Material

Wire shall preferably be made from low carbon steel as specified in DIN 17 140, e.g. D 5-2 steel, the use of other materials being subject to agreement.

5 Finish

Wire shall have any one of the following finishes: bright, annealed, coppered, drawn zinc-coated, drawn tinned, finally zinc-coated or finally tinned (see table above).

6 Form to be supplied

The type of packing and the mass of a consignment shall be agreed between purchaser and manufacturer.

7 Details to be given when ordering

1000 kg of cold drawn round steel wire with a nominal diameter, *d*, of 4 mm, made from D 5-2 steel (material number 1.0288) as specified in DIN 17 140, having a finally hot-dip tinned finish (t s zn), supplied in coils:

1000 kg wire DIN 177 – 4 – D 5-2 – t s zn, in coils

or **1000 kg wire DIN 177 – 4– 1.0288 – t s zn, in coils**

Standards referred to

DIN 175	Polished round steel; dimensions, permissible deviations according to ISO tolerance zone h9
DIN 668	Bright round steel; dimensions, permissible deviations according to ISO tolerance zone h11
DIN 669	Bright steel shafts; dimensions, permissible deviations according to ISO tolerance zone h9
DIN 670	Bright round steel; dimensions, permissible deviations according to ISO tolerance zone h8
DIN 671	Bright round steel; dimensions, permissible deviations according to ISO tolerance zone h9
DIN 1653	Surface finish of commercial steel wire; concepts and symbols
DIN 17 140 Part 1	Rod for cold drawing; technical delivery conditions for basic steel and unalloyed quality steels

Previous editions

DIN 177: 10.23, 10.27, 09.34, 05.67, 03.71.

Amendments

The following amendments have been made to the March 1971 edition.

a) Title and field of application of the standard have been formulated more precisely.

b) Steel grade D 5-1 has been replaced by grade D 5-2.

c) The limit deviations for finally zinc-coated and finally tinned wires in the nominal diameter ranges 0,1 to 0,14 mm and 16 to 20 mm have been deleted.

d) The specifications of wire cross section have been deleted.

e) The 'Testing' clause has been deleted.

f) The standard has been editorially revised.

International Patent Classification

B 21 C 1/02