Approved by the comitee
for standards, units
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WIRE OF LOW CARBON QUALITY

Group B71

The present standard covers low carbon quality wire and in units of machines, for manufacturing of parts and as current carrying cores in cables.

1. ASSORTMENT

1.1 Wire is manufactured:

Without coating - bright KC.

Having coated - galvanised KO.

1.2 Wire is made of diameter from 0.5 to 5.0MM diameters and tolerances should correspond to table No.1.

Table No.1

Diameter.	Tolerance for wire.	
	Bright	Galvanised.
0.6	±0.03	+0.05 -0.03
0.8 1.0	+0.04 -0.03	+0.06 -0.03
1.2 1.4 1.6 1.8 2.0 2.2 2.6 3.0	±0.06	+0.08 -0.06

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Continuation table 1.

Diameter	Tolerance for wire. Bright	Galvanised.
3.6 4.0 4.5 5,0 6,0	±0,03	±0,10 0.08

Wire of low carbon quality.

1.1 Quality of wire should not exceed half the diametrial tolerance.

1.- In agreement of both the parties wire of intermediate dimensions with tolerances nearest to the bigger dimension may be manufactured.

2. Technical requirements:-

2.1 Wire is made from low carbon rolled steel wire as per IOST 1050-60. The grade of steel is established by manufacturing-plant depending on technological testings and mechanical properties.

2.2 Tensile strength for wires of all diameters should not be less than:

40 Kg/MM^2 - bright
37 Kg/MM^2 - for galvanised.

2.3 No. of twistings and bendings depending on the diameter of wire should not be less than the values shown in table No.2.

2.4 The surface of wire should not have cavities, cracks, scratches, laps, seams ,corrosion. Places uncoated with fine should not be there on galvanised wire.

Nore:- Separate (individual) machanical scratches with depth of not more than 1 the diametrical tolerance are allowed on the surface of wire.

2.5 In fracture of wire there should not be any cracks, laps tears, blisters and pipe trades.

2.6 The following are not allowed on galvanised surface or wire:

a) Local excessive zinc, increasing the actual diameter of wire to a value more than half the diametrical tolerance.

b) White deposit, if after its elimination wire does not withstand the testing on the quality or zinc coating.

2.7 At customer's request the wire for current carrying core in cables is delivered with specific electrical resistance test. Specific electric resistance at 20°C should not exceed 0.15 Ch,. mm^2/M.

2.8 Zinc coating of the surface of wire should be durable. While winding the wire on a cylinder having a diameter equal to five times the diameter of wire, peeling cracking of zinc coating should not be there.

2.9 Zinc coating should withstand's the number of immersions in copper sulphate solutions as shown in table 3.

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Table 2.

Diameter of Wire in M.M	Diameter of rollers in m.m	Number of bends to 180°	Number of twists to 360°
0.5 0.8	Bending tests is replaced by tensile test with unit. During this breaking load should not be less than 80% of breaking load during rupture with out unit.		30 30
1.0 1.2	5	7 6	25 25
1.4 1.6 1.8 2.0 2.2 2.6	15 10	14 13 12 11 10 9	20 20 18 16 15 15
3.0 3.6	15	6 6	14 13
4.0 4.5 5.0	20	8 8 6	11 11 9
6.0	Not to be tested		Not to be tested.

Note:

The number of twists and bends for wire of intermediate sizes should correspond to the requirements of next larger size.

Portions coated wit copper, which do not go after wiping with or cotton wool, should not be there on specimens.

The portion of wire (which was subjected to test) correspondin, to the level of solution, and the surface at a distance of 20M.M from the end of wire dipped into solution may beom red.

Table 3

Diameter of wire in M.M	Number of immersions	Duration of holders in solution in seconds.
0.5	1	30
0.8	1	60
From 1.0 to 2.6	2	60
From 3.0 to 6.0	3	60

2.10 Wire which does not meet the requirement of point 2.6 and 2.3 in agreement of both the portions is delivered wnight provided it fulfill requirement of point 2.2.

2.11 Wire is delivered in bundles. Winding of wire should be carriedout in proper under without mixing of turns and entirs free threeling of wired from bundles.

2.12 The bundles should consist of one cutting. Minimum weight of bundle depending on wire diameter should correspond to table 4.

Table 4

Diameter of wire M.M	Weight of bundle in K not less than.
0.5	0.5
From 0,8 to 1,0	1.0
From 1.2 to 1.6	4.0
From 1.8 to 2,0	7.0
From 3,0 to 3.6	10
From 4.0 and above	20

2.13. Method of cabling of convential designation or labeling

Bright wire of 1.2 m.m diameter:
Wire No.1.2 GOST 792-67,
Galvanised wire of diameter 2.0m.m.wire KO.210 Gost 792-67

For wire subjected to electrical resistance test, the letter 'Ga' is added after the workd "wire".

Bright wire having a diameter of 1.0 m.m for current carrying core-

Wire Ga KC 1.0 GOST 792-67

2.14 Wire is delivered in batches. A batch should consist of wires of the name kind of surface, same diameter and same steel grade.

Note:

Weight of a batch if there are no indication in the order is established by manufacturer.

2.15 The manufactured wire should be accepted by inspection department of manufacturing plant. Manufacturer should guarantee the conformity of quality of wire to the requirements of present standard.

3. TEST METHODS.

3.1 The customer must use the below given sampling rules and test methods to check the conformity of quality of wire to the requirements of present standards.

3.2 Each bundle should be subjected to visual inspection and measuring the diameter of wire. Inspection is carried out without using magnifying devices. The weight of bundles are checked at the customer's request.

3.3 For checking the quality of wire 5% of bundle but but not less than three bundles, are selected from a batch. One specimen is taken from each end of bundles out of selected bundles for every each end of bundles out of selected bundles for every type of testing (tensile strength number of twists, number of bandings, winding, number of immersions in copper sulphate solution

determination of specific electrical resistance)

3.4 Tensile test of wire is carried out as per GOST.10446-63.

3.5 Bending test of wires in carried out as per Gost 1579-80

3.6 The quality of wire in fracture is determined on specimens which have passed bending test. by spring magnifying glass having not less than four times magnifications.

3.7 Twisting test of wires is carried out as per Gost 1545-80

3.8 Electrical resistance is determined by d.c. bridge of type MOD as per GOST 7165-78 on length than.

3.9 Winding test of wire should be carried out turns during winding should not be less than 10.

3.10 Testing of wire for quality of zinc coating in copper sulphate solution is carried out as per the following method.

Prpper the solution from one part by weight of dry cryst crystall/Copper sulphate as per GOST 2142-87 five zinc cupric hydroxide and filter.

Before immersing specimens to be tested should be clamarsed from H rt, fat, washed in spirit, wiped to water, wiping of specimens to be tested to carried before every lumersing in copper sulphate solution.

Temperature of solition should be $\pm$18°C.

During bosting the specimens should be in immovable condition without touching each other and the walls of the container.

The number of specimens which can be tested in a volume of 200 cm^3 of copper sulphate solution area:

1. not more than 40 specimens of wire having diameter of 0.8 -0.8 m.m:
2. not more than 20 specimens of wire having a diameter of 1.0 - 2,6 m.m:
3. not more than 8 specimens of wire having a diameter 3,0-6,0 m.m:

Note:

The spirit may be substituted by petrol, consists or ether with subsequent weighin in distilled water.

3.11 If unsatisfactory test results are obtained even one of the properties, then repeated test is carried out on unconfirmed point by double the quantity of bundles from the wire which have not passed this Checking.

4. PACKING AND MARKING

4.1 Each bundle of wire should be tied with soft wire (minimum at three places) and wrapped with packing water proof two layer paper as per GOST 9569-79 or paraffined paper as per GOST 515-77. Bundles of wire having diameter of more than 1,0m.m. are packed in cloth as per GOST 109 , and bundles of wire having diameter, of 1.,om.m. and less are packed in godown inseparable (assembled) ~~xxxxxxxxxxxxxxxxx~~ cases as per GOST 8872-83 or or immerable (assembled) case as per Gost 8896-60.

Wire of low cargon quality.

Notes:

1. Other kinds of packing are allowed in agreement of both the parties.
2. As the customer's request the weight of one package should not exceed 30m.m.
3. Bundles of wires of the same diametry cab be combined in coils.

4.2 in which the following are indicated should be firmly firmed to each bundle of wire.

a) trade mark of manufacturing plant.
b) Conventional designation of the wire.

The data shown above and also net weight of the wire should be painted on a side of the case, if the wire bundles are packed in cases.

4.3 Each batch of wire should be accompanied with a document, which certificate the conformity of company of wire to the requirement of present standard.

The following should be indicated on that document:

a) Name or trade mark of manufacturing plant:
b) Conventional designation of wire:
c) Net weight of batch.