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Steel Wire for Prestressing of Concrete

预应力混凝土用钢丝

(ISO 6934-2:1991, Steel for the prestressing of concrete
- Part 2: Cold-drawn wire, NEQ)

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Steel Wire for Prestressing of Concrete

1 Scope

This standard specifies the terms and definitions, classification, codes and designation, order contents, dimension, shape, weight and allowable deviation, technical requirements, test methods, inspection rules, packaging, marking and quality certificate of steel wire for prestressing of concrete.

This standard applies to cold drawn or stress-relieved, low-relaxation, plain, helical rib and indented wires for prestressing of concrete. In which, the cold drawn wire is used only for pressure pipe. According to design and construction method, it is suitable to produce highly efficient prestressed concrete by pre-tensioning method and post-tensioning method.

2 Normative References

The following documents are essential for the application of this document. For dated reference, only the edition cited applies. For undated references, the latest edition (including any amendments) applies.

GB/T 228.1	<i>Metallic Material—Tensile Test—Part 1: Method of Test at Room Temperature</i>
GB/T 2103	<i>General Requirements for Acceptance, Packing, Marking and Quality Certification of Steel Wire</i>
GB/T 21839	<i>Steel for Prestressed Concrete - Test Methods</i>
GB/T 24238	<i>Hot-rolled Wire Rod for Prestressed Steel and Steel Strand</i>
GB/T 24242.2	<i>Non-alloy Steel Wire Rods for Conversion to Wire—Part 2: Specific Requirements for General Purpose Wire Rod</i>
YB/T 081	<i>Rule for Rounding Off of Numerical Values and Judgment of Testing Values for Technical Standards of Metallurgy</i>

3 Terms and Definitions

For the purposes of this standard, the following terms and definitions apply.

3.1

cold drawn wire

the steel wire into which the wire rods is drawn by reducing and cold worked, supplied as coil.

3.2

stress-relieved wire

8.4.5 Elasticity modulus

Elasticity modulus is determined according to the requirements of GB/T 21839.

8.4.6 Test failure

Provided that the specimen is fractured in the chuck or within $2d_n$ away from the jaw and cannot meet the performance requirements of this standard, the test is invalid.

8.5 Reverse Bend Test

Reverse bend test of wire shall be carried out according to the requirements of GB/T 21839. The bend radius shall be in accordance with those specified in Table 5.

8.6 Bend Test

Wire bend test shall be carried out according to the requirements of GB/T 21839. Bending angle and mandril diameter shall meet the corresponding requirements of 7.2.4.

8.7 Torsion Test

8.7.1 Torsion test shall be carried out according to the requirements of GB/T 21839.

8.7.2 Distance between fixtures of testing machine shall not be less than 210mm during the test.

8.7.3 The torsion rate used shall not be greater than 30 r/min.

8.7.4 The axial tension is 0.5%~2% of the maximum force load of wire.

8.7.5 The specimen shall be twisted till complete fracture, and the fractured section shall be vertical to the wire axis. The number of torsions shall meet those specified in Table 4.

8.7.6 If the twisted specimen has any helical crack that is visible to naked eyes or touchable to bare hands on the surface, then the coil of wire shall be subjected to reinspection according to the requirements of 8.7.7.

8.7.7 During the reinspection, the specimen is twisted three circles per 210mm long, when the specimen is twisted to the specified circles, then stop for inspection. If there is still any helical crack that is visible to naked eyes or touchable to bare hands on the surface, then the coil of wire shall be judged as rejected.

8.7.8 If the specimen fractures within $2d_n$ from the chuck, and it has not reached the number of torsions specified in this standard, then the test is invalid.

The reinspection and judgment rules of wire shall be carried out according to GB/T 2103.

9.2 Characteristic Value Inspection

9.2.1 Characteristic value inspection is applicable to the following conditions:

- a) The seller's inspection for product quality control;
- b) The inspection that is requested by the purchaser and agreed by both the seller and the buyer;
- c) The third party's product certification and arbitration inspection.

9.2.2 Characteristic value inspection shall be carried out according to the rules in Annex B.

10 Packaging, Marking and Quality Certificate

General requirements for wire packaging, marking and quality certificate shall meet the requirements of GB/T 2103.

10.1 Packaging

Generally, wire shall be packaged according to Category A in GB/T 2103. It may be packaged according to Category B or C specially to be noted in the contract.

10.2 Marking

Each wire coil shall be bolted with nameplate, indicating the seller's name, product name, marking, specification, strength grade, batch number, executive standard No., weight and numbers, etc.

10.3 Quality Certificate

Each contract batch shall be accompanied with quality certificate. In which, the seller's name, product name, marking, specification, strength grade, batch number, executive standard number, weight, quantity, the purchaser's name, shipment date and marking of the quality inspection department shall be noted.

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