

WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED

OFFICE OF THE MATERIAL CONTROLLER : CENTRAL STORES & PURCHASE DEPARTMENT
VIDYUT BHAVAN (4TH FLOOR) : BIDHANNAGAR : KOLKATA-700091

TECHNICAL SPECIFICATION FOR G.I. WIRE AND G.I. STAY WIRE

1.0 SCOPE :

The specification covers manufacture, testing preferably at manufacturer's works before despatch, supply and delivery of G.I. Wire and G.I. Stranded Stay Wire.

2.0 STANDARDS :

- i) The G.I. wire shall comply with IS: 280 – 2006 with the latest amendments and galvanising shall comply with IS: 4826 – 1979 with the latest amendments.
- ii) The galvanised stranded stay wire shall comply with IS : 2141 – 2000 with the latest amendments and galvanising shall comply with IS : 4826 – 1979 with the latest amendments .

3.0 GENERAL REQUIREMENTS :

- 3.1 a) The requirements for chemical composition for the wires as per IS: 280 – 2006 shall conform to those given in IS: 7887 – 1992. Chemical composition as per the Clause No. 6 of IS: 7887 – 1992 is given below:

Chemical composition :

- i) The Ladle analysis of steel when analysed in accordance with relevant parts of IS: 228 or any other established instrumental/chemical method shall be as given below:

<u>Constituent</u>	<u>Percent</u>
Carbon	0.18 to 0.230
Manganese	0.30 to 0.60
Sulphur	0.050 Max.
Phosphorus	0.050 Max.

- ii) Product Analysis:

Permissible variation in case of product analysis from the limits specified under Clause No. 6.1 of IS: 7887 – 1992 shall be as follows:

<u>Constituent</u>	<u>Variation over specified maximum limits, percent, max.</u>
Carbon	0.02
Manganese	0.03
Sulphur	0.005
Phosphorus	0.005

- b) The stranded stay wires as per IS: 2141 – 2000 shall not contain sulphur and phosphorus exceeding 0.060 percent each.

- 3.2 All finished wires shall be circular in section and be well and clearly drawn to the dimension specified. The wire shall be round, free from splits, scale, surface flaws, rough jagged and imperfect edges and other harmful surface defects.

- 3.3 The wire shall be in continuous length and shall not contain any welds other than those in the rod before it is drawn.

- 3.4 Galvanising shall be heavy as per IS: 4826 – 1979 with the latest amendments.

3.5 For the purpose of galvanising, the wire shall be coated with Zinc conforming to at least Grade Zn 98 specified in IS 209 – 1966. The Zinc coating shall be uniform, adherent, reasonably smooth and free from imperfections as per IS: 4826 – 1979 with the latest amendments.

4.0 SIZE AND DETAILS :

4.1 FOR GALVANISED MILD STEEL WIRE :

4.1.1 Diameter of G.I. Wires shall be as per the items of the Tender. Tolerances permitted on the diameter of wire shall be as per IS: 280 - 2006.

4.1.2 Tensile properties of the wire shall be as follows:

Tensile strength of galvanised M.S. Wire shall be 300 – 550 N/mm².

4.1.3 Type of coating of galvanise shall be heavy as per IS: 4826 – 1979 and the wires shall be galvanised after drawing & annealing.

4.1.4 Weight per metre length of the wire shall be stated by the Tenderer.

4.2 FOR GALVANISED STRANDED STAY WIRE :

4.2.1 Diameter of G.I. Stay Wires shall be as per the items of the Tender. Tolerances permitted on the diameter of wire shall be as per IS: 2141 – 2000.

4.2.2 Grade as per IS:2141-1979 or latest	Size of the Stay wire	Minimum Tensile Strength
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4	As per the items of the Tender	700 N / mm ²
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4.2.3 Minimum breaking force of single wire and strand shall be as per IS: 2141 – 2000.

4.2.4 Type of coating of galvanise shall be heavy as per IS: 4826 – 1979 and the wires shall be galvanised after drawing, but without annealing.

4.2.5 Weight per metre length of the stranded stay wire shall be stated by the Tenderer.

5.0 TESTS AND TEST CERTIFICATES :

5.1 Test Report (To be submitted alongwith the Bid)

Copy of Test Report carried out within last five years on the items of material of the Tender in a NABL accredited Test House or Laboratory shall be submitted along with the tender as Pre-requisite. If there be any deficiency regarding non-submission of the Test Report, WBS&EDCL reserves the right to cancel the tender unilaterally.

5.2 The following Acceptance Tests shall be carried out as per the relevant IS Codes.

5.2.1 Acceptance Tests for G.I. Wires according to IS: 280 –2006:

- Chemical Composition Test
- Verification of diameter
- Mechanical properties like Tensile Test, Wrapping Test, Bend Test etc.
- Coating Test for galvanise
- Test for conformity.

5.2.2 Acceptance Tests for G.I. Stay Wires according to IS: 2141-2000:

- a) Chemical Composition Test
- b) Ductility Test
- c) Verification of wire diameter
- d) Tensile and Elongation Test
- e) Galvanising Test
- f) Test for conformity.

6.0 MARKING :

Each coil shall be provided with a tag made of metal of suitable size securely attached on the inner part of the coil bearing the following information :

- A. Manufacturer's name or Trade Mark.
- B. Lot number and coil number.
- C. Quality and size of material.
- D. BIS Certification mark, if any.

7.0 PACKING :

Each coil of wire shall be suitably bound and fastened compactly.

8.0 WEIGHT OF COIL :

Weight of each coil shall be between 50 Kgs. & 100 Kgs.

9.0 PRICE :

Price shall be variable on the basis of prices of Steel and Zinc only as per Price Variation Formula given below.

PRICE VARIATION FORMULA:

(A) For Steel

For every increase or decrease of Rs.100/- (Rupees One hundred only) per M.T. in the price of 8 mm. Dia. wire rod conforming to IS: 7885 as per price list of Rastriya Ispat Nigam Limited, the price of finished wires will be increased or decreased respectively by Rs.105/- per M.T.

The price variation will be applicable as per the price prevailing on one month prior to the date of delivery of the particular lot.

BASE PRICE :

The price (excluding Excise Duty and VAT but including Central Sales Tax, if any) of 8 mm. Dia. wire rod conforming to IS: 7885 as per price list of Rastriya Ispat Nigam Limited as prevailing on the base date as per the Tender will be the base price of steel.

(B) For Zinc

For every increase/decrease of Rs.100/- (Rupees One hundred only) per M.T. in the price of Electrolytic high grade Zinc as per price list of IEEMA, the price of finished wires will be increased/decreased respectively by Rs.6/- per M.T.

The calculation of price variation will be done considering the price prevailing on one month prior to the date of delivery of the particular lot.

BASE PRICE :

The price of Electrolytic high grade Zinc as per price list of IEEMA prevailing on the base date as per the Tender will be the base price of Zinc.

10.0 Documents to be submitted at the time of physical delivery at consignee stores :

The following documents to be submitted by the venders to the Consignee Stores at the time of despatch to stores by the venders:-

- a) Copy of Purchase Order.
- b) Copy of Despatch Instruction
- c) Inspection Test Certificate
- d) Guarantee Certificate
- e) Proforma Invoice
- f) Calculation Sheet for price variation on the basis of Price Variation Formula as applicable with base date of order.
- g) Seal list and packing list
- h) Challan in triplicate
- i) Way bill, if applicable.

GUARANTEED TECHNICAL PARTICULARS

G.I. Wire 4 mm. diameter

Sl. No.	Description	Unit	Guaranteed Particulars
1.	Maker's Name & Address		
	a)	Office	
	b)	Works	
2.	Name of manufacturer of:		
	a)	Steel Wire/Rods	
	b)	Zinc	
	c)	Complete G.I. Wire	
3.	a)	Diameter of wire	mm.
	b)	Tolerance on diameter	%, mm.
4	Sectional Area		mm ²
5.	Tensile Properties		
	a)	Condition	
	b)	Tensile Strength	N/mm ²
6.	a) Wrapping/Bend Test		
	b) Adhesive Test		
7.	Zinc Coating		
	a)	Type of Zinc Coating	
	b)	Weight of Coating	gm/m ²
	c)	Number of Dips	
8.	Chemical Composition		
	a)	Carbon	%
	b)	Manganese	%
	c)	Sulphur	%
	d)	Phosphorus	%
9.	Weight of each coil	Kg.	
10.	Standard according to which the wires are manufactured and tested		
11.	Details of Packing		
12.	Weight per kilometer of G.I. Wire	Kg./km.	
13.	Other, if any		

GUARANTEED TECHNICAL PARTICULARS

G.I. Wire 5 mm. diameter

Sl. No.	Description	Unit	Guaranteed Particulars
1.	Maker's Name & Address		
	a) Office		
	b) Works		
2.	Name of manufacturer of:		
	a) Steel Wire/Rods		
	b) Zinc		
	c) Complete G.I. Wire		
3.	a) Diameter of wire	mm.	
	b) Tolerance on diameter	%, mm.	
4	Sectional Area	mm ²	
5.	Tensile Properties		
	a) Condition		
	b) Tensile Strength	N/mm ²	
6.	a) Wrapping/Bend Test		
	b) Adhesive Test		
7.	Zinc Coating		
	a) Type of Zinc Coating		
	b) Weight of Coating	gm/m ²	
	c) Number of Dips		
8.	Chemical Composition		
	a) Carbon	%	
	b) Manganese	%	
	c) Sulphur	%	
	d) Phosphorus	%	
9.	Weight of each coil	Kg.	
10.	Standard according to which the wires are manufactured and tested		
11.	Details of Packing		
12.	Weight per kilometer of G.I. Wire	Kg./km.	
13.	Other, if any		

GUARANTEED TECHNICAL PARTICULARS

G.I. Stay Wire 7/2.5 mm. diameter

Sl. No.	Description	Unit	Guaranteed Particulars
1.	Maker's Name & Address		
	a)	Office	
	b)	Works	
2.	Name of manufacturer of:		
	a)	Steel Wire/Rod	
	b)	Zinc	
	c)	Complete G.I. Stay Wire	
G.I. Stay Wire before Stranding			
3.	a)	Diameter of wire	mm.
	b)	Tolerance	mm.
4.	Breaking Load		KN
5.	Weight of Zinc Coating		gm./m ²
6.	Dip Test		Number
7.	Wrapping Test		
8.	Adhesion Test		
G.I. Stay Wire after Stranding			
9.	Lay length		mm.
10.	Overall Diameter		mm.
11.	Breaking Load		KN
12.	Elongation		%
Individual Wire after Stranding			
13	a)	Diameter	mm.
	b)	Weight of zinc coating	gm./m ²
	c)	Dip Test	Number
	d)	Adhesion Test	
14	Tensile strength		N/mm ²
15	Coil Weight		Kg.
16	Weight per kilometre of G.I. Stay Wire		Kg./Km.
17	Sectional area of stranded Wire		mm ²
18	Chemical Composition		
	a)	Sulphur	%
	b)	Phosphorus	%
19	Standard according to which the wires are manufactured and tested		
20	Details of Packing		
21	Others, if any		

GUARANTEED TECHNICAL PARTICULARS

G.I. Stay Wire 7/3.15 mm. diameter

Sl. No.	Description	Unit	Guaranteed Particulars
1.	Maker's Name & Address		
	a)	Office	
	b)	Works	
2.	Name of manufacturer of:		
	a)	Steel Wire/Rod	
	b)	Zinc	
	c)	Complete G.I. Stay Wire	
G.I. Stay Wire before Stranding			
3.	a)	Diameter of wire	mm.
	b)	Tolerance	mm.
4.	Breaking Load		KN
5.	Weight of Zinc Coating		gm./m ²
6.	Dip Test		Number
7.	Wrapping Test		
8.	Adhesion Test		
G.I. Stay Wire after Stranding			
9.	Lay length		mm.
10.	Overall Diameter		mm.
11.	Breaking Load		KN
12.	Elongation		%
Individual Wire after Stranding			
13	a)	Diameter of wire	mm.
	b)	Weight of zinc coating	gm./m ²
	c)	Dip Test	Number
	d)	Adhesion Test	
14	Tensile strength		N/mm ²
15	Coil Weight		Kg.
16	Weight per kilometre of G.I. Stay Wire		Kg./Km.
17	Sectional area of stranded Wire		mm. ²
18	Chemical Composition		
	a)	Sulphur	%
	b)	Phosphorus	%
19	Standard according to which the wires are manufactured and tested		
20	Details of Packing		
21	Others, if any		

GUARANTEED TECHNICAL PARTICULARS

G.I. Stay Wire 7/4 mm. diameter

Sl. No.	Description	Unit	Guaranteed Particulars
1.	Maker's Name & Address		
	a)	Office	
	b)	Works	
2.	Name of manufacturer of:		
	a)	Steel Wire/Rod	
	b)	Zinc	
	c)	Complete G.I. Wire	
G.I. Stay Wire before Stranding			
3.	a)	Diameter of wire	mm.
	b)	Tolerance	mm.
4.	Breaking Load		KN
5.	Weight of Zinc Coating		gm./m ²
6.	Dip Test		Number
7.	Wrapping Test		
8.	Adhesion Test		
G.I. Stay Wire after Stranding			
9.	Lay length		mm.
10.	Overall Diameter		mm.
11.	Breaking Load		KN
12.	Elongation		%
Individual Wire after Stranding			
13	a)	Diameter of wire	mm.
	b)	Weight of zinc coating	gm/m ²
	c)	Dip Test	Number
	d)	Adhesion Test	
14	Tensile Strength		N/mm ²
15	Coil Weight		Kg.
16	Weight per kilometre of G.I. Stay Wire		Kg./Km.
17	Sectional area of stranded Wire		Sq. mm
18	Chemical Composition		
		Sulphur	%
		Phosphorus	%
19	Standard according to which the wires are manufactured and tested		
20	Details of Packing		
21	Others, if any		