STAY SET

1.0 SCOPE

This specification provides for manufacturing, testing, dispatch, supply and delivery of Stay Set for 33kV, 11kV and LT lines. The stay set will consist of the following items:

a. Stay wire
b. Stay Insulator
c. Turn Buckle
d. Anchor rod & plate
e. Guy Grip with thimble

The total stay wire arrangement shall be as per REC Construction Standard No. G-1.

1.1 GI STAY WIRE

The specification for the GI stay wire shall be as follows.

1.2 APPLICABLE STANDARDS

Except when they conflict with the specific requirements of this specification, the G.I. Stay Stranded Wires shall comply with the specific requirements of IS: 2141-1979. IS: 4826-1979 & IS: 6594-1974 or the latest versions thereof.

1.3 APPLICATION AND SIZES

1.3.1 The G.I. stranded wires covered in this Specification are intended for use on the overhead power line poles, distribution transformer structures etc.

1.3.2 The G.I. stranded wires shall be of 7/8 SWG (7/4 mm for 33kV lines) 7/10 SWG (7/3.15 mm for 11kV lines) and 7/12 SWG (7/2.5 mm for LT lines).

1.4 MATERIAL

The wires shall be drawn from steel made by the open hearth basic oxygen or electric furnace process and of such quality that when drawn to the size of wire specified and coated with zinc, the finished strand and the individual wires shall be of uniform quality and have the properties

and characteristics as specified in this specification. The wires shall not contain sulphur and phosphorus exceeding 0.060% each.

1.5 TENSILE GRADE

The wires shall be of tensile grade 4, having minimum tensile strength of 700 N/mm2 conforming to IS:2141.

1.6 GENERAL REQUIREMENTS

1.6.1 The outer wire of strands shall have a right-hand lay.

1.6.2 The lay length of wire strands shall be 12 to 18 times the strand diameter.

1.7 MINIMUM BREAKING LOAD

The minimum breaking load of the wires before and after stranding shall be as follows:

No. of wires & const.	Wire dia (mm)	Application in the line	Min. breaking load of Single wire before stranding (KN)	Min. breaking load of the standard wire (KN)
7(6/1)	2.5(12SWG)	LT line	3.44	21.40
7(6/1)	3.15(10 SWG)	11kV Line	5.46	34.00
7(6/1)	4.0(8 SWG)	33kV line	8.80	54.9

1.8 CONSTRUCTION

1.8.1 The galvanised stay wire shall be of 7-wire construction. The wires shall be so stranded together that when an evenly distributed pull is applied at the ends of completed strand, each wire shall take an equal share of the pull.

1.8.2 Joints are permitted in the individual wires during stranding but such joints shall not be less than 15 metres apart in the finished strands.

1.8.3 The wire shall be circular and free from scale, irregularities, imperfection, flaws, splits and other defects.

1.9 TOLERANCES

A tolerance of (±) 2.5% on the diameter of wires before stranding shall be permitted.

1.10 SAMPLING CRITERIA

The sampling criteria shall be in accordance with IS:2141.

1.11 TESTS ON WIRES BEFORE MANUFACTURE

The wires shall be subjected to the following tests in accordance with IS:2141.

i. Ductility Test
ii. Tolerance on Wire Diameter

1.12 TESTS ON COMPLETED STRAND

The completed strand shall be tested for the following tests in accordance with IS:2141.

i. Tensile and Elongation Test: The percentage elongation of the stranded wire shall not be less than 6%.
ii. Chemical analysis

1.12.1 GALVANISING TEST

The Zinc Coating shall conform to “Heavy Coating” as laid down in IS:4826

1.13 MARKING

Each coil shall carry a metallic tag, securely attached to the inner part of the coil, bearing the following information:

i. Manufacturers’ name or trade mark
ii. Lot number and coil number
iii. Size
iv. Construction
v. Tensile Designation
vi. Lay
vii. Coating
viii. Length
ix. Mass
x. ISI certification mark, if any

1.14 PACKING

The wires shall be supplied in 75-100 Kg. coils. The packing should be done in accordance with the provisions of IS:6594

1.15 GENERAL REQUIREMENT FOR GUY INSULATORS

These insulators shall generally comply with latest version of IS: 1445, REC specification No.4/1972 and fittings with IS:7935-1975 or the latest version thereof.

Guy strain insulators shall conform to designations A and C as per IS: 5300.

Following type of guy strain insulators shall be used on guy wires of overhead lines of different voltage levels:

Power Line Voltage	Designation of Insulators (as per IS:5300)
33kV line	C (2nos.)
11 KV	C (1 No.)
LT	A (1 No.)

1.15.1 Guy strain insulator type A shall be suitable for a minimum failing load of 44KN whereas, type C shall be suitable for a minimum failing load of 88 KN

1.16 OTHER ITEMS

Anchor Plate – The anchor plate shall be 150x150x6 mm MS hot dip galvanized plate

Anchor Rod – As REC standard G-I, MS galvanized rod with a eye of 40mm dia on top and threaded at the bottom necessary fasteners for connecting with Anchor plate shall be part of the anchor rod.

Turn buckle- as per REC standard G-1

Guy Grip with Thimble as per REC standard G-1 and G-2