



BAJRANG WIRE PRODUCTS (INDIA) PVT. LTD.

E-762(A), Road no 9F-1, V.K.I. Area-Jaipur-302013

Technical Data Sheet

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Revision :	00

1. PRODUCT NAME:

- GALVANIZED WIRES AND STRANDS FOR POWER SECTOR

2. APPLICATION/ USE OF THE PRODUCT:

- Zinc-Coated (Galvanized) Steel Core Wire Strand for Use in Overhead Electrical Transmission lines

3. ASSOCIATED DOCUMENTS / STANDARDS (IF APPLICABLE):

- As per As per IS 398(Part-2):1996, IS 398 (Part 5):1992, ASTM B498/B498M-08, ASTM B606/B606M-08 (2016), ASTM B957/B957M-16, BS EN50189:2000, IEC888:1987.

4. TECHNICAL SPECIFICATION :

4.1 CHEMICAL COMPOSITION:

Element	Carbon	Manganese	Phosphorus	Sulfur	Silicon
%	0.50 to 0.88	0.50 to 1.10	Max. 0.035	Max. 0.045	0.10 o 0.35

4.2 MATERIAL PROPERTIES:

4.2.1 As per IS 398 (Part 2):1996

After stranding (Seven Strand)

*Nominal wire diameter	*Nominal Diameter of Strand	*Diameter Tolerance	*Breaking Load	*Elongation (GL=200mm)	*Wrapping Test (8 turns round on cylindrical mandrel)	*Torsion Test (GL=100 X D)	*Zinc Coating (Gravimetric Method)	*Uniformity of coating
(mm)	(mm)	(mm)	(KN)	(%)		(Nos.)	(g/m ²)	(Nos. of 1 min dips)
			Minimum	Minimum	4 x D	Minimum	Minimum	Minimum
7/1.50	4.50	± 0.02	2.38	3.50	The wire shall not break	16	180.5	1&1/2
7/1.57	4.71	± 0.03	2.57	3.50		16	180.5	1&1/2
7/1.96	5.88	± 0.04	4.00	3.50		16	199.5	1&1/2
7/2.11	6.33	± 0.04	4.40	3.50		16	199.5	1&1/2
7/2.30	6.90	± 0.05	5.20	3.50		16	218.5	2
7/2.59	7.77	± 0.05	6.58	3.50		16	218.5	2
7/3.00	9.00	± 0.06	8.83	3.50		16	228	2&1/2
7/3.18	9.54	± 0.06	9.91	3.50		16	237.5	2&1/2
7/3.35	10.05	± 0.07	11.00	3.50		16	237.5	2&1/2
7/3.53	10.59	± 0.07	12.22	3.50		16	237.5	2&1/2
7/4.09	12.27	± 0.08	16.41	3.50		16	262	3



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4.2.2As per IS 398 (Part 5):1992

After stranding (Seven Strand)

*Nominal wire diameter	*Diameter Tolerance	*Breaking Load	*Elongation (GL=200mm)	*Wrapping Test (8 turns round on cylindrical mandrel)	*Torsion Test (GL=100 X D)	*Zinc Coating (Gravimetric Method)	*Uniformity of coating	Nominal Strand diameter
(mm)	(mm)	(KN)	(%)		(Nos.)	(g/m ²)	(Nos. of 1 min dips)	(mm)
		Minimum	Minimum	4 x D	Minimum	Minimum	Minimum	
3.53	± 0.07	12.22	3.5	The wire shall not break	16	247	2½	10.59
2.30	± 0.05	5.35	3.5		16	218.5	2	6.90
2.54	± 0.05	6.53	3.5		16	218.5	2	7.62

- Note: 1.The Lay ration of ACSR conductor will be 13 to 28 times the diameter of strand.
2.The direction of lay shall be as per the customer requirement.

4.2.3 As per ASTM B498/498B-08 (2016)

After stranding (7Strand)

*Specified Wire Diameter	*Diameter Tolerance	*Stress at 1 % Extension	*Ultimate Tensile Strength	*Elongation (GL=250mm)	*Zinc Coating	Strand Diameter
		Class A	Class A	Class A	Class A	
(mm)	(mm)	(Mpa)	(Mpa)	(%)	(g/m ²)	(mm)
		Minimum	Minimum	Minimum	Minimum	
1.53 to 1.90, incl	+0.038 -0.025	1240	1375	2.5	188	3XDiameter of Element wire
1.91 to 2.28, incl	± 0.051	1240	1375	2.5	203	3XDiameter of Element wire
2.29 to 2.64, incl	± 0.051	1215	1340	3.0	217	3XDiameter of Element wire
2.65 to 3.04, incl	± 0.051	1215	1340	3.0	232	3XDiameter of Element wire
3.05 to 3.55, incl	+0.076 -0.051	1175	1340	3.5	246	3XDiameter of Element wire
3.56 to 4.57, incl	+0.102 -0.076	1110	1310	3.5	260	3XDiameter of Element wire



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4.2.4 As per ASTM B606/B606M-08 (2016)

After stranding (Seven Strand)

*Specified Wire Diameter	*Diameter Tolerance	*Stress at 1 % Extension	*Ultimate Tensile Strength	*Elongation (GL=250mm)	*Zinc Coating	Strand Diameter
(mm)	(mm)	(Mpa)	(Mpa)	(%)	(g/m ²)	(mm)
		Minimum	Minimum	Minimum	Minimum	
1.53 to 1.90, incl	+0.038 -0.025	1378	1540	2.50	188	3XDiameter of Element wire
1.91 to 2.28, incl	± 0.051	1378	1540	2.50	203	3XDiameter of Element wire
2.29 to 2.64, incl	± 0.051	1340	1510	2.50	217	3XDiameter of Element wire
2.65 to 3.04, incl	± 0.051	1340	1510	2.50	232	3XDiameter of Element wire
3.05 to 3.55, incl	+0.076 -0.051	1310	1470	3.0	246	3XDiameter of Element wire
3.56 to 4.57, incl	+0.102 -0.076	1275	1440	3.0	260	3XDiameter of Element wire

4.2.6 As per BS EN50189:2000 (ST1A wires)

After stranding (Seven Strand)

*Specified Wire Diameter	*Diameter Tolerance	*Stress at 1 % Extension	*Ultimate Tensile Strength	*Elongation (GL=250mm)	*Zinc Coating (Class A)	*Uniformity of coating (Class A)	*Torsion Test (GL=100 X D)	Strand Diameter
(mm)	(mm)	(Mpa)	(Mpa)	(%)	(g/m ²)	(Nos. of 1 min dips)	(Nos.)	(mm)
		Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	
1.50 to 1.75, incl	± 0.03	1110	1330	2.50	190	1&1/2	16	3XDiameter of Element wire
1.75 to 2.25, incl	± 0.03	1110	1330	2.50	205	2.0	16	3XDiameter of Element wire
2.25 to 2.75, incl	± 0.04	1080	1282	2.50	218.5	2.0	14	3XDiameter of Element wire
2.75 to 3.00, incl	± 0.05	1080	1282	3.0	218.5	2&1/2	14	3XDiameter of Element wire
3.00 to 3.50, incl	± 0.05	1045	1235	3.0	233	3.0	12	3XDiameter of Element wire
3.50 to 4.25, incl	± 0.06	1045	1235	3.50	247	3.0	10	3XDiameter of Element wire



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4.2.6 As per BS EN50189:2000 (ST2B wires)

After stranding (Seven Strand)

*Specified Wire Diameter	*Diameter Tolerance	*Stress at 1 % Extension	*Ultimate Tensile Strength	*Elongation (GL=250mm)	*Zinc Coating (Class A)	*Uniformity of coating (Class A)	Strand Diameter
(mm)	(mm)	(Mpa)	(Mpa)	(%)	(g/m ²)	(Nos. of 1 min dips)	(mm)
		Minimum	Minimum	Minimum	Minimum	Minimum	
1.50 to 1.75, incl	± 0.05	1045	1235	3.50	190	1&1/2	3XDiameter of Element wire
1.75 to 2.25, incl	± 0.05	1045	1235	3.50	205	2	3XDiameter of Element wire
2.25 to 2.75, incl	± 0.06	1015	1190	3.50	218.5	2	3XDiameter of Element wire
2.75 to 3.00, incl	± 0.06	1015	1190	3.50	218.5	2&1/2	3XDiameter of Element wire
3.00 to 3.50, incl	± 0.07	950	1140	3.50	233	3	3XDiameter of Element wire
3.50 to 4.25, incl	± 0.09	950	1140	3.50	247	3	3XDiameter of Element wire

4.2.6 As per BS EN50189:2000 (ST3D wires)

After stranding (Seven Strand)

*Specified Wire Diameter	*Diameter Tolerance	*Stress at 1 % Extension	*Ultimate Tensile Strength	*Elongation (GL=250mm)	*Zinc Coating (Class A)	*Uniformity of coating (Class A)	*Torsion Test (GL=100 X D)	Strand Diameter
(mm)	(mm)	(Mpa)	(Mpa)	(%)	(g/m ²)	(Nos. of 1 min dips)	(Nos.)	(mm)
		Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	
1.50 to 1.75, incl	± 0.07	1150	1425	3.50	190	1&1/2	14	3XDiameter of Element wire
1.75 to 2.25, incl	± 0.08	1150	1425	3.50	205	2	14	3XDiameter of Element wire
2.25 to 2.75, incl	± 0.10	1150	1425	3.50	218.5	2	14	3XDiameter of Element wire
2.75 to 3.00, incl	± 0.12	1150	1425	3.50	218.5	2&1/2	14	3XDiameter of Element wire
3.00 to 3.50, incl	± 0.13	1045	1330	3.50	233	3	14	3XDiameter of Element wire
3.50 to 4.25, incl	± 0.13	1045	1330	3.50	247	3	12	3XDiameter of Element wire



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4.2.7As per IEC 888:1987 (Regular Steel Wire) (After stranding (Seven Strand))

*Specified Wire Diameter	*Diameter Tolerance	*Stress at 1 % Extension	*Ultimate Tensile Strength	*Min. Elongation (GL=250mm)	*Min. Zinc Coating (Class 1)	*Uniformity of coating (Class A)	*Torsion Test (GL=100 X D)	Strand Diameter
(mm)	(mm)	(Mpa)	(Mpa)	(%)	(g/m ²)	(Nos. of 1 min dips)	(Nos.)	(mm)
		Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	
1.50 to 1.75, incl	± 0.03	1112	1273	2.50	190	1&1/2	16	3XDiameter of Element wire
1.75 to 2.25, incl	± 0.03	1112	1273	2.50	205	2	16	3XDiameter of Element wire
2.25 to 3.00, incl	± 0.04	1083	1245	2.50	218.5	2	14	3XDiameter of Element wire
3.00 to 3.50, incl	± 0.05	1045	1225	3.0	233	3	12	3XDiameter of Element wire
3.50 to 4.25, incl	± 0.06	1045	1225	3.50	247	3	10	3XDiameter of Element wire

4.2.7 As per IEC 888:1987 (High Strength Steel Wire) (After stranding (Seven Strand))

*Specified Wire Diameter	*Diameter Tolerance	*Stress at 1 % Extension	*Ultimate Tensile Strength	*Min. Elongation (GL=250mm)	*Min. Zinc Coating (Class 1)	*Uniformity of coating (Class A)	*Torsion Test (GL=100 X D)	Strand Diameter
(mm)	(mm)	(Mpa)	(Mpa)	(%)	(g/m ²)	(Nos. of 1 min dips)	(Nos.)	(mm)
		Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	
1.50 to 1.75, incl	± 0.03	1245	1378	2.0	190	1&1/2	14	3XDiameter of Element wire
1.75 to 2.25, incl	± 0.03	1245	1378	2.0	205	2	14	3XDiameter of Element wire
2.25 to 3.00, incl	± 0.04	1216	1340	2.50	218.5	2	14	3XDiameter of Element wire
3.00 to 3.50, incl	± 0.05	1178	1340	2.50	233	3	12	3XDiameter of Element wire
3.50 to 4.25, incl	± 0.06	1112	1311	2.50	247	3	10	3XDiameter of Element wire



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4..2.7 As per IEC 888:1987 (Extra High Strength Steel Wire) (After stranding (Seven Strand)

*Specified Wire Diameter	*Diameter Tolerance	*Stress at 1 % Extension	*Ultimate Tensile Strength	*Min. Elongation (GL=250mm)	*Min. Zinc Coating (Class 1)	*Uniformity of coating (Class A)	*Torsion Test (GL=100 X D)	Strand Diameter
(mm)	(mm)	(Mpa)	(Mpa)	(%)	(g/m ²)	(Nos. of 1 min dips)	(Nos.)	(mm)
		Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	
1.50 to 1.75, incl	± 0.03	1378	1539	1.50	190	1&1/2	12	3XDiameter of Element wire
1.75 to 2.25, incl	± 0.03	1378	1539	1.50	205	2	12	3XDiameter of Element wire
2.25 to 3.00, incl	± 0.04	1340	1510	2.0	218.5	2	12	3XDiameter of Element wire
3.00 to 3.50, incl	± 0.05	1311	1473	2.0	233	3	10	3XDiameter of Element wire
3.50 to 4.25, incl	± 0.06	1273	1444	2.0	247	3	8	3XDiameter of Element wire

- The result for uniformity of zinc coating test shall show no signs of adherent copper deposits.

5 MATERIAL QUALITY AND FINISH :

- The Stranded wire shall be manufactured according to material properties in clause 4.
- The stranded wire surface shall be smooth and free from rust, scale & any other contaminants.

6 QUALITY CONTROL / QUALITY ASSUARANCE:

- Test certificate with each lot as per table given in clause 4.2 from Serial No 01 to 05
- * - Characteristics covered in Test Certificate
- The Sampling plan is accordance with Purchaser.

7 DRUM DIMENSIONS: Drum Dimensions shall be as per drum drawing given by customer or as per IS:1778



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8. PACKAGING AND DELIVERY:

- The Galvanized Steel Wire Strand shall be supplied in wooden drum
- The Standard length in drum will be in multiple of 2 KM, as ordered by customer
- The Material in wooden drum shall be packed with polythene Stretched film & shall be greased as per customer requirement.

Packing :



9. Drum identification

Each Wooden drum shall have Stencil on drum with the following informations:.

- Manufacture Name
- Country of origin
- Product Name
- Drum No.
- Diameter in mm
- Grade
- Batch No/Order No.
- Gross Wt. / Net Wt. /Tare Wt.
- Date of manufacturing

Issue Date	Approval
28.08.2021	GM-Production (Anil Kumar. DJ)
28.08.2021	Head-Quality (Rajeev Sharma)