



BAJRANG WIRE PRODUCTS (INDIA) PVT. LTD.

E- 762(A), Road No. 9F, V.K.I. Area,
Jaipur (Raj.) 302013, India

Technical Data Sheet

Document No. :	BWIPLB/P17-TDS-02
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Revision :	00

1. PRODUCT NAME:

- ACSR Core Wire/HTGS Wire.

2. APPLICATION/ USE OF THE PRODUCT:

- Zinc-Coated (Galvanized) Steel Core Wire for Use in Overhead Electrical Conductors.

3. ASSOCIATED DOCUMENTS / STANDARDS (IF APPLICABLE):

- As per As per IS 398(Part-2):1996,IS 398 (Part 5):1992, ASTM B498/B498M-08,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 to 0.35

4.2. MATERIAL PROPERTIES:

4.2.1 As per IS 398 (Part 2):1996

*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	*Adhesion Test (10 turns round on cylindrical mandrel)
(mm)	(mm)	(KN)	(%)		(Nos.)	(g/m ²)	(Nos. of 1 min dips)	
		Minimum	Minimum	4 x D	Minimum	Minimum	Minimum	x D
1.50	± 0.02	2.46	4	The wire shall not break	18	190	2	4
1.57	± 0.03	2.70	4		18	190	2	4
1.96	± 0.04	4.20	4		18	210	2	4
2.11	± 0.04	4.60	4		18	210	2	4
2.30	± 0.05	5.46	4		18	230	2½	4
2.59	± 0.05	6.92	4		18	230	2½	4
3.00	± 0.06	9.29	4		18	240	3	4
3.18	± 0.06	10.43	4		18	250	3	4
3.35	± 0.07	11.58	4		18	250	3	4
3.53	± 0.07	12.86	4		18	250	3	4
4.09	± 0.08	17.27	4		18	275	3½	6

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Adherence Test:- The Zinc coating shall remain firmly adhered to the steel and shall not crack nor flake.

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4.2.2 As per IS 398 (Part 5):1992

*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	*Adhesion Test (10 turns round on cylindrical mandrel)
(mm)	(mm)	(KN)	(%)		(Nos.)	(g/m ²)	(Nos. of 1 min dips)	
		Minimum	Minimum	4 x D	Minimum	Minimum	Minimum	x D
3.53	± 0.07	12.86	4	The wire shall not break	18	260	3	4
2.30	± 0.05	5.63	4		18	230	2½	4
2.54	± 0.05	6.87	4		18	230	2½	4

Adherence Test:-The Zinc coating shall remain firmly adhered to the steel and shall not crack nor flake.

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

*Specified Wire Diameter	*Diameter Tolerance	*Stress at 1 % Extension	*Ultimate Tensile Strength	*Elongation (GL=250mm)	*Zinc Coating	*Adherence Test (Wire wrapped in a close helix around a cylindrical mandrel)
		Class A	Class A	Class A	Class A	Class A
(mm)	(mm)	(Mpa)	(Mpa)	(%)	(g/m ²)	
		Minimum	Minimum	Minimum	Minimum	x D
1.50 to 1.52, incl	+0.038 -0.025	1310	1450	3.0	183	3
1.53 to 1.90, incl	+0.038 -0.025	1310	1450	3.0	198	3
1.91 to 2.28, incl	± 0.051	1310	1450	3.0	214	3
2.29 to 2.64, incl	± 0.051	1280	1410	3.5	229	4
2.65 to 3.04, incl	± 0.051	1280	1410	3.5	244	4
3.05 to 3.55, incl	+0.076 -0.051	1240	1410	4.0	259	5

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3.56 to 4.57, incl	+0.102 -0.076	1170	1380	4.0	274	5
4.58 to 4.82, incl	+0.102 -0.076	1170	1380	4.0	305	5

#Adherence Test:- Zinc coating shall remain firmly adhered to the steel and shall not crack nor flake.

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4.2.4As per BS EN50189:2000 (ST1A wires)

*Specified Wire Diameter	*Diameter Tolerance	*Stress at 1 % Extension	*Ultimate Tensile Strength	*Elongation (GL=250mm)	*Zinc Coating (Class A)	*Uniformity of coating (Class A)	*Wrapping Test (Wire wrapped in a close helix around a cylindrical mandrel)	*Torsion Test (GL=100 X D)	*Adherence Test (Wire wrapped in a close helix of 8 turns around a cylindrical mandrel)
(mm)	(mm)	(Mpa)	(Mpa)	(%)	(g/m ²)	(Nos. of 1 min dips)		(Nos.)	
		Minimum	Minimum	Minimum	Minimum	Minimum	x D	Minimum	x D
1.50, incl	± 0.03	1170	1400	3.0	185	2	1	18	4
1.50 to 1.75, incl	± 0.03	1170	1400	3.0	200	2	1	18	4
1.75 to 2.25, incl	± 0.03	1170	1400	3.0	215	2½	1	18	4
2.25 to 2.75, incl	± 0.04	1140	1350	3.0	230	3	1	16	4
2.75 to 3.00, incl	± 0.05	1140	1350	3.5	230	3	1	16	4
3.00 to 3.50, incl	± 0.05	1100	1300	3.5	245	3½	1	14	4
3.50 to 4.25, incl	± 0.06	1100	1300	4.0	260	3½	1	12	5
4.25 to 4.75, incl	± 0.06	1100	1300	4.0	275	4	1	12	5
4.75 to 5.00, incl	± 0.07	1100	1300	4.0	290	4	1	12	5

Adherence Test:- Zinc coating shall remain firmly adhered to the steel and shall not crack nor flake.

4.2.5As per BS EN50189:2000 (ST2B wires)

*Specified Wire Diameter	*Diameter Tolerance	*Stress at 1 % Extension	*Ultimate Tensile Strength	*Elongation (GL=250mm)	*Zinc Coating (Class A)	*Uniformity of coating (Class A)	*Wrapping Test (Wire wrapped in a close helix around a cylindrical mandrel)	*Adherence Test (Wire wrapped in a close helix of 8 turns around a cylindrical mandrel)
(mm)	(mm)	(Mpa)	(Mpa)	(%)	(g/m ²)	(Nos. of 1 min dips)		
		Minimum	Minimum	Minimum	Minimum	Minimum	x D	x D
1.50, incl	± 0.05	1100	1300	4.0	185	2	1	4

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1.50 to 1.75, incl	± 0.05	1100	1300	4.0	200	2	1	4
1.75 to 2.25, incl	± 0.05	1100	1300	4.0	215	2½	1	4
2.25 to 2.75, incl	± 0.06	1070	1250	4.0	230	3	1	4
2.75 to 3.00, incl	± 0.06	1070	1250	4.0	230	3	1	4
3.00 to 3.50, incl	± 0.07	1000	1200	4.0	245	3½	1	4
3.50 to 4.25, incl	± 0.09	1000	1200	4.0	260	3½	1	5
4.25 to 4.75, incl	± 0.10	1000	1200	4.0	275	4	1	5
4.75 to 5.00incl	± 0.11	1000	1200	4.0	290	4	1	5

Adherence Test:- Zinc coating shall remain firmly adhered to the steel and shall not crack nor flake.

4.2.6 As per BS EN50189:2000 (ST3D wires)

*Specified Wire Diameter	*Diameter Tolerance	*Stress at 1 % Extension	*Ultimate Tensile Strength	*Elongation (GL=250mm)	*Zinc Coating (Class A)	*Uniformity of coating (Class A)	*Wrapping Test (Wire wrapped in a close helix around a cylindrical mandrel)	*Torsion Test (GL=100 X D)	*Adherence Test (Wire wrapped in a close helix of 8 turns around a cylindrical mandrel)
(mm)	(mm)	(Mpa)	(Mpa)	(%)	(g/m ²)	(Nos. of 1 min dips)		(Nos.)	
		Minimum	Minimum	Minimum	Minimum	Minimum	x D	Minimum	x D
1.50, incl	± 0.05	1210	1500	4.0	185	2	2	16	4
1.50 to 1.75, incl	± 0.07	1210	1500	4.0	200	2	2	16	4
1.75 to 2.25, incl	± 0.08	1210	1500	4.0	215	2½	2	16	4
2.25 to 2.75, incl	± 0.10	1210	1500	4.0	230	3	3	16	4
2.75 to 3.00, incl	± 0.12	1210	1500	4.0	230	3	3	16	4
3.00 to 3.50, incl	± 0.13	1100	1400	4.0	245	3½	3	16	4
3.50 to 4.25, incl	± 0.13	1100	1400	4.0	260	3½	3	14	5
4.25 to 4.75, incl	± 0.13	1100	1400	4.0	275	4	3	14	5
4.75 to 5.00, incl	± 0.13	1100	1400	4.0	290	4	3	14	5

Adherence Test:- Zinc coating shall remain firmly adhered to the steel and shall not crack nor flake.

4.2.7 As per IEC 888:1987 (Regular Steel Wire)

*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)	*Wrapping Test (Wire wrapped in a close helix around a cylindrical mandrel)	*Torsion Test (GL=100 X D)	*Adherence Test (Wire wrapped in a close helix of 8 turns around a cylindrical mandrel)

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(mm)	(mm)	(Mpa)	(Mpa)	(%)	(g/m ²)	(Nos. of 1 min dips)		(Nos.)	
		Minimum	Minimum	Minimum	Minimum	Minimum	x D	Minimum	x D
1.50, incl	± 0.03	1170	1340	3.0	185	2	1	18	4
1.50 to 1.75, incl	± 0.03	1170	1340	3.0	200	2	1	18	4
1.75 to 2.25, incl	± 0.03	1170	1340	3.0	215	2½	1	18	4
2.25 to 3.00, incl	± 0.04	1140	1310	3.0	230	3	1	16	4
3.00 to 3.50, incl	± 0.05	1100	1290	3.5	245	3½	1	14	4
3.50 to 4.25, incl	± 0.06	1100	1290	4.0	260	3½	1	12	5
4.25 to 4.75, incl	± 0.06	1100	1290	4.0	275	4	1	12	5
4.75 to 5.00, incl	± 0.07	1100	1290	4.0	290	4	1	12	5

Adherence Test:- Zinc coating shall remain firmly adhered to the steel and shall not crack nor flake.

4.2.7 As per IEC 888:1987 (High Strength Steel Wire)

*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)	*Wrapping Test (Wire wrapped in a close helix around a cylindrical mandrel)	*Torsion Test (GL=100 X D)	*Adherence Test (Wire wrapped in a close helix of 8 turns around a cylindrical mandrel)
(mm)	(mm)	(Mpa)	(Mpa)	(%)	(g/m ²)	(Nos. of 1 min dips)		(Nos.)	
		Minimum	Minimum	Minimum	Minimum	Minimum	x D	Minimum	x D
1.50, incl	± 0.03	1310	1450	2.5	185	2	3	16	4
1.50 to 1.75, incl	± 0.03	1310	1450	2.5	200	2	3	16	4
1.75 to 2.25, incl	± 0.03	1310	1450	2.5	215	2½	3	16	4
2.25 to 3.00, incl	± 0.04	1280	1410	3.0	230	3	4	16	4
3.00 to 3.50, incl	± 0.05	1240	1410	3.0	245	3½	4	14	4
3.50 to 4.25, incl	± 0.06	1170	1380	3.0	260	3½	4	12	5
4.25 to 4.75, incl	± 0.06	1170	1380	3.0	275	4	4	12	5
4.75 to 5.00, incl	± 0.07	1170	1380	3.0	290	4	4	12	5

Adherence Test:- Zinc coating shall remain firmly adhered to the steel and shall not crack nor flake.

- The result of the adherence of zinc coating test shall show no signs of flaking or cracking
- The result for uniformity of zinc coating test shall show no signs of adherent copper deposits.

5. MATERIAL QUALITY AND FINISH :

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

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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. COIL DIMENSIONS:

- Inside diameter of Coil : 600-650 mm
- Outside diameter of coil : Depends on coil weight
- Weight of Coil : Max. 325 kgs. (± 5%)

8. PACKAGING AND DELIVERY:

- The Galvanized Steel Wire shall be in coil form.
- The bundles shall be wrapped with stretch film & HDPE roll.
- Galvanized binding wire or 19 mm 4 steel strips 90⁰ apart shall be hold the coil in place.

9. COILSIDENTIFICATION:

Each bundle shall be clearly labeled to show as per following.

- Manufacture Name
- Country of origin
- Product Name
- Coil No.
- Diameter in mm
- Grade
- Batch No/Order No.
- Gross Wt. / Net Wt. (kgs)
- Date of manufacturing
- Signature(QA)

AMENDMENT RECORD			
Nature of Doc. Change	Revision No.	Issue Date	Approval
New Document. No Previous Record	00	14.06.2021	GM-Production

