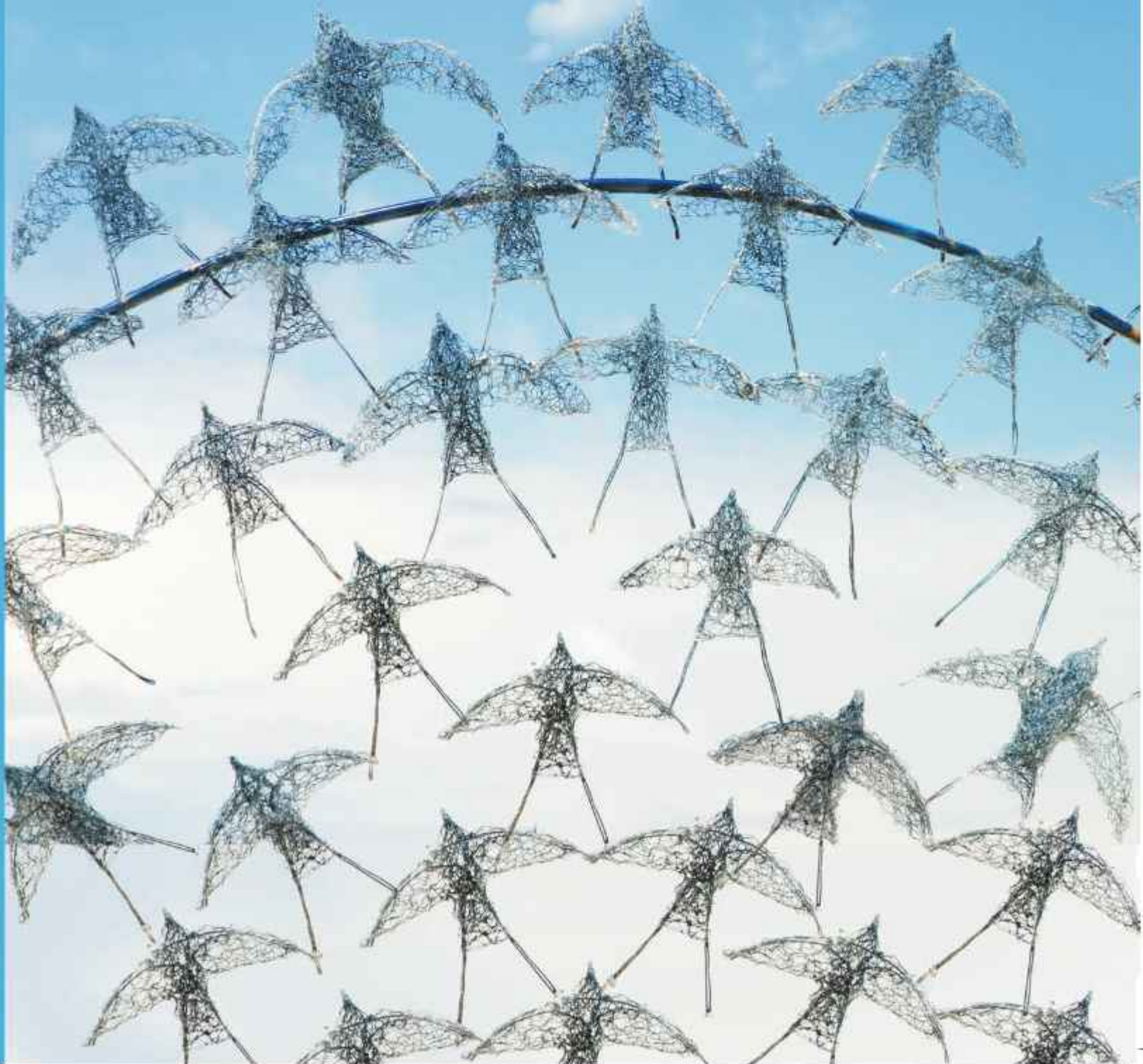
NIRMAL

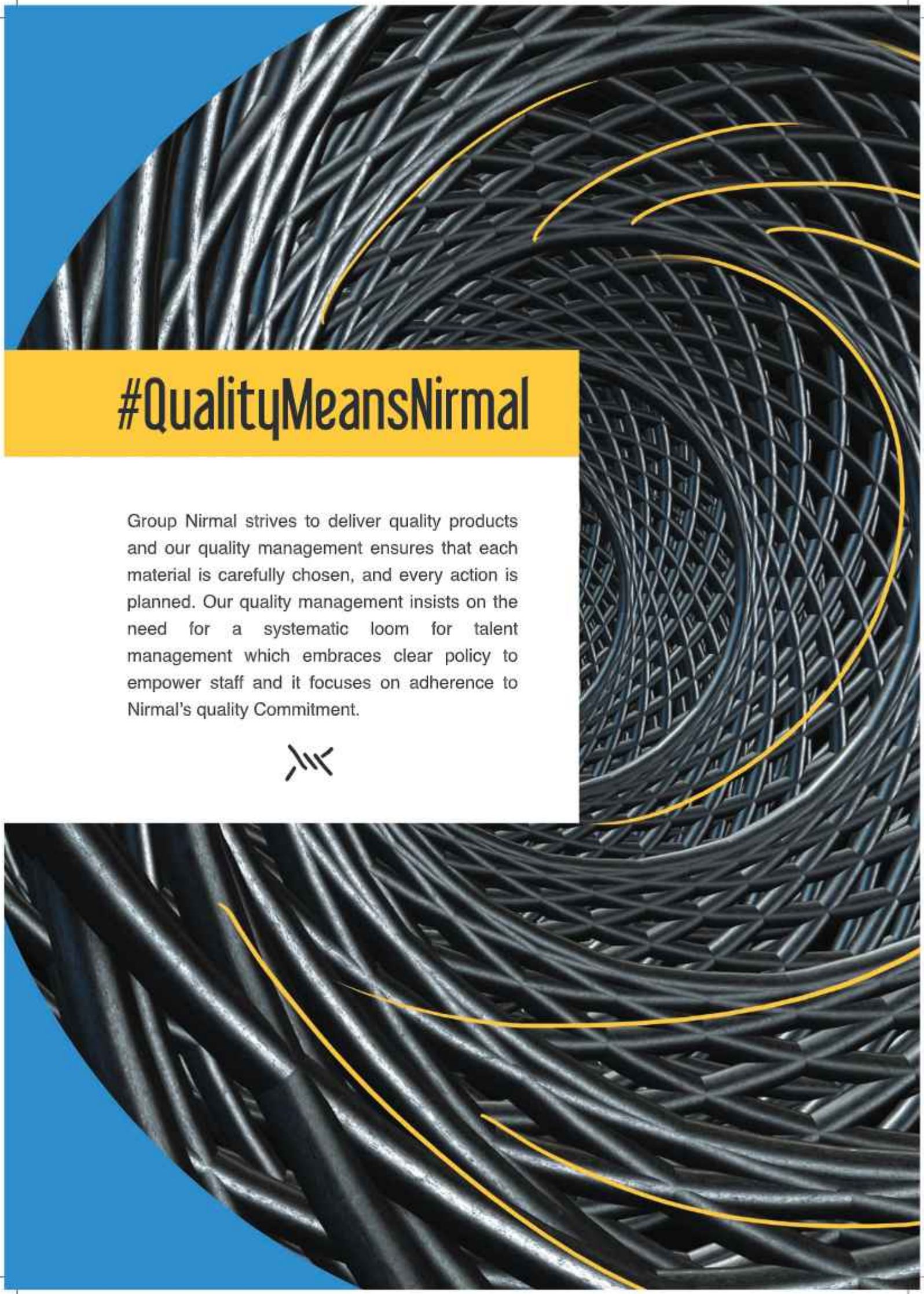
Re-Imagineering Tomorrow



The company

Group Nirmal under the leadership of our founder and visionary Shri Ramautar Saraf laid the foundation of a small steel drawing unit in the year 1971. After many years of hard labor and despite turbulent conditions, in the year 1985 he went a step forward and put up a steel wire galvanizing plant under the name of **Nirmal Wires Pvt. Ltd.** This was an act of forward integration to the existing drawing operation. At this stage, Mr. Nirmal Saraf, Mr. Raman Saraf and Mr. Piyush Saraf joined the business, and together the team knew no limits. In a few years, we established a flourishing business in the field of **steel wires.**

Under the direction of our third generation of leaders, Mr. Varun Saraf, Mr. Prateek Saraf, Mr. Vidyut Saraf and Mr. Parag Saraf, we built up a clientele who were extremely happy with the quality of the products manufactured and services rendered. From here, we moved from one milestone to another, now manufacturing a wide range of world-class products including **Galvanized and Black Steel Wires, Conductors, Construction Steel,** Welding Electrodes and Hot Rolled Steel Products with an annual capacity of **1,80,000 metric tonnes.**



#QualityMeansNirmal

Group Nirmal strives to deliver quality products and our quality management ensures that each material is carefully chosen, and every action is planned. Our quality management insists on the need for a systematic loom for talent management which embraces clear policy to empower staff and it focuses on adherence to Nirmal's quality Commitment.

Product range:

- Mild Steel Wire
- Pre-Stressed Concrete Wire (Indented)
- Pre-Stressed Concrete Wire (Stranded)
- Galvanised Steel Wire
- Galvanised Steel Core Wires & Strands
- Barbed Wire
- Galvanised Steel Stranded Wire
- Galvanised Steel Earth Wire
- High Carbon Steel Wire
- Cable Armoring Wire
- Cold Heading Quality Steel Wires
- Spring Steel Wire
- All Aluminium Conductor
- Aluminium Conductor Steel Reinforced
- All Aluminium Alloy Conductor
- Welding Electrodes
- Rolled products
- High Strength Deformed Steel Bars

Mild steel wire

Used for general engineering purposes, supplied in hard drawn annealed, inter- annealed condition

Applications: Used for manufacture of chain link fencing, concrete wire mesh, sparkler wire, shoe tack wire, bifurcated rivert wire, steel wool wire, staple pin wire, screw and nail wire, chain pin wire. The above wires are also manufactured in galvanised finish.

High Carbon Steel Wire

Used for general engineering purposes

Applications: Umbrella rib wire, signal wire, card and gill pin wire, needle wire, concertina wire, hair pin wire, galvanised cycle spoke wire, bright cycle spoke wire, jacquard wire, upholstery spring, industrial screen wire (crimping quality), metallising wire and saddle spring wire.

Pre-Stressed Concrete Wire (indented)

"Pre-stress" is artificial compression stress to compensate tensile stress to be exerted from exterior force.

"Pre-stressed concrete" is a concrete construction material, which is placed under-compression prior to it supporting any applied loads (i.e. it is "pre" stressed)

Pre-stressed Concrete wire (indented) is High Tensile Wire for pre-stresses in concrete structure by virtue of improved proportional limit, higher ductility combined with higher strengths. It has its primary application in Concrete reinforcement electric poles, Concrete panels and Pre stressed concrete pipes for precast segment. PC wires may be of various sizes and have different indentations as per its application and customer's requirements.

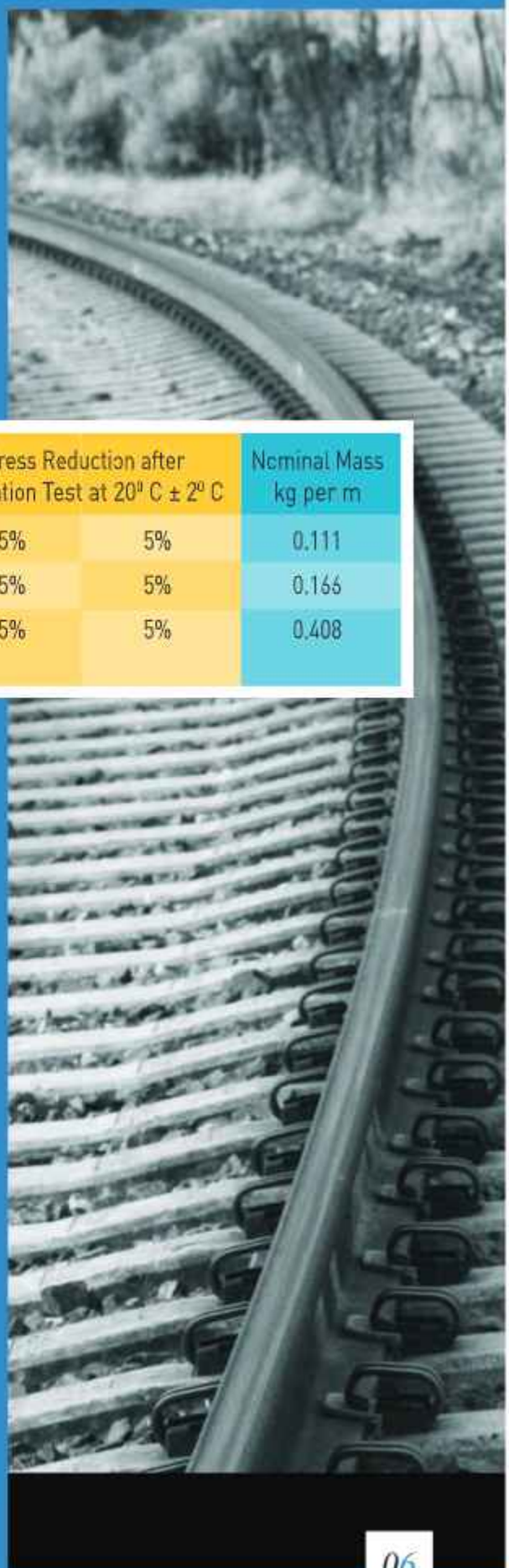
Indian Specifications: IS-6003

Nominal diameter (mm)	Tolerance in Diameter (mm)	Tensile strength N/mm²	Elongation (%) minimum	Bending test		Nominal mass g/m	Tolerance g/m	Stress reduction after Relaxation Test at 20° C ± 2° C	
				Times 180° No less than	radius of JAW (mm)			100 h	1000 h
4.00 mm	± 0.05	1715	3.00%	3	12.50	98.9	±2.00	→ 3.5%	→5.0%
3.00 mm	± 0.05	1865	2.50%	3	10.00	55.5	±1.50	→ 3.5%	→5.0%
2.50 mm	± 0.05	2010	2.50%	3	7.50	38.5	±1.25	→ 3.5%	→5.0%

Pre-Stressed Concrete Wire (Stranded)

Indian Specifications: IS-6006

Ply - Nominal Diameter	Tolerance mm	Breaking Load in (N)	Min Elongation GL=200 mm	Stress Reduction after Relaxation Test at 20° C ± 2° C		Nominal Mass kg per m
2 ply - 3mm	± 0.03	25500	3.5%	3.5%	5%	0.111
3 ply - 3mm	± 0.03	38250	3.5%	3.5%	5%	0.166
7 ply - 3.15mm	± 0.03	93410	3.5% (GL-600 mm)	3.5%	5%	0.408



Notes:

- PC strand wires are hard drawn, stranded and stress relieved.
- PC strand Wires have their primary use in pre-stressing of concrete railway sleepers and bridges.
- Wires are available in 2 ply, 3 ply as well as 7 ply strands in various sizes as per specification and customers requirements.
- Consistency in properties and narrow tolerance holds prime focus.
- Relaxation properties hold utmost importance.

Galvanised Steel Wires

Galvanised steel wire is used in a host of applications which includes Vineyards, Welded mesh for Poultry farms, Gabions for soil protection, Chain Link, Barbed & Concertina Wire Stay Wire & Earth Wire in the Power Industry, Pail Handles, Wire Mesh, Stitching Wire, Bale Tie Wire and other products.

Light Coated Wire

IS:280 & IS:4826

NOMINAL DIAMETER OF GALVANISED WIRE, mm		SOFT			HARD		
ABOVE	UP TO AND INCLUDING	MASS OF COATING	NUMBER OF DIPS		MASS OF COATING	NUMBER OF DIPS	
		g/m²	1 MIN	½ MIN.	g/m²	1 MIN	½ MIN.
1.60	1.80	60	-	1	60	-	1
1.80	2.00	70	1	-	60	-	1
2.00	2.24	70	1	-	60	-	1
2.24	2.50	80	1	1	70	1	-
2.50	2.80	90	1	1	70	1	-
2.80	3.15	100	1	1	70	1	-
3.15	3.55	110	1	1	80	1	-
3.55	4.00	120	1	1	90	1	1
4.00	5.00	130	2	-	100	1	1

Medium Coated Wire

IS:280 & IS:4826

NOMINAL DIAMETER OF GALVANISED WIRE, mm				
ABOVE	UP TO AND INCLUDING	MASS OF COATING	NUMBER OF DIPS	
		g/m²	1 MIN	½ MIN.
1.60	1.80	95	1	-
1.80	2.00	105	1	-
2.00	2.24	105	1	-
2.24	2.50	110	1	1
2.50	2.80	120	1	1
2.80	3.15	120	1	1
3.15	3.55	135	1	1
3.55	4.00	135	1	1
4.00	5.00	150	2	-

Heavily Coated Wire

IS:280 & IS:4826

NOMINAL DIAMETER OF GALVANISED WIRE, mm		SOFT			HARD		
ABOVE	UP TO AND INCLUDING	MASS OF COATING	NUMBER OF DIPS		MASS OF COATING	NUMBER OF DIPS	
		g/m²	1 MIN	½ MIN.	g/m²	1 MIN	½ MIN.
1.60	1.80	230	2	1	200	2	-
1.80	2.00	240	3	-	210	2	-
2.00	2.24	240	3	-	210	2	-
2.24	2.50	260	3	-	230	2	1
2.50	2.80	260	3	1	230	2	1
2.80	3.15	270	3	1	240	3	-
3.15	3.55	270	3	1	250	3	-
3.55	4.00	280	3	1	260	3	-
4.00	5.00	290	3	1	275	3	1

Galvanised Carbon Steel Wire

SIZE (mm)	UTS (Kg/mm2)		
	SOFT	MEDIUM	HARD
1.4 to Under 2.00	52 max	49/70	63/84
2.0 to Under 2.50	52 max	49/67	60/81
2.5 to Under 4.50	49 max	46/63	56/77

American Standard

CLASS 1 COATING		CLASS 3 OR A COATING	
IZE (mm)	ZINC g/m2 (min)	SIZE (mm)	Zn (g/m² min)
1.40 to Under 1.50	55	1.40 to 1.60 incl.	180
1.50 to Under 1.90	65	Over 1.60 to 1.90 incl.	210
1.90 to Under 2.30	75	Over 1.90 to 2.30 incl.	220
2.30 to Under 3.20	85	Over 2.30 to 2.70 incl.	230
3.20 to Under 4.00	100	Over 2.70 to 3.10 incl.	240
4.00 to Under 4.50	115	Over 3.1 to 3.50 incl.	260
		Over 3.50 to 3.90 incl.	270
		Over 3.90 to 4.50 incl.	275

Zn Coating - BS 443: 1982 **British Standard**

Nominal Diameter mm		ZINC	Number Of Dips min	Zn coating min	Number Of Dips min
From	To - Incl.	(g/m² min)	1 minute	(g/m²)	1 minute
		HARD		SOFT	
1.55	1.80	200	2	230	2
1.80	2.24	215	2	240	3
2.24	2.72	230	2½	260	3
2.72	3.15	240	3	275	3½
3.15	3.55	250	3	275	3½
3.55	4.25	260	3	290	3½
4.25	4.50	275	3½	290	3½

Barbed Wire
Galvanised barbed wire

Galvanised Barbed wires are primarily used as security barriers. Wires are available in various constructions as per customers' designs. Most common used is 2 strand 2.50mm and 2.00mm.

Cold Heading Quality Steel Wires

Applications: For the manufacture of bolts, nuts, screws, nails, bicycle chains, industrial chains etc. They conform to several qualities such as EN-8, EN-9, ALSI-1010,1016, etc

Used for general engineering purposes. Cold Heading Quality is generally achieved by annealing the wire in a controlled atmosphere. Decarburization on surface is precisely controlled by the Company's technical know-how. Microscopic examinations will reveal uniform spheroidal structure of Cabrides, ensuring the desired cold heading properties, hardness etc.

Customers specify the quality, depending on a broad variety of its intended uses.

Spring Steel Wire

Patented and cold drawn spring steel wires may be supplied conforming to various standards including:

IS-4454:	Steel wire for mechanical spring
BS-1408B:	Spring steel wire
BS-1408C:	High duty unground spring steel wire
BS-1408M:	Spring steel music wire

We also manufacture according to specific requirements of customers.

Applications: For various end users like spring washers, chain bush, in textile machinery and coal washing screens.

Galvanised Steel Core Wire & Strand for ACSR

High Tensile Galvanised Steel Wire or ACSR Core Wire may be supplied as single wire or also in seven strands. Manufactured, conforming to various International Standards to the specific requirement of customers.

Applications: Used for mechanical re-inforcement in the manufacture of Aluminium Conductors Steel Reinforced (ACSR)

Product Standards : IS : 398 (Part II)

Nominal Diameter	Size Tolerance	Cross Sectional Area	Approx Weight	Breaking Load KN		Zinc Coating	
				Before Stranding	After Stranding	Minimum Weight of Coating g/m²	No. of 1 Min Cudips mm
mm	mm	mm²	Kg/Km				
1.50	± 0.03	1.767	13.78	2.46	2.34	190	2
1.57	± 0.03	1.936	15.10	2.70	2.57	190	2
1.96	± 0.04	3.017	23.53	4.20	3.99	210	2
2.11	± 0.04	3.497	27.27	4.60	4.37	210	2½
2.30	± 0.05	4.155	32.41	5.46	5.19	230	2½
2.59	± 0.05	5.269	41.09	6.92	6.57	230	3
3.00	± 0.06	7.069	55.13	9.29	8.83	240	3
3.18	± 0.06	7.942	61.95	10.43	9.91	250	3
3.35	± 0.07	8.814	68.75	11.58	11.00	250	3
3.53	± 0.07	9.787	76.34	12.86	12.22	250	3
4.09	± 0.08	13.140	102.48	17.27	16.41	275	3½

Product Standards : IS : 398 (Part V)

Nominal Diameter	Size Tolerance	Cross Sectional Area	Approx Weight	Breaking Load Minimum		Zinc Coating	
				KN	Kg/mm²	Minimum Weight of Coating g/m²	No. of 1 Min Cudips mm
mm	mm	mm²	Kg/Km				
3.53	± 0.07	9.787	76.34	12.86	1312	250	3
2.30	± 0.05	4.155	32.41	5.63	574	230	2½
2.54	± 0.05	5.067	39.52	6.87	700	230	2½

Product Standards : ASTM B498 - 93 Class A Coating

Nominal Diameter		Size Tolerance		Ultimate Tensile Strength Minimum		Stress at 1% Extension Minimum		% Elongation Minimum	Zinc Coating Minimum	Wrapping Mandrel Dia
From	To	+	-	Mpa	Kg/mm²	Mpa	Kg/mm²	GL = 250 mm	g/m²	mm
1.524	1.902	0.038	0.025	1450	148	1310	133	3	198	3d
1.905	2.283	0.038	0.025	1450	148	1310	133	3	214	3d
2.286	2.639	0.051	0.051	1410	144	1280	130	3.5	229	4d
2.642	3.045	0.051	0.051	1410	144	1280	130	3.5	244	4d
3.048	3.553	0.076	0.051	1410	144	1240	126	4	259	4d
3.556	4.569	0.102	0.076	1380	141	1170	119	4	274	5d
4.572	4.822	0.102	0.076	1380	141	1170	119	4	305	5d

Product Standards : BS 50189 : 2000 Grade - Mechnical Properties **British Standard**

Nominal Diameter		Size Tolerance	Ultimate Tensile Strength Minimum		Stress at 1% Extension Minimum		% Elongation Minimum	No of Torsion	Wrapping Mandrel Dia
From	To	+/-	Mpa	Kg/mm2	Mpa	Kg/mm2	GL = 250 mm	g/m2	mm
1.50	1.75	0.03	1400	143	1170	119	3	18	1d
1.75	2.25	0.03	1400	143	1170	119	3	18	1d
2.25	2.75	0.04	1350	137	1140	116	3	16	1d
2.75	3.00	0.05	1350	137	1140	116	3.5	16	1d
3.00	3.50	0.05	1300	132	1100	112	3.5	14	1d
3.50	4.25	0.06	1300	132	1100	112	4	12	1d
4.25	4.75	0.06	1300	132	1100	112	4	12	1d
4.75	5.00	0.07	1300	132	1100	112	4	12	1d

Zinc Coating : BS 443 : 1982

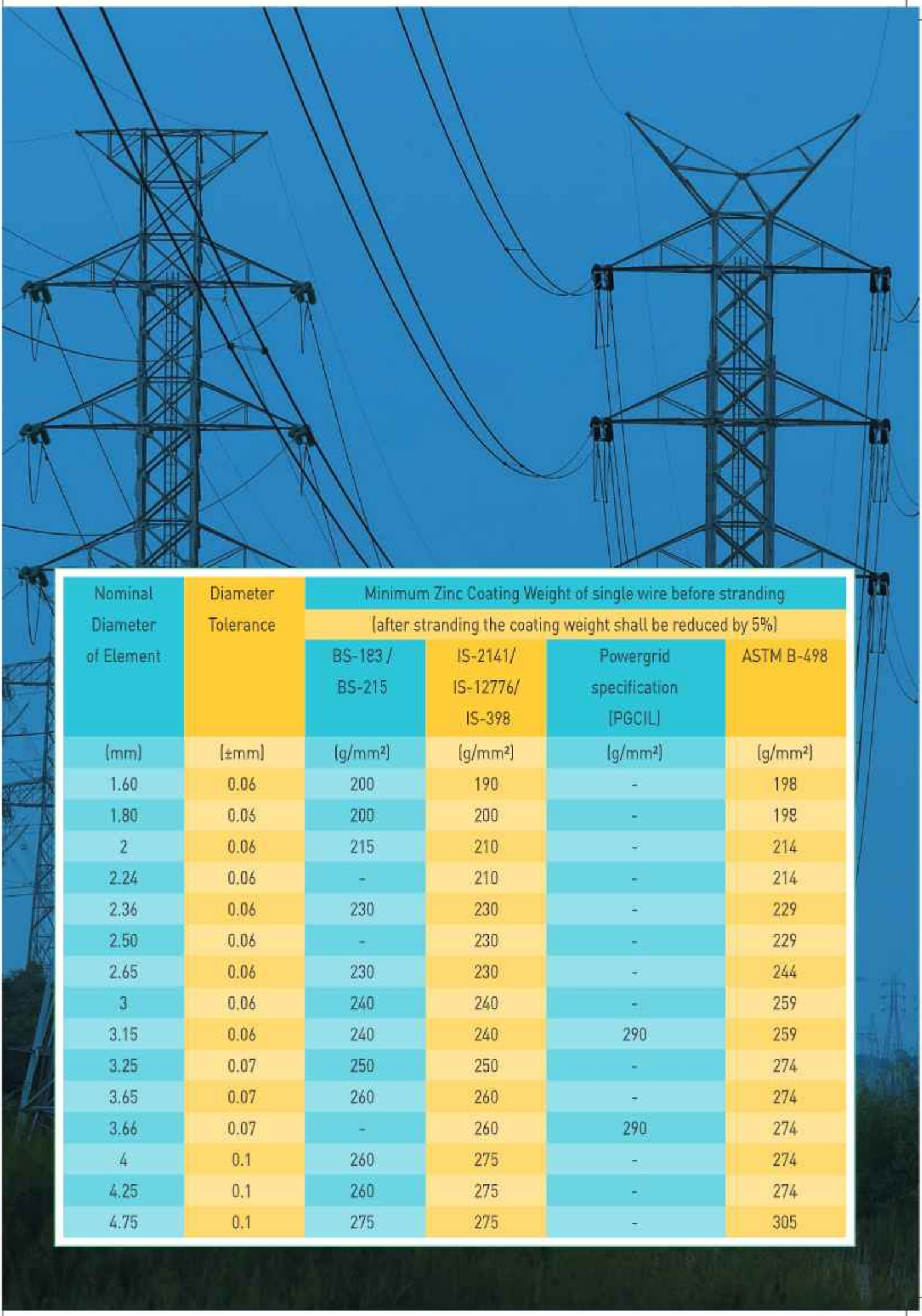
Nominal Diameter		Size Tolerance	Ultimate TensileStrength Minimum
From	To	+/-	1 Minute
1.55	1.80	200	2
1.80	2.24	215	2
2.24	2.72	230	2½
2.72	3.15	240	3
3.15	3.55	250	3
3.55	4.25	260	3
4.25	5.00	275	3½
5.00	5.50	290	3½

Galvanised Steel Stay Wire / HTGS Earth Wires

These Wires can be manufactured to various international standards like BS 183, DIN 48201, IS:2141 etc. or as per the specifications of the customers.

Applications: As overhead ground wires or earth wire for electric power transmission lines, as guy wires, messenger wires, span wires or as stay wires.

Construction No.of Wires/ Wire Dia.	Minimum Breaking Load of Finished Strand						
	Grade 480	Grade 700	Grade 1000	Grade 1100	Grade 1150	Grade 1300	Grade 1570
	(Grade indicates wire tensile grade in N/mm²)						
(mm)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)
7/1.60	6.75	9.85	14.10	14.70	16.20	18.30	20.98
7/1.80	8.55	12.45	17.80	-	20.50	23.20	-
7/2.00	10.55	15.40	22	22.97	25.30	28.60	32.78
7/2.24	-	18.34	-	28.32	-	-	41.12
7/2.36	14.70	21.40	30.60	-	35.20	39.80	-
7/2.50	-	22.86	-	35.92	-	-	51.22
7/2.65	18.50	27.50	38.26	-	44.40	50.20	-
7/3.00	23.75	39.65	49.50	-	56.90	61.30	-
7/3.15	26.20	38.20	54.44	56.98	62.75	70.50	-
7/3.25	27.85	40.65	58.55	-	66.80	75.50	-
7/3.65	35.15	51.75	73.25	-	84.70	95.75	-
7/3.66	-	-	68.40	-	-	-	-
7/4.00	42.20	61.60	88	91.88	101	111.11	-
7/4.25	47.65	69.90	99.30	-	111	129	-
7/4.75	59.45	86.80	124	-	142	161.30	-
Elongation % on 600mm GL	12	8	4	4	4	4	3

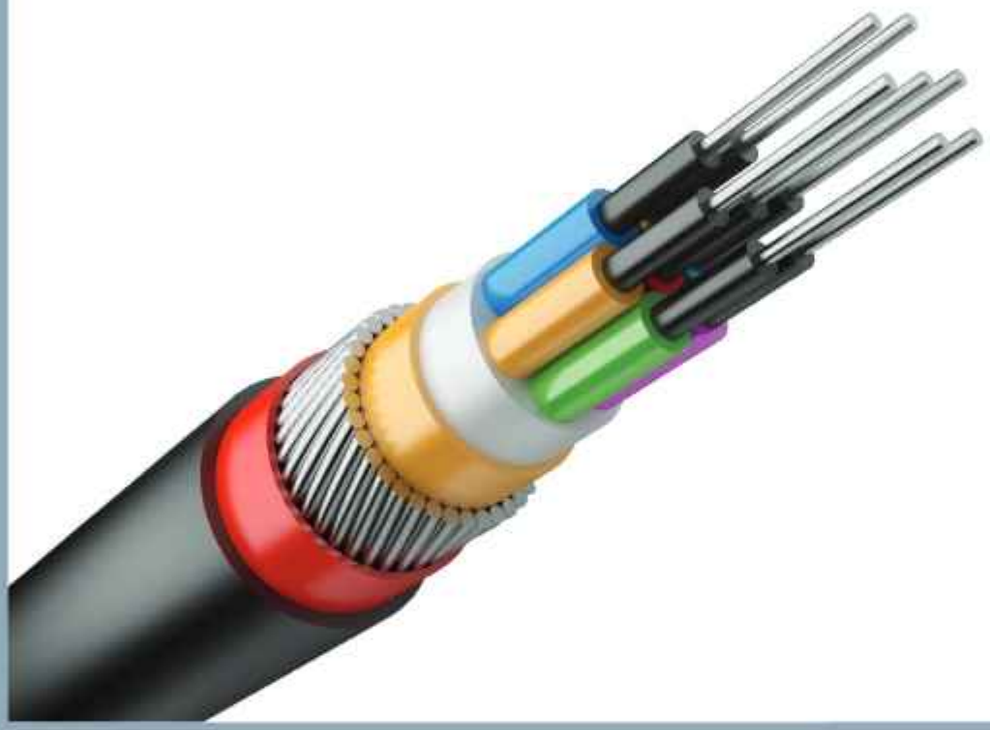


Nominal Diameter of Element	Diameter Tolerance	Minimum Zinc Coating Weight of single wire before stranding (after stranding the coating weight shall be reduced by 5%)			
		BS-183 / BS-215	IS-2141/ IS-12776/ IS-398	Powergrid specification (PGCIL)	ASTM B-498
(mm)	(±mm)	(g/mm²)	(g/mm²)	(g/mm²)	(g/mm²)
1.60	0.06	200	190	-	198
1.80	0.06	200	200	-	198
2	0.06	215	210	-	214
2.24	0.06	-	210	-	214
2.36	0.06	230	230	-	229
2.50	0.06	-	230	-	229
2.65	0.06	230	230	-	244
3	0.06	240	240	-	259
3.15	0.06	240	240	290	259
3.25	0.07	250	250	-	274
3.65	0.07	260	260	-	274
3.66	0.07	-	260	290	274
4	0.1	260	275	-	274
4.25	0.1	260	275	-	274
4.75	0.1	275	275	-	305

Cable Armouring Wire and Formed Wire

These are medium coated galvanised, soft and ductile, round or formed (flat with curvature) wires with low resistivity and produced strictly as per IS, 3975-1988, JIS-G_3530, ASTM A 411 and BS 1442.

Applications: For armouring various types of power cables



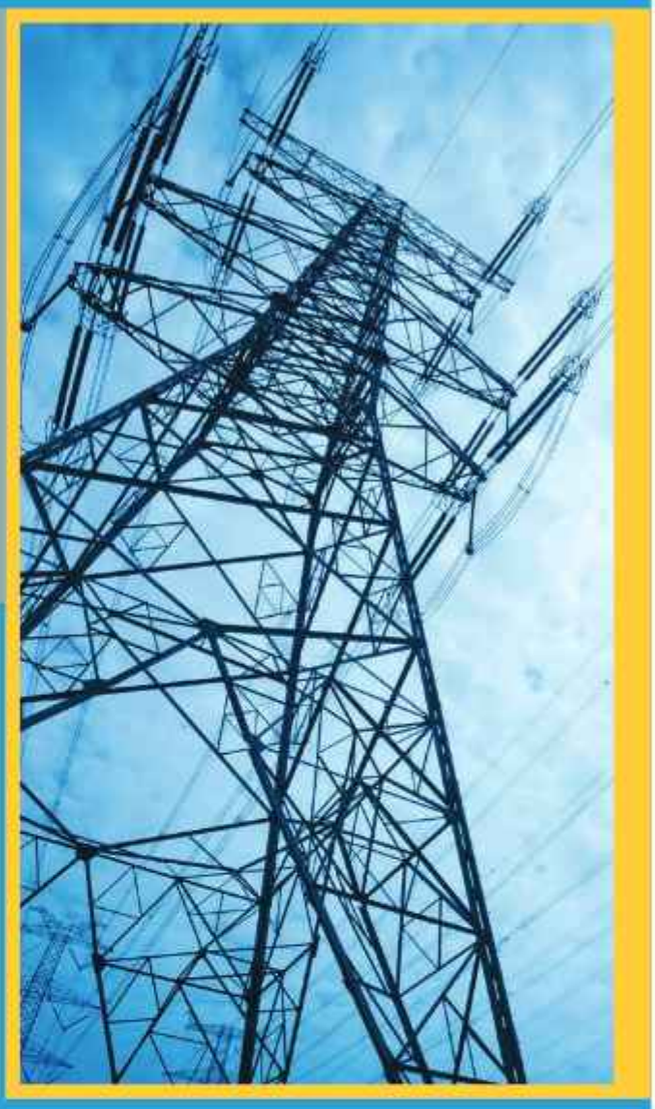
Cable Armoring Wire IS: 3875

Nominal Diameter of Galvanized wire mm.		Mass of Coating g/m2	Number of Dips		Tensile Strength MPA
			1 min	½ Min	
1.60	1.80	95	1	-	300 - 500
1.80	2.00	105	1	-	
2.00	2.24	105	1	-	
2.24	2.50	110	1	1	
2.50	2.80	120	1	1	
2.80	3.15	120	1	1	
3.15	3.55	135	1	1	
3.55	4.00	135	1	1	
4.00	5.00	150	2	-	

All Aluminium Conductor

Aluminium Stranded Conductors (ASC) better known as All Aluminium Conductors (AAC) are manufactured from electrolytically refined (E.C.Grade) aluminium, containing a minimum of 99.5% aluminium by weight. The aluminium used has a minium conductivity of 61%. AAC conductors are used mainly in urban areas where the spacing between supports is small and thereby the supports are relatively closer to each other.

All Aluminum Conductors are made up of one or more strands of aluminum wire depending on the required current carrying capacity and used specially as bus conductors at sub-stations. AAC conductors are also used extensively in coastal areas because they have a very high degree of corrosion resistance.



Key Benefits

- Conductivity of AAC conductor is high.
- AAC conductor is corrosion resistant.

Standards

We manufacture AAC conductor as per following standards:

- BS 215 Part 1
- DIN 48201-5
- IS 398 Part 1
- IEC 207
- ASTM B231 : 1981

AAC CONDUCTORS (IS : 398 Part 1)

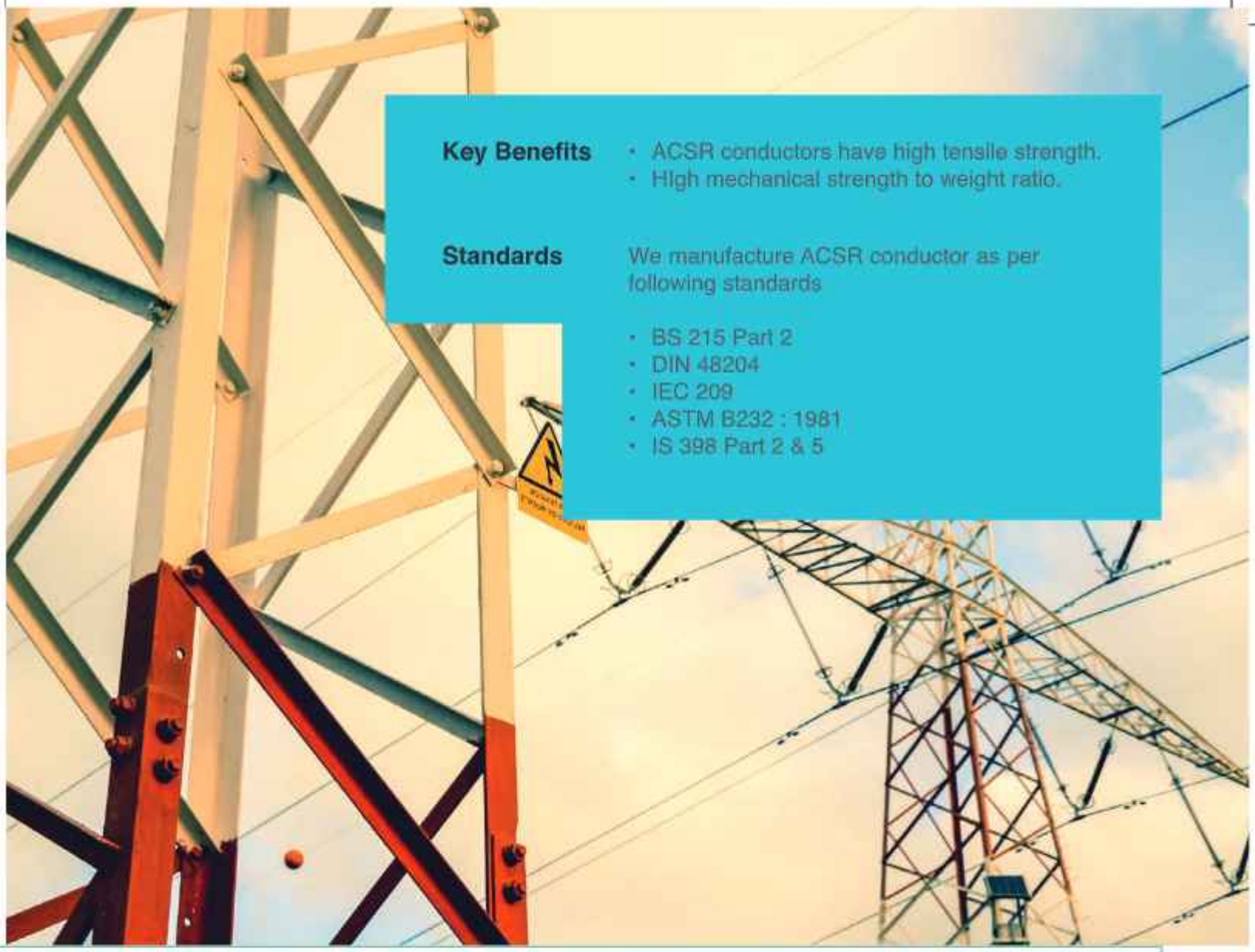
Nominal Alluminium	Stranding & Wire Diameter	Sectional Area	Approx Overall Diameter	Approx. Mass	Calculated Maximum Resistance at 20°C	Approx Calculated Breaking Load
mm^2	mm	mm^2	mm	kg/km	ohms/km	KN
25	7/2.21	26.85	6.63	74	1.09600	4.52
50	7/3.10	52.83	9.30	145	0.55250	8.25
100	7/4.39	106.00	13.17	290	0.27520	15.96
150	19/3.18	150.90	15.90	415	0.19420	23.28
240	19/3.99	237.60	19.95	654	0.12350	35.74
300	19/4.65	322.70	23.25	888	0.09107	48.74

We manufacture AAC conductors as per all international specifications.

Aluminium Conductor Steel Reinforced

Aluminium Conductors Steel Reinforced (ACSR conductors), as the name suggests, consist of a solid or stranded steel core surrounded by strands of Electrolytic grade aluminium. The steel core imparts high mechanical strength to ACSR conductors, which are therefore suitable to be used for river crossings, overhead transmission lines, installations involving extra long spans etc. For any given resistance, ACSR conductors can be manufactured having a wide range of tensile strength as per customer requirements. The principal advantages of these conductors are high tensile strength and high mechanical strength to weight ratio, and therefore they are used for longer spans with fewer supports and lesser sag at a given tension. ACSR is preferred for it's capacity to withstand extreme wind loads. Due to the greater diameter of ACSR conductors corona losses are low, resulting in substantial savings in high as well as extra high voltage overhead transmission.

CODE WORD	NOMINAL ALUMINIUM AREA	STRANDING AND WIRE DIAMETER		SECTIONAL AREA OF ALUMINIUM	TOTAL SECTIONAL AREA	AP
		ALU	STEEL			
	mm^2	mm	mm	mm^2	mm^2	
MOLE	10	6/1.50	1/1.50	10.60	12.37	
	18	6/1.96	1/1.96	18.10	21.12	
SQUIRREL	20	6/2.11	1/2.1 1	20.98	24.48	
WEASEL	30	6/2.59	1/2.59	31.61	36.88	
RABBIT	50	6/3.35	1/3.35	52.88	61.70	
RACCOON	10	6/4.09	1/4.09	78.83	91.97	
DOG	100	6/4.72	7/1.57	105.00	118.50	
WOLF	150	30/2.59	7/2.59	158.10	194.90	
PANTHER	200	30/3.00	7/3.00	212.10	261.50	
KUNDAH	400	42/3.50	7/1.96	404.10	425.20	
ZEBRA	420	54/3.18	7/3.18	428.90	484.50	
MOOSE	520	54/4.13	7/3.53	528.50	597.00	
	560	42/4.13	7/2.30	562.70	591.70	



Key Benefits

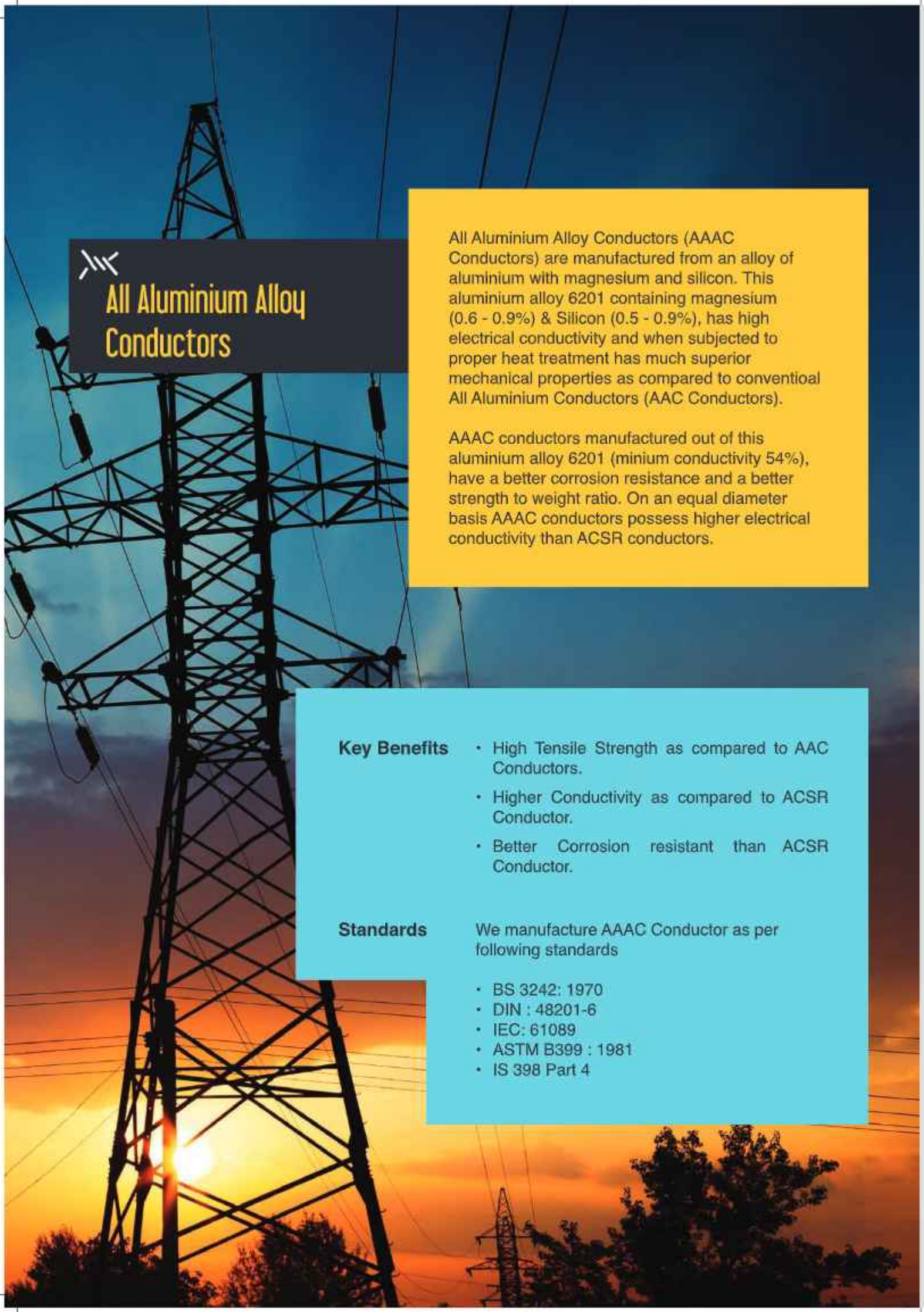
- ACSR conductors have high tensile strength.
- HIgh mechanical strength to weight ratio.

Standards

We manufacture ACSR conductor as per following standards

- BS 215 Part 2
- DIN 48204
- IEC 209
- ASTM B232 : 1981
- IS 398 Part 2 & 5

APPROX OVERALL DIAMETER	APPROXIMATE MASS			CALCULATED MAXIMUM RESISTANCE AT 20°C	APPROX CALCULATED BREAKING LOAD
	TOTAL	ALU	STEEL		
mm	Kg/Km	Kg/Km	Kg/Km	OHm/Km	kN
4.50	43.00	29.00	14.00	2.78000	3.97
5.88	73.00	49.70	23.30	1.61800	6.74
6.33	85.00	58.00	27.00	1.39400	7.61
7.77	128.00	87.00	41.00	0.92890	11.12
10.05	214.00	145.00	69.00	0.55240	18.25
12.27	319.00	216.50	102.50	0.37120	26.91
14.15	394.00	288.00	106.00	0.27920	32.41
18.13	726.00	437.00	289.00	0.18710	67.34
21.00	974.00	586.00	388.00	0.13900	89.67
26.88	1281.00	1116.00	165.00	0.07311	88.79
28.26	1621.00	1185.50	435.50	0.06868	130.32
31.77	1998.00	1461.50	536.50	0.05595	159.60
31.68	1781.00	1553.00	228.00	0.05231	120.16



All Aluminium Alloy Conductors

All Aluminium Alloy Conductors (AAAC Conductors) are manufactured from an alloy of aluminium with magnesium and silicon. This aluminium alloy 6201 containing magnesium (0.6 - 0.9%) & Silicon (0.5 - 0.9%), has high electrical conductivity and when subjected to proper heat treatment has much superior mechanical properties as compared to conventioal All Aluminium Conductors (AAC Conductors).

AAAC conductors manufactured out of this aluminium alloy 6201 (minium conductivity 54%), have a better corrosion resistance and a better strength to weight ratio. On an equal diameter basis AAAC conductors possess higher electrical conductivity than ACSR conductors.

Key Benefits

- High Tensile Strength as compared to AAC Conductors.
- Higher Conductivity as compared to ACSR Conductor.
- Better Corrosion resistant than ACSR Conductor.

Standards

We manufacture AAAC Conductor as per following standards

- BS 3242: 1970
- DIN : 48201-6
- IEC: 61089
- ASTM B399 : 1981
- IS 398 Part 4

AAAC CONDUCTORS IS 398 (Part 4)

Sl No.	Actual Area	Stranding and Wire Diameter	Approx Overall Diameter	Approx. Mass	Calculated Maximum Resistance at 20°C	Approx Calculated Breaking Load
	mm^2	mm	mm	kg/km	ohms/km	KN
1	15	3/2.50	5.39	40.15	2.3040	4.33
2	22	7/2.00	6.00	60.16	1.5410	6.45
3	34	7/l.50	7.50	94.00	0.9900	10.11
4	55	7/3.15	9.45	149.20	0.6210	16.03
5	80	7/3.81	11.43	218.26	0.4250	23.41
6	100	7/4.26	12.78	272.86	0.3390	29.26
7	125	19/2.89	14.45	342.51	0.2735	36.64
8	148	19/3.15	15.75	406.91	0.2290	43.50
9	173	19/3.40	17.00	474.02	0.1969	50.54
10	200	19/3.66	18.30	549.40	0.1710	58.66
11	232	19/3.94	19.70	636.67	0.1471	68.05
12	288	37/3.15	22.05	794.05	0.1182	84.71
13	346	37/3.45	24.15	952.56	0.0984	101.58
14	400	37/3.71	25.97	1101.63	0.0829	117.40
15	465	37/4.00	28.00	1280.50	0.0734	136.38
16	525	61/3.31	29.79	1 448.39	0.0651	146.03
17	570	61/3.45	31.05	1 573.71	0.0598	158.66
18	604	61/3.55	31.95	1666.00	0.0568	167.99
19	642	61/3.66	32.94	1771.36	0.0534	178.43
20	695	61/3.81	34.29	1919.13	0.0492	193.25
21	767	61/4.00	36.00	2115.54	0.0446	213.01

We manufacture AAAC conductors as per all international specifications.

Welding Solutions

Our production units are equipped with the latest machinery and complete set of testing equipment to produce goods, meeting stringent quality parameters. We have well laid out quality assurance plans for maintaining consistency in the quality of all our products, approved by various Govt. Bodies such as the Bureau of Indian Standards, the Chief inspector of Boilers, etc. We have an installed capacity to produce 2000MT of stick electrodes per annum and 1800MT of MIG wire per annum.

MIG Wires

MIG (Metal Inert Gas) welding wire is used in Gas Metal Arc Welding along with a shielding gas. MIG wire is produced adhering to the highest quality standards with ER70S-6 specifications. Some of the salient features that our MIG wire offers are as follows:

- Available in layer winded spool for trouble free continuous operation without entanglement.
- Controlled Cast and Helix
- Excellent copper adherence
- Optimum copper coating for efficient current pick up and freedom from rusting.
- Available in 0.8mm and 1.2mm wire diameters

Stick Electrodes

We manufacture stick welding electrodes of consistent quality conforming to international standards. Apart from having a versatile product range, we also aim to offer customized solutions to distinguish our products.

ESL'ARC 60R	A medium coated general purpose MS electrode for welding of structural work and general fabrication. The slag is quite freezing and easy to remove suitable to bridge large gaps.
ESL'ARC 61R/ESL'ARC 61	A medium coated rutile base MS electrode. Ideal for welding of wagons, bridges, tanks, ship building etc., where the deposit requires to be clean & defect free.
ESL'ARC 60	A light coated MS electrode for general usage viz. sheet metal works, storage tanks, steel furniture's, etc.
ESL'ARC 62	A heavy coated rutile base electrode deposits crack free & radiographic quality weld. Ideal for welding boilers, pipelines, ship building, wagons, etc. Suitable for both AC & DC power.
ESL'ARC 78	A heavy coated low hydrogen iron powder type having excellent welding properties which give high purity radiographic quality deposits. Ideal for high strength welds on mild steel, medium carbon & low alloy steels for boilers & pressure vessels, blast furnace, low frames.

Rolled Products

Hot Rolled products

Hot Rolled products refer to products that are uncoated and have been formed at about 860 degrees Celsius at the mill and then reduced while the strip temperature is maintained. Our rolling mill is an RDSO approved mill manufacturing the following products:

Strips

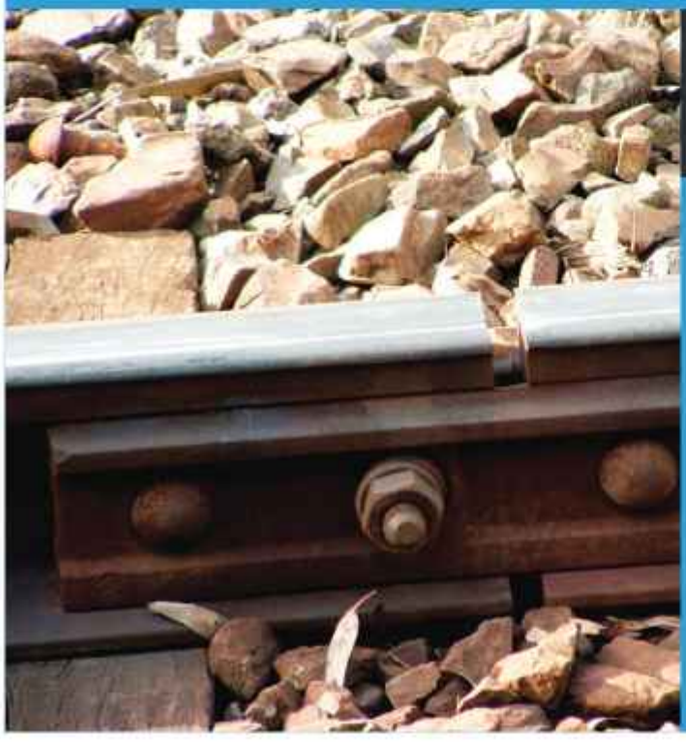
Hot-rolled strips offer extensive performance characteristics, versatility and economy, in addition to having dedicated properties for specific applications. We manufacture strips mainly to cater to the ERW Pipe industry. Our strips are also used for general engineering purposes like manufacturing cable supports, etc.

Specifications - 100 mm to 190 mm width; 1.00 mm to 4 mm in thickness.

Metal Liners

Metal Liners is a railway component used as packing between the Elastic rail clip and the foot of the rail while laying tracks. Liners have high durability, dimensional stability and the ability to withstand different weather conditions.

Specifications - T 3738, T 3740, T 3741 & T 3742



Fish Plate

Fish plates are used in railway construction, it is a metal bar that is bolted to the ends of two rails to join them together in a track. The top and bottom edges are tapered inwards so the device wedges itself between the top and bottom of the rail when it is bolted into place.

We manufacture 8 types of fish plates as per designs of Indian Railways, however, we are equipped for custom made designs as per other specifications.

Flats

Hot rolled flats have their primary use in steel fabrication and general engineering purposes.

Specifications - Sizes up to 150 mm in width.

Angles

Steel angles are L-shaped structural steel represented by dimensions of sides and thickness. For example, 50x50x6 denotes, both sides of angles are 50mm and thickness is of 6mm. Angles are of various sizes and may be of equal or unequal angles. They are primarily used in steel fabrication.

Specifications - Sizes manufactured by us ranges from 35x35x5 to 75x75x12.

Rounds

Steel rounds have a diverse application, they as used by forging industries, bright bar industries, auto-ancillaries, foundation and anchor bolts, pins, rollers, bushes, and many more engineering industries.

Specifications - Sizes manufactured by us ranges from 20mm to 45mm.

High Strength Deformed Steel Bars

Tricon®

Our brand of construction steel is a high strength steel bar where the diameter of the reinforced bar is lowered without compromising in strength of the reinforcement leading to substantial savings in steel and cost.

Thermo Mechanically Treated bars (TMT bars) replaced CTD bars in the late 1990s as they were considered technically superior and also convenient for the rolling mills. Post production cold twisting was a cumbersome, time consuming and labour intensive job and often a bottleneck in production.

"TRICON", high strength deformed bars conforming to IS : 1786 - 2008, in Grade Fe 550 corresponding to DIN : 488 and BS : 4483 are manufactured by using the well-established technology of simultaneous cold rolling and cold ribbing.

Product	Description	Diameter	Lengths	Coating	Application
TRICON®	High Strength deformed steel bars (ribbed)	3.5mm to 10.45mm	1m to 12m (As per customer specification)	Black	Used in general reinforcement of concrete structures, buildings etc.
TRICON® (Galvanised)	Galvanised (zinc coated) High Stength Deformed steel bars (ribbed)	3.5mm to 5mm	1m to 12m (As per customer specification)	40gsm-400gsm of zinc coating	Used in general reinforcement of concrete structures, buildings etc. and fencing. The product offers superior corrosion protection increasing the life of the structures.

Salient points:

Higher Strength	Grade Fe 550 instead of grade Fe 500. Normally available in the market
Lower Diameter	More Length
Better Tolerance	+/-0.05 mm against +/-0.5 mm of TMT bars.
Better Control	Manufactured by cold rolling cold ribbing process
Better Gripping	TRICON bars have scientific rib design (3 Sided)
Direct substitute	No change in drawing required
Savings in steel	22% to 30%
Savings in cost	6% to 20 %

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