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PRODUCT SPECIFICATION

SOLID SHAPED ALUMINIUM CONDUCTOR

1.0 SCOPE:

This specification is main to Solid Shaped Aluminium Conductor supplied by Press Metal Aluminium Rods Sdn. Bhd.

2.0 REFERENCE:

ASTM B 233	Standard Specification for Aluminium 1350 Drawing stock for electrical purpose.
BS 3988	Wrought Aluminium for Electrical Purposes - Solid Conductors for Insulated Cables
AS/NZS 1125	Conductors in Insulated Electric Cables and Flexible Cords

3.0 TECHNICAL SPECIFICATION:

The technical specifications in this clause are based on BS 3988. It may vary with specification by customer.

3.1 STANDARD RESISTANCE AND NOMINAL WEIGHT PER KM

Nominal Area (mm ²)	Nominal Weight per km (kg/km)	Resistance per km @ 20°C (Ω/km)
95	249	0.304
120	315	0.241
150	387	0.196
185	485	0.156
240	638	0.119
300	800	0.0948

3.2 2-CORE (180°) SHAPED SOLID CONDUCTORS

Nominal Area (mm ²)	Resistance per km @ 20°C Max (Ω/km)	Width (mm)		Depth (mm)		Back Radius (mm)		Corner Radius (mm)	
		Min	Max	Min	Max	Nominal	Max	Nominal	Max
95	0.313	15.68	16.13	7.16	7.43	8.20	8.23	0.82	0.82
120	0.248	17.55	18.03	8.10	8.39	9.16	9.2	0.91	0.92
150	0.202	19.57	20.1	8.95	9.27	10.22	10.27	1.02	1.03
185	0.161	21.83	22.40	10.08	10.42	11.37	11.42	1.13	1.14
240	0.123	25.00	25.63	11.59	11.96	13.00	13.07	1.30	1.31
300	0.0976	27.88	28.58	13.04	13.44	14.47	14.54	1.44	1.45

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3.3 3-CORE (120°) SHAPED SOLID CONDUCTORS (Voltages up to and including 1,900/3,300 V)

Nominal Area (mm ²)	Resistance per km @ 20°C Max (Ω/km)	Width (mm)		Depth (mm)		Back Radius (mm)		Corner Radius (mm)	
		Min	Max	Min	Max	Nominal	Max	Nominal	Max
95	0.313	15.39	15.84	8.87	9.19	10.24	10.29	1.02	1.03
120	0.248	17.29	17.78	10.02	10.35	11.41	11.47	1.14	1.15
150	0.202	19.22	19.74	11.10	11.46	12.76	12.82	1.27	1.28
185	0.161	21.51	22.07	12.46	12.84	14.17	14.24	1.41	1.42
240	0.123	24.66	25.29	14.31	14.73	16.20	16.28	1.62	1.63
300	0.0976	27.59	28.28	16.06	16.52	18.01	18.09	1.80	1.81

3.4 3-CORE (120°) SHAPED SOLID CONDUCTORS (Voltage of 3,800/6,600 V and above)

Nominal Area (mm ²)	Resistance per km @ 20°C Max (Ω/km)	Width (mm)		Depth (mm)		Back Radius (mm)		Corner Radius (mm)	
		Min	Max	Min	Max	Nominal	Max	Nominal	Max
95	0.313	13.58	14.00	8.85	9.16	11.42	11.47	2.80	2.80
120	0.248	14.44	15.91	9.96	10.29	12.58	12.63	3.00	3.00
150	0.202	17.53	18.03	11.00	11.35	13.87	13.92	3.00	3.00
185	0.161	20.08	20.64	12.30	12.63	15.42	15.48	3.00	3.00
240	0.123	23.53	24.16	14.10	14.53	17.49	17.56	3.00	3.00
300	0.0976	26.76	27.45	15.82	16.27	19.45	19.54	3.00	3.00

3.5 4-CORE (90°) SHAPED SOLID CONDUCTORS

Nominal Area (mm ²)	Resistance per km @ 20°C Max (Ω/km)	Width (mm)		Depth (mm)		Back Radius (mm)		Corner Radius (mm)	
		Min	Max	Min	Max	Nominal	Max	Nominal	Max
95	0.313	14.08	14.49	10.06	10.40	12.00	12.06	1.20	1.21
120	0.248	15.58	16.29	11.35	11.71	13.36	13.42	1.33	1.34
150	0.202	17.59	18.08	12.58	12.96	14.96	15.03	1.49	1.50
185	0.161	19.71	20.25	14.11	14.53	16.59	16.67	1.65	1.67
240	0.123	22.60	23.20	16.21	16.67	18.59	19.04	1.89	1.90
300	0.0976	25.31	25.96	18.18	18.68	21.06	21.18	2.10	2.12

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3.6 TENSILE & ELONGATION

Description	Tensile Strength kgf/mm ²	Tensile Strength Mpa	Elongation % at 250mm GL (Min)
All sizes	Max: 8.16	Max: 80	25.0

GL = Gauge length

3.7 CHARACTERISTIC

Description	Unit	
Specific gravity	g/cm	2.703
Temperature coefficient at 20 °C	per °C	0.00400

3.8 CHEMICAL COMPOSITION

Element	Composition (%)
Silicon	Max: 0.10
Iron	Max: 0.40
Copper	Max: 0.05
Manganese	Max: 0.01
Chromium	Max: 0.01
Zinc	Max: 0.05
Boron	Max: 0.05
Gallium	Max: 0.03
Vanadium & Titanium	Max: 0.02
Other elements, each	Max: 0.03
Other elements, total	Max: 0.10
Aluminium	Min: 99.5

4.0 FINISHING & APPEARANCE

The Aluminum Conductors is supplied in the form of a continuous coil without any joints. The conductors shall be clean, without any excessive oil & grease, of uniform lustre, smooth and free from flakes, cracks, kinks, dents, twists, and other injury or defects.

5.0 PACKAGING

The conductor shall be supplied in a drum with following dimension:

Width	1,130 mm (Maximum)
Barrel	1,000 (± 10) mm
Flange	2,200 (+0, -10) mm

The nominal weight for conductors in individual drum approximately 3,800 ± 200kg.

Conductors in a drum shall be wrapped with a PE and Corrugated sheet in order to be protected from damage and prevent contamination to the conductors surface which might cause from the environment.

Conductors shall securely tighten to ensure the arrangement of the conductors inside the drum in a proper order.

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6.0 MARKING

Each drum shall be marked on both side with following information:

- 1) Manufacturer's Name and Logo
- 2) Type and Size
- 3) Length
- 4) Net Weight
- 5) Gross Weight
- 6) Drum Number

7.0 TEST CERTIFICATES

Test certificate shall be provided to customer upon or precede delivery. The contents inside the Test Certificate shall be as follows:

- 1) Customer's name
- 2) Material type and size
- 3) Length
- 4) Drum number
- 5) Net Weight
- 6) Elongation
- 7) Tensile Strength
- 8) Resistivity and Conductivity

*Requisition for additional information inside the Test Certificate shall be considered.

8.0 QUALITY ASSURANCE

All products are manufactured to meet the standard specification that been agreed between Press Metal Aluminium Rods Sdn Bhd and customer. Each of our product been tested with reliable testing equipment. Manufacturing of this product has considered the restriction of hazardous element usage stated in REACH and ROSH directive.