Instruction assembly Bi-metal cable lugs

For highly flexible, low and medium voltage aluminium cables

Information

This instruction describes the method used to install Bi-metal cable lugs on to PowerAmp-A 07BN4-AF cable. In this way your aluminium cable with Bi-metal cable lug can be bolted directly on to equipment bus bars or treaded terminal adaptors. All the photographs in this installation instruction contain the 240mm² PowerAmp-A cable; however the same procedure applies for all other cables*.

Technical data

Construction	: Al/Cu: IEC60228 Clause 4 (Cu annealed; Al min. 99,5% purity)
Welding method Al-Cu	: Oxidation free friction weld
Compression grease	: Barrel enclosed (capped)
Finish	: Bright & burr free
Marking	: Printing on outside barrel, Article code

Required Materials and equipment

- PowerAmp-A Cable (See Table 1)
- Small paint brush & Oxide Breaker (Article No. A12B OXB 500ML)
- Cable Lug (see Table 1 & 3)
- Cable stripping tool
- Hydraulic press (See Table 1 & 3)
- Set of crimping dies (See table 1 & 3)
- Heat Shrink Sleeve
- Hot air gun or Gas Torch
- Hydraulic pump (See table 1 & 3)

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Stripping Sheath

Step 1

The CSP Sheath and EPR insulation should be removed, for a minimum length, according to the values shown in Table 2, or as advised by the cable lug supplier. This length should be equivalent to the internal length of the cable lug crimp barrel.

Great care should be taken not to mark or damage the individual conductor wires during stripping.

Step 2

If disturbed during the removal of the sheath and insulation the lay of the wire strands should be restored, as near as possible, to the original position. Ensure that the separator tape (foil between conductor and insulation) is removed over the entire length and circumference of the conductor.

Application of oxide breaker

Step 3

Before applying and oxide breaker, brush oxide layer off the surface of the conductor.

While the Bi-metal lugs already contain an oxide breaker, a further coating of A12B OXB 500ML paste should be applied to the surface of the aluminum conductor. This paste prevents the formation of an insulating aluminum oxide coating on both the conductor and cable lug surfaces and decreases the contact resistance.

Step 4

A sufficient amount of oxide breaker should be applied and distributed evenly over the entire conductor surface.

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Crimping Bi-metal Cable Lug

Step 7

Before starting, check that both crimping dies are of the correct type/number, see Table 1 and 3 for recommended sizes. In order to make a good mechanical and electrical contact the barrel of the cable lug is physically compressed around the conductor. This is done using a crimping tool, which ensures the crimp is fully completed before the cable lug can be released from the tool.

Step 8

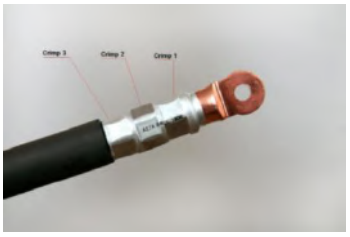
The first crimp should be made at approximately 5mm from the end of the crimp barrel closest to the copper palm of the Bi-metal cable lug.

Step 9

The second crimp should be made at a distance of approximately 2 mm from the first crimp. The press-head should be rotated approximately 30° to ensure that the alignment of the hexagonal crimps is different to the previous crimp.

The third crimp should be applied a further approximately 2 mm along the crimp barrel. The press-head should be rotated back approximately 30° to align this hexagonal crimp with the first crimp applied.

Step 10



When the crimp is completed there should be no sharp edges along the surface or trumpeting at the end of the crimp barrel. In case sharp edges have formed during the crimping process these should be removed to avoid damage to the heat shrink sleeve. Any sharp edges can either be removed using a file.

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Positioning Heat Shrink Sleeve

Step 11

When the Bi-metal cable lug has been crimped onto the conductor a heat shrink sleeve should be applied. The purpose of this sleeve is to prevent the ingress of moisture or dirt at the junction between the insulation end and the back of the cable lug. The heat shrink sleeve contains glue, which melts and creates a seal when heated.

A practical indication for the length of the heat shrink sleeve would be twice the length of the cable lug crimp barrel. It should be positioned with one end flush with the end of the crimp barrel closest to the copper section of the Bi-metal cable lug.

Shrinking the Heat Shrink Sleeve

Step 12

When positioned the sleeve should be heated until it has been reduced to fit tightly over both the cable and Bi-metal cable lug. The heat can be applied by means of a naked flame or a hot air gun. Care should be taken not to overheat or burn the sleeve during shrinking. When using a naked flame only the outer yellow section of the flame should come into contact with the sleeve. The heat should first be applied in the center of the sleeve and from there towards both ends individually. Once the sleeve has been reduced to fit tightly remove the heat source to prevent burning of the sleeve and further reduction which could cause splitting.

Finished assembly

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Appendix PowerAmp-A 07BN4-AF

Cable type PowerAmp-A 07BN4-AF	Connector type Bi-metal lug	Die size	Hydraulic Press	Hydraulic Pump
6 mm^2	A27ABMCL0701	Z02DSAL06	HPR131	HPO120
10 mm^2	A27ABMCL0801	Z02DSAL10	HPR131	HPO120
16 mm^2	A27ABMCL0901	Z02DSAL16	HPR131	HPO120
25 mm^2	A27ABMCL1001	Z02DSAL25	HPR131	HPO120
35 mm^2	A27ABMCL1101	Z02DSAL35	HPR131	HPO120
50 mm^2	A27ABMCL1200	Z02DSAL50	HPR131	HPO120
70 mm^2	A27ABMCL1300	Z02DSAL70	HPR131	HPO120
95 mm^2	A27ABMCL1400	Z02DSAL95	HPR131	HPO120
120 mm^2	A27ABMCL1500	Z02DSAL120	HPR131	HPO120
150 mm^2	A27ABMCL1600	Z02DSAL150	HPR131	HPO120
185 mm^2	A27ABMCL1700	Z02DSAL185	HPR131	HPO120
240 mm^2	A27ABMCL1800	Z02DSAL240	HPR131	HPO120
300 mm^2	A27ABMCL1900	Z02DSAL300	HPRH3D	-
400 mm^2	A27ABMCL2000	Z02DSAL400	HPRH3D	-

Cable type PowerAmp-A 07BN4-AF	Connector type Bi-metal lug	Minimum Stripping length
6 mm^2	A27ABMCL0701	42 mm
10 mm^2	A27ABMCL0801	42 mm
16 mm^2	A27ABMCL0901	42 mm
25 mm^2	A27ABMCL1001	42 mm
35 mm^2	A27ABMCL1101	43 mm
50 mm^2	A27ABMCL1200	43 mm
70 mm^2	A27ABMCL1300	43 mm
95 mm^2	A27ABMCL1400	60 mm
120 mm^2	A27ABMCL1500	60 mm
150 mm^2	A27ABMCL1600	60 mm
185 mm^2	A27ABMCL1700	60 mm
240 mm^2	A27ABMCL1800	62 mm
300 mm^2	A27ABMCL1900	70 mm
400 mm^2	A27ABMCL2000	75 mm

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Appendix PowerAmp-AMS

Cable type PowerAmp-AMS	Connector type Bi-metal lug	Die size	Hydraulic Press	Hydraulic Pump
6 mm^2	A27ABMCL0701	Z02DSAL06	HPR131	HPO120
10 mm^2	A27ABMCL0801	Z02DSAL10	HPR131	HPO120
16 mm^2	A27ABMCL0901	Z02DSAL16	HPR131	HPO120
25 mm^2	A27ABMCL1001	Z02DSAL25	HPR131	HPO120
35 mm^2	A27ABMCL1101	Z02DSAL35	HPR131	HPO120
50 mm^2	A27ABMCL1200	Z02DSAL50	HPR131	HPO120
70 mm^2	A27ABMCL1300	Z02DSAL70	HPR131	HPO120
95 mm^2	A27ABMCL1400	Z02DSAL95	HPR131	HPO120
120 mm^2	A27ABMCL1500	Z02DSAL120	HPR131	HPO120
150 mm^2	A27ABMCL1600	Z02DSAL150	HPR131	HPO120
185 mm^2	A27ABMCL1700	Z02DSAL185	HPR131	HPO120
240 mm^2	A27ABMCL1800	Z02DSAL240	HPR131	HPO120
300 mm^2	A27ABMCL1900	Z02DSAL300	HPRH3D	-
400 mm^2	A27ABMCL2000	Z02DSAL400	HPRH3D	-

Cable type PowerAmp-AMS	Connector type Bi-metal lug	Minimum Stripping length
6 mm2	A27ABMCL0701	42 mm
10 mm2	A27ABMCL0801	42 mm
16 mm2	A27ABMCL0901	42 mm
25 mm2	A27ABMCL1001	42 mm
35 mm2	A27ABMCL1101	43 mm
50 mm2	A27ABMCL1200	43 mm
70 mm2	A27ABMCL1300	43 mm
95 mm2	A27ABMCL1400	60 mm
120 mm2	A27ABMCL1500	60 mm
150 mm2	A27ABMCL1600	60 mm
185 mm2	A27ABMCL1700	60 mm
240 mm2	A27ABMCL1800	62 mm
300 mm2	A27ABMCL1900	70 mm
400 mm2	A27ABMCL2000	75 mm

NOTICE
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