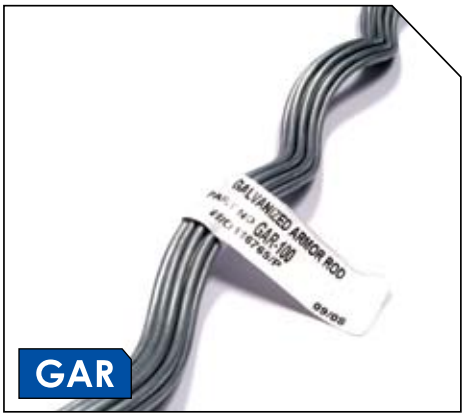
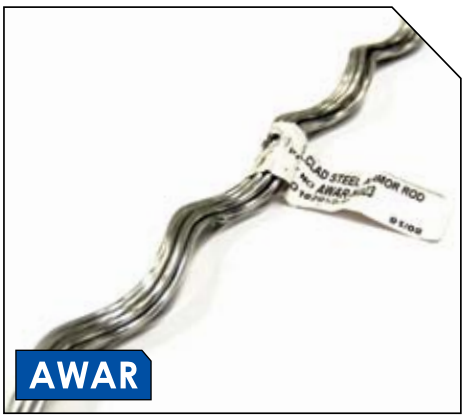
PREFORMED™ Armor Rods

For Galvanised Steel Conductors SC/GZ



Part Number	Conductor Stranding	Conductor Diameter (mm)		Colour Code
GAR-038	7/1.25	3.75		Green
GAR-043	3/2.00	4.31		Yellow
GAR-048	7/1.60	4.80		Black
GAR-055	3/2.75	5.93		White
GAR-060	7/2.00	6.00		Yellow
GAR-075	3/4/2.50	7.50		Blue
GAR-083	7/2.75	8.25		White
GAR-098	7/3.25	9.75		Blue
GAR-100	19/2.00	10.00		Yellow
GAR-113	7/3.75	11.30		Black
GAR-120	7/4.00	12.00		Black
GAR-138	19/2.75	13.80		White
GAR-163	19/3.75	16.30		Orange

For SC/AC Conductors Left Hand Lay Standard



Part Number	Conductor Stranding	Conductor Diameter (mm)		Colour Code
AWAR-K023	3/2.75	5.93		White
AWAR-K031	3/3.25	7.00		Orange
AWAR-K040	3/3.75	8.00		Black
AWAR-K050	7/2.75	8.25		White
AWAR-K106	7/4.25	12.80		Brown
AWAR-K136	19/2.75	13.80		White

Application Procedure & Safety Considerations

PREFORMED LINE PRODUCTS

ARMOR RODS & LINE GUARDS

Completely read and understand this procedure before applying products. Special attention should be given to the Safety Considerations located on the last page. We advise the reader to review those considerations now, and then again during the general review of this procedure.

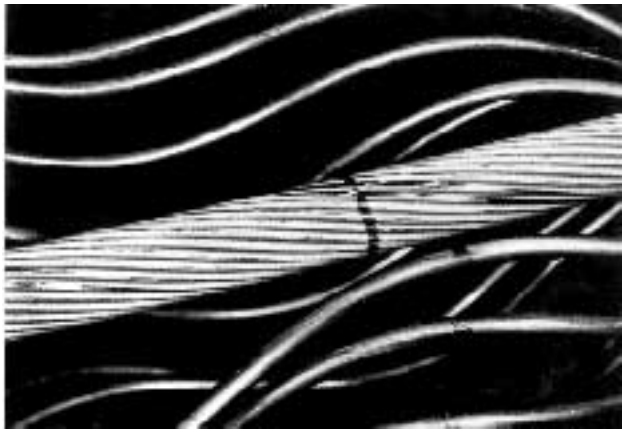
HAND APPLICATION

1) Start with half of the rods in the set. Make sure the rod ends are even, then place the centre marks at the centre of the insulator and make about two wraps.

2) Repeat step #1 with remaining rods. Make sure no rods are crossed, then wrap all rods out to the ends.

3) With a firm twist, snap the ends in place. Make sure all rod ends are snapped into place.

GENERAL NOTES



1) PREFORMED Armor Rods are precision devices. To ensure tight assembly, they should be stored in cartons under cover and handled carefully.

2) Apply no more than one-half the number of rods per set at a time on smaller sizes. On conductors 20 mm and larger, do not attempt to apply more than 4 rods at a time.

3) Damaged conductor (shown on left) can result from the application of too many rods at one time

4) Distorting the rods during application will result in an assembly which is loose on the conductor. Under certain vibratory conditions this could cause severe abrasion to the conductor and the armor rods.

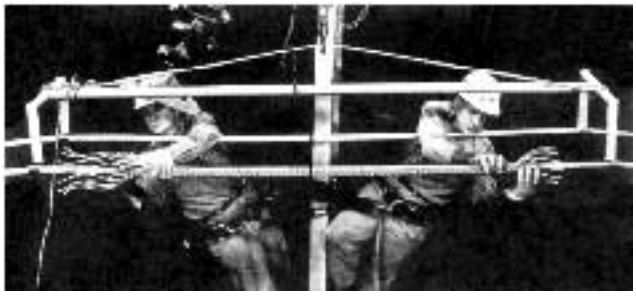
5) The tube method of application (shown on left) is not recommended. This method of application can cause distortion to the rods and damage the conductor similar to that shown in the preceding photograph.

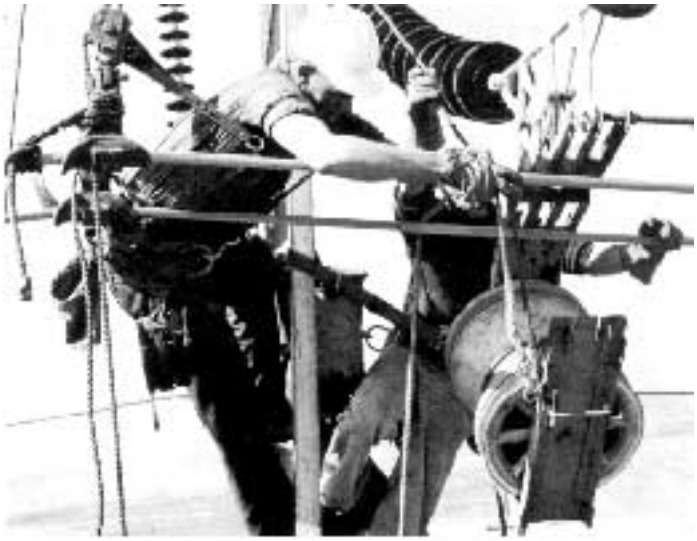
6) The alignment of the ends of the rods should be maintained within 50 mm for voltages of 220 KV and lower; for 330 KV and above, the alignment of the ends of the rods should be maintained within 20 mm.

7) The centre of the Armor Rods should not be offset more than one pitch length (see photo on left) from the centre of the support point.

8) Centre marking the conductor should be done with a felt marking pen or PVC tape. Do not scratch the conductor.

(photo1)


(photo2)

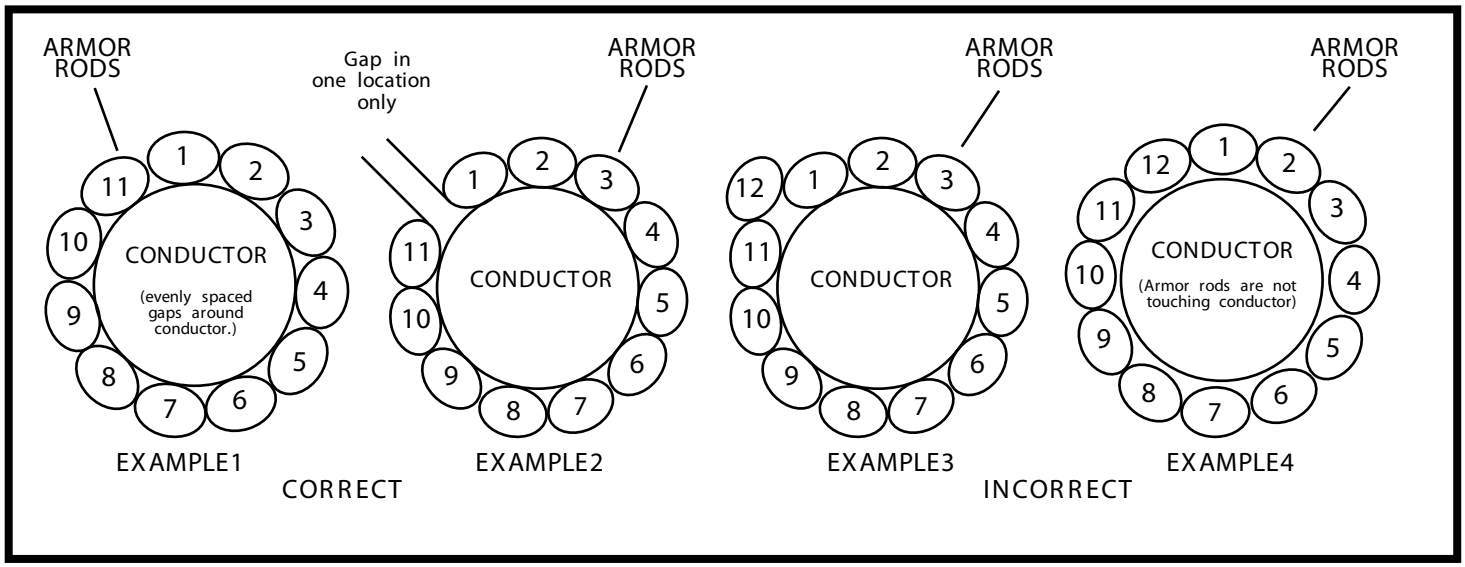

(Photo3)

9) PREFORMED Armor Rods are not to be re-used.

10) When it is known that tapping clamps will be installed directly over the Armor Rods, it is recommended that the instructions listed below should be followed.

a) Apply a commercially available inhibitor in the area of the tapping clamp.
b) Wire bush the conductor's surface, and the outside surface of the Armor Rod, in the area of the tapping clamp.
c) Make sure the alluminium-to-copper transition in the clamp body itself.
d) Use a compatible clamp.
e) Use a clamp with a well contoured groove to provide a good area contact over the rods.
f) Keep the clamp at least 150 mm from the ends of the PREFORMED Armor Rods.

11) Careful consideration should be given to the conductor while rigging, prior to the application of the PREFORMED Armor Rods. The conductor can be lifted beyond at the ends of the rods as shown in the photos 2 and 3, or by using a well padded hook (photo1) 500 mm off centre. If the latter method is used, the rods should be started as close to the hook as possible, making sure the centre marks of the rods are properly centred on the conductor, and applied away from the lifting device. After the free ends of the rods are applied, install the clamp, remove the rigging, and then complete the application of the rods. ARMORING OVER THE HOOK OF A HOIST OR OTHER SHARP EDGES IS NOT RECOMMENDED.



12) After application of the correct number of rods, a slight gap between the rods should be present. Study the above example. Example 1: Excellent application. Example 2: Satisfactory, but may lead to applying extra, un-needed rod. Example 3: Extra rod produces bridging condition, potential rod abrasion. Example 4: Extra rod, expanded tube condition affords little protection, allow severe abrasion and other conductor damage. If undecided about adding an extra rod, follow this rule: When in doubt, leave it out.

13) Armor Rods are factory matched and packed in sets. Do not inter mixed rods from different sets.

SAFETY CONSIDERATIONS

1) For proper performance and personal safety be sure to select the proper size PREFORMED Armor Rod before application.

2) PREFORMED Armor Rods are precision devices. To ensure tight assembly, they should be stored in cartons under cover and handled carefully.

3) This application procedure is not intended to supersede any company construction or safety standards. This procedure is offered only to illustrate safe application for the individual. Failure to follow these procedures and restrictions may result in personal injury.

4) When working in the area of energized lines, extra care should be taken to prevent accidental electrical contact.

5) This product is intended for use by trained linesmen only. This product should not be used by any one who is not familiar with and trained in the use of it.

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TEST REPORT

PREFORMED
LINE PRODUCTS

TEST DATE: 29/01/18 **TEST REF: T18/28** **TEST REPORT No: TR163**

CLIENT: ESSENTIAL ENERGY

. **Test Description:**

Dimensional and Application

. **Test Sample Details:**

Catalogue No: **AWAR-K023**

Drawing No: **080-001-RD/B**

Description: **ALUMINIUM CLAD STEEL ARMOUR ROD**

. **Test Specification:**

The fittings were inspected in accordance with AS1154-3 2009 Section 1 Clause 1.6 Verification of dimensions

Inspection Procedure:

The fittings were inspected to the relevant drawing as stated above and then assembled onto the appropriate conductor to ensure application is satisfactory.

Conductor Details:

Conductor Stranding:	3/2.75 SC/AC
Conductor Diameter:	5.93mm
Conductor Lay:	LHL

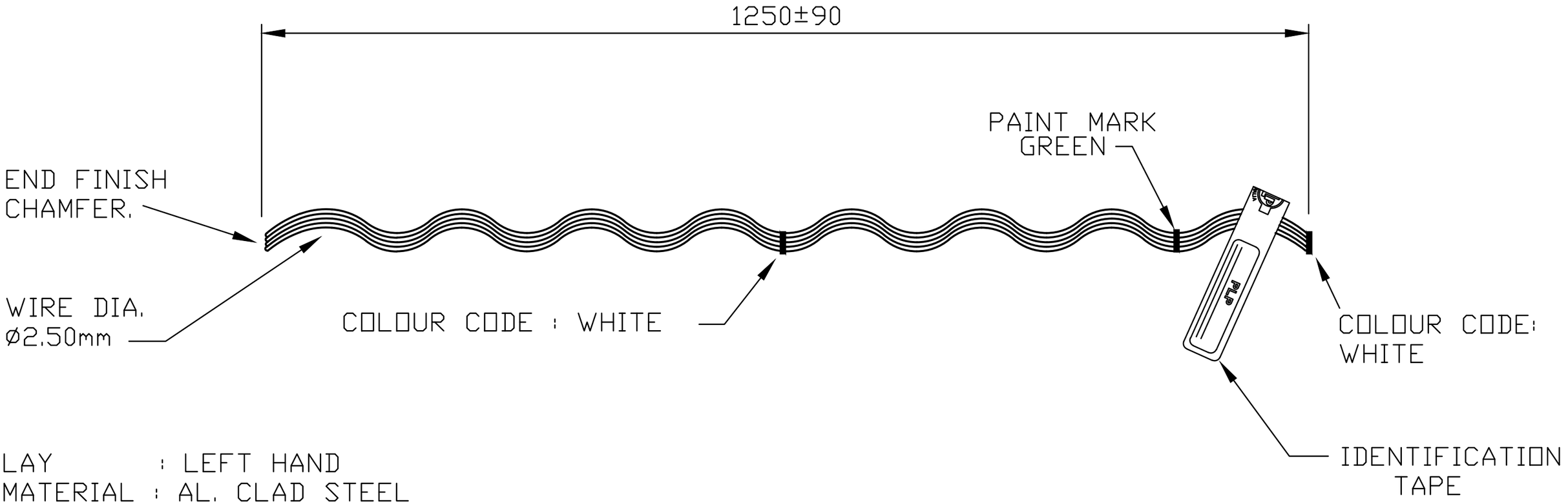
NOTES

1. ALL DIMENSIONS IN MILLIMETRES.

2. TOLERANCES UNLESS OTHERWISE STATED:-
   a. HOLE DIAMETRE ±0.5mm
   b. LINEAR DIMS. UP TO 30mm ±1.5mm
   c. LINEAR DIMS. OVER 30mm ±5% UP TO A MAX. OF 5mm.

3. BRACKETED DIMENSIONS DO NOT AFFECT INTERCHANGEABILITY OR COUPLING AND ARE FOR GUIDANCE ONLY.

4. MATERIAL TO AS1154



LAY : LEFT HAND
MATERIAL : AL. CLAD STEEL
RODS PER SET : 8

PRODUCT TAPE COLOUR : WHITE

TAPE REQUIRED.

A	MP	11/6/91	B	DG	1/9/05	
CHK	DM	11/6/91	CHK			
INITIAL ISSUE DSC NO.7276			A6889			

PART No.: AWAR-K023
AL. CLAD STEEL ARMOR ROD

PASSED | DATE

PREFORMED LINE PRODUCTS (AUSTRALIA) PTY. LTD.

SCALE N.T.S.

DRAWING NUMBER
080-001-RD