



Class I

STANDARD INSTALLATION PROCEDURES FOR 90° AND 45° KTKK MOULDED PART AND ADAPTOR ASSEMBLIES

ELE-3COP-513

TE Connectivity's 90° and 45° KTKK Moulded Part / Adaptor Assemblies

ELECTRONIC APPROVAL, NO SIGNATURES WILL APPEAR.

IF PRINTED THIS DOCUMENT BECOMES UNCONTROLLED

Before starting work please read this document carefully and note the guidance given.

1. PURPOSE AND SCOPE

This Code of Practice describes the procedures to be used when installing 90° and 45° KTKK moulded part/adaptor assemblies from TE Connectivity (TE). The instructions stated in this document take preference over IPC/WHMA requirements, as do the drawing and any customer documentation.

It is good working practice that where trained operators have not installed this product for over 6 months, a sample installation should be carried out by the operator to refresh installation practice. Performance of the sample can be checked using the inspection standards described within this document.

TABLE OF CONTENTS

1.	PURPOSE AND SCOPE	2
2.	PERFORMANCE OBJECTIVE.....	4
3.	MATERIALS AND EQUIPMENT	5
4.	HEALTH AND SAFETY	6
5.	PROCEDURE - PREPARATION.....	7
6.	INSPECTION REQUIREMENTS	12
7.	VISUAL STANDARDS	13
8.	REVISION HISTORY	14

Table of Figures

Figure 1 Degreased and abraded cable jacket	9
---	---

Table of Tables

Table 1 Cut back length.....	7
Table 2 Post heating times	10
Table 3 Revision history	14

2. PERFORMANCE OBJECTIVE

This code of practice is produced to support operators already trained in the installation of heat shrinkable and harnessing products. It identifies the standard procedures to be used when installing 90° and 45° KTKK moulded part/adaptor assemblies for all screened and unscreened assemblies **with** pre-installed adhesive on 'J' end of boot (Method 1), and all coated and uncoated assemblies **without** pre-installed adhesive on 'J' end of boot (Method 2).

3. MATERIALS AND EQUIPMENT

Appropriate 90° or 45° KTKK Moulded part/adaptor Assembly.

Raychem S1125 adhesive (Method 2 only).

Raychem S1184 adhesive (Method 2 only).

P100 grit Emery Cloth or equivalent.

Degreasing Agent isopropyl alcohol or isopropanol (IPA) impregnated tissue wipe.

Heavy duty tissues.

Heat Gun CV1981 or equivalent. Other hot air guns may be used but these must be capable of delivering the temperatures required for installation of the Rayaten Moulded Part. This also includes hot air guns with temperature displays.

Reflector PR-24, PR-26 or equivalent.

Bend Test Fixture 500Z1270 (TE Connectivity).

Heat Resistant Gloves.

Safety Glasses.

4. HEALTH AND SAFETY

Adhere to local Codes and Regulations relating to Safe Working practices. For the UK, adhere to requirements of the Health and Safety at Work Act 1974 and subsequent amendments.

The installation should be carried out in a well-ventilated area.

Always wear heat resistant safety gloves when handling hot plastics and adhesives.

The use of suitable protective gloves and barrier cream is recommended when using solvents. Avoid prolonged repeated skin contact with solvents and always wash hands after using solvents.

Care should be taken to wear safety glasses when using and handling chemical solvents. If eyes do become contaminated, flush with water and obtain medical assistance immediately.

Always ensure all equipment is calibrated before use.

5. PROCEDURE - PREPARATION

This procedure covers two methods:

Method 1 - For all screened and unscreened assemblies **with** pre-installed adhesive on 'J' end of boot, ignore steps 5.1, 5.10, 5.11 and 5.13.

Method 2 - For all screened and unscreened assemblies **without** pre-installed adhesive on 'J' end of boot, include steps 5.1, 5.10, 5.11 and 5.13.

5.1. (For screened and unscreened)

METHOD 2 ONLY. Degrease the uncoated 'J' end of the moulded part and abrade with P100 grade emery cloth. Remove any loose particles with a dry tissue. Take care not to abrade coated area.

5.2. (For screened and unscreened)

Slide the KTKK assembly onto the cable.

5.3. (For screened and unscreened)

Cut back the cable jacket and shield sufficiently to terminate the conductors to the connector. The recommended dimensions depend upon the size of the moulded part and are given in Table 1 (Dimension L). Allow an extra 20 mm for service loops if required.

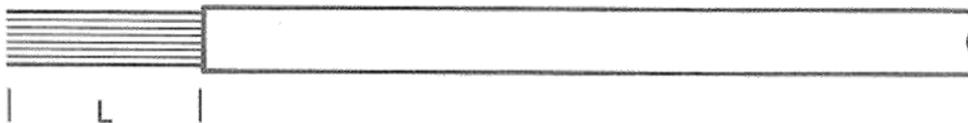


Table 1 Cut back length

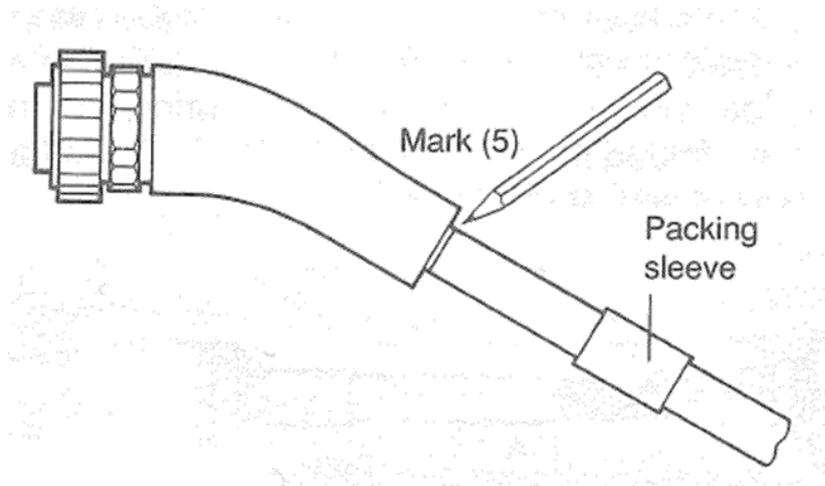
Moulded Part Size	L (mm)	A (mm)
222K132	38	20
222K142	40	25
222K152	40	25
222K163	50	30
222K174	70	30
222S121	38	10
222S132	40	10
222S142	45	10
222S152	50	12
222S163	65	20
222S174	80	20

5.4. (For screened and unscreened)

Terminate the conductors to the connector in the appropriate way.

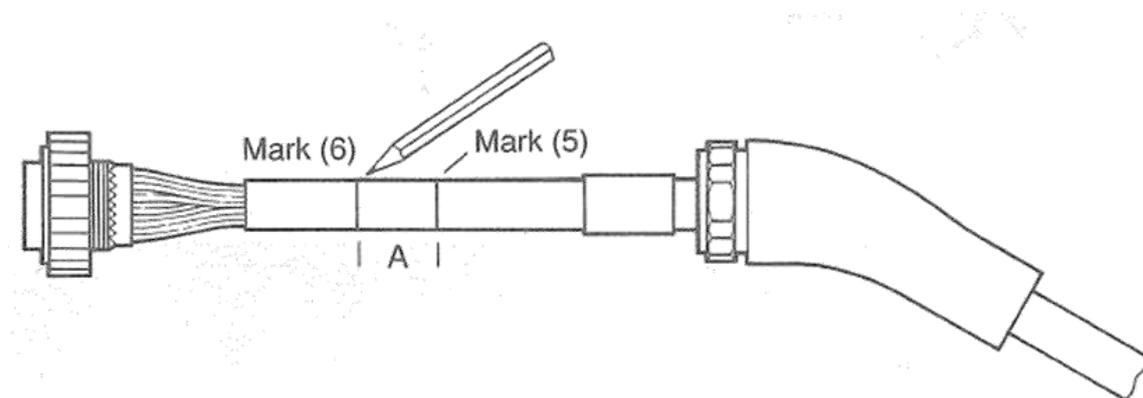
5.5. (For screened and unscreened)

Slide the KTKK assembly along the cable and temporarily secure it to the connector. Mark the cable where the moulded part ends.



5.6. (For screened and unscreened)

Release the KTKK and slide it back along the cable. Make a second mark, distance 'A' towards the connector, from that made in step 5.5. Distance 'A' depends on the size of the moulded part and is given in Table 1 (dimension A). Cut back the cable jacket to this mark.

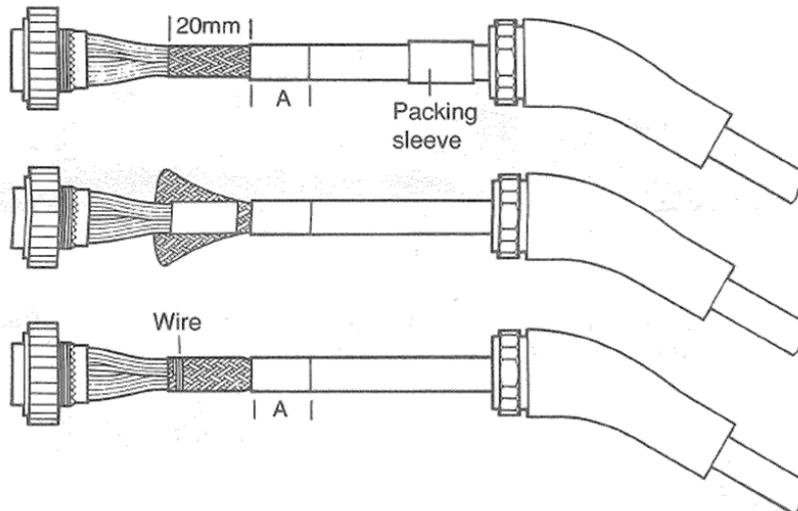


5.7. (For screened)

Cut back the cable shield leaving 20 mm exposed from the end of the cable jacket.

5.8. (For screened)

Position the heat-shrinkable packing sleeve under the 20 mm of exposed shield and recover down. Secure the ends of the shield with the tinned copper wire, ensuring that the twisted ends are folded flat against the shield. The shield and cable are now of similar diameter.



5.9. (For screened and unshielded)

Degrease area 'A' and the cable braid with the cleaning tissue provide. Thoroughly abrade area 'A' with the P100 grit emery cloth and then remove any loose particles with a dry tissue. **DO NOT** use a solvent wipe. The whole surface of the cable jacket should be abraded removing any print on the cable jacket. See Figure 1. Take care to avoid abrading the plating of the braid.



Figure 1 Degreased and abraded cable jacket

This part of the cable preparation is very important in ensuring a strong bond to the moulded part.

5.10. (For screened and unscreened)

METHOD 2 ONLY. Mix the Raychem S1125 adhesive, taking note of the approximate pot life of 60 mins at ambient temperature.

5.11. (For screened)

METHOD 2 ONLY. Mix the Raychem S1184 adhesive and work into the shield for a length of 20 mm and thickness 2 mm.

5.12. (For screened and unscreened)

With the major keyway in the correct position, secure the KTKK to the connector using the appropriate mating half and tighten to the specified torque value.

Refer to ELE-3COP-452

5.13. (For screened and unscreened)

METHOD 2 ONLY. Apply S1125 adhesive to area 'A' on the cable jacket and to the uncoated area of the 'J' end of the moulded part.

5.14. (For screened and unscreened)

Using a CV-1981 Heat Gun set to 230°C to 250°C and with a PR24 or PR26 reflector, shrink the rear of the moulded part onto the cable. Heat must be applied evenly around the moulded part to recover evenly and prevent scorching.

Ensure the part is fully recovered onto the cable. Look for evidence that adhesive is present and clean off excess adhesive.

Post heat times shown in Table 2 should be adhered to in order to give sufficient bonding.

Table 2 Post heating times

Moulded Part Size	Approx recovery time (secs)	Post Heat time (secs)
121	30	90
132	30	120
142	45	135
152	45	150
163	60	165
174	60	180

Note: When using S1184 and s1125 adhesives the post heat times must be followed by a further 24 hours at RT, or 1 hour at 85°C, or 15 minutes at 150°C before handling.

Always ensure that the air vent on the rear of the hot air gun is open and that it is dust free.

Always allow the hot air gun to stabilize at the required temperature and setting for two minutes before commencing calibration and installation.

Hot air gun validation shall be carried out on a regular basis, frequency will depend on usage. Please refer to the Manufacturers guide for hot air gun calibration and maintenance and ELE-3COP-711 for hot air gun validation.

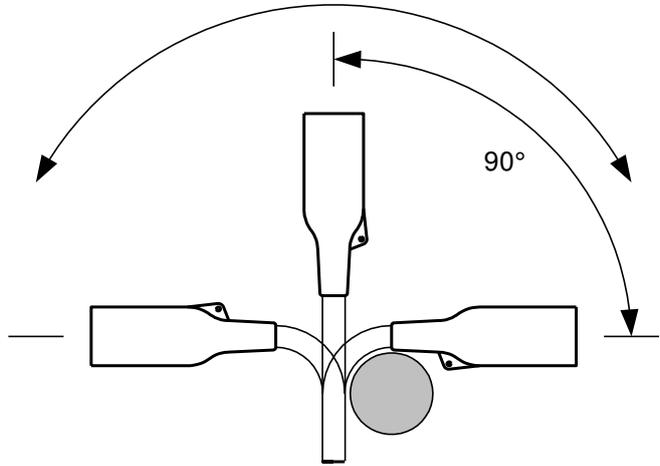
For Screened Assemblies

In order to verify correct installation, it is important that certain checks are carried out to ensure that there are no high resistance terminations. This can be done by recording the DC resistance of the braid prior to installation of the KTKK. Upon completion of installation of the KTKK assembly, the DC resistance value should not increase by greater than 2.5 milliohms.

The measurement of DC resistance gives no statement about the screening performance of the harness, it only tells the quality of the termination.

6. INSPECTION REQUIREMENTS

The termination should be rotated so it is subjected to a flex test of 90° in each of four planes around a mandrel with a diameter equal to 6 times the cable diameter.



There should be no separation between the Moulded Part and the cable jacket at the adhesive bond line.

The Moulded Part must be free from fingerprints and scorch marks.

Record DC resistance measurements.

7. VISUAL STANDARDS

No visual standard currently available.

8. REVISION HISTORY

Author	Approved	Date	Rev	Comments
K. Carter	P. White	30JUN1988	3	CR06-DM-071
P. Newman	N. Dorricott	11DEC2009	4	CR09-DM-018
P. Newman	N. Dorricott	07JUN2011	5	Visual Identity
P. VU	H. Smith	26MAR2018	6	Plated Rayaten replaced by Coated Rayaten moulded parts RTS-1364475.1

Table 3 Revision history

All of the above information is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their application. TE makes no warranties as to the accuracy or completeness of the information and disclaims any liability regarding its use. TE's only obligations are those in the Standard Terms and Conditions of Sale for these products and in no case will TE be liable for any incidental / indirect or consequential damages arising from the sale, resale, use or misuse of the product. TE's specifications are subject to change without notice. In addition, TE reserves the right to make changes in materials or processing, without notification to the Buyer, which do not affect compliance with any applicable specification.