



All numerical values are in metric units [with U.S. customary units in brackets]. Dimensions are in millimeters [and inches]. Unless otherwise specified, dimensions have a tolerance of ± 0.13 [± 0.005] and angles have a tolerance of $\pm 2^\circ$. Figures and illustrations are for identification only and are not drawn to scale.

1. INTRODUCTION

This specification covers the requirements for application of AMP-LATCH System 50 Paddleboard Connectors. These connectors have four staggered rows of insulation displacement contacts on 1.27 X 1.90 [.060 X .076] centerlines and accept 0.64 [.025] centerline ribbon cable. They are available as individual paddleboard assemblies or in cable assemblies.

When corresponding with personnel, use the terminology provided in this specification to facilitate your inquiries for information. Basic terms and features of this product are provided in Figure 1.

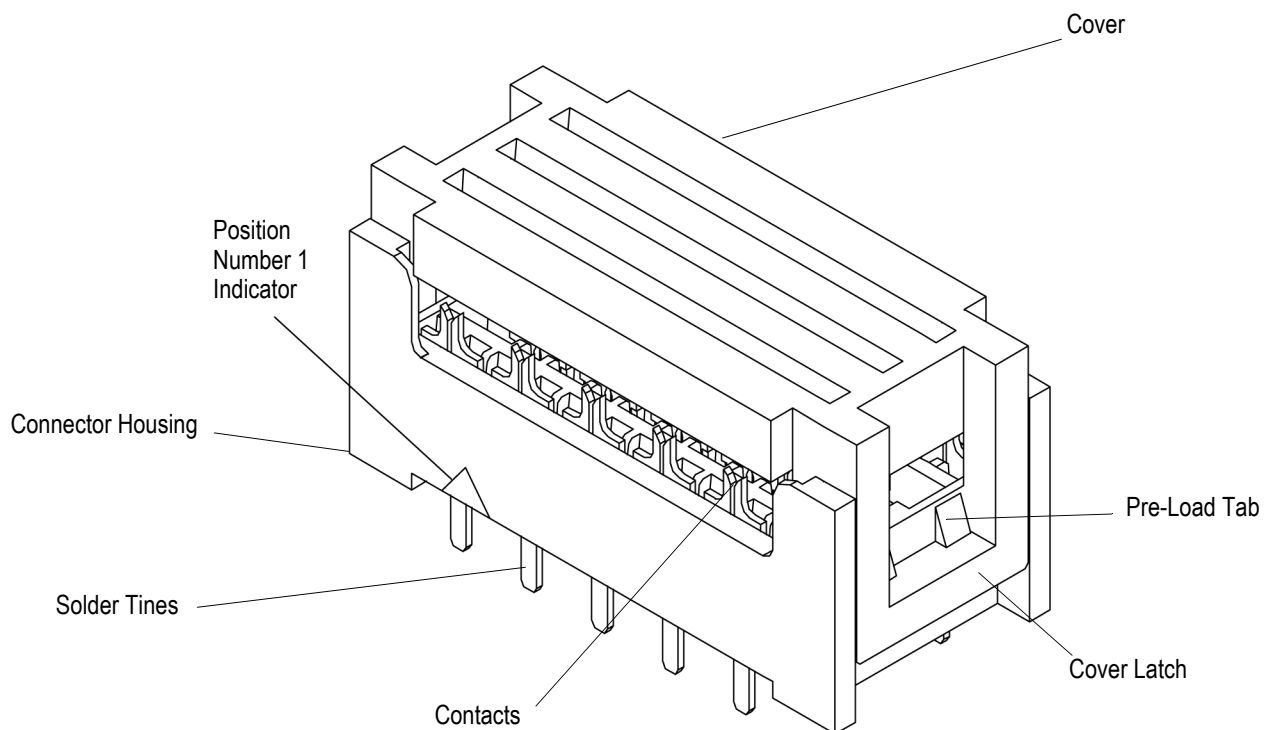


Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

This paragraph is reserved for a revision summary covering the most recent additions and changes made to this specification which include the following:

Since the previous release, the new company logo has been applied.

2.2. Customer Assistance

Reference base part numbers 111595 (non RoHS compliant) 5111595 (RoHS compliant); and product code 0941 are representative numbers of AMP-LATCH System 50 Paddleboard Ribbon Cable Connectors. Use of these numbers will identify the product line and expedite your inquiries through a service network established to help you obtain product and tooling information. Such information can be obtained through a local TE representative or, after purchase, by calling the Tooling Assistance Center or the Product Information Center number at the bottom of page 1.

2.3. Drawings

Customer drawings for each product part number are available from the service network. The information contained in customer drawings takes priority if there is a conflict with this specification or with any technical documentation supplied by TE.

2.4. Specifications

Product Specification 108-1109 provides product performance requirements and test information.

2.5. Manuals

Manual 402-40 is available upon request and can be used as a guide in soldering. This manual provides information on various flux types and characteristics along with the commercial designation and flux removal procedures. A checklist is included as a guide for information on common soldering problems.

2.6. Instructional Material

The following list includes instruction sheets (408-series) that provide assembly procedures for product, operation, maintenance and repair of tooling.

408-4102	Paddleboard Terminator Locator Kit 543565-1
408-6574	Ribbon Cable Hand Cutting Tool 91220-1
408-6732	Pneumatic Auto-Cycle Unit 91112-3
408-7777	Manual Arbor Frame Assembly 91085-2
408-9875	Base Assembly Universal Arbor Tool 768338-2
408-9928	Connector-Specific Kit 679176-1

3. REQUIREMENTS

3.1. Storage

A. Ultraviolet Light

Prolonged exposure to ultraviolet light may deteriorate the chemical composition used in the connector housings.

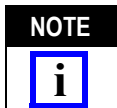
B. Shelf Life

The connectors should remain in the shipping containers until ready for use to prevent deformation to the connectors. The connectors should be used on a first in, first out basis to avoid storage contamination that could adversely affect signal transmissions.

C. Chemical Exposure

Do not store connectors near any chemicals listed below as they may cause stress corrosion cracking in the contacts.

Alkalies	Ammonia	Citrates	Phosphates	Citrates	Sulfur Compounds
Amines	Carbonates	Nitrites	Sulfur	Nitrites	Tartrates



Where the above environmental conditions exist, phosphor-bronze contacts are recommended instead of brass, if available.

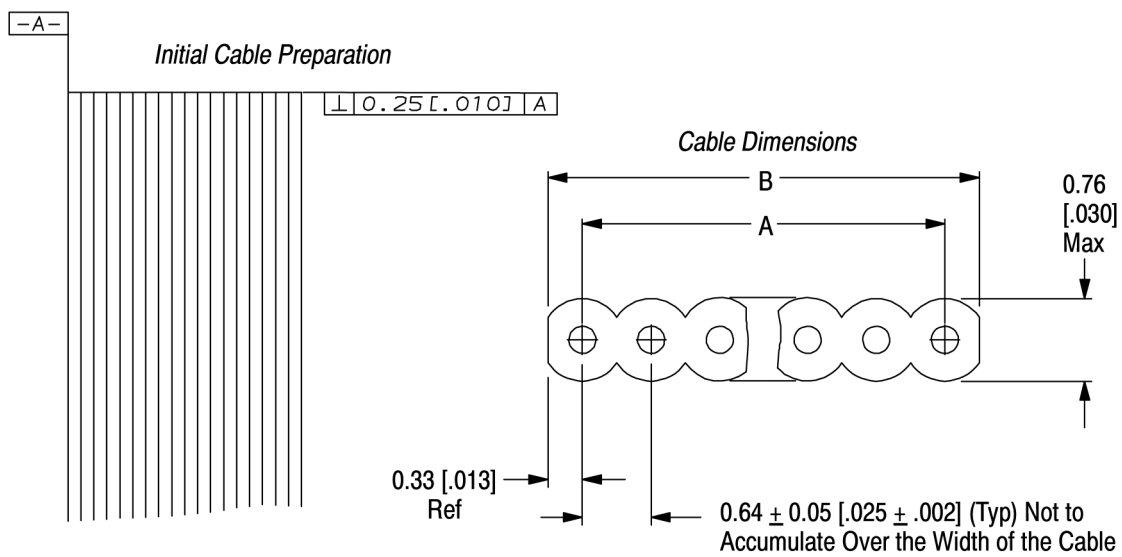
3.2. Cable Requirements

Ribbon cable shall be cut straight and perpendicular. See Figure 2. No other cable preparation is necessary. Refer to the information given in Section 5, TOOLING, for more information on cable tooling.

AMP-LATCH System 50 Connectors can terminate ribbon cable wire with 30 AWG (solid or stranded conductors) and 32 AWG (stranded conductors) with PVC insulation.

Ribbon cable shall contain the appropriate number of conductors to match the particular connector being used, and shall meet the requirements of Figure 2.

NOTE 30 AWG solid (Tyco Electronics engineering drawing number 57013) and 30 AWG stranded (engineering drawing number 57131) PVC insulated ribbon cable that meets or exceeds the requirement of Figure 2 is available from TE. 32 AWG stranded ribbon cable is not available from TE.



NUMBER OF CONDUCTORS "n"	DIMENSION "A"		DIMENSION "B"	
	MM	INCHES	MM	INCHES
10 - 60	$[(N-1) \times 0.64] \pm 0.18$	$[(N-1) \times .025] \pm .007$	$(N \times 0.64) \pm 0.13$	$(N \times .025) \pm .005$
61 - 72	$[(N-1) \times 0.64] \pm 0.20$	$[(N-1) \times .025] \pm .008$		
73 - 100	$[(N-1) \times 0.64] \pm 0.23$	$[(N-1) \times .025] \pm .009$		

Figure 2

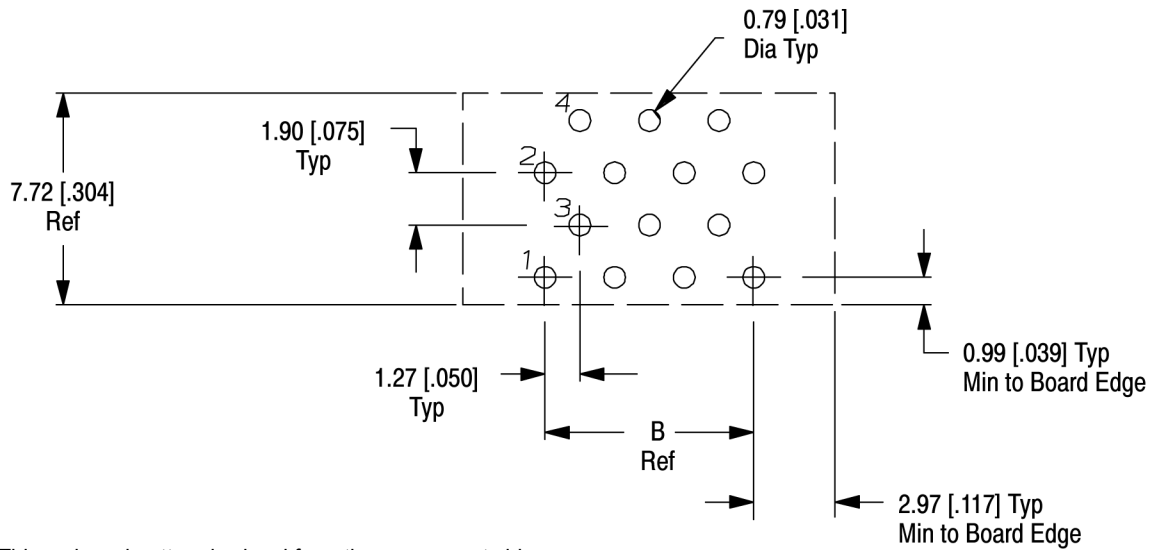
3.3. Printed Circuit (PC) Board

A. Material

- 1) Board material will be glass epoxy (FR-4, G-10). Consult the Product Information Center for suitability of other board materials.
- 2) Board thickness shall be 1.57 +0.18 [0.062 +.007]. For suitability of other board thicknesses, consult the Product Information Center.

B. Tolerance

Maximum allowable bow of the pc board shall be 0.1 [0.004] over the length of the connector.



NOTE: This pc board pattern is viewed from the component side.

Figure 3

C. Layout

The recommended pc board pad pattern, dimensions, and tolerances are shown in Figure 3.

3.4. Connector Spacing

The space needed between pc board-mounted connectors and respective mating connectors is provided in Figure 4. The dimensions do not include space requirements for other pc board components, tooling, or multiple connectors between two pc boards. Always check spacing requirements before making placement layout on the pc board.



When multiple connectors (more than one pair) are to be used to connect two pc boards, tolerance build-up could cause connector stubbing and/or overstress on the solder joints. There are numerous applications for controlling tolerance build-up, each depending on the design of the system in which they are to be used. Contact the Product Information Center number at the bottom of page 1 for design assistance.

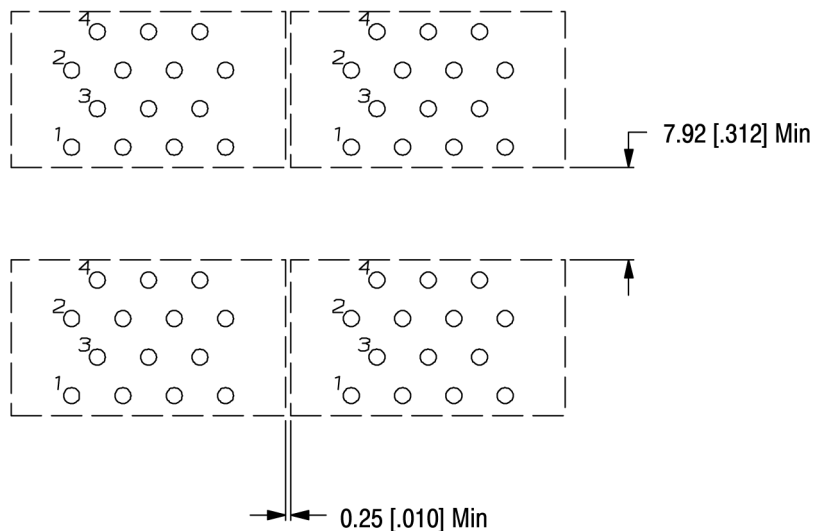


Figure 4

3.5. Terminated Connector Requirements

The connectors include a pre-positioned cover for end terminations or daisy-chain applications. Refer to Figure 5 for cover placement and cable location information after termination.



Care shall be taken when aligning cable prior to termination to maintain perpendicularity between the length of the cable and the length of the connector.

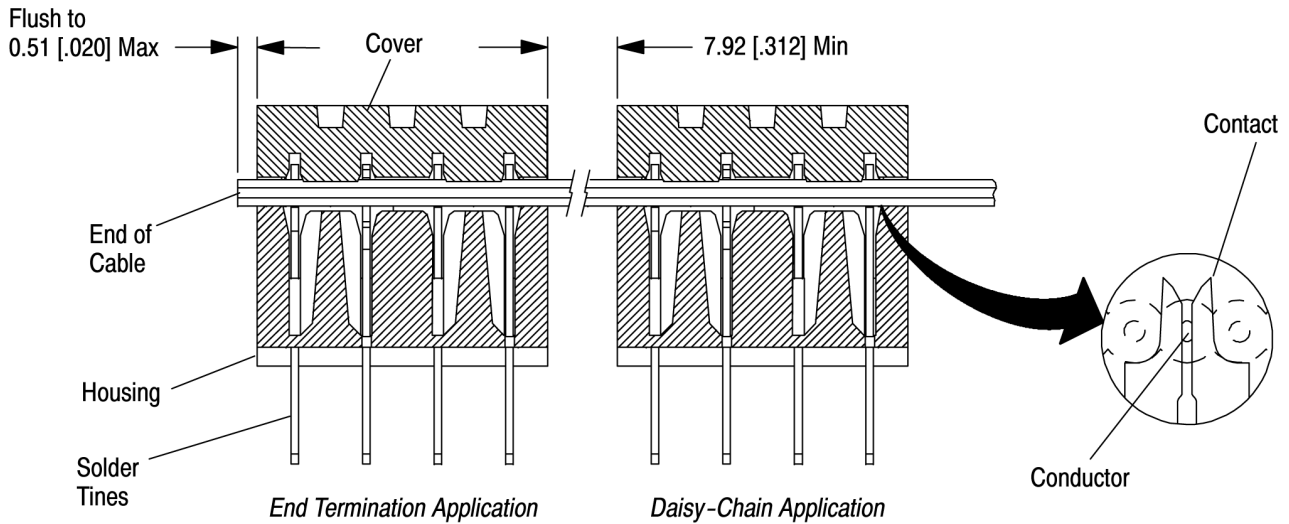


Figure 5

The cover shall be firmly held to the housing by the requirements shown in Figure 6.

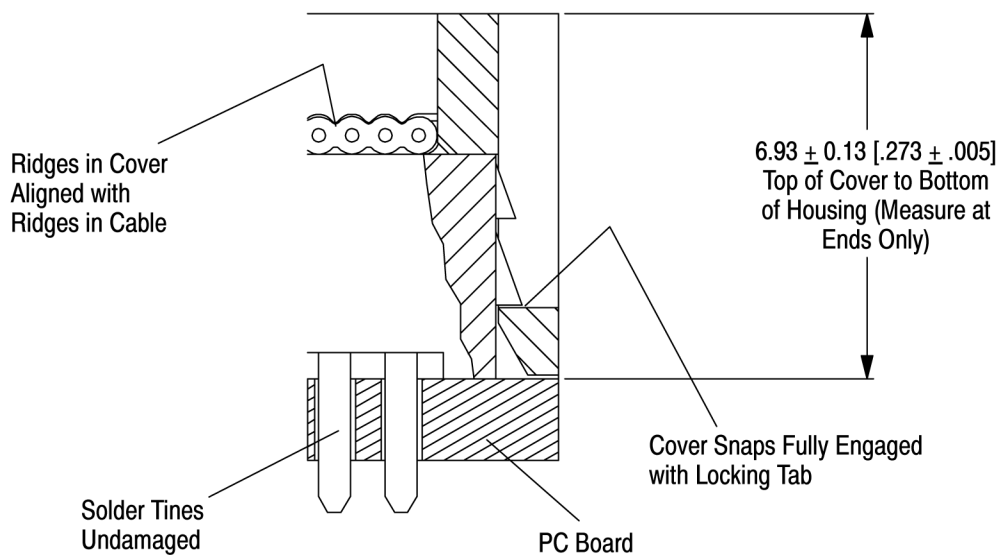


Figure 6

3.6. Soldering

A. Soldering Guidelines

AMP-LATCH System 50 Paddleboard Contacts can be soldered using wave or equivalent soldering techniques. The temperatures and exposure time shall be within the ranges specified in Figure 7. We recommend using SN60 or SN62 solder for these socket assemblies.

SOLDERING PROCESS	TEMPERATURE■		TIME (At Max Temperature)
	CELCIUS	FAHRENHEIT	
Wave Soldering	260°	500°	5 seconds

■ Wave Temperature

Figure 7

B. Flux Selection

The solder tines must be fluxed prior to soldering with a rosin base flux. Selection of the proper flux will depend on the type of printed circuit board and other components mounted on the board. Additionally, the flux must be compatible with the wave solder line, manufacturing, and safety requirements. Some fluxes that are compatible with this product line are provided in Figure 8. Call the Product Information number at the bottom of page 1 for consideration of other types of flux.

FLUX TYPE	ACTIVITY	RESIDUE	COMMERCIAL DESIGNATION	
			KESTER‡	ALPHA‡
Type RMA (Mildly Activated)	Mild	Noncorrosive	185/197	611
Center (Activated)	Medium	May Be Corrosive	1544, 1545, 1547	711, 809, 811

‡ KESTER and ALPHA are trademarks.

Figure 8

C. Cleaning

After soldering, removal of fluxes, residues, and activators is necessary. Consult with the supplier of the solder and flux for recommended cleaning solvents. The following is a list of common cleaning solvents that will not affect the connectors for the time and temperature specified. See Figure 9.



Consideration must be given to toxicity and other safety requirements recommended by the solvent manufacturer. Trichloroethylene and Methylene Chloride can be used with no harmful affect to the sockets; however, TE does not recommend them because of the harmful occupational and environmental effects. Both are carcinogenic (cancer-causing) and Trichloroethylene is harmful to the earth's ozone layer.



If you have a particular solvent that is not listed, contact the Product Information number at the bottom of page 1.

D. Drying

When drying cleaned assemblies and printed circuit boards, make certain that temperature limitations of - 55°C to 105°C [-67°F to 221°F] are not exceeded. Excessive temperatures may cause housing degradation.

E. Soldering Guidelines

Refer to Paragraph 2.5 for information that is available for establishing soldering guidelines.

CLEANER		TIME (Minutes)	TEMPERATURE (Maximum)
NAME	TYPE		
ALPHA 2110	Aqueous	1	132°C [270°F]
BIOACT EC-7	Solvent	5	100°C [212°F]
Butyl CARBITOL Solvent	Solvent	1	Ambient Room
Isopropyl Alcohol	Solvent	5	100°C [212°F]
KESTER 5778	Aqueous		
KESTER 5779	Aqueous		
LONCOTERGE 520	Aqueous		
LONCOTERGE 530	Aqueous		
Terpene Solvent	Solvent		

ALPHA, BIOACT, CARBITOL, LONCOTERGE, and KESTER are trademarks of their respective owners.

Figure 9

3.7. Checking Installed Connector

All solder joints should conform to those specified in Test Specification 109-11. The connector must seat on the pc board as shown in Figure 10. Inspections of the product shall be routinely conducted both prior to and after termination to ensure that the requirements of this specification are met.

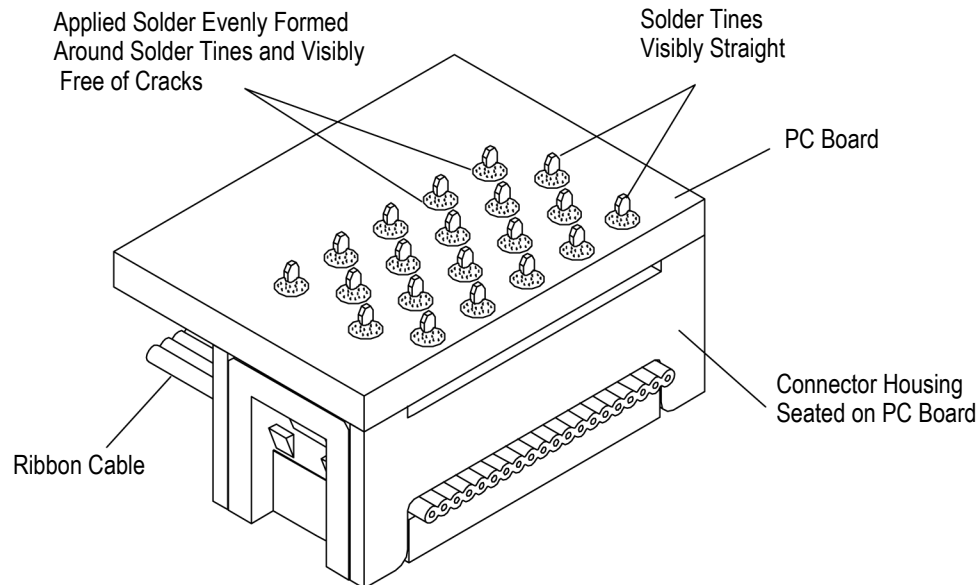


Figure 10

3.8. Workmanship

The following workmanship standards shall apply to the terminated product:

1. There shall be no exposed copper chips or broken conductor strands.
2. The connector housing and cover shall not sustain damage as a result of the termination process.

4. QUALIFICATION

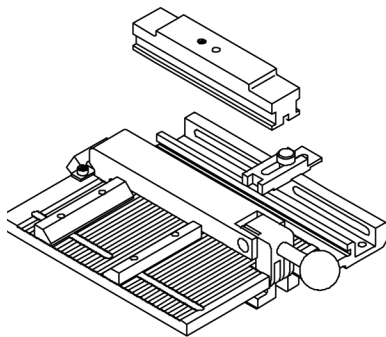
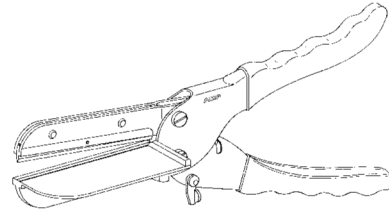
The AMP-LATCH System 50 Paddleboard Ribbon Cable Connector is Recognized by Underwriters Laboratories Inc. (UL) in File E28476, and Certified to the Canadian Standards Association (CSA) in File LR7189.

5. TOOLING

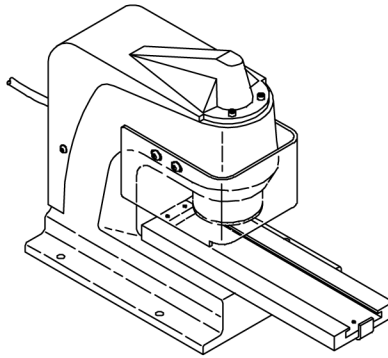
AMP-LATCH System 50 Paddleboard Ribbon Cable Connectors can be terminated using the tooling listed in Figure 11.

TOOLING ASSEMBLY (Document)	CONNECTOR SPECIFIC KIT (Document)	POWER UNIT (Document)	HAND TOOL (Document)
768338-2 (408-9875)	543565-1• (408-4102) 679176-1 (408-9928)	91085-2 (408-7777) 91112-3 (408-6732)	91220-1 (408-6574)

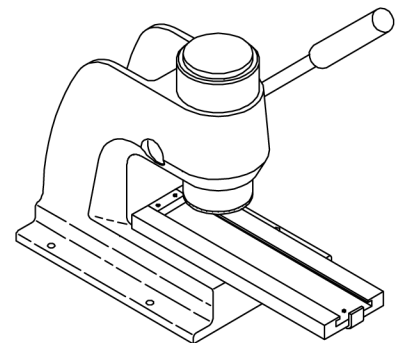
• Only used with 91085-2



Tooling Assembly
768338-2



Pneumatic Auto-Cycle Unit 91112-3



Manual Arbor Frame Assembly 91085-2

Figure 11

6. VISUAL AID

FIGURE 12. VISUAL AIDThe illustration below shows a typical application of this product. This illustration should be used by production personnel to ensure a correctly applied product. Applications which **DO NOT** appear correct should be inspected using the information in the preceding pages of this specification and in the instructional material shipped with the product or tooling.

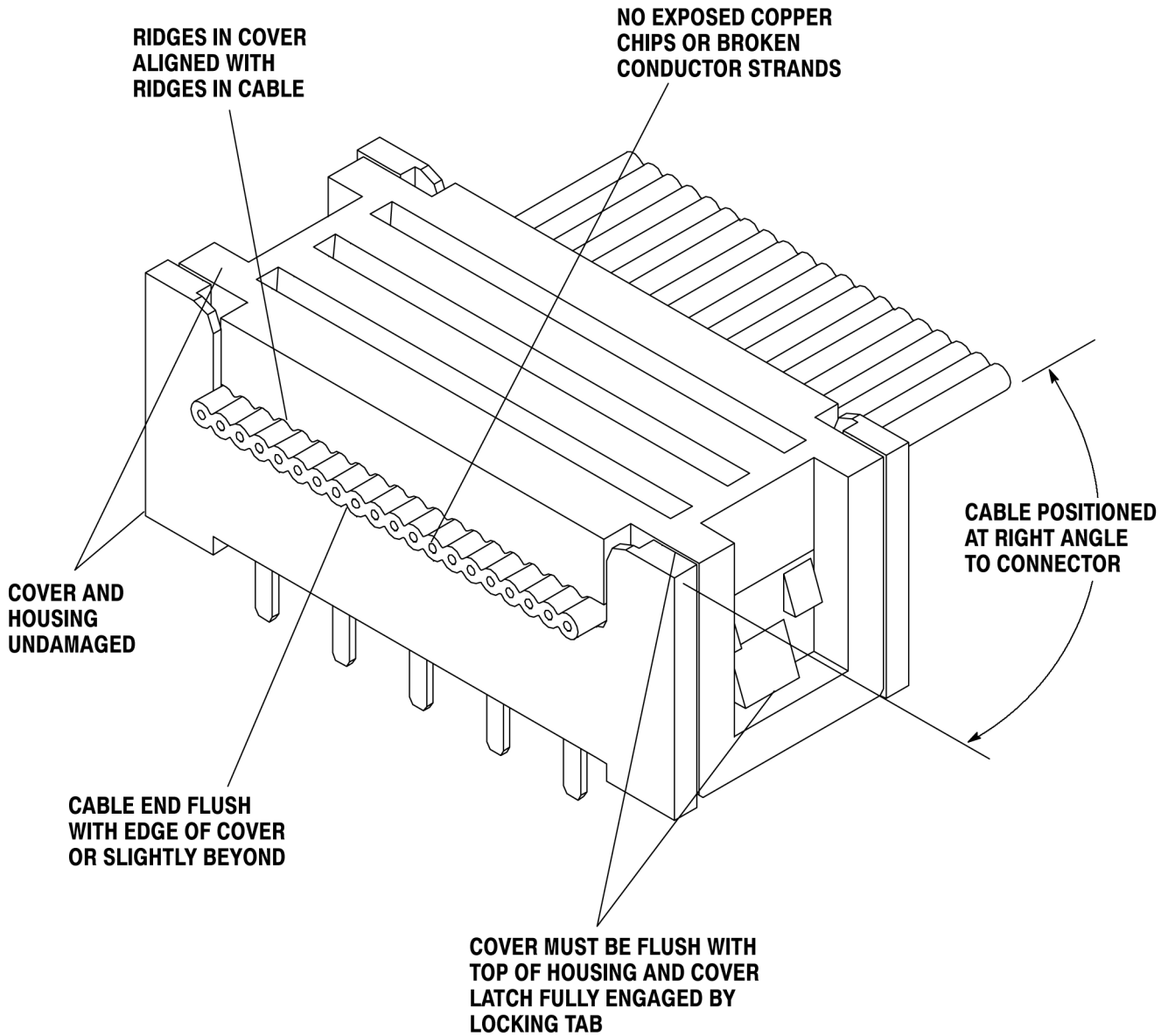


FIGURE 12. VISUAL AID