

1. INTRODUCTION

This specification covers the requirements for the application of AMP* Standard Crimp contacts to FFC (Flexible Flat Cable). These requirements are applicable to hand application tooling and automatic application tooling.

NOTE: All dimensions are in inches unless otherwise specified.

2. REFERENCE MATERIAL

2.1. AMP Product Specification 108-9024 covers applicable performance requirements.

2.2. AMP Instruction Sheet IS 7637 provides information relating to hand application tooling. IS 7424 provides information for checking applied crimping forces. AMP Customer Manuals CM 5292 and CM 5445 provide information relating to automatic application tooling.

2.3 Commercial Document IPC-FC-200 covers the specifications for Unshielded, Flat Conductor, Flat Cable.

2.4. Customer Drawings for specific products are available from the responsible AMP engineering department. The information on these drawings takes priority if there is a conflict with this specification or with any technical documentation supplied by AMP Incorporated.

2.5. Each AMP product is assigned a part number. And a unique grouping within a product family is assigned a product code. It is impractical to list all numbers relating to this document. However, the following typical numbers are provided to help identify the product line allowing us to answer your questions more efficiently: REF PART NO. 86773, PRODUCT CODE 5176.

3. PRODUCT FEATURES

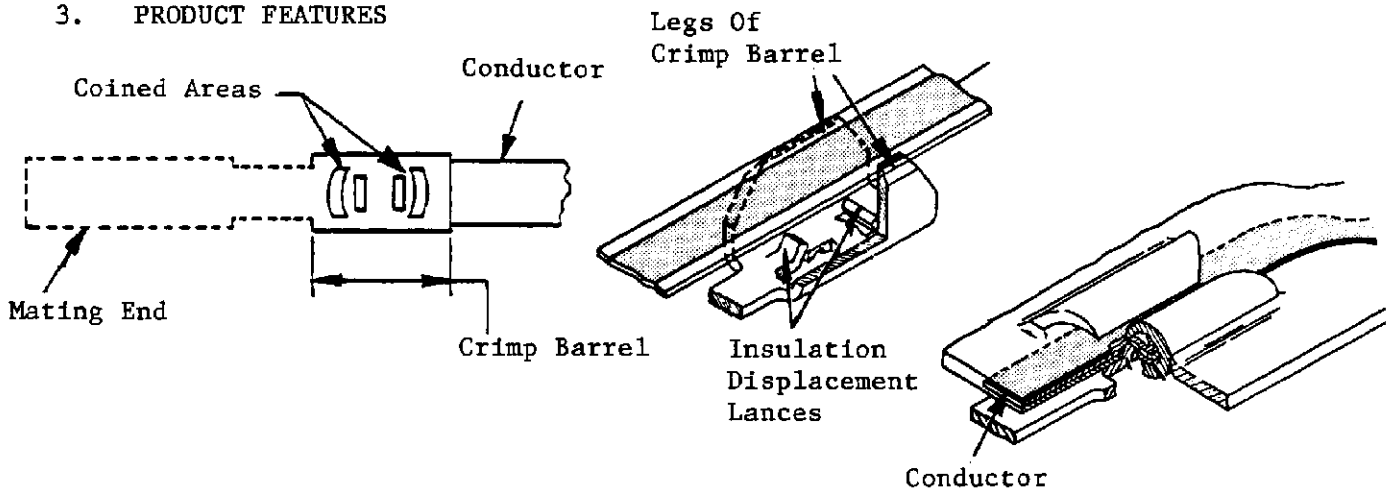


Fig. 1. Product Features

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		APPLICATION SPECIFICATION		AMP AMP INCORPORATED Harrisburg, Pa. 17105		
		ENGINEERING APPROVAL & DATE Ray Smith 3/21/88			NO. 114-16002	
A	Per ECN AZ 1225	PAGE	TITLE			
O	Was 114-25001	1 OF 6	FFC STANDARD CRIMP CONTACT			
LTR	REVISION RECORD					

4. REQUIREMENTS

4.1. FFC Cable

A. Dimensional

Flexible flat cable shall meet the requirements of IPC-FC-220, tolerance class IV.

B. Design

Standard crimp contact is designed to be applied to cable which meets the following requirements:

- (1) Conductor size: $.062 \pm .003$ wide x $.0025-.0075$ thick
- (2) Conductor spacing: $.100$ or greater
- (3) Conductor spacing tolerance: $\pm .005$ noncumulative
- (4) Cable thickness: $.015$ maximum
- (5) Maximum number of conductors: 35 on $.100$ centerline spacing or 3.600 maximum cable width.
- (6) Material: Taken from IPC-FC-220 (Table 1).
 - (a) Type A: Polyester, self-extinguishing, heterogeneous.
 - (b) Type B: Polyimide only.

C. Other Cable

If contacts are to be applied to cable other than listed in Paragraph 4.1.B., or flexible printed wiring (FPW), contact AMP Product Engineering.

NOTE: Where the term "circuit" is used it shall be regarded as FFC or FPW.

4.2. Preparation of Terminated Area

End of the circuit to be terminated shall be cut straight and perpendicular to the edge of the conductor as shown in Figure 2. Minimum straight length of conductor from the cut edge of the circuit/cable shall be $.250$.

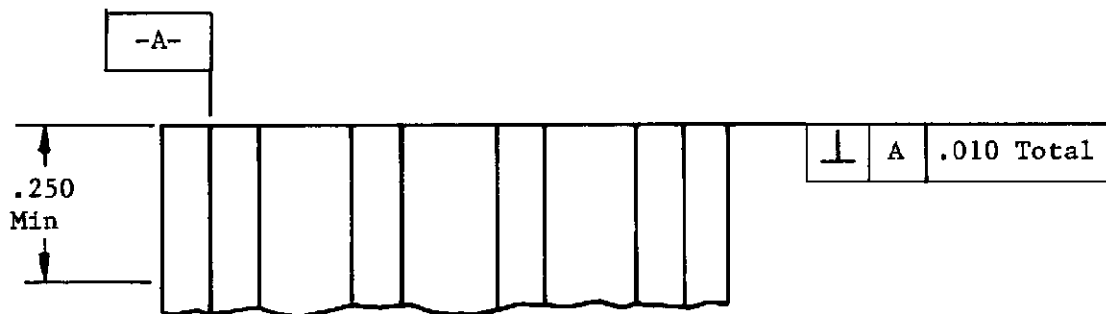


Fig. 2. Preparation Of Circuit

4.3. Inspection

A. Contact Protrusion

End of the circuit shall be positioned with respect to the contact as shown in Figure 3. Contacts may also be positioned at other locations along the circuit if required by the application, contact AMP Product Engineering.

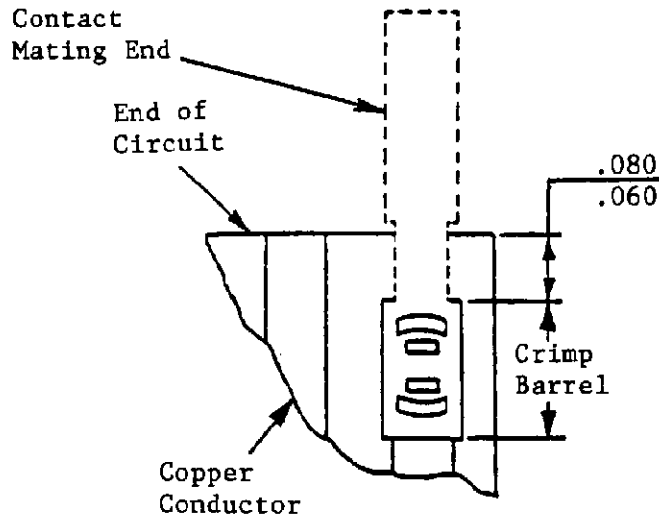
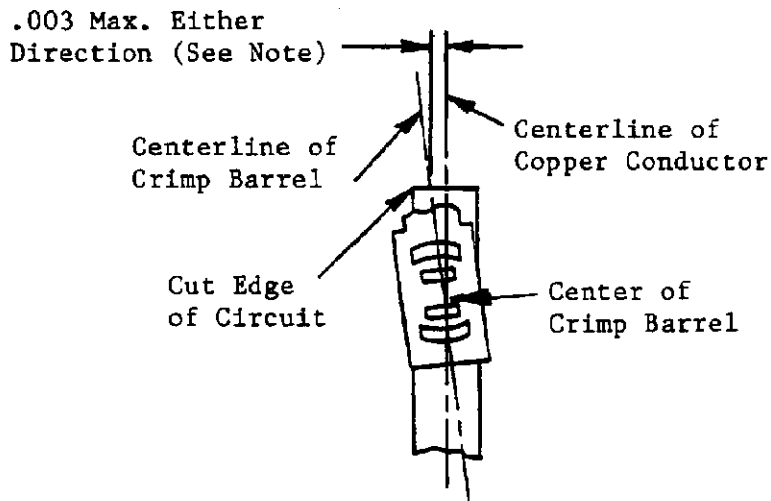


Fig. 3. Contact Protrusion

B. Crimp Barrel Centerline

Centerline of the crimp barrel shall be parallel with the centerline of the conductor within the limits shown in Figure 4.



NOTE: Dimension to be measured from the center of the crimp barrel to the cut edge of the circuit.

Fig. 4. Crimp Barrel Centerline

C. Crimp Barrel Alignment

Conductors shall be confined within the crimp barrel when viewed from the top with the cable lying flat. There shall be no portion of conductor visible beyond the edge of the crimp barrel, see Figure 5.

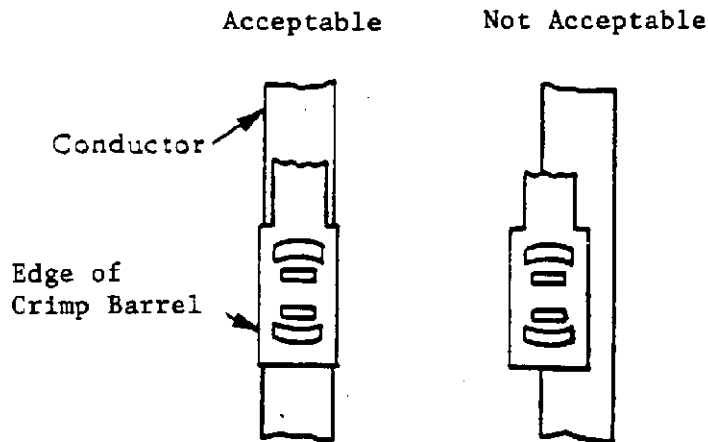
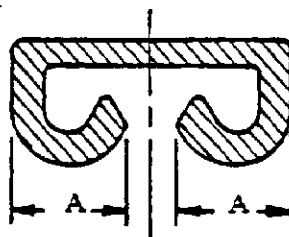


Fig. 5. Crimp Barrel Alignment

4.4 Crimp Configuration

Tooling alignment shall be checked by crimping a contact in the automatic machine tooling without a conductor in place. The crimped contact without a conductor shall have a configuration as shown in Figure 6 when observed from the end of the crimp barrel. Dimensions A-A shall be symmetrical after crimping and within the tolerance shown.



A-A Within .003

Fig. 6. Crimp Configuration

4.5. Slivers

Slivers of the copper conductor may occur when the crimp barrel is not exactly centered on the conductor, and those slivers must be removed and/or prevented from causing electrical shorts. A recommended procedure after crimping is to remove loose slivers by vacuuming. Visually examine the crimped areas to assure that no slivers appear which can cause an electrical short, and flow coat the crimped area with a liquid plastic such as Sterling XL-8** (AMP Part Number 18831-1) or equivalent.

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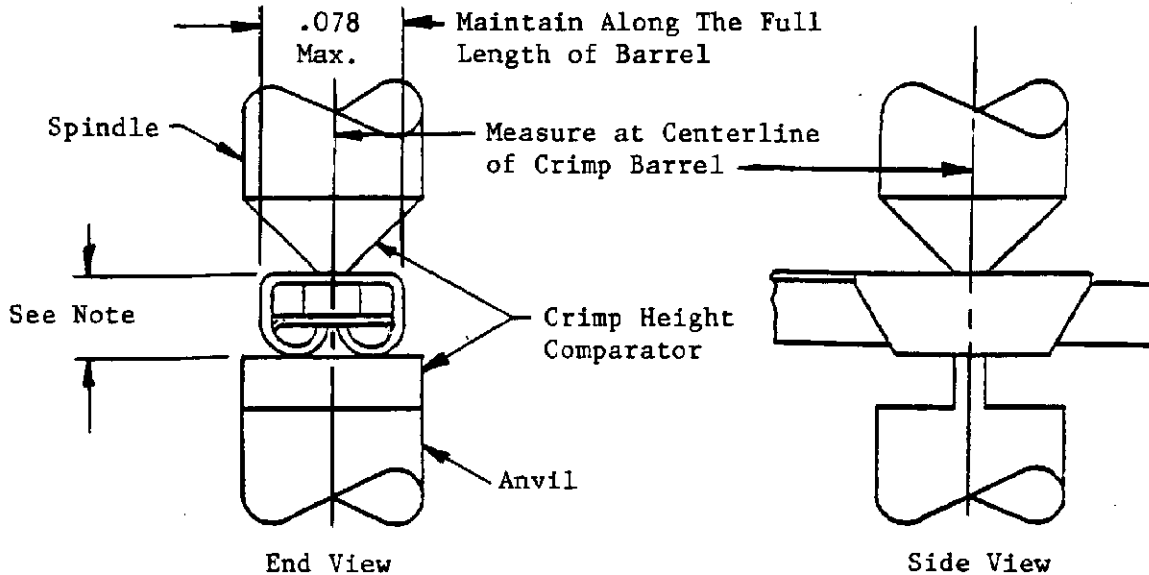
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4.6. FFC Crimp Height

Crimp height shall be measured with a well-centered conductor as shown in Figure 7, after removing all insulating material that has extruded outside the crimp. A crimp height comparator (refer to IS 7424) shall be used for crimp height measurements.



NOTE: Crimp heights indicated apply only to FFC cable meeting the dimensional requirements of Paragraph 4.1.B. with base and coverlay insulation material thicknesses (excluding adhesive) of .002 each. Contact AMP Engineering for crimp heights to be used with other (or FPW) constructions. Setup dimensions are as follows:

Conductor Thickness	Crimp Height
.003	.035 ± .001
.004	.036 ± .001
.005	.037 ± .001
.007	.040 + .002 - .001

Fig. 7. FFC Crimp Height

4.7. Carrier Cutoff Tab and Burr

Carrier cutoff tab and burr shall not exceed the limits shown in Figure 8.

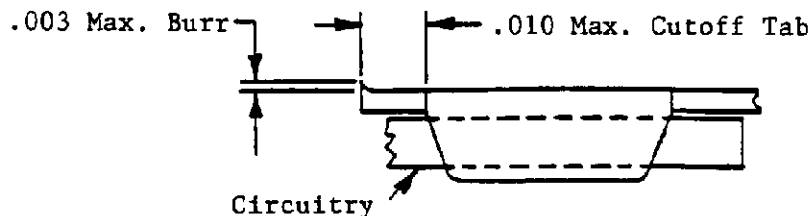


Fig. 8. Cutoff Tab

4.8. Crimp Barrel Flash

Crimp barrel flash shall not exceed the limits shown in Figure 9.

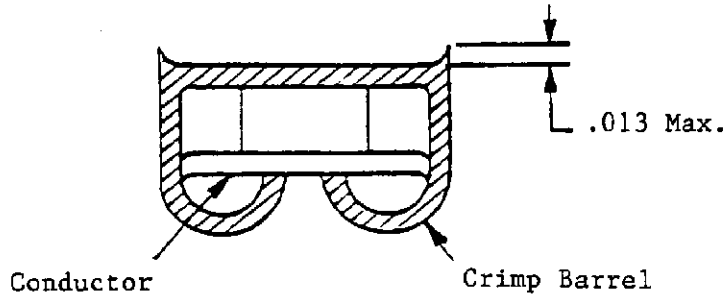


Fig. 9. Crimp Barrel Flash

4.9. Workmanship

Crimped contacts and crimp area of circuit shall be carefully examined on both sides to determine that it meets the requirements of this specification. Contacts shall show no signs of cracking or tearing as a result of damaged or misadjusted tooling.

5. TOOLING TYPES

Hand application tooling crimps loose piece contacts and is intended for low volume manufacturing. Automatic machine application tooling is available for high-volume manufacturing and will crimp strip-form contacts.

Contact Description	Hand Tool (Instr Sheet)	Automatic Terminating Machine (Customer Manual)
Splice or Tap (Wire to Cable)	90273-2 (IS 7637)	455942-1 (CM 5292)
Splice or Tap (Cable to Cable)		or
.125 Ring Tongue		682575-1 (CM 5445)
High Press Receptacle Clip		