



<b>AEROSPACE STANDARD</b>	<b>AS39029™</b>	<b>REV. D</b>
	Issued 2001-01 Revised 2017-01	
Superseding AS39029C		
(R) Contacts, Electrical Connector, General Specification For		

**RATIONALE**

Revision is required to include new detail sheets, include cancelled detail sheets for historical information, to add minimum gold requirement inside the crimp barrel, to clarify the axial concentricity test method for hex crimps, to update wire barrel sizes in Table 3, to correct test pin error in Table 9 and add humidity, temperature cycling and thermal shock to the conditioning tests (footnote), to correct sample numbers in Table 11, to correct footnotes and sample numbers in Table 12, to add weep hole option for specific socket contacts, to add post conditioning Low Level Contact Resistance testing to Table 12, 14 and 15 (Group 1), to reverse the order of the Low Level Resistance and Contact Resistance testing in Table 12 (Group IV), to add a paragraph to clarify optional inner contact designs, to update paragraph 4.7.1.1 to address crimping conditions related to the wire inspection hole, to add temperature column to table 1 and to update the specification appendix.

**1. SCOPE**

This specification covers the general requirements for removable crimp, solderless wrap, and solder type electrical contacts for use in connectors and other electric and electronic components (see 6.1) with stranded conductor wire. The contacts shall be capable of operating within the temperature range as specified (see 3.1).

**1.1 Classification**

**1.1.1 Part Number and BIN (Basic Identification Number) Code**

Each contact shall be identified by a non-significant, but distinctive three digit number indicating the BIN code as specified on the applicable specification sheet (see 3.1 and Appendix A). The part number shall be as specified in the specification sheets (see 3.1).

**1.1.2 Class**

Contacts shall be of the following classes as specified (see 3.1).

Class A - Maximum operating temperature +125 °C.

Class B - Maximum operating temperature +200 °C.

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2017 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

**TO PLACE A DOCUMENT ORDER:** Tel: 877-606-7323 (inside USA and Canada)  
Tel: +1 724 776 4970 (outside USA)

**SAE values your input. To provide feedback on this Technical Report, please visit [AS39029D](#)**

This is a preview. [Click here to purchase the full publication.](#)

**SAE WEB ADDRESS:**

## 1.1.3 Type

Contacts and bushings shall be of the types shown in Table 1 as specified (see 3.1).

**Table 1 - Contact types**

Type	Max. Operating Temperature	Material	Application/Specification
A	Class A -- +125 °C Class B -- +200 °C	Copper alloy	General Purpose / ASTM B36, B121, B16, B16M, B124 or equivalent
B	+200 °C	Ferrous alloy	Hermetic / ASTM B829 or equivalent
C	Maximum operating temperature differs, based on the thermocouple alloys, (see 3.1)	Nickel-Chromium (formerly Chromel)	Thermocouple / ASTM E230 Type E or equivalent Thermocouple / ASTM E230 Type K or equivalent
		Nickel-Aluminum/Silicon (formerly Alumel)	Thermocouple / ASTM E230 Type K or equivalent
		Copper-Nickel Alloy (formerly Constantan)	Thermocouple / ASTM E230 Type E or equivalent Thermocouple / ASTM E230 Type J or equivalent Thermocouple / ASTM E230 Type T or equivalent
		Iron	Thermocouple / ASTM E230 Type J or equivalent
		Copper	Thermocouple / ASTM E230 Type T or equivalent
D	Maximum operating temperature differs based on the design and materials in each shielded contact	Copper alloy	Shielded (including coaxial, twin-axial, and tri-axial)/ ASTM B36, B121, B16, B16M, B124 or equivalent

## 1.2 Depletion of Stock

Depletion of stock manufactured to a revision letter prior to the revision letter specified in this basic specification and a specification sheet shall be specified herein and in the specification sheet.

## 2. APPLICABLE DOCUMENTS

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of the other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

## 2.1 U.S. Government Documents

Copies of these documents are available online at <http://quicksearch.dla.mil>.

MIL-DTL-55330	Connectors, Electrical and Fiber Optic, Packaging of
MIL-DTL-81381	Wire, Electric, Polyimide-Insulated, Copper or Copper Alloy
MIL-HDBK-454	Department of Defense Handbook, General Guidelines for Electronic Equipment
SD-6	Provisions Governing Qualification

## 2.2 Other Publications

The following documents form a part of the specification to the extent specified herein. Detail sheets that do not appear in the following list have been cancelled. Unless otherwise specified the issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

### 2.2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

AIR1351	Manufacturers' Identification of Aerospace Electrical and Electronic Wiring Devices and Accessories
AS4461	Assembly and Soldering Criteria for High Quality/High Reliability Soldering Wire and Cable Termination in Aerospace Vehicles
AS5261	Contact, Wire Barrel, Crimp Type
AS22520	Crimping Tools, Wire Termination, General Specification for
AS22759	Wire, Electrical, Fluoropolymer-Insulated, Copper or Copper Alloy
AS31971	Gage Pin for Socket Contact Engagement Test
AS33481	Contact Bushing, Electric, Wire Barrel
AMS-P-81728	Plating, Tin-Lead (Electrodeposited)
AMS-QQ-N-290	Nickel Plating (Electrodeposited)

#### 2.2.1.1 AS39029 Specification Sheets

AS39029/1	Contacts, Electrical Connector, Pin, Crimp Removable (For AS81714 Terminal Junction System)
AS39029/2**	Contacts, Electrical Connector, Pin, Crimp Removable (For MIL-C-81659 Series 1 Connectors)
AS39029/3**	Contacts, Electrical Connector, Socket, Crimp Removable (For MIL-C-81659 Series 1 Connectors)
AS39029/4	Contacts, Electrical Connector, Pin, Crimp Removable (For MIL-DTL-26482 Series 2, AS81703 Series 3, MIL-DTL-83723 Series I and III, and MIL-DTL-83733 Connectors)
AS39029/5	Contacts, Electrical Connector, Socket, Crimp Removable (For MIL-DTL-26482 Series 2, AS81703 Series 3, MIL-DTL-83723 Series I and III, and MIL-DTL-83733 Connectors and MIL-DTL-12883/40 and /41 Relay Sockets)
AS39029/7**	Contacts, Electrical Connector, Pin, Crimp Removable, Shielded (For MIL-C-26482 Series 2 and MIL-C-81703 Series 3 Connectors)
AS39029/8**	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded (For MIL-C-26482 Series 2 and MIL-C-81703 Series 3 Connectors)
AS39029/9	Contacts, Electrical Connector, Pin, Crimp Removable, Thermocouple (For MIL-DTL-26482 Series 2, AS81703 Series 3, MIL-DTL-83723 Series I and III, and MIL-DTL-83733 Connectors)

AS39029/10	Contacts, Electrical Connector, Socket, Crimp Removable, Thermocouple (For MIL-DTL-26482 Series 2, AS81703 Series 3, MIL-DTL-83723 Series I and III, and MIL-DTL-83733 Connectors)
AS39029/11	Contacts, Electrical Connector, Pin, Crimp Removable (For AS81659 Series 2 Connectors)
AS39029/12	Contacts, Electrical Connector, Socket, Crimp Removable (For AS81659 Series 2 Connectors)
AS39029/16	Contacts, Electrical Connector, Socket, Crimp Removable (For MIL-C-81511 Series 4 Connectors)
AS39029/17	Contacts, Electrical Connector, Socket, Crimp Removable (For MIL-C-81511 Series 3 Connectors)
AS39029/18	Contacts, Electrical Connector, Pin, Crimp Removable (For MIL-C-81511 Series 3 and 4 Connectors)
AS39029/19**	Contacts, Electrical Connector, Pin, Crimp Removable, Shielded (For MIL-C-81511 Series 3 and 4 Connectors)
AS39029/20**	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded (For MIL-C-81511 Series 3 Connectors)
AS39029/21**	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded (For MIL-C-81511 Series 4 Connectors)
AS39029/22	Contacts, Electrical Connector, Socket, Crimp Removable (For AS81714 Terminal Junction System Series II and MIL-C-81511 Series 3 and 4 Class L Connectors)
AS39029/23**	Contacts, Electrical Connector, Pin, Crimp Removable, Shielded (For MIL-C-26482 Series 1 Connectors)
AS39029/24**	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded (For MIL-C-26482 Series 1 Connectors)
AS39029/25	Contacts, Electrical Connector, Pin, Crimp Removable, Shielded (For MIL-DTL-26482 Series 1 Connectors)
AS39029/26	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded (For MIL-DTL-26482 Series 1 Connectors)
AS39029/27	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded, Size 12 (For MIL-DTL-38999 Series II Connectors)
AS39029/28	Contacts, Electrical Connector, Pin, Crimp Removable, Shielded, Size 12 (For MIL-DTL-38999 Series I, II, III and IV Connectors)
AS39029/29	Contacts, Electrical Connector, Pin, Crimp Removable (For AS50151 Series, AS34501 and MIL-DTL-83723 Series 2 Connectors)
AS39029/30	Contacts, Electrical Connector, Socket, Crimp Removable (For AS50151 AS345XX Series and MIL-DTL-83723 Series II Connectors)
AS39029/31	Contacts, Electrical Connector, Pin, Crimp Removable (For MIL-DTL-26482 Series 1, MIL-DTL-26500 and MIL-DTL-26518 Connectors)
AS39029/32	Contacts, Electrical Connector, Socket, Crimp Removable (For MIL-DTL-26482 Series 1, MIL-DTL-26500 and MIL-DTL-26518 Connectors)

AS39029/33	Contacts, Electrical Connector, Socket, Crimp Removable (For MIL-C-81511 Series 1 Connectors)
AS39029/34	Contacts, Electrical Connector, Pin, Crimp Removable (For MIL-DTL-28748/3 and MIL-DTL-28748/13 Connectors)
AS39029/35	Contacts, Electrical Connector, Socket, Crimp Removable (For MIL-DTL-28748/3 and MIL-DTL-28748/13 Connectors)
AS39029/36	Contacts, Electrical Connector, Pin, Crimp Removable (For MIL-DTL-28748/9 Connectors)
AS39029/37	Contacts, Electrical Connector, Socket, Crimp Removable (For MIL-DTL-28748/10 Connectors)
AS39029/44	Contacts, Electrical Connector, Pin, Crimp Removable (For AS50151 Series AS34001 and AS95234 Connectors)
AS39029/45	Contacts, Electrical Connector, Socket, Crimp Removable (For AS50151 Series AS34001 and AS95234 Connectors)
AS39029/46	Contacts, Electrical Connector, Socket, Crimp Removable (For MIL-C-81511 Series 2 Connectors)
AS39029/47	Contacts, Electrical Connector, Pin, Crimp Removable (For MIL-C-81511 Series 1 and 2 Connectors)
AS39029/48	Contacts, Electrical Connector, Pin, Crimp Removable (For MIL-DTL-22992 Class L Connectors)
AS39029/49	Contacts, Electrical Connector, Socket, Crimp Removable (For MIL-DTL-22992 Class L Connectors)
AS39029/50	Contacts, Electrical Connector, Pin, Crimp Removable, Shielded (For MIL-DTL-83733 Connector)
AS39029/51	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded (For MIL-DTL-83733 Connector)
AS39029/54	Contacts, Electrical Connector, Pin, Crimp Removable, Shielded (For MIL-DTL-26500 and MIL-DTL-26518 Connectors)
AS39029/55	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded (For MIL-DTL-26500 and MIL-DTL-26518 Connectors)
AS39029/56	Contacts, Electrical Connector, Socket, Crimp Removable (For MIL-DTL-38999 Series I, III, and IV Connectors)
AS39029/57	Contacts, Electrical Connectors, Socket, Crimp Removable (For MIL-DTL-24308, MIL-DTL-38999 Series II, MIL-DTL-55302/68, /71, /72, /75 and MIL-DTL-83733 Connectors)
AS39029/58	Contacts, Electrical Connector, Pin, Crimp Removable (For MIL-DTL-24308, MIL-DTL-38999 Series I, II, III, and IV, and MIL-DTL-55302/69 and MIL-DTL-83733 Connectors)
AS39029/59	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded, Size 8 (For MIL-DTL-38999 Series I, III, and IV Connectors)
AS39029/60	Contacts, Electrical Connector, Pin, Crimp Removable, Shielded, Size 8 (For MIL-DTL-38999 Series I, III, and IV Connectors)
AS39029/63	Contacts, Electrical Connector, Socket, Crimp Removable (For MIL-DTL-24308 Connectors)
AS39029/64	Contacts, Electrical Connector, Pin, Crimp Removable (For MIL-DTL-24308 Connectors)
AS39029/69	Connector Contact, Electrical Socket, Crimp Removable, For AS85028 Connectors
AS39029/70	Connector Contact, Electrical Pin, Crimp Removable, For AS85028 Connectors

AS39029/71	Contacts, Electrical Connector, Pin, Removable, Solderless Wrappost Termination (For MIL-DTL-38999 Series I, II, III and IV, MIL-DTL-24308, MIL-DTL-83733, and MIL-DTL-55302/69 Connectors)
AS39029/72	Contacts, Electrical Connector, Socket, Removable, Solderless Wrappost Termination (For MIL-DTL-38999 Series I, II, III, and IV, MIL-DTL-24308, and MIL-DTL-55302/68, /71, and /75 Connectors)
AS39029/73	Contacts, Electrical Connectors, Socket, Solder, Removable, Shielded, Size 12 (For MIL-DTL-83723 Series III, MIL-DTL-26482 Series 2, MIL-DTL-83733, and MIL-DTL-83527 Connectors)
AS39029/74	Contacts, Electrical Connectors, Pin, Solder, Removable, Shielded, Size 12 (For MIL-DTL-83723 Series III, MIL-DTL-26482 Series 2, MIL-DTL-83733 and MIL-DTL-83527 Connectors)
AS39029/75	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded, Size 12 (For MIL-DTL-38999 Series I, III, and IV Connectors)
AS39029/76	Contacts, Electrical Connector, Pin, Crimp Removable, Shielded, Size 16 (For MIL-DTL-38999 Series I, II, III, IV Connectors)
AS39029/77	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded, Size 16 (For MIL-DTL-38999 Series I, III, and IV Connectors)
AS39029/78	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded, Size 16 (For MIL-DTL-38999 Series II Connectors)
AS39029/79	Contacts, Electrical Connector, Pin, Crimp Removable, Shielded (For MIL-DTL-28748/9 Connectors)
AS39029/80	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded (For MIL-DTL-28748/10 Connectors)
AS39029/83	Contacts, Electrical Connector, Pin, Crimp Removable (For MIL-DTL-28840 Connectors)
AS39029/84	Contacts, Electrical Connector, Socket, Crimp Removable (For MIL-DTL-28840 Connectors)
AS39029/85	Contacts, Electrical Connector, Pin, Crimp Removable, Thermocouple (For AS50151 AS34501 Series and MIL-DTL-83723 Series II Connectors)
AS39029/86	Contacts, Electrical Connector, Socket, Crimp Removable, Thermocouple (For AS50151 AS34501 Series and MIL-DTL-83723 Series II Connectors)
AS39029/87	Contacts, Electrical Connector, Pin, Crimp Removable, Thermocouple (For MIL-DTL-38999 Series I, II, III, and IV, MIL-DTL-24308, and MIL-DTL-83733)
AS39029/88	Contacts, Electrical Connector, Socket, Crimp Removable, Thermocouple (For MIL-DTL-38999 Series I, III, and IV Connectors)
AS39029/89	Contacts, Electrical Connector, Socket, Crimp Removable (Thermocouple for MIL-DTL-38999 Series II, MIL-DTL-83733, and MIL-DTL-24308 Connectors)
AS39029/90**	Contact, Electrical Connector, Concentric Twinax, Pin, Size 8
AS39029/91**	Contact, Electrical Connector, Concentric Twinax, Socket, Shielded, Size 8
AS39029/92	Contacts, Electrical Connector, Socket, Removable (For MIL-PRF-6106 and MIL-DTL-12883/40 and /41 Relay Sockets)
AS39029/93	Contacts, Electrical Connector, Pin, Crimp Removable (For MIL-DTL-83527, Connector)
AS39029/94	Contacts, Electrical Connector, Socket, Crimp Removable (For MIL-DTL-83527 Connectors)

AS39029/97**	Contacts, Electrical Connector, Pin, Crimp Removable, Coaxial, Size 1 (For DOD-C-83527 Connectors)
AS39029/98**	Contacts, Electrical Connector, Socket, Crimp Removable, Coaxial, Size 1 (For DOD-C-83527 Connectors)
AS39029/101	Contacts, Electrical Connector, Socket, Crimp Removable (For MIL-DTL-12883/44, MIL-DTL-12883/45, MIL-DTL-12883/46, and MIL-DTL-12883/52 Relay)
AS39029/102	Contacts, Electrical Connector, Pin, Crimp Removable, Coaxial, Size 12 (For MIL-C-38999 Series I, II, III and IV Connectors)
AS39029/103	Contacts, Electrical Connector, Socket, Crimp Removable, Coaxial, Size 12 (For MIL-C-38999 Series I, III, and IV Connectors)
AS39029/106	Contacts, Electrical Connector, Socket, Crimp-Removable (For MIL-DTL-38999 Series I, III, IV, MIL-DTL-55302 and AS29600 Series A Connectors)
AS39029/107	Contacts, Electrical Connector, Pin, Crimp Removable (For MIL-DTL-38999 Series I, III, IV, MIL-DTL-55302 and AS29600 Series A Connectors)
AS39029/112	Contact Bushing, Electrical Connector Contact, Wire Barrel
AS39029/113	Contact, Electrical Connector, Concentric Twinax, Pin, Size 8, MIL-DTL-38999 Series I, III, and IV
AS39029/114	Contact, Electrical Connector, Concentric Twinax, Socket, Size 8, MIL-DTL-38999 Series I, III, and IV
AS39029/115	Contact, Electrical Connector, Pin, Crimp Removable, Coaxial, Size 12, (For MIL-DTL-38999)
AS39029/116	Contact, Electrical Connector, Socket, Crimp Removable, Coaxial, Size 12, (For MIL-DTL-38999)
AS39029/117	Contacts, Electrical Connector, Socket, Crimp Removable, Engine Application, (For MIL-DTL-38999 Series I, III, And IV Connectors)
AS39029/118	Contacts, Electrical Connector, Pin, Crimp Removable, Engine Application, (For MIL-DTL-38999 Series I, III, And IV Connectors)
AS39029/119	Contact, Electrical Connector, Differential Quadrax, Pin, Size 8, MIL-DTL-38999 Series I, III & IV
AS39029/120	Contact, Electrical Connector, Differential Quadrax, Socket, Size 8, MIL-DTL-38999 Series I, III & IV
AS39029/121	Contacts, Electrical Connector, Socket, Crimp Removable, Enhanced Performance (For MIL-DTL-38999 Series I, III, and IV Connectors)
AS39029/122	Contacts, Electrical Connectors, Pin, Crimp Removable, Expanded Performance and Size 23 (For MIL-DTL-38999 Series III Connectors)
AS39029/123	Contacts, Electrical Connector, Socket, Crimp Removable (For AS50151 Series AS340X Connectors and AS95234 Connectors)
AS39029/124	Contacts, Electrical Connector, Pin, Crimp Removable (For AS50151 Series AS340X Connectors and AS95234 Connectors)

\*\*NOTE: These documents have been stabilized as written and are no longer a part of the SAE 5 year document review process. They may also contain outdated information and references. Each detail sheet will be updated when a potential source requests authorization to qualify the products.

The following detail sheets have been cancelled and are listed for historical information only:

AS39029/6	Contacts, Electrical Connector, Pin, Crimp Removable, Shielded, (For Mil-C-81511 Series 1 and 2 Connectors)
AS39029/13	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded (For AS81511 Series 1 Connectors)
AS39029/14	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded (For AS81511 Series 2 Connectors)
MIL-C-39029/15	Contacts, Electric, Socket, Crimp Removable, Composition A (Size 22 superseded by AS39029/22, No Superseding Document for Sizes 20 and 16)
MIL-C-39029/40	Contacts, Electrical Connector, Pin, Crimp Removable, Shielded, (For MIL-C-28748/3 Connectors, No Superseding Document)
MIL-C-39029/41	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded, (For MIL-C-28748/4 Connectors, No Superseding Document)
MIL-C-39029/42	Contacts, Electrical Connector, Socket, Crimp Removable, Shielded, (For MIL-C-28748/4 and /10 Connectors, No Superseding Document)
MIL-C-39029/43	Contacts, Electrical Connector, Pin, Crimp Removable, Shielded, (For MIL-C-28748/3 and /9 Connectors, No Superseding Document)
MIL-C-39029/95	Contact, Electrical Connector, Concentric Twinax, Socket, Shielded, Size 8 (for DOD-C-83527, Connector, No Superseding Document)
MIL-C-0039029/95	Contact, Electrical Connector, Concentric Twinax, Socket, Shielded, Size 8 (for DOD-C-83527, Connector, No Superseding Document)
MIL-C-39029/96	Contact, Electrical Connector Concentric Twinax, Pin, Size 8 (for DOD-C-83527 Connector, No Superseding Document)
MIL-C-0039029/96	Contact, Electrical Connector Concentric Twinax, Pin, Size 8 (for DOD-C-83527 Connector, No Superseding Document)
AS39029/99	Contacts, Electrical Connector, Pin, Crimp Removable, Coaxial, Size 5 (For DOD-C-83527 Connectors)
AS39029/100	Contacts, Electrical Connector, Socket, Crimp Removable, Coaxial, Size 5 (For DOD-C-83527 Connectors)
AS39029/104	Contacts, Electrical Connector, Concentric Twinax, Pin, Shielded, Size 8 (For MIL-C-28840)
AS39029/105	Contacts, Electrical Connector, Concentric Twinax, Socket, Shielded, Size 8 (For MIL-C-28840)
AS39029/108	Contacts, Electrical Connector, Pin, Crimp Removable, Socket, Single Wire
AS39029/109	Contacts, Electrical Connector, Pin, Crimp Removable, Socket, Multiple Wires



### 2.2.2 ANSI Publications

Copies of these documents are available online at <http://webstore.ansi.org/>

ANSI B46.1 Surface Texture (Surface Roughness, Waviness and Lay)

ANSI/ISO10012-1 Quality Assurance Requirements for Measuring Equipment

### 2.2.3 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, [www.astm.org](http://www.astm.org)

ASTM E230 Standard Specification and Temperature-Electromotive Force (EMF) Tables for Standardized Thermocouples

ASTM A342 Test Method for Permeability of Feebly Mechanic Materials

ASTM B488 Standard Specification for Electrodeposited Coatings of Gold for Engineering Use

ASTM E595 Standard Test Method for Total Mass Loss and Collected Volatile Condensable Materials from Out-gassing in a Vacuum Environment

ASTM B700 Standard Specification for Electrodeposited Coatings of Silver for Engineering Use

### 2.2.4 ASQ Publications

Available from American Society for Quality, 600 North Plankinton Avenue, Milwaukee, WI 53203, Tel: 800-248-1946 (United States or Canada) or +1-414-272-8575 (International), [www.asq.org](http://www.asq.org).

ASQC Z1.4 Sampling Procedures and Tables for Inspection by Attributes

### 2.2.5 EIA Publications

Available from Electronic Industries Alliance, 2500 Wilson Boulevard, Arlington, VA 22201-3834, Tel: 703-907-7500, [www.ecianow.org](http://www.ecianow.org).

EIA RS359 EIA Standard Colors for Identification and Coding

EIA-364-D Electrical Connector/Socket Test Procedures Including Environmental Classifications

EIA-364-06 Contact Resistance Test Procedure for Electrical Connectors

EIA-364-08 Crimp Tensile Strength Test Procedure for Electrical Connectors

EIA-364-20 Withstanding Voltage Test Procedure for Electrical Connectors, Sockets and Coaxial Contacts

EIA-364-21 Insulation Resistance Test Procedure for Electrical Connectors, Sockets, and Coaxial Contacts

EIA-364-23 Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets

EIA-364-25 Probe Damage Test Procedure for Electrical Connectors

EIA-364-26 Salt Spray Test Procedure for Electrical Connectors, Contacts and Sockets

EIA-364-27 Mechanical Shock (Specified Pulse) Test Procedure for Electrical Connectors

- EIA-364-28 Vibration Test Procedure for Electrical Connectors and Sockets
- EIA-364-31 Humidity Test Procedure for Electrical Connectors and Sockets
- EIA-364-32 Thermal Shock (Temperature Cycling) Test Procedure for Electrical Connectors and Sockets
- EIA-364-37 Contact Engagement and Separation Forces for Electrical Connectors
- EIA-364-53 Nitric Acid Vapor Test, Gold Finish Test Procedure for Electrical Connectors and Sockets

#### 2.2.6 IPC Publications

Available from IPC, 3000 Lakeside Drive, Bannockburn, IL 60015, Tel: 847-597-2862, [www.ipc.org](http://www.ipc.org).

- J-STD-006 Requirements for Electronic Grade Solder Alloys and Fluxed and Non-Fluxed Solid Solders for Electronic Soldering Applications for Flux and Solder Alloy Materials

#### 2.2.7 NASA Publications

Available from NASA, Documentation, Marshall Space Flight Center, AL 35812, [www.nas.nasa.gov](http://www.nas.nasa.gov).

- Publication 1124 Out-gassing Data for Selecting Spacecraft Materials

#### 2.2.8 NCSL Publications

National Conference of Standards Laboratories, 2995 Wilderness Place, Suite 107, Boulder, CO 80301-5404, Tel: 303-440-3339, [www.ncsli.org](http://www.ncsli.org).

- NCSL Z540-3 Requirements for Electronic Grade Solder Alloys and Fluxed and Non-Fluxed Solid Solders for Electronic Soldering Applications

### 2.3 Order of Precedence

In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

## 3. REQUIREMENTS

### 3.1 Acquisition Specifications

The individual item requirements shall be as specified in this acquisition specification and in accordance with the applicable specification sheets (see 2.2.1.1). Unless otherwise specified in 3.1.1 through 3.1.4, any conflict between requirements of this specification and the specification sheet, the latter shall govern. Unless otherwise specified by contract or purchase order, product purchased to this specification shall be supplied to the latest revision in effect at issuance of the contract or purchase order (see 6.2).

#### 3.1.1 Specification Sheets AS39029/31 and /32

In the materials or design characteristics table for each slash sheet, the materials requirement shall be as follows:

Copper-Nickel Alloy (Formerly Constantan) shall be replaced with Jn  
Nickel-Aluminum/Silicon (Formerly Alumel) shall be replaced with Kn  
Nickel-Chromium (Formerly Chromel) shall be replaced with Kp  
Iron shall be replaced with Jp

3.1.1.1 A footnote shall be added to the materials tables as follows:

Jn = Type J negative (formerly Constantan)

Kn = Type K negative (formerly Alumel)

Kp = Type K positive (formerly Chromel)

Jp = Type J positive (formerly Iron)

3.1.2 Specification Sheets AS39029/1-/5, /11, /12, /29-/33, /46, /47, /56, /64, and /92.

For the sited specification sheets, an alternate design of the wire barrel lead-in angle shall be as follows:

Size 22 - Blend Radius 0.010 inch  $\pm$  0.005 inch

Size 20 - Blend Radius 0.015 inch  $\pm$  0.005 inch

Size 16 - Blend Radius 0.020 inch  $\pm$  0.005 inch

3.2 Qualification (see 4.4, 4.5 and 6.3)

Contacts furnished under the specification shall be products which are qualified for listing in the applicable qualified products list/qualified products database (QPL/QPD) at the time set for the opening of government bids or commercial purchase orders.

3.2.1 Use of Part Numbers

Part numbers shall not be applied to a product, except for qualification test samples (see 6.3), until notification has been received from the activity responsible for qualification that the product has been approved for listing on the qualified products list.

3.3 Materials (see 4.7.1)

Materials shall be as specified herein. However, when a definite material is not specified, a material shall be used which will enable the contacts to meet the performance requirements of the specification and the applicable specification sheet (see 3.1). Acceptance or approval of any constituent material shall not be construed as a guaranty of acceptance of the finished product.

3.3.1 Metals

The material for contacts and bushings shall be electrically conductive and shall be in accordance with Table 1. Hoods shall be made of corrosion-resistant steel.

3.3.1.1 Dissimilar Metals

When dissimilar metals are employed in intimate contact with each other, suitable protection against electrolytic corrosion shall be provided as specified in Guideline 16 of MIL-HBK-454.

3.3.1.2 Thermocouple Material

All thermocouple materials shall conform to ASTM E230 for standard limits of error.

3.3.2 Accessory Members

Accessory members such as pressure members and retaining devices shall be corrosion-resistant material or shall be passivated or suitably treated to resist corrosion. Hoods shall be corrosion-resistant steel.

3.3.3 Finish (see 4.7.1 and 6.7)

Types A, B, and D contacts shall have a finish as specified. Each desired finish shall be qualified.