INCH-POUND
MIL-PRF-12934/30F
w/Amendment 1
28 April 2014
SUPERSEDING
MIL-PRF-12934/30F
25 August 2009

PERFORMANCE SPECIFICATION

RESISTOR, VARIABLE, WIREWOUND, PRECISION, STYLE RR3900

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-PRF-12934.

1. SCOPE

1.1 Scope. This specification covers the requirements for style RR3900, precision, wirewound, variable resistors.

1.2 Part or Identifying Number (PIN). Variable resistors covered by this specification must be identified by a PIN which must be in the following form.

Single-section (cup) resistors

RR3900	C	2	A	7	J	103
Style	Function and shaft length (1.2.1)	Class and center tap (1.2.2)	Resistance temperature characteristic (1.2.3)	Rotational life characteristic (1.2.4)	Function conformity tolerance and resistance tolerance characteristic (1.2.5)	Resistance (1.2.6)

1.2.1 Function and shaft length. The function and shaft length applicable to this specification is identified by a single symbol in accordance with table I.

TABLE I. Function and shaft length.

Symbol	Shaft length tolerance ±0.03125 (.79) 1/	Function
C	0.625 (15.88)	Linear
D	0.750 (19.05)	Linear
E	0.875 (22.23)	Linear
F	1.000 (25.40)	Linear

1/ Metric equivalents are in parentheses.

Comments, suggestions, or questions on this document should be addressed to: DLA Land and Maritime, ATTN: VAT, Post Office Box 3990, Columbus, Ohio 43218-3990 or by email Resistor@dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at https://assist.dla.mil/.

1.2.2 Class and center tap. The class and center tap applicable to this specification are symbols 2, 3, 4, and 5.

1.2.3 Resistance temperature characteristic. The resistance temperature characteristic applicable to this specification are symbols A to H, inclusive.

1.2.4 Rotational life characteristic. The rotational life characteristics applicable to this specification are symbols 7, 8, and 9. This potentiometer is capable of operations up to 100 rpm.

1.2.5 Function-conformity tolerance and resistance tolerance characteristics. The function-conformity tolerance and resistance tolerance characteristic applicable to this specification are symbols G to L, inclusive and S to X, Inclusive.

1.2.6 Resistance. The nominal total resistance values and nominal resolution applicable to this specification is in accordance with table II.

TABLE II. Nominal total resistance and nominal resolution characteristics.

Nominal total resistance value	Nominal resolution
Ohms	Percent
100	0.075
200	0.061
500	0.048
1,000	0.038
2,000	0.035
5,000	0.028
10,000	0.031
20,000	0.024
50,000	0.018
100,000	0.014

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation (see 6.2).

DEPARTMENT OF DEFENSE SPECIFICATION

MIL-PRF-12934 - Resistor, Variable, Wirewound, Precision, General Specification for.

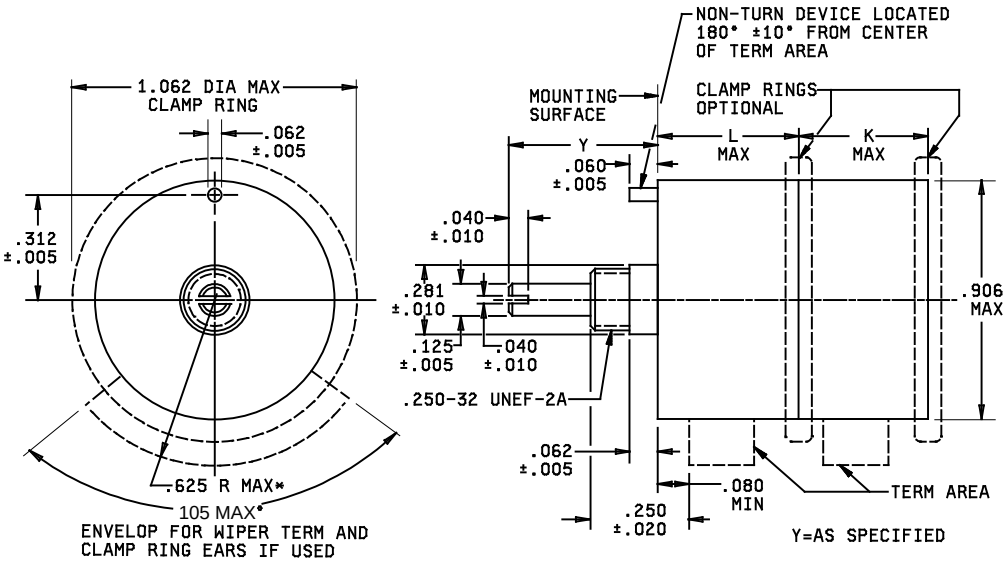
(Copies of these documents are available online at http://quicksearch.dla.mil).

2.3 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein (except for related specification sheets), the text of this document takes precedence unless otherwise noted. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 General. The requirements for acquiring the product described herein shall consist of this document and MIL-PRF-12934.

3.2 Interface and physical dimensions. The resistors shall meet the interface and physical dimensions specified in figure 1.



Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
0.005	0.13	0.040	1.02	0.080	2.03	0.281	7.14	0.906	23.01
0.010	0.25	0.060	1.52	0.125	3.18	0.312	7.92	1.062	26.97
0.020	0.51	0.062	1.57	0.250	6.35	0.625	15.88		

Style	Turns	L (max)	K (max)	Maximum continuous working voltage (volts)	Power rating (watts) 1/	Maximum starting and running torque (ounce-inch)				Stop-torque (pound-inch)
						Ten-turn single cup		Per each additional ten-turn cup		
						Starting	Running	Starting	Running	
RR3900	Five	1.219 (30.96)	0.968 (24.59)	500	1.5	.5	.4	.4	.3	3

1/ When five turn units are ganged, all cups will be 75% of rated wattage.

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.

FIGURE 1. Style RR3900

3.3 Minimum total resistance. The minimum total resistance value shall be 100 ohms.

3.4 Maximum total resistance. The maximum total resistance value shall be 100,000 ohms.

3.5 Mechanical travel. The mechanical travel shall be 1800 degrees +10 degrees, -0 degrees.

3.6 Actual electrical travel. The theoretical electrical travel shall be1800 degrees +4 degrees, -0 degrees.

3.7 Ganged cups. There shall be no more than 4 cups ganged.

3.8 Phasing. For independent linearity the phasing between the cups shall be within ±1 degree. This shall be measured, with respect to the first cup, starting from the counterclockwise end point.

3.9 Function. The type of function applicable to this specification shall be independent linearity.

3.10 Weight. The maximum weight shall be 0.06 pounds and each additional cup shall be 0.04 pounds.

3.11 Pure tin. The use of pure tin, as an underplate or final finish is prohibited both internally and externally. Tin content of resistor components and solder shall not exceed 97 percent, by mass. Tin shall be alloyed with a minimum of 3 percent lead, by mass (see 6.4).

4. VERIFICATIONS.

4.1 Sampling and inspection. Sampling and inspection procedures shall be in accordance with MIL-PRF-12934.

5. PACKAGING.

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Service or Defense Agency, or within the military services system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The intended use specified in MIL-PRF-12934 will be applicable to this specification.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of this specification, and the complete PIN (see 1.2).

b. Unless otherwise specified (see 2.1), the versions of the individual documents referenced will be those in effect on the date of release of the solicitation.).

c. Packaging instructions (see 5.1).

6.3 PIN. This specification requires a PIN that describes technology and appropriate references to associated documents (see 1.2 and 3.1).

6.4 Tin whisker growth. The use of alloys with tin content greater than 97 percent, by mass, may exhibit tin whisker growth problems after manufacture. Tin whiskers may occur anytime from a day to years after manufacture and can develop under typical operating conditions, on products that use such materials. Conformal coatings applied over top of a whisker-prone surface will not prevent the formation of tin whiskers. Alloys of 3 percent lead, by mass, have shown to inhibit the growth of tin whiskers. For additional information on this matter, refer to ASTM-B545 (Standard Specification for Electrodeposited Coatings of Tin).

6.5 Amendment notification. The margins of this specification are marked with vertical lines to indicate modification generated by this amendment. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship.

Custodians:
Army - CR
Navy - EC
Air Force - 85
DLA - CC

Preparing activity:
DLA - CC

Review activities
Army - AR, AT, AV, CR4, MI
Navy - AS, CG, MC, OS
Air Force - 19, 99

(Project 5905-2013-068)

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