INCH-POUND
MIL-PRF-22/7D
w/Amendment 3
28 October 2021
SUPERSEDING
MIL-PRF-22/7D
w/Amendment 2
15 March 2017

PERFORMANCE SPECIFICATION SHEET

RESISTOR, VARIABLE, WIREWOUND, POWER TYPE, UNENCLOSED, STYLE RP20

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-22.

1. SCOPE

1.1 Scope. This specification covers the requirements for style RP20, variable, wirewound, power type, unenclosed resistors.

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

M22/07	-	0001	2	SB
Associated specification number		Resistance value designator (see 3.3)	Electrical off position (see 3.4)	Shaft and type of mounting (see 3.5)

NOTE: The slash "/" and the dash "-" are needed in the procurement of this part.

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).

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/

AMSC N/A
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DEPARTMENT OF DEFENSE SPECIFICATION

MIL-PRF-22	-	Resistors, Variable, Wirewound, Power Type, General Specification for

(Copies of these documents are available online at https://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-22.

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

3.3 Nominal resistance and maximum current. The nominal total resistance and maximum current shall be as specified in table I.

3.4 Electrical off position. The existence and location of an electrical off position at one end of the resistance element is indicated by a single digit, in accordance with table II.

3.5 Shaft and type of mounting. The shaft, type of mounting, and length of shaft is identified by a two letter symbol. The first letter indicates the style of shaft and type of mounting and the second letter indicates the length of the shaft, in accordance with table III and table IV, respectively.

3.6 Resistance tolerance. The resistance tolerance available is ±10 percent.

3.7 Power rating. The power rating shall be 75.0 watts at 25°C. The resistor shall be mounted on a steel panel, 12 inches square, with a thickness of 0.063 inches. The hotspot for the panel shall not exceed 340°C.

3.8 Torque.

3.8.1 Operating torque. The operating torque shall not be less than 4 ounce-inches (oz-in) minimum and 3.0 pound-inches (lb-in) maximum.

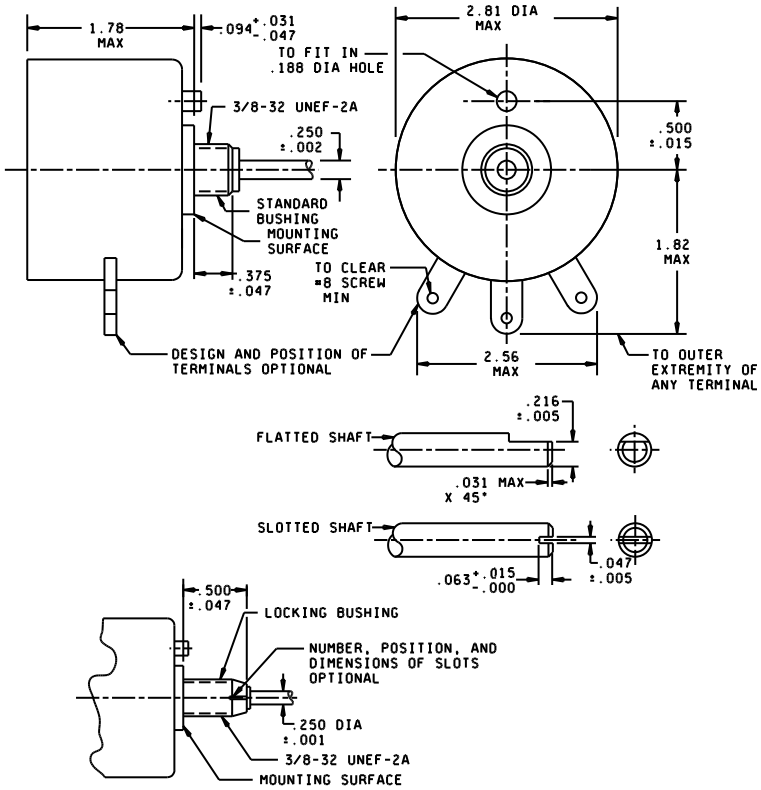
3.8.2 Stop torque. The stop torque shall be 15.0 lb-in maximum.

3.8.3 Locking torque (as applicable). For resistors equipped with a locking bushing, the locking torque shall withstand 20 oz-in without movement.

3.9 Mechanical rotation. The mechanical rotation shall be 300° +10°, -5°.

3.10 Hardware. The mounting nut shall be corrosion-resistant with a 0.09375-inch thickness and shall measure 0.5625-inch across the hexagonal flats. Thread size shall be 0.375-32NEF-2B. A corrosion-resistant internal-tooth lockwasher of suitable size shall be supplied. The locking nut for the locking bushing type resistor shall be corrosion-resistant with a 0.151 to 0.234 inch thickness and shall measure 0.500-inch across the hexagonal flats. Thread size shall be 0.375-32NEF-2B.

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).



Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
0.001	0.03	0.015	0.38	0.063	1.60	0.216	5.49	0.470	11.94	1.820	46.23
0.002	0.05	0.031	0.79	0.094	2.39	0.250	6.35	0.500	12.70	2.560	65.02
0.005	0.13	0.047	1.19	0.188	4.78	0.375	9.53	1.780	45.21	2.810	71.37

NOTES:

1. Dimensions are in inches.
2. Tolerance is ±0.015 unless otherwise specified.
3. Metric equivalents are given for general information.

FIGURE 1. Style RP20

TABLE I. Style RP20.

PIN 1/	Type designator 1/	Nominal total resistance (ohms)	Maximum current (amperes) 2/
M22/07-0001---	RP20---2R0KK	2.0	6.12
M22/07-0002---	RP20---2R5KK	2.5	5.50
M22/07-0003---	RP20---3R0KK	3.0	5.00
M22/07-0004---	RP20---4R0KK	4.0	4.34
M22/07-0005---	RP20---5R0KK	5.0	3.87
M22/07-0006---	RP20---6R0KK	6.0	3.54
M22/07-0007---	RP20---8R0KK	8.0	3.06
M22/07-0008---	RP20---100KK	10	2.74
M22/07-0009---	RP20---120KK	12	2.50
M22/07-0010---	RP20---150KK	15	2.24
M22/07-0011---	RP20---250KK	25	1.73
M22/07-0012---	RP20---350KK	35	1.46
M22/07-0013---	RP20---500KK	50	1.22
M22/07-0014---	RP20---750KK	75	1.00
M22/07-0015---	RP20---101KK	100	0.87
M22/07-0016---	RP20---151KK	150	0.71
M22/07-0017---	RP20---201KK	200	0.61
M22/07-0018---	RP20---251KK	250	0.55
M22/07-0019---	RP20---351KK	350	0.46
M22/07-0020---	RP20---501KK	500	0.39
M22/07-0021---	RP20---751KK	750	0.32
M22/07-0022---	RP20---102KK	1,000	0.27
M22/07-0023---	RP20---152KK	1,500	0.22
M22/07-0024---	RP20---252KK	2,500	0.17
M22/07-0025---	RP20---352KK	3,500	0.15
M22/07-0026---	RP20---502KK	5,000	0.12
M22/07-0027---	RP20---802KK	8,000	0.10
M22/07-0028---	RP20---103KK	10,000	0.09

1/ The complete type designation and part number include symbols indicting electrical off position from table II, style of shaft and type of mounting from table III and length of operating shaft from table IV. (see 1.2 for example of part number.)

2/ Not to be exceeded on any portion of the winding.

TABLE II. Electrical off position.

Symbol	Electrical off position
1	No electrical off position.
2	Electrical off position at end of rotation of control knob in a counterclockwise direction.
3	Electrical off position at end of rotation of control knob in a clockwise direction.

TABLE III. Style of shaft and type of mounting.

Symbol	Style of shaft	0.250 inch diameter shaft	
		Standard bushing	Locking bushing
F	Flatted	X	
S	Slotted	X	
T	Flatted		X
U	Slotted		X

TABLE IV. Length of operating shaft. 1/ 2/

Symbol	Flatted		Slotted	
	Standard bushing	Locking bushing	Standard bushing	Locking bushing
A			0.500	
B				0.625
D	0.875		0.875	
G		1.250		1.250
H	1.500		1.500	
J	2.000		2.000	
K	2.500 3/		2.500	
N	4.000			
R	6.000			

1/ Standard length of shaft measured from mounting surface of resistor.

2/ 0.250 inch diameter shaft in inches (±0.0468)

3/ This shaft shall be flatted to within 0.156 inch of the mounting bushing

4. VERIFICATION

4.1 Sampling and inspection. Sampling for delivery shall be in accordance with MIL-PRF-22.

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 Notes. The notes specified in MIL-PRF-22 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. If not 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 requirements (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 notations. 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, CR4, MI
Navy - AS, CG, MC, OS
Air Force - 19

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NOTE: the activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.dla.mil.