

INCH-POUND  
MIL-R-26/2C  
14 June 2001  
SUPERSEDING  
MIL-R-26/2B  
11 May 1973

MILITARY SPECIFICATION  
RESISTOR, FIXED, WIRE WOUND (POWER TYPE),  
STYLES RW20, RW21, RW22, RW23, and RW24

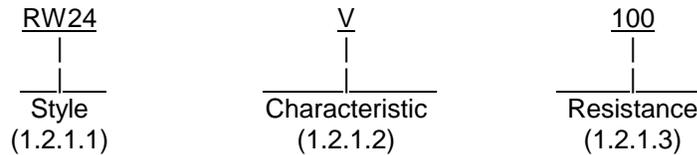
THIS SPECIFICATION IS INACTIVE FOR NEW DESIGN (SEE 6.3)

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

1. SCOPE

1.1 Scope. This specification covers the associated requirements for styles RW20, RW21, RW22, RW23, and RW24, resistors.

1.2 Part or Identifying Number (PIN). Resistors covered by this specification are identified by a PIN, which consists of the style designation, characteristic, and coded resistive value. The PIN is derived in accordance with MIL-PRF-26 and is in the following form:



1.2.1.1 Style. The style is identified by the two-letter symbol "RW" followed by a two-digit number.

1.2.1.2 Characteristic. The characteristic is identified by a single letter that identifies the maximum continuous operating temperature (surface hot spot), the minimum insulation resistance value at the end of the moisture resistance test, and the resistance temperature characteristic in accordance with table I.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Defense Supply Center, Columbus, ATTN: DSCC-VAT, P.O. 3990, Columbus, Ohio, 43216-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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1.2.1.3 Resistance. The nominal resistance expressed in ohms is identified by a three-digit number; the first two digits represent significant figures and the last digit specifies the number of zeroes to follow. When resistance values less than 10 ohms are required, the letter "R" is substituted for one of the significant digits to represent the decimal point. When the letter "R" is used, succeeding digits of the group represent significant figures as shown in the following example.

$$\begin{aligned} R10 &= 0.1 \text{ ohm} \\ 1R0 &= 1.0 \text{ ohm} \end{aligned}$$

Minimum and maximum resistance values are as specified herein. The standard values for every decade should follow the sequence demonstrated for the "10 to 100" decade in accordance with RS-385.

1.2.1.4 Center-tapped resistors. The letter "T" when added at the end of the type designation shall denote that the resistor is center-tapped.

TABLE I. Characteristic.

Symbol	Maximum continuous operation temperature <sup>1/</sup>	Minimum insulation resistance at end of moisture resistance	Resistance temperature characteristic (ppm/°C)
V	350°C	100 Megohms	0 ±260 ≥20 ohms
			0 ±400 ≥10 ohms to <20 ohms
			0 +400, -200 ≥1 ohm to <10 ohms
			0 +500, -100 ≥0.499 ohm to <1 ohm
			0 +650, -100 ≥0.1 ohm to < 0.499 ohm

<sup>1/</sup> This temperature is also the maximum permissible hot-spot surface temperature.

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 user 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 listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

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### SPECIFICATION

#### DEPARTMENT OF DEFENSE

MIL-PRF-26 - Resistors, Fixed, Wire Wound (Power Type), General Specification for.

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Document Automation and Production Service, Building 4D, (DPM-DODSSP), 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents that are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

#### ELECTRONIC INDUSTRIES ALLIANCE (EIA)

EIA RS-385 - Preferred Values

(Applications for copies should be addressed to Electronic Industries Alliance (EIA), 2500 Wilson Boulevard, Arlington, VA 22201-3834.)

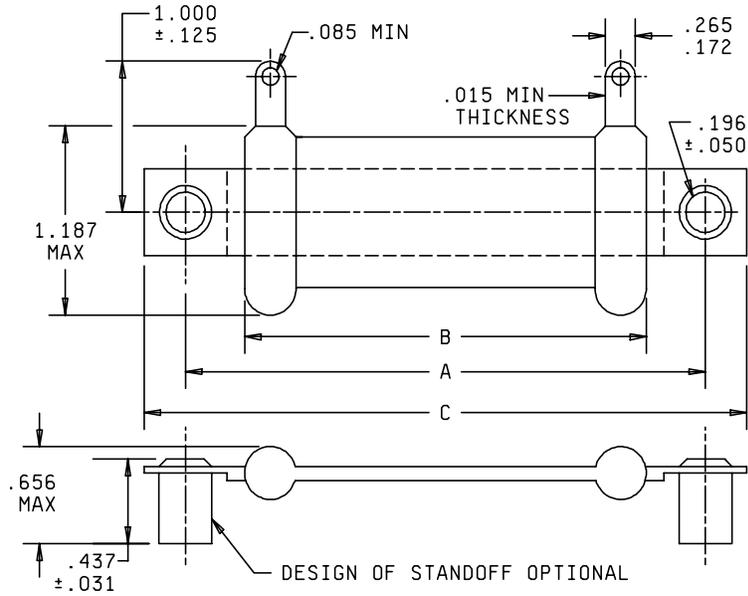
2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

3.1 General. The requirements for acquiring the product described herein shall consist of this document and MIL-PRF-26.

3.2 Interface and physical dimension. Resistors shall meet the interface and physical dimensions specified on figure 1 and herein.

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Style	A ±0.031	B ±0.062	C +.156, -.062
RW20	2.000	1.250	2.500
RW21	2.750	2.000	3.250
RW22	4.250	3.500	4.750
RW23	5.500	4.750	6.000
RW24	6.750	6.000	7.250

Inch	mm	Inch	mm	Inch	mm	Inch	mm
.015	.38	.196	4.98	2.500	63.50	6.750	171.45
.031	.79	.265	6.73	2.750	69.85	7.250	184.15
.050	1.27	.437	11.10	3.250	82.55		
.062	1.57	.656	16.66	3.500	88.90		
.085	2.16	1.00	25.40	4.250	107.95		
.125	3.18	1.187	30.15	4.750	120.65		
.156	3.96	1.250	31.75	5.500	139.70		
.172	4.37	2.00	50.80	6.000	152.40		

NOTES:

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

FIGURE 1. Styles RW20, RW21, RW22, RW23, and RW24.

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3.3 Power rating. The power rating shall be as specified in table II, based on full load operation at an ambient temperature of 25°C.

TABLE II. Power rating.

Resistor style	Power rating in watts <sup>1/</sup>
	Characteristic V
RW20	21
RW21	31
RW22	53
RW23	68
RW24	91

<sup>1/</sup> The power rating of center-tapped resistors shall be 90 percent of those shown.

3.4 Resistance. The minimum and maximum nominal resistance values shall be as specified in table III.

3.4.1 Standard resistance values. For standard resistance values see RS-385.

TABLE III. Minimum and maximum nominal resistance values.

Resistor style	Resistance values (ohms)	
	Minimum	Maximum
RW20	0.10	8,200
RW21	0.10	16,000
RW22	0.10	36,000
RW23	0.10	51,000
RW24	0.10	75,000

3.5 Resistance tolerance. These resistors have a resistance range of 0.10 ohm to 75,000 ohms with the following resistance tolerances:

- a. Resistors of less than 1 ohm in resistance value shall have a tolerance of  $\pm 10$  percent of the nominal resistance value. If center-tapped, the resistance tolerance between tap and terminal shall be  $\pm 10$  percent.
- b. Resistors of 1 ohm and over in resistance value shall have a tolerance of  $\pm 5$  percent of the nominal resistance value. If center-tapped, the resistance tolerance between tap and terminal shall be  $\pm 10$  percent.

3.6 Center tapped resistors. Center tapped resistors are available in styles RW22, RW23, and RW24.

3.7 Thermal shock. The resistors shall not change in resistance in excess of  $\pm(2$  percent +0.05 ohm).

3.8 Short-time overload. The resistors shall not change in resistance in excess of  $\pm(2$  percent +0.05 ohm).

3.9 High-temperature exposure. The resistors shall not change in resistance in excess of  $\pm(2$  percent +0.05 ohm).

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3.10 Moisture resistance. The resistors shall not change in resistance in excess of  $\pm(2$  percent +0.05 ohm).

3.11 Low-temperature storage. The resistors shall not change in resistance in excess of  $\pm(2$  percent +0.05 ohm).

3.12 Life. The resistors shall not change in resistance in excess of  $\pm(3$  percent +0.05 ohm).

3.13 Solderability. Solderability is applicable to this specification.

3.14 Terminal strength. The resistors shall not change in excess of  $\pm(1$  percent +.05 ohm).

3.15 Dielectric withstanding voltage (barometric pressure, reduced, not applicable). The resistors shall not change in resistance in excess of  $\pm(1$  percent +0.05 ohm).

4. VERIFICATION

4.1 Sampling and inspection. Sampling and inspection shall be in accordance with MIL-PRF-26.

4.2 Short-time overload. The maximum voltages shall be in accordance with table IV.

TABLE IV. Maximum voltages for short-time overload.

Resistor style	RW20	RW21	RW22	RW23	RW24
Voltage (volts max)	500	1,250	2,700	3,800	5,300

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of material is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. 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 a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Notes. In addition to the notes specified herein, the notes specified in MIL-PRF-26 are applicable to this specification.

6.2 Acquisition requirements. Acquisition requirements are as specified in MIL-PRF-26.

6.3 Inactive for new design. The resistors specified herein are not to be used in new design. They are authorized for use in design contracts effective prior to 11 May 1973 and to support existing military equipment. Resistors specified in MIL-PRF-39007 are preferred for design.

6.4 Derating. Resistors shall be derated, when necessary, in accordance with figure 2.

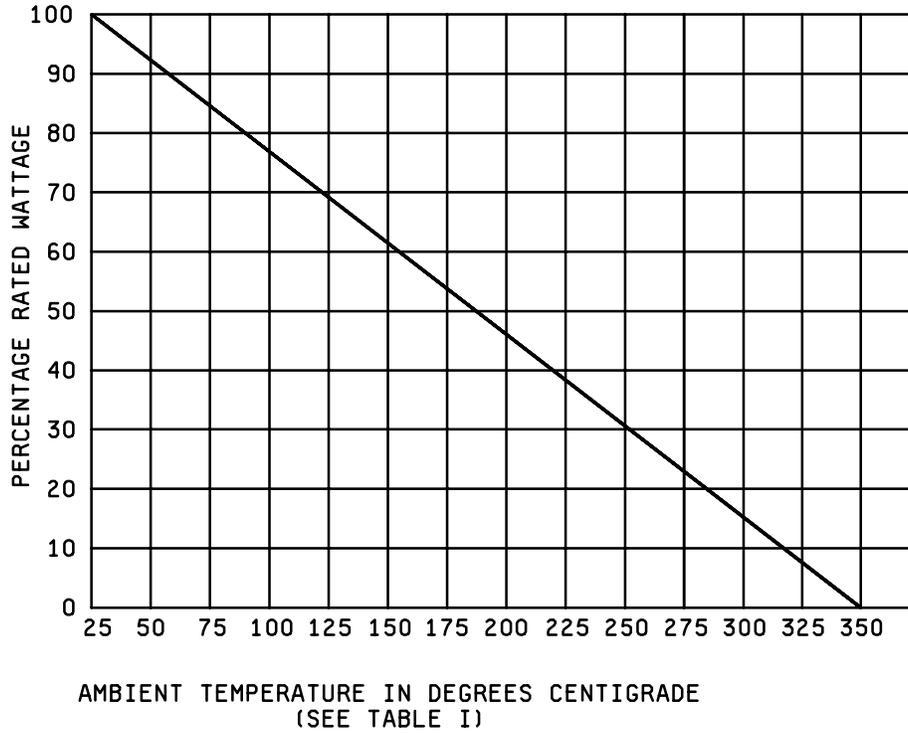


FIGURE 2. Derating curve for high ambient temperatures.

6.5 Changes from previous issue. This document was revised for validation purposes only and has been left as a Military Specification. Changes from previous issue do not affect design, construction, processing, or physical dimensions, but are DoD policy requirements.

Custodians:  
Army - CR  
Navy - EC  
Air Force - 11  
DLA - CC

Preparing activity:  
DLA - CC

(Project 5905-1605-01)

Review activities:  
Army - MI  
Navy - AS  
Air Force - 19