INCH-POUND
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PERFORMANCE SPECIFICATION

RESISTOR, FIXED, WIRE-WOUND (POWER TYPE), STYLES RW29, RW30 1/, RW31, RW32 1/, RW33, RW34 1/, RW35, RW36 1/, RW37, RW38, RW39 1/, and RW47

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 RW29, RW30 1/, RW31, RW32 1/, RW33, RW34 1/, RW35, RW36 1/, RW37, RW38, RW39 1/, and RW47 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:

RW29	V	100
Style (1.2.1.1)	Characteristic (1.2.1.2)	Resistance (1.2.1.3)

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.

1/ Not to be used for new design. For replacement purposes only.

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.

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.

R10 = 0.1 ohm
1R0 = 1.0 ohm

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	Method of winding	Maximum continuous operation temperature 1/	Minimum insulation resistance at end of moisture resistance	Resistance temperature characteristic (ppm/°C)
V N	Inductive Noninductive	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

1/ 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).

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 which 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.)

2.3 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. The resistor shall meet the interface and physical dimensions specified on figure 1 and as specified herein.

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	
	Characteristic	
	N	V
RW29	11	11
RW30	---	11
RW31	14	14
RW32	---	17
RW33 1/	26	26
RW34 1/	---	43
RW35 1/	55	55
RW36 1/	---	78
RW37 1/	113	113
RW38 1/	159	159
RW39 1/	---	240
RW47 1/	210	210

1/ 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 value (ohms) Minimum	Resistance value (kohms) Maximum	
		Characteristic V	Characteristic N
RW29	0.10	5.6	2.7
RW30 1/	0.10	2.7	---
RW31	0.10	6.8	3.3
RW32 1/	0.10	10	---
RW33	0.10	18	8.1
RW34 1/	0.10	30	---
RW35	0.10	43	20
RW36 1/	0.10	56	---
RW37	0.10	91	43
RW38	0.10	150	75
RW39 1/	0.10	200	---
RW47	0.10	180	81

1/ Not to be used for new design. For replacement purposes only.

3.5 Resistance tolerance. These resistors have a resistance range of 0.10 ohms to 200 kohms with the following resistance tolerances:

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

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

3.6 Center tapped resistors. Center tapped resistors are available in styles RW33, RW34, RW35, RW36, RW37, RW38, RW39, and RW47.

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

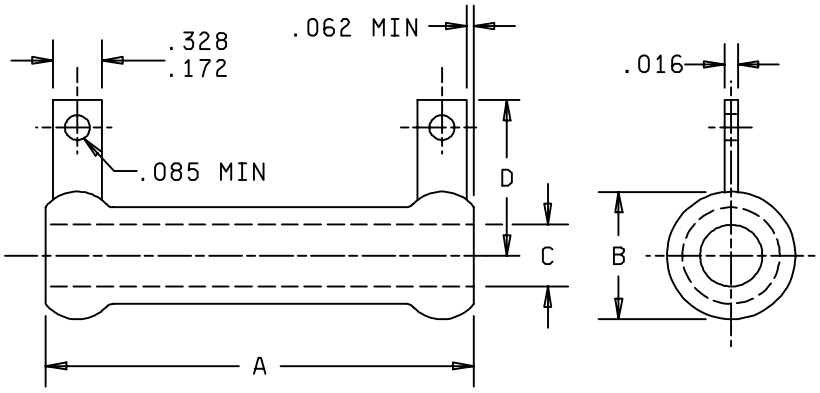
3.8 Short-time overload. The resistors shall not change in resistance in excess of ±(2 percent +0.05 ohm).

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

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

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

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



Style	A ±0.062	B (Max)	C	D ±0.125
RW29	1.750	.500	.172 (Min)	.625
RW30 1/	1.0	.594	.187 (Min)	.625
RW31	1.500	.594	.312 +.016, -.125	.625
RW32 1/	2.0	.594	.312 +.016, -.125	.625
RW33	3.0	.594	.187 (Min)	.625
RW34 1/	3.0	.906	.516 +.046, -.047	.812
RW35	4.0	.906	.500 +.062, -.031	.812
RW36 1/	4.0	1.312	.750 +.156, -.047	1.219
RW37	6.0	1.312	.703 (Min)	1.219
RW38	8.0	1.312	.750 +.156, -.047	1.219
RW39 1/	12.0	1.312	.750 +.156, -.047	1.219
RW47	10.500	1.312	.703 (Min)	1.219

1/ Not to be used for new design. For replacement purposes only.

Inch	mm	Inch	mm	Inch	mm	Inch	mm
.016	.41	.172	4.37	.703	17.86	1.750	44.45
.031	.79	.187	4.75	.750	19.05	2.000	50.80
.046	1.17	.312	7.92	.812	20.62	3.000	76.20
.047	1.19	.328	8.33	.906	23.01	4.000	101.60
.062	1.57	.500	12.70	1.000	25.40	6.000	152.40
.085	2.16	.516	13.11	1.219	30.96	8.000	203.20
.125	3.18	.594	15.09	1.312	33.32	10.500	266.70
.156	3.96	.625	15.88	1.500	38.10	12.000	304.80

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is ±0.010 (0.25 mm).

FIGURE 1. Styles RW29, RW30, RW31, RW32, RW33, RW34, RW35, RW36, RW37, RW38, RW39, and RW47.

3.13 Solderability. Solderability is applicable to this specification.

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

3.15 Dielectric withstanding voltage (barometric pressure, reduced, not applicable). The resistors shall not change in resistance in excess of ±(.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	Voltage (Max)	Resistor style	Voltage (Max)
RW29	1200	RW35	3000
RW30	450	RW36	3000
RW31	1000	RW37	5000
RW32	1400	RW38	7000
RW33	2400	RW39	12000
RW34	2400	RW47	10000

4.3 Dielectric withstanding voltage.

4.3.1 Atmospheric pressure. The magnitude of test voltage shall be 1,000 volts rms.

4.3.2 Barometric pressure (reduced). The test voltage shall be 200 volts rms.

4.4 Terminal strength. The applied force shall be 10 pounds.

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 Departments 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 Supplementary insulation. Where potential to ground is over 500 volts, supplementary insulation should be provided.

6.4 Mounting. These resistors should not be mounted by their terminals.

6.4.1 Bracket assemblies. When required, bracket assemblies (mounting hardware) are available for these resistors under MS75009, Bracket Assembly, Resistor (Power type).

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

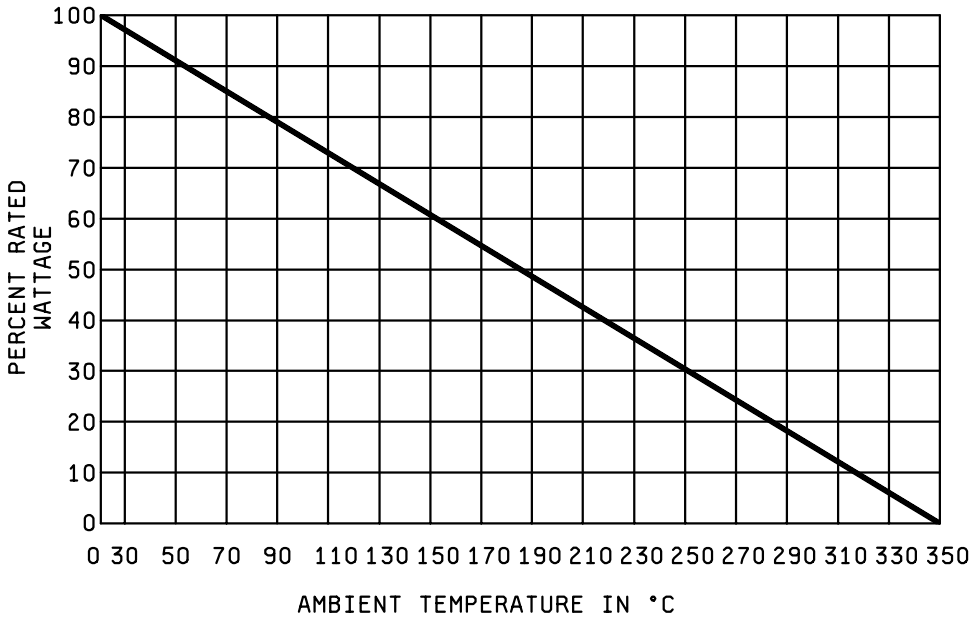


FIGURE 2. Derating curve for high ambient temperaturers.

6.6 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

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

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

Preparing activity:
DLA - CC

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