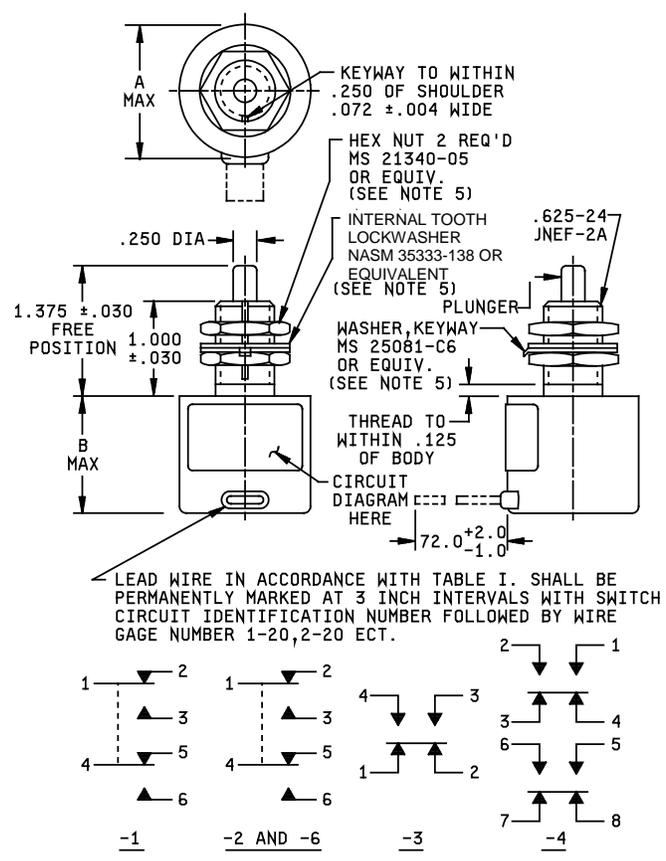


PERFORMANCE SPECIFICATION SHEET

SWITCHES, SENSITIVE, PLUNGER, RESILIENT SEAL, FLUID RESISTANT

This specification is approved for use by all Departments and Agencies of the Department of Defense. The complete requirements for acquiring the switches described herein shall consist of this specification and the latest issue of MIL-PRF-8805.



Inches	mm
.004	0.10
.015	0.38
.017	0.43
.022	0.56
.030	0.76
.038	0.97
.072	1.83
.125	3.18
.250	6.35
.584	14.83
.625	15.88
.650	16.51
.870	22.10
1.000	25.40
1.375	34.93
2.0	50.80
72.0	1828.80

NOTES:

1. Dimensions are in inches.
2. Unless otherwise stated, tolerance is $\pm .010$ (0.0254 mm).
3. Metric equivalents are given for general information only.
4. Contour optional, provided maximum dimensions specified are not exceeded.
5. Alternative base metals and protective finishes, as approved by the qualifying activity, may be utilized for hexagon nut, lock washer and keyway washer material. Dimensions shall be in accordance with the referenced hardware specifications.

FIGURE 1. Dimensions and configurations.

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REQUIREMENTS:

Dimensions and configurations: See figure 1 and table I.

Enclosure design: 4 (resilient). All entrances to the switch cavity except through the actuator bushing shall be sealed by fusion of glass-to-metal, metal-to-metal, ceramic-to-metal, or other materials that enable the switch to meet the performance requirements of this specification. The lead wires shall be potted to provide stress relief.

Temperature characteristic: 1 (-55°C to +85°C).

Shock type: M (100 g's).

Vibration grade: 2 (10 to 500 Hz).

Maximum weight with leads:

MS24331-1: .46 pound.

MS24331-2: .77 pound.

MS24331-3: .62 pound.

MS24331-4: .84 pound.

MS24331-6: .60 pound.

Operating characteristics:

Actuating force: 9 ±3 pounds.

Full overtravel force: 30 pounds maximum.

Release force:

MS24331-1: 4 pounds minimum.

MS24331-2, MS24331-3, MS24331-4, and MS24331-6: 5 pounds minimum.

Note: MS24331-1, MS24331-2, MS24331-3, MS24331-4, and MS24331-6 were superseded by MIL-PRF-8805/40, the MS24331 Part Numbers (PINS) were retained.

Pretravel: .070 inch maximum.

Movement differential:

MS24331-1: .020 inch maximum.

MS24331-2, MS24331-3, and MS24331-6: .035 inch maximum.

MS24331-4: .045 inch maximum.

Overtravel: .250 inch minimum.

Coincidence of operating and releasing points: All circuits shall transfer within .010 inch of plunger travel after first circuit transfers.

Strength of actuating means: 30 pounds.

Finish: Switch housing shall be processed to resist corrosion.

Contact resistance: Not applicable.

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Dielectric withstanding voltage:

At atmospheric pressure: 1,000 V rms.

At reduced barometric pressure: 50,000 feet; 400 V rms.

Following electrical endurance: Points of application between all unconnected terminals of the sample pole - not applicable.

Mechanical endurance: 25,000 cycles.

Electrical endurance: 25,000 cycles.

Electrical ratings: See table II.

Fluid resistance: Except for the cut end of the lead wire, switches shall be submerged in each of the following fluids for 2 minutes to 2 minutes 30 seconds, which shall consist of one cycle (one cycle is 10 minutes to 12 minutes 30 seconds total). Each switch shall be subjected to three cycles.

- a. Turbine fuel (MIL-DTL-5624).
- b. Hydraulic fluid (SAE AS1241).
- c. Coolanol (NSN 9160-00-257-1298).
- d. Ethylene glycol (ASTM E-1119).
- e. Lubricating oil (MIL-PRF-7808).

After each immersion, the excess fluid shall be blown off the external surfaces of the switch with an air jet. Following the third cycle, the switch shall be subjected to and shall meet the requirements for dielectric withstanding voltage, insulation resistance, operating characteristics, and seal tests.

Part number: See table I.

Qualification inspection:

Group submission: See table III.

Group A inspection:

Seal test: Only watertight test shall be performed.

TABLE I. Part number and characteristics.

Part number	Diameter maximum		Lead wires	
	A	B	Size	No. Req'd
MS24331-1	1.015 (25.78)	.980 (24.89)	No. 20	6
MS24331-2 ^{1/}	1.515 (38.48)	1.500 (38.10)	No. 18	6
MS24331-3	1.515 (38.48)	1.310 (33.27)	No. 18	4
MS24331-4	1.515 (38.48)	1.700 (43.18)	No. 18	8
MS24331-6	1.015 (25.78)	1.000 (25.40)	No. 18	6

^{1/} Inactive for new design.

Note: MS24331-1, MS24331-2, MS24331-3, MS24331-4, and MS24331-6 were superseded by MIL-PRF-8805/40; the MS24331 Part Numbers (PINS) were retained.

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TABLE II. Electrical ratings.

Load	Sea level 28 V dc (amperes)				50,000 feet 28 V dc (amperes)			
	-1	-2, -6	-3	-4	-1	-2, -6	-3	-4
Resistive	4	10	15	15	4	10	15	15
Inductive	2	3	10	10	2	3	10	10
Motor	4	6	5	5	4 <u>1/</u>	6 <u>1/</u>	5 <u>1/</u>	5 <u>1/</u>

1/ Application information only.

TABLE III. Qualification inspection (group submission).

Examination or test	Samples	Extent of Approval
Qualification inspection table of MIL-PRF-8805 <u>1/</u>	MS24331-1 (24 units)	All
Visual and mechanical examination Group II and V	MS24331-2, MS-24331-3, MS24331-4, and MS24331-6 (2 units each)	
Group VII	MS24331-3, MS24331-6 (10 units each)	

1/ Two sample units shall be tested for fluid resistance following visual and mechanical examination of group I.

NOTE: Part number MS24331-5, covered by MIL-PRF-8805/40A, is canceled. For future procurement use part number MS24331-1.

Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where modifications from this revision were made. 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.

Referenced Documents:

MIL-DTL-5624	MS25081	MIL-PRF-7808	NASM 35333
MIL-PRF-8805	ASTM E1119	MS21340	SAE-AS1241

Custodians:

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

Preparing activity:
DLA - CC

(Project 5930-2013-021)

Review activities:

Army - AR, AV, MI
Navy - AS, MC, OS
Air Force - 19, 99

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>.