

MIL-T-24388/8 (SH)
26 April 1979

MILITARY SPECIFICATION
THERMOCOUPLE AND RESISTANCE TEMPERATURE ELEMENT ASSEMBLIES,
TYPE RTE (EM INSTALLATION)

This specification is approved for use by the Naval Sea Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 This specification covers the requirements for resistance temperature elements, nickel and platinum type, designed for direct embedment into machinery.

2. APPLICABLE DOCUMENTS

2.1 Issues of documents. The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of the specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-T-24388 - Thermocouples and Resistance Temperature Element Assemblies, General Specification For (Naval Shipboard).

STANDARDS

MILITARY

MIL-STD-108 - Definitions and Basic Requirements for Enclosures for Electric and Electronic Equipment.

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

3. REQUIREMENTS

3.1 Assemblies shall conform to the requirements of MIL-T-24388 except as specified herein.

3.2 Embedment. Assemblies to be embedded into machinery (bearings, journals, windings, etc.) shall consist of the temperature detector element, protective cover (case) and integral extension leads. Elements of such devices may be an integral part of the complete temperature sensor assembly and need not be designed for separate installation or replacement. Overall design and physical dimensions of sensor assemblies designed for direct embedment into machinery shall be as shown on figure 1. The primary sensing element shall be enclosed in a 99 percent pure copper shell, tin, or nickel plated.

3.3 Leads. Wires emerging from the shell shall be 18 to 24 American Wire Gage (AWG). Insulation of individual connection leads shall be tetrafluoroethylene or glass braid (as required to meet temperature requirements) (see 6.2). Connection leads shall have an outer jacket of braided stainless steel over glass braid.

3.4 Enclosure. Assembly shall be watertight as defined in MIL-STD-108. Assembly shall be capable of satisfactory performance when continuously subjected to an enclosure temperature of 300°F. Assembly shall show no evidence of leakage following the enclosure test (see 4.8.3 of MIL-T-24388).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Ship Engineering Center, SEC 6124, Department of the Navy, Washington, DC 20362 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

MIL-T-24388/8(SH)

3.5 Response time. Response time of the assembly shall be 6 seconds or less when tested in accordance with MIL-T-24388.

4. QUALITY ASSURANCE PROVISIONS

4.1 Quality assurance provisions shall be in accordance with MIL-T-24388 except as specified herein.

4.2 Qualification inspection. Qualification inspection shall be as specified in MIL-T-24388 and Table I herein.

TABLE I. Qualification inspection.

Examination and tests	Requirement paragraph (MIL-T-24388)	Inspection paragraph (MIL-T-24388)
General examination	3.5	4.6
Calibration	3.9.1.2 and 3.9.1.3	4.9.1.1
Response time	3.5 herein	4.8.1
Self heating	3.9.1.1	4.9.1.2
Overload	3.8.4	4.8.11
Thermal cycling	3.8.2	4.8.2
Hermetic seal	3.7.6	4.8.4
Salt spray	3.8.1	4.8.5
Insulation resistance	3.8.8	4.8.9
Vibration	3.8.5	4.8.7
Shock	3.8.6	4.8.8
Enclosure	3.4 herein	4.8.3

5. PREPARATION FOR DELIVERY

5.1 Preservation-packaging, packing, and marking shall be in accordance with MIL-T-24388.

6. NOTES

6.1 In addition to the notes specified herein (see 6.2), the notes specified in MIL-T-24388 are applicable to this specification.

6.2 Ordering data. Acquisition documents should specify the following:

- (a) Whether tetrafluoroethylene or glass braid is required for insulation of connection leads (see 3.3).

Preparing activity:
Navy-SH
(Project 6685-N607-8)

MIL-T-24388/8 (SH)

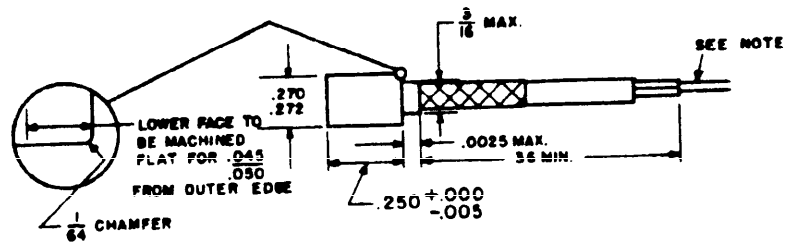


FIGURE 1A

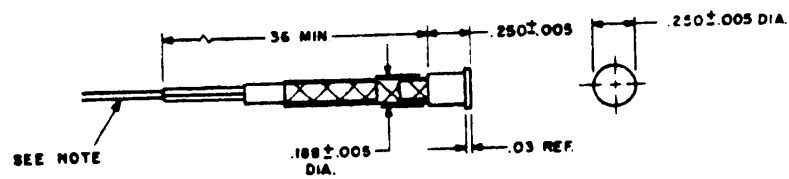


FIGURE 1B

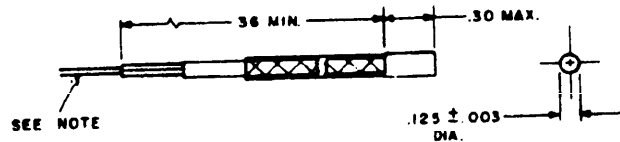


FIGURE 1C

SH 10448

NOTE: Not less than 24 AWG stranded copper conductors, 3 conductors, each conductor with polytetrafluoroethylene or glass braid insulation. The 3 conductor cable insulation shall be glass braid with an outer jacket of stainless steel braid.

FIGURE 1. Resistance temperature sensors - embedment.

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