

GGG-M-125/2A
September 20, 1982
SUPERSEDING
GGG-M-125/2
March 28, 1975

FEDERAL SPECIFICATION

RESPIRATOR ASSEMBLIES: AIR LINE, WITH HELMET (SUPPLIED AIR)

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

The complete requirements for procuring the respirators described herein shall consist of this document and the issue in effect of GGG-M-125/GEN.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers the specific requirements for respirators equipped with helmet type respiratory-inlet coverings for use with a continuous flow of supplied air.

1.2 Classification.

1.2.1 Types and models. Respirator assemblies shall be of the following types and models as specified (see 6.2).

Type I - Helmet assembly (general use) air line respirator.
Type II - Helmet assembly (welding use) air line respirator.
Type III - Helmet assembly (high temperature use) air line respirator.

Model 1 - Respirable compressed air control unit.
Model 2 - Respirable compressed air cooling unit.
Model 3 - Respirable compressed air heating unit.
Model 4 - Respirable compressed air cooling and heating unit.

2. APPLICABLE DOCUMENTS

2.1 Latest issue of GGG-M-125/GEN and documents reference therein, and the additional documents specified herein.

Federal Specification:

GGG-H-211 - Helmet, Welders, Handshield, Welding, and Plates, Welding.

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3. REQUIREMENTS

3.1 Approval and certification. (See GGG-M-125/GEN).

3.2 Design.

3.2.1 Type I, models 1, 2, 3, and 4 respirators. Type I, models 1, 2, 3, and 4 helmet respirator assemblies shall provide respiratory protection and protection to the neck and head when worn by a person of average features. The helmet respirator assembly shall allow the person to wear glasses.

3.2.2 Type II, models 1, 2, 3, and 4 respirators. Type II, models 1, 2, 3, and 4 helmet respirator assemblies shall provide respiratory protection and protection to the head and neck when worn by a person of average features. The face shield of a type B helmet respirator assembly shall have provision for fitting a welding lens meeting the requirements of GGG-H-211. The face shield with welding lens shall prevent intense radiant energy and weld splatter from entering the helmet. The helmet respirator assembly shall allow the person to wear glasses.

3.2.3 Type III, models 1, 2, 3, and 4 respirators. Type III helmet respirator assemblies shall provide respiratory protection and protection to the neck and head of a person of average features when worn for a long duration at temperatures up to 200 deg Fahrenheit (F). The helmet respirator assembly shall allow the person to wear glasses. When subjected to the heat exposure test specified in 4.3.2, type C helmet respirator assemblies shall show no visible signs of deterioration.

3.3 Principal parts. Types I, II, and III and models 1, 2, 3, and 4 helmet respirator assemblies (see figures 1, 2, and 3) shall consist of the following principal parts when required:

- a. Air-line hose (see 3.3.1).
- b. Detachable coupling (see 3.3.2).
- c. Air flow and/or temperature control unit where applicable (see 3.3.3).
- d. Compressed air-purifying assembly (see 3.3.4).
- e. Breathing tube (see 3.3.5).
- f. Belt or harness (see 3.3.6).
- g. Helmet with shroud, face shield, and air distribution system (see 3.3.7).
- h. Cover shields (see 3.3.8).

3.3.1 Air-line hose. When specified (see 6.2), a 25 foot air-line hose, shall be furnished to connect the respirator to the air supply system.

3.3.2 Detachable coupling with automatic shut-off mechanism. The detachable coupling shall provide a manually operated means for severing the air-line from the helmet, face shield, and shroud assembly. The detachable coupling shall function without the aid of tools and shall sustain a tight union not readily broken by normal handling. The coupling shall be readily attachable to the air-line hose without recourse to fittings other than those supplied with the respirator assembly. The detachable coupling with automatic shutoff mechanism shall automatically shut off the air supply when the coupling is disconnected and it shall automatically open the air supply when the coupling is connected.

3.3.3 Air flow control device and temperature control unit.

3.3.3.1 Air flow control device for model 1 respirators. A fixed orifice or air regulating valve shall be provided as specified (see 6.2). The valve shall be designed so that accidental bumping of the valve control shall not result in a change of air flow.

3.3.3.2 Air flow control device and temperature control unit for model 2 respirators. An adjustable air flow control device shall be capable of lowering the incoming air temperature (supplied to the helmet) by at least 35 deg F at its maximum temperature setting when tested as specified in 4.3.1. The valve shall be designed so that accidental bumping of the valve control shall not result in a change of air flow.

3.3.3.3 Air flow control device and temperature control unit for model 3 respirators. An adjustable air flow control device shall be capable of raising the incoming air temperature (supplied to the helmet) by at least 35 deg F at its maximum temperature setting when tested as specified in 4.3.1. The valve shall be designed so that accidental bumping of the valve control shall not result in a change of air flow.

3.3.3.4 Air flow control device and temperature control unit for model 4 respirators. An adjustable air flow control device shall be capable of lowering or raising the incoming air temperature (supplied to the helmet) by at least 35 deg F at its maximum temperature setting when tested as specified in 4.3.1. The valve shall be designed so that accidental bumping of the valve control shall not result in a change of air flow.

3.3.4 Compressed air-purifying assembly. When specified (see 6.2), an air-purifying assembly shall be provided. The air-purifying element shall be readily replaced in the assembly without the use of tools.

3.3.4.1 Air-purifying element. An air-purifying element shall remove trace concentrations of some odors and/or particulate matter or any combination of them from air supplied to the helmet.

3.3.5 Breathing tube. A flexible breathing tube shall be furnished to connect the helmet air inlet opening to the air flow control device. Tubes complete with fittings shall pass the leakage test specified in GGG-M-125/GEN.

3.3.6 Belt or harness assembly. Each helmet respirator assembly shall be provided with an adjustable belt or harness assembly that will comfortably support the apparatus attached to it and/or act as a strain relief for the attached air-line hose.

3.3.7 Helmet with shroud enclosure. Each helmet respirator assembly shall incorporate an impact protective helmet with a detachable shroud (see 3.3.7.1). The shroud shall be sealed to the helmet in a manner to prevent penetration of airborne particulate matter, vapors, and gases into the helmet with shroud enclosure. The helmet shall meet the impact and penetration resistance requirements specified in ANSI Z89.1. The helmet shall be equipped with a face shield which can be opened during the wearing of the respirator to permit access to the face, eyes, nose, and mouth. The face shield, when closed, shall be sealed to the helmet in a manner to prevent penetration of airborne particulate matter, vapors, and gases into the helmet with shroud

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enclosure. Face shields shall be free of visible distortion as specified in GGG-M-125/GEN. The outside surface of the face shield viewing area in a type I helmet respirator assembly shall be capable of being protected with a replaceable cover shield to prolong the useful life of the viewing area (see 3.3.8). The face shield of the helmet in a type III helmet respirator assembly shall be fabricated from a suitable transparent material capable of withstanding 200 deg F. The helmets of type I, II, and III helmet respirator assemblies shall incorporate a head suspension system which is adjustable and fits all head size and shapes in accordance with ANSI Z89.1. When worn, the helmet respirator assembly shall accommodate the use of glasses, ear plugs, or communication equipment. The communications equipment shall not violate the seal of the respiratory-inlet covering. The helmet respirator assembly shall have an internal air distribution system for proper ventilation within the helmet, face shield, and shroud enclosure (see 3.3.7.2).

3.3.7.1 Shroud enclosure. A shroud shall consist of one or more layers of a suitable material(s). The shroud shall cover the neck and also, it may cover the upper part of the respirator wearer's chest and back. The shroud shall be easily removed and replaced on the helmet. The shroud of a type B helmet respirator assembly shall be fabricated from flame-retardant material(s). The shroud of a type C helmet respirator assembly shall be made of a heat-resistant material(s).

3.3.7.2 Air distribution system. The air distribution system shall distribute air within the helmet, face shield, and shroud enclosure for proper ventilation with the air flow rate and the noise level meeting the requirements given in 30 CFR, part 11, section 11.120 and 11.124-7.

3.3.8 Cover shield. Unless otherwise specified (see 6.2), 200 self-adhering transparent sheets, a metal screen or other suitable material which does not interfere with the vision of the wearer shall be furnished (at the contractor's option.) The protective screen shall attach over the outside surface of the viewing area of the type I helmet face shield.

3.3.8.1 Cover and face shield cleaner. Unless otherwise specified (see 6.2), two 8-ounce bottles or one 16-ounce bottle of cleaner, at the option of the manufacturer, shall be furnished with each respirator.

3.4 Cleaning and sanitization. Respirators shall conform to the requirements specified in GGG-M-125/GEN.

3.5 Spare parts. When specified (see 6.2), spare parts or accessories shall be furnished.

3.6 Interchangeability. Requirements in accordance with GGG-M-125/GEN.

3.7 Instructions. Requirements in accordance with GGG-M-125/GEN.

3.8 Marking. Requirements in accordance with GGG-M-125/GEN.

3.9 Workmanship. Requirements in accordance with GGG-M-125/GEN.

4. QUALITY ASSURANCE PROVISIONS

4.1 Quality assurance provisions shall be in accordance with the requirements of GGG-M-125/GEN and the additional requirements specified herein.

4.2 Examination. Respirators selected in accordance with GGG-M-125/GEN shall be examined to verify compliance with this specification and for the defects listed in table I.

TABLE I. Classification of defects.

Categories	Defects
Major	
101	Type and model not as specified.
102	Respirator not in accordance with NIOSH/MSHA requirements.
103	Principal parts missing.
104	Detachable coupling not as specified.
105	Face shield not as specified.
106	Cover shields missing or not correct quantity when specified.
107	Spare parts missing when specified.
108	Instructions missing.
109	Markings not as required.
110	Poor workmanship.

4.3 Tests. Respirators sampled in accordance with GGG-M-125/GEN shall be subjected to the following tests:

- a. Cleaning and sanitizing test (see GGG-M-125/GEN).
- b. Helmet impact and penetration tests (see GGG-M-125/GEN).
- c. Temperature air control test for models 2, 3, and 4 respirators (see 4.3.1).
- d. Heat exposure test for type III respirators (see 4.3.2).
- e. Leakage test (see GGG-M-125/GEN).
- f. Lens test for type I (see GGG-M-125/GEN).

4.3.1 Temperature air control test for models 2, 3, and 4 respirators. The complete helmet or hood respirator assembly shall be tested.

- a. The complete helmet or hood respirator assembly shall be tested in an atmosphere at a temperature of 70 deg +/- 5 deg F and a relative humidity of 50 +/- 10 percent.
- b. A suitable temperature indicator or sensor shall be located inside helmet or hood of the respirator to measure the temperature of the air inside the helmet or hood.
- c. The air temperature control unit of the respirator shall be operated in accordance with the manufacturer's instructions to lower and/or raise the temperature of the air supplied to the inside of the helmet or hood by the maximum amount.
- d. An air cooling control unit shall be capable of lowering the air temperature inside the helmet or hood by at least 35 deg F at the maximum temperature setting. Failure to do this shall be cause for rejection.

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- e. An air heating control unit shall be capable of raising the air temperature inside the helmet or hood by at least 35 deg F at the maximum temperature setting. Failure to do this shall be cause for rejection.
- f. An air cooling and heating control unit shall be capable of both lowering and raising the air temperature inside the helmet or hood by at least 35 deg F at the maximum temperature settings. Failure to do this shall be cause for rejection.

4.3.2 Heat exposure test. The complete respirator shall be tested.

- a. The complete respirator shall be placed in an air circulating oven in which the air is kept at a temperature of 200 deg +/- 5 deg F.
- b. The complete respirator shall be kept in the oven at the specified temperature for 1 hour.
- c. The complete respirator shall be removed from the oven and allowed to cool to normal room temperature.
- d. The complete respirator shall be examined visually to determine if any components are distorted, cracked, crazed, or discolored. A detection of any of these defects shall be cause for rejection.

5. PREPARATION FOR DELIVERY (In accordance with GGG-M-125/GEN).

6. NOTES

6.1 Intended use. Respirators covered in this specification are intended to protect the respiratory organs of the wearer from toxic gases, vapors, dusts, fumes, and mists having concentration in air that are not immediately dangerous to life or health and to protect the wearer's head from falling or flying objects. The type B respirator also shall protect the wearer's eyes, head, and neck against intense radiant energy and weld splatter.

6.2 Ordering data. Purchasers should select the preferred options offered herein and include the following data in procurement documents:

- a. Title, number, and date of this specification.
- b. Title and date of general specification GGG-M-125/GEN.
- c. Type and model of respirator required (see 1.2.1).
- d. Whether respirator is furnished with or without airline hose (see 3.3.1).
- e. Specify fixed orifice or air regulating valve for model 1 respirator (see 3.3.3.1).
- f. Specify if compressed air-purifying assembly is required (see 3.3.4).
- g. If number of cover shields required are different (see 3.3.8).
- h. If quantity of cover and face shield cleaner is different (see 3.3.8.1).
- i. Specify if spare parts are required and list quantity of each type of spare part required (see 3.5).
- j. Specify level of packaging and level of packing required (see GGG-M-125/GEN).

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6.2 Cross-reference of classifications. The following respirators were previously classified as indicated:

New
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Type I
Type II
Type III

Old
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Type A
Type B
Type C

MILITARY INTEREST:

Custodians

Army - EA
Navy - YD
Air Force - 99

Review Activities

Army - MD, ME
DLA - GS

User Activities

Navy - SH, CG, MC

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FSS
TVA -
DCG

PREPARING ACTIVITY:

Navy - YD

Project No. 4240-0442

Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein.

NOTICE OF
VALIDATION

GGG-M-125/2A
NOTICE 1
17 August 1987

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RESPIRATOR ASSEMBLIES: AIR LINE, WITH HELMET
(SUPPLIED AIR)

GGG-M-125/2A, dated September 20, 1982, has been reviewed and determined to be valid for use in acquisition.

Custodians:

Army - EA
Navy - YD
Air Force - 99

Preparing Activity:

Navy - YD

Civil Agency Coordinating Activities:

GSA - FSS
TVA
DCG

Review Activities:

Army - MD, ME
DLA - GS

User Activities:

Navy - CG, MC, SH

AMSC N/A

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