



V-Series Air Control Devices

User Instructions for 3M™ Vortex Cooling Assembly V-100, 3M™ Vortemp™ Heating Assembly V-200, 3M™ Air Regulating Valve Assembly V-300 and 3M™ Low Pressure Connector Assembly V-400.

IMPORTANT: Keep these User Instructions for reference



WARNING
This product helps protect against certain airborne contaminants. Misuse may result in sickness or death.

GENERAL SAFETY INFORMATION

Intended Use
The 3M™ V-Series Air Control Devices are designed to be used with certain 3M headgear, breathing tube and supplied air hose to form a complete NIOSH approved respiratory system.
3M headgear (respiratory inlet) is designed to provide a light fitting facepiece, known fitting facepiece, helmet, or some combination of these that serves as a respiratory protective covering for the nose and mouth area. Refer to the enclosed 3M™ V-Series Air Control Device NIOSH approved label for approved configurations.

List of Warnings and Cautions within these User Instructions

WARNING
This product helps protect against certain airborne contaminants. Misuse may result in sickness or death.
The length of compressed air hose W-300 used depends on the specifications of the low-pressure air pump utilized. Some pumps specify a minimum of 50 or 100 feet of hose to allow adequate cooling of the air heated by the pump's mechanism. Read the pump's instructions thoroughly before selecting the compressed air hose W-300 length that will be used. **NO PUMP IS TO BE USED UNLESS IT IS SPECIFICALLY IDENTIFIED IN THE USER MANUAL.** The W-300S cotton fiber belt may be adjusted to accommodate waist sizes from 27 to 42 inches (84 and 107 centimeters). The approved label for approved configurations.

WARNING
To meet the NIOSH requirement of 42 CFR 84, subpart 84.150 for minimum and maximum airflow on 8 to 15 inches, 170 to 425 lpm, the air control device approved for use with 3M headgear includes the supply pressure control within the supply pressure regulator in the Special or Critical Use Instructions. Failure to do so may adversely affect respirator performance and result in sickness or death.
You must comply with OSHA Standard 29 CFR 1910.134, which states that: "Airline couplings shall be incompatible with outlets for other gas systems to prevent inadvertent breathing of any air from respirators with incompatible gases or vapors." In Canada, refer to the requirements of CSA Standard Z180.1 or the authority having jurisdiction in your region. **Failure to do so may result in sickness or death.**
For use with 3M headgear, the W-300 and W-290S (cotton) hoses can only be used in single lengths of 25, 50, or 100 feet (7.6, 15.2, or 30.5 meters). No connections are allowed.

WARNING
Each person using this respirator must read and understand the information in these User Instructions before use. Use of this respirator by persons who are untrained, inexperienced, or used in accordance with these User Instructions may adversely affect product performance and result in sickness or death.
Do not use if any parts are missing or damaged.
Do not use with parts or accessories other than those approved by 3M as described in these User Instructions or on the NIOSH approval label for the respirator that you are using. Failure to do so may adversely affect respirator performance and result in sickness or death.
Use of this respirator at altitudes for which it is not NIOSH certified or designed may result in sickness or death. Do not wear this respirator where:
- Atmospheres are oxygen deficient.
- Contaminant concentrations are unknown.
- Contaminant concentrations are immediately Dangerous to Life or Health (IDLH).
- Contaminant concentrations exceed the maximum use concentration (MUC) determined using the assigned protection factor (APF) recommended for the specific headgear as mandated by specific government standards, whichever is lower. Contact your distributor for the User Instructions provided with the applicable headgear.
- Contaminants that are dangerous to your health include those that you may not be able to see or smell. Leave the contaminated area immediately if any of the following conditions occur. **Failure to do so may result in sickness or death.**
- Any part of the system becomes damaged.
- Airflow into the respirator decreases or stops.
- Breathing becomes difficult.
- You feel dizzy or your vision is impaired.
- You taste or smell contaminants.
- Your face, eyes, nose or mouth becomes irritated.
- You suspect that the concentration of contaminants may have reached levels at which this respirator may no longer provide adequate protection.

Never alter or modify this assembly.
If supply piping, fittings, and compressors must have the capacity to deliver sufficient air volume (8 to 15 cfm, 170 to 425 lpm) to operate the air control device at the recommended pressure.

USE INSTRUCTIONS AND LIMITATIONS
IMPORTANT
Before use, the wearer must read and understand these User Instructions. Keep these User Instructions for reference.
General Description
The 3M Air Control Valve Assemblies are designed to be used with approved 3M headgear (respiratory inlet connector, breathing tube and supplied air hose) to form a complete NIOSH approved Type C or CE supplied air system.
3M™ Vortex™ Cooling Assembly V-100
The 3M™ Vortex Cooling Assembly is designed to provide those 3M headgear which are approved for use with it, a continuous airflow ranging between 15 and 15 cfm (170 to 425 lpm). This assembly provides the ability to cool the compressed air by using a maximum of 50°C. The device cools the air as supplied by the compressed air source – not the ambient air. The control knob may be turned manually between upper and lower limits to halt the cooling control requirements of the user.
3M™ Vortemp™ Heating Assembly V-200
The 3M™ Vortemp™ Heating Assembly is designed to provide those 3M headgear which are approved for use with it, a continuous airflow ranging between 15 and 15 cfm (170 to 425 lpm). This assembly provides the ability to warm the compressed air by using a maximum of 50°F (20°C). The device warms the air as supplied by the compressed air source – not the ambient air. The control knob is set manually between upper and lower limits to halt the warming control requirements of the user.
3M™ Air Regulating Valve Assembly V-300
The 3M™ Air Regulating Valve Assembly is designed to provide those 3M headgear which are approved for use with it, a continuous airflow ranging between 15 and 15 cfm (170 to 425 lpm). This assembly provides the ability to manually adjust the pressure of the air supplied to the user.
3M™ Low Pressure Connector Assembly V-400
The 3M™ Low Pressure Connector Assembly is designed to provide those 3M headgear which are approved for use with it, a continuous airflow ranging between 15 and 15 cfm (170 to 425 lpm). This assembly provides the ability to manually adjust the pressure of the air supplied to the user.
Assigned Protection Factor (APF)
Refer to the User Instructions for the specific headgear to be used to determine the APF for the 3M™ Supplied Air System using V-Series Air Control Devices. Contact 3M™ Technical Data Bulletin #175 for additional information on APFs and supporting test data.
NIOSH Approval
For a listing of the conditions and limitations of NIOSH approved 3M respirator systems using 3M™ V-Series Air Control Devices, refer to the NIOSH approval label.
NIOSH Cautions and Limitations
A- Not for use in atmospheres containing less than 19.5 percent oxygen.
B- Not for use in atmospheres immediately dangerous to life or health.
C- Do not exceed maximum use concentrations established by regulatory standards.
D- Air-line respirators can be used only when the respirators are supplied with respiratory air meeting the requirements of CGA G-7.1 Grade D or higher quality.
E- Use only the pressure ranges and hose lengths specified in the User's Instructions.
F- Failure to properly use and maintain this product could result in injury or death.
M- All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA, OSHA, and other applicable regulations.

It never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.

Do-Not Use: Do not use for industrial purposes, and/or maintenance (use only for information on use and maintenance of these devices).

Special or Critical Use Instructions
Special or Critical Use Instructions are provided for use with the 3M™ Supplied Air System. These instructions are provided for use with the 3M™ Supplied Air System. These instructions are provided for use with the 3M™ Supplied Air System.

Air Control Device	Quick Disconnect Part Type
V-100	Industrial Interchange, 1/4" MPT, 1/4" Body Size, Steel
V-200	Industrial Interchange, 1/4" MPT, 1/4" Body Size, Steel
V-300	Industrial Interchange, 1/4" MPT, 1/4" Body Size, Steel
V-400	Industrial Interchange, 1/4" MPT, 3/8" Body Size, Steel

3M™ Supplied Air Hose and Pressure Requirements
All approved 3M headgear (respiratory inlet connector) must be used with 3M headgear (respiratory inlet connector) and supplied air hose (respiratory inlet connector).
3M™ Supplied Air Hose and Pressure Requirements allow you to combine up to three W-300S or W-940S hoses (25, 50, or 100 feet / 7.6, 15.2, 30.5 meters) in any combination not to exceed 300 feet (91.4 meters). Refer to Table 1 for the W-300S or W-940S pressure requirements for a 3M approved headgear. Hose lengths are limited.
Table 1: Pressure Schedule Table for 3M™ V-Series Air Control Devices Used With 3M Headgear - L-601, L-503, L-505, L-701, L-703, L-705, L-901, L-905

Air Control Device	High Pressure Hoses W-940S (Cotton, 3/8" ID)	High Pressure Hoses W-300S (1 1/2" ID)	Supply Pressure Range
V-100	25 - 100 ft (7.6 - 30.5 meters)	25 - 50 or 100 ft (7.6 - 15.2, 30.5 meters)	60 - 72 psig (4.1 - 5.1 kg/cm²)
V-200	125 - 200 ft (38.1 - 61.0 meters)	N/A	60 - 82 psig (4.1 - 5.7 kg/cm²)
V-300	225 - 300 ft (68.6 - 91.4 meters)	N/A	75 - 91 psig (5.2 - 6.4 kg/cm²)
V-400	25 - 100 ft (7.6 - 30.5 meters)	25 - 50 or 100 ft (7.6 - 15.2, 30.5 meters)	60 - 82 psig (4.1 - 5.7 kg/cm²)

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V-200	125 - 200 ft (38.1 - 61.0 meters)	N/A	60 - 82 psig (4.1 - 5.7 kg/cm²)
V-300	225 - 300 ft (68.6 - 91.4 meters)	N/A	75 - 91 psig (5.2 - 6.4 kg/cm²)
V-400	25 - 100 ft (7.6 - 30.5 meters)	25 - 50 or 100 ft (7.6 - 15.2, 30.5 meters)	60 - 82 psig (4.1 - 5.7 kg/cm²)

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V-200	125 - 200 ft (38.1 - 61.0 meters)	N/A	60 - 82 psig (4.1 - 5.7 kg/cm²)
V-300	225 - 300 ft (68.6 - 91.4 meters)	N/A	75 - 91 psig (5.2 - 6.4 kg/cm²)
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V-300	225 - 300 ft (68.6 - 91.4 meters)	N/A	75 - 91 psig (5.2 - 6.4 kg/cm²)
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V-200	125 - 200 ft (38.1 - 61.0 meters)	N/A	60 - 82 psig (4.1 - 5.7 kg/cm²)
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Item Number	Part Number	Description	Quantity Required
1	W-217	Waist belt, decontaminable 54 x 1 x 1.5 in	1
2	W-3217	Waist belt, decontaminable 54 x 1 x 1.5 in	1
3	W-3218	Waist belt, decontaminable 54 x 1 x 1.5 in	1
4	W-3219	Waist belt, decontaminable 54 x 1 x 1.5 in	1
5	W-3220	Waist belt, decontaminable 54 x 1 x 1.5 in	1
6	W-3221	Waist belt, decontaminable 54 x 1 x 1.5 in	1
7	W-3222	Waist belt, decontaminable 54 x 1 x 1.5 in	1
8	W-3223	Waist belt, decontaminable 54 x 1 x 1.5 in	1
9	W-3224	Waist belt, decontaminable 54 x 1 x 1.5 in	1
10	W-3225	Waist belt, decontaminable 54 x 1 x 1.5 in	1
11	W-3226	Waist belt, decontaminable 54 x 1 x 1.5 in	1
12	W-3227	Waist belt, decontaminable 54 x 1 x 1.5 in	1
13	W-3228	Waist belt, decontaminable 54 x 1 x 1.5 in	1
14	W-3229	Waist belt, decontaminable 54 x 1 x 1.5 in	1
15	W-3230	Waist belt, decontaminable 54 x 1 x 1.5 in	1
16	W-3231	Waist belt, decontaminable 54 x 1 x 1.5 in	1
17	W-3232	Waist belt, decontaminable 54 x 1 x 1.5 in	1
18	W-3233	Waist belt, decontaminable 54 x 1 x 1.5 in	1
19	W-3234	Waist belt, decontaminable 54 x 1 x 1.5 in	1
20	W-3235	Waist belt, decontaminable 54 x 1 x 1.5 in	1
21	W-3236	Waist belt, decontaminable 54 x 1 x 1.5 in	1

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12	W-3227	Waist belt, decontaminable 54 x 1 x 1.5 in	1
13	W-3228	Waist belt, decontaminable 54 x 1 x 1.5 in	1
14	W-3229	Waist belt, decontaminable 54 x 1 x 1.5 in	1
15	W-3230	Waist belt, decontaminable 54 x 1 x 1.5 in	1
16	W-3231	Waist belt, decontaminable 54 x 1 x 1.5 in	1
17	W-3232	Waist belt, decontaminable 54 x 1 x 1.5 in	1
18	W-3233	Waist belt, decontaminable 54 x 1 x 1.5 in	1
19	W-3234	Waist belt, decontaminable 54 x 1 x 1.5 in	1
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2	W-321		