Supplied-Air Respirator, Type C Continuous Flow – Approval No. TC-19C-0154

Bullard CC20 Series hoods for continuous flow supplied-air respirators offer users a 1,000 Assigned Protection Factor (APF) for double-bib models and 25 APF for single bib models along with an easy-to-use adjustable ratchet suspension and two levels of chemical barrier protection. CC20 Series hoods can be used with optional climate control devices. CC20 Series hoods can be used with compressed air or ambient air pumps. Refer to pressure table settings inside this manual or supplied with your air pump. For Powered Air-Purifying Respirator use, please refer to separate user manual.

**NOTE**
For technical assistance or questions contact Bullard Customer Service at:
Toll-Free 877-BULLARD (285-5273) or 859-234-6616
Online at www.bullard.com or e-mail info@bullard.com

## Cautions and Limitations

**For CC20 Series Supplied Air Respirators**

A. Not for use in atmospheres containing less than 19.5% oxygen.
B. Not for use in atmospheres immediately dangerous to life or health (IDLH). IDLH is defined in 29 CFR 1910.134(b).
C. Do not exceed maximum use concentrations established by regulatory standards.
D. Airline respirators can be used only when respirators are supplied with respirable 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 this User Manual.
J. 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.
N. Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
O. Refer to user’s instructions, and/or maintenance manuals for information on use and maintenance of these respirators.
S. Special or Critical User’s Instructions and/or specific use limitations apply. Refer to User’s Instructions before donning.

### WARNING

Read all instructions and warnings before using this product. Failure to use and maintain this product in strict accordance with the instructions, labels, and limitations provided throughout this document could result in death or serious injury.

- Consult and comply with all applicable respiratory regulations (OSHA, MSHA, ACGIH, EPA and others) including; written program, medical evaluation, user training, hazard identification and appropriate respirator selection for the hazard.
- DO NOT use these respirators for respiratory protection in abrasive blasting such as silica. Use an approved and appropriate Type CE respirator for the hazard and activity.
- CC20 Series respirator hoods and components are designed for protection against fumes, vapors, gases, and dusts. For direct chemical contact or splash, additional evaluation of product selection is required.

Bullard CC20 hoods offer two levels of DuPont® Tychem® chemical barrier protection.

- Never connect a respirator to a non-breathable air source. Prevent accidental connection by selecting unique and incompatible fittings from other airlines.
- Leave contamination area immediately if:
  - Breathing becomes difficult
  - Vision becomes impaired
  - Pressure is felt in the ears
  - Dizziness or other distress occurs
  - You see, taste, or smell contaminants inside the hood
  - Any part of the respirator assembly becomes damaged
  - Airflow into the respirator slows or stops
  - Air pressure gauge drops below the minimum specified in the Breathing Air Pressure Table

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Approved Respirator System Components

**Respirator Operation**

**Protection**

CC20 Series respirators have a Head Protection class of Z87.1. The respirator should be used in conjunction with personal protective equipment (PPE) approved for the specific hazards present. To use the table and identify the proper air flow range; 1) select the air source (Compressed Air or Ambient Air), 2) the use mode (Ambient Temp, Cooling, Heat/Cool) and 3) the exact part number of the flow control device, and 4) the length of the air supply hose. Note the maximum hose segments that are approved.

**Breathing Air Pressure Table**

<table>
<thead>
<tr>
<th>Air Source</th>
<th>Usage</th>
<th>Flow Control Device Part Number</th>
<th>Coupling Design</th>
<th>25' Max 1 Hose Length</th>
<th>50' Max 2 Hose Length</th>
<th>75' Max 3 Hose Length</th>
<th>100' Max 3 Hose Length</th>
<th>150' Max 5 Hose Length</th>
<th>200' Max 6 Hose Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressed Air</td>
<td>Constant Flow</td>
<td>DC5048</td>
<td>Interchange</td>
<td>63 - 91</td>
<td>70 - 97</td>
<td>78 - 103</td>
<td>86 - 109</td>
<td>94 - 121</td>
<td>100 - 136</td>
</tr>
<tr>
<td>Compressed Air</td>
<td>Cooling</td>
<td>DC5048</td>
<td>Interchange</td>
<td>58 - 83</td>
<td>66 - 92</td>
<td>74 - 99</td>
<td>82 - 105</td>
<td>91 - 121</td>
<td>99 - 136</td>
</tr>
<tr>
<td>Compressed Air</td>
<td>Heat/Cool</td>
<td>DC5048</td>
<td>Interchange</td>
<td>54 - 79</td>
<td>64 - 91</td>
<td>73 - 99</td>
<td>82 - 106</td>
<td>92 - 122</td>
<td>102 - 138</td>
</tr>
<tr>
<td>Ambient Air</td>
<td>Constant Flow</td>
<td>AC1000</td>
<td>Interchange</td>
<td>56 - 83</td>
<td>65 - 92</td>
<td>74 - 99</td>
<td>83 - 106</td>
<td>92 - 122</td>
<td>101 - 138</td>
</tr>
<tr>
<td>Ambient Air</td>
<td>Cooling</td>
<td>AC1000</td>
<td>Interchange</td>
<td>50 - 77</td>
<td>60 - 87</td>
<td>70 - 97</td>
<td>80 - 105</td>
<td>90 - 120</td>
<td>100 - 135</td>
</tr>
</tbody>
</table>

**Flow Control Devices**

- **Respirator Hood**
  - Single Bib
  - Double Bib
  - Double Bib Taped Seams
  - Hard Hat Compatible Double Bib

- **Breathing Tube**
  - Heavy Duty
  - Light Duty

- **Flow Control Devices**
  - Without Climate Control
  - With Climate Control

- **Air Supply Hose Series**
  - V5 3/8" ID
  - V10 3/4" ID
  - V20 1/2" ID

Special or Critical User’s Instructions

The CC20 Series Breathing Air Pressure Table defines the air pressure ranges necessary to provide CC20 Series respirators with a volume of air that falls within the required range of 6-15 cfm and 170-425 pci (42 CFR, Part 84, Subpart L, 84.150).

**WARNING**

Failure to supply the minimum required pressure at the point-of-attachment for your hose length and CC20 respirator type will reduce airflow and could result in death or serious injury.

To use the table and identify the proper air flow range; 1) select the air source (Compressed Air or Ambient Free Air), 2) the use mode (Ambient Temp, Cooling, Heat/Cool), 3) the exact part number of the flow control device, and 4) the length of the air supply hose. Note the maximum hose segments that are approved.

Only use or select a configuration that is specified and has a pressure range provided.

**CC20 Series Respirator Breathing Air Pressure Table**

**Respirator System Components / Respirator Operation**

**Special or Critical User’s Instructions / Breathing Air Pressure Table**

<table>
<thead>
<tr>
<th>Design</th>
<th>25' Length</th>
<th>50' Length</th>
<th>75' Length</th>
<th>100' Length</th>
<th>150' Length</th>
<th>200' Length</th>
<th>250' Length</th>
<th>300' Length</th>
<th>350' Length</th>
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<tbody>
<tr>
<td>Tychem® 2000 (QC)</td>
<td>20TJ</td>
<td>20TIC</td>
<td>20TICS</td>
<td>20TICH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tychem® 4000 (SL)</td>
<td>20SIC</td>
<td>20SICH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*See Parts and Accessories for complete part numbers, descriptions, and specifications.*
Fitting the CC20 Series Respirator With a Hard Hat or Headband Suspension

Hard Hat Option
1. The CC20 Series respirator hood is approved for use with Bullard 30 or 51 Series Hard Hats. Assemble and adjust the hardhat suspension per its instructions including optional ES42 chin strap.
2. Remove the adhesive-backed Velcro® strip attached to the Velcro piece that is sewn in the hood.
3. Peel the backing off the Velcro tab and apply it to the inside center rear of the hard hat approximately ¼” up from the edge.
4. Insert the hard hat into the hood with cap visor facing the front of the hood.
5. Tuck cap visor above the front elastic band sewn into hood.
6. Loop the Velcro strip sewn inside the hood around the back of the cap and affix it to the corresponding Velcro tab previously installed.

Head Suspension Option
1. Place the headband suspension on your head and adjust to fit.
2. When comfortable, insert the suspension into the hood and snap connect it to the buttons on the front lens.

Installing the Breathing Tube in CC20 Series Respirator Hoods (Clamp Style)
1. Place the headband suspension on your head and adjust to fit.
2. Insert the open end of the breathing tube approximately five inches into flow control device on belt by screwing nylon hose connector onto flow control device.
3. Attach other end of the breathing tube to the flow control device on belt by screwing nylon hose connector onto flow control device.
4. Lace belt and/or heat shield through belt loop bracket on climate control device.

Installing the Breathing Tube in CC20 Series Respirator Hoods (Thread Style)
1. Align male end of breathing tube to female threaded insert on the back of the hood (see Figure 5). Do not remove foam from inside the breathing tube used with CC20 Series Airline Respirators. The foam helps to reduce the noise level of incoming air.
2. Twist the breathing tube into hood turning clockwise. Hand tighten only, until firmly seated.
3. Attach other end of the breathing tube to the flow control device on belt by screwing nylon hose connector onto flow control device.
4. Lace belt and/or heat shield through belt loop bracket on climate control device.

Using Climate Control Devices as Flow Controls for CC20 Series Supplied-Air Respirators
CC20 Series Supplied-Air Respirators are approved for use by NIOSH with six optional Bullard climate control devices: AC1000 Series, HC2400 Series, DC5040 Series, and the Frigitron 2000 Series. These devices are considered flow controls, have bolts for point-of-body attachment, and provide cool and/or warm air to the user.
1. Follow the instructions supplied with the climate control device.
2. Screw nylon hose connector on end of breathing tube to hose thread on climate control device.
3. Firmly tighten hose connector by hand (see Figure 6).
4. Lace belt and/or heat shield through belt loop bracket on climate control device.

WARNING
Do not put on or remove these respirators in a hazardous atmosphere except for emergency escape purposes. Failure to heed these warnings could result in death or serious injury.

Donning the CC20 Series Respirator
Before using your CC20 Series respirator, assemble the hood, breathing tube and flow control using the instructions given on page 4.
1) Connect Bullard air supply hose to an air source supplying Grade D breathable air turn on breathing air source.
2) With air flowing, connect the hood assembly to the air supply hose (see Figure 7). Pull back the sleeve on the hose coupler and insert the quick-disconnect nipple on the flow control. Once the fitting is secured, release the coupling sleeve to lock the fitting together. Pull on the coupling to make sure they are attached securely.
3) Adjust the air pressure at the point-of-attachment to the approved pressure range. See the Breathing Air Pressure Table (page 4) for approved pressure ranges.
4) With the air still flowing, put on the CC20 Series hood. Pull the hood over your head until the neck cuff is securely around your neck. If wearing eye wear, put your face in the hood opening first and pull over your head.
5) Make sure that the breathing tube is not twisted after donning. If so, remove hood, untwist and redon.
6) Tuck inner bib of hood into shirt or protective clothing (see Figure 9).

Donning / Doffing

www.bullard.com
### Inspection, Cleaning, and Storage

Bullard CC20 Series respirators have a limited service life. Therefore, a regular inspection and replacement program must be conducted. Bullard CC20 Series respirators and all component parts and assemblies should be inspected for damage or excessive wear before and after each use to ensure proper function. Immediately remove the respirator from service and replace parts or assemblies that show any sign of failure or excessive wear that might reduce the degree of protection originally provided.

Use only Bullard CC20 Series respirator components and replacement parts manufactured by Bullard and approved for use by NIOSH with these respirators. Since respirator use and wear varies with each job site, it is impossible to provide a specific time frame for respirator replacement. Respirators used by more than one person must be cleaned, inspected, and sanitized after each use.

### WARNING

Do not store the respirator in your work area or leave it unattended in a contaminated environment. Respirable contaminants can remain suspended in the air for several hours after work activity ceases, even though you may not see them. Proper work practice requires you to wear the respirator until you are outside the contaminated area. If you place or store the respirator in a contaminated environment, contaminants, dirt, and dust could get into the respirator. When you put the respirator back on, you could breathe in contaminants upon reuse. Failure to heed these instructions could result in death or serious injury.

#### Hood

**Inspection**

Before and after every use, inspect the hood material for rips, tears, or damage from excessive wear that might reduce the degree of protection originally provided. The respirator’s plastic lens should be inspected for cracks, scratches or any other signs of damage. If damage is detected, remove the hood from service and discard immediately.

**Cleaning**

Bullard does not recommend laundering the hood. The hood should be hand-sponged with warm water and mild detergent, rinsed, and air-dried. Avoid solvents and harsh cleansers. Abrasive cleaning or solvents can damage the plastic parts and reduce the protective properties of the respirator. Failure to heed these instructions may result in minor or moderate injury and/or equipment damage.

### WARNING

The air you breathe will not be clean unless the respirator you wear is clean. Failure to heed this warning could result in death or serious injury.

#### Breathing Tube

**Inspection**

Inspect the breathing tube for tears, cracks, holes, or excessive wear that might reduce the degree of protection originally provided. If any signs of excessive wear are present, remove the breathing tube from service and discard immediately.

Inspect the gasket seal on the flow control end, if missing or worn, remove the respirator from service until replaced – there is no gasket seal on the hood-end of threaded connections.

**Cleaning**

To clean the breathing tube, hand-sponge with warm water and mild detergent, rinsed and air-dried. Avoid solvents and harsh cleansers.

### Air Supply Hoses

**Inspection**

Air supply hose(s) should be inspected closely for abrasions, corrosion, cuts, cracks, and blistering. Be sure the hose fittings are cramped tightly to the hose so that no air can escape. Make sure the hose has not been kinked or crushed by any equipment that may have rolled over it.

If any of the above signs are present or any other signs of excessive wear are detected, replace the hose(s) immediately and remove from service.

**Cleaning**

The air supply hose(s) should be hand-sponged with warm water and mild detergent, rinsed and air-dried. Do not get water inside the air supply hose. Avoid solvents and harsh cleansers.

### Flow Control Device

**Inspection**

Inspect the flow control device including adjustable knobs and tubes for cracks, holes, or excessive wear that might reduce the degree of protection originally provided. If any signs of excessive wear are present, remove the flow control device from service. Replacement belts are available for all flow controls.

**Cleaning**

To clean, hand-sponge with warm water and mild detergent, being careful not to get water inside. Avoid solvents and harsh cleansers.
E.D. BULLARD CO.
1898 Safety Way
CYNTHIANA, KY 41031 USA
877-BULLARD (285-5273)

MODEL CC20 SERIES
TYPE C CONTINUOUS FLOW SUPPLIED-AIR RESPIRATOR

THIS RESPIRATOR IS APPROVED ONLY IN THE FOLLOWING CONFIGURATIONS:

| A | Not for use in atmosphere 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 respirable 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. |
| J | 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. |
| N | Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration specified by the manufacturer. |
| O | Refer to User's Instructions and/or maintenance manuals for information on use and maintenance of these respirators. |
| S | Special or critical User's Information and/or specific use limitations apply. Refer to User's Instructions before donning. |

2. CAUTIONS AND LIMITATIONS

CF = CONTINUOUS FLOW  SA = SUPPLIED - AIR

### 1. PROTECTION

<table>
<thead>
<tr>
<th>PROTECTION</th>
<th>RESPIRATOR COMPONENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF = CONTINUOUS FLOW</td>
<td>SA = SUPPLIED - AIR</td>
</tr>
</tbody>
</table>

### 2. CAUTIONS AND LIMITATIONS

A - Not for use in atmosphere containing less than 19.5 percent oxygen.
B - Not for use in atmospheres immediately dangerous to life or health.
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Hoods & Cover Lenses

<table>
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<tr>
<th>NUMBER</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>20LCLBP</td>
<td>CC20/GR50 Mylar Lens Cover Clear 8 Packs of 25</td>
</tr>
<tr>
<td>20LCLBC</td>
<td>CC20/GR50 Mylar Lens Cover Clear 25 Pack</td>
</tr>
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</table>

Hoods

<table>
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<tr>
<th>NUMBER</th>
<th>DESCRIPTION</th>
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<tr>
<td>20TICSNT</td>
<td>Tychem® 2000 (QC) .02” PETG Taped No Suspension, Threaded Connection</td>
</tr>
<tr>
<td>20TJT</td>
<td>Tychem® 2000 (QC) .02” PETG w/20RT</td>
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</table>

Cover Lenses

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<tr>
<th>NUMBER</th>
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<tr>
<td>20SICVH</td>
<td>Tychem® 4000 (SL) .03” Vinyl For Hard Hat Clamp Connection</td>
</tr>
<tr>
<td>20SICHT</td>
<td>Tychem® 4000 (SL) .04” PETG For Hard Hat Threaded Connection</td>
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<tr>
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CT Series – Cooling, Plastic, Compressed Air Only (Includes 4612 Nylon Belt)

<table>
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<tbody>
<tr>
<td>20B</td>
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</tr>
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<td>20B3S</td>
<td>1/4” Industrial Interchange Stainless Steel Continuous Flow Control Fitting</td>
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<td>20B3B</td>
<td>1/4” Industrial Interchange Brass Continuous Flow Control Fitting</td>
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<tr>
<td>20B3BH</td>
<td>1/4” Industrial Interchange Stainless Steel Continuous Flow Control Fitting</td>
</tr>
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<td>20B3BH</td>
<td>1/4” Industrial Interchange Brass Continuous Flow Control Fitting</td>
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</table>

CT Series – Cooling, Use with Cooling Vest, Compressed Air Only (Includes 4612 Nylon Belt)

<table>
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<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>20B4S</td>
<td>1/4” Industrial Interchange Stainless Steel Continuous Flow Control Fitting, Compressed Air</td>
</tr>
<tr>
<td>20B4B</td>
<td>1/4” Industrial Interchange Brass Continuous Flow Control Fitting, Compressed Air</td>
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CT Series (Plastic) Cooling/Heating, Compressed Air (Includes 4612 Nylon Belt)

<table>
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<tbody>
<tr>
<td>20B5</td>
<td>1/4” Industrial Interchange Continuous Flow Control Fitting, Compressed Air</td>
</tr>
<tr>
<td>20B5H</td>
<td>1/4” Industrial Interchange Stainless Steel Continuous Flow Control Fitting, Compressed Air</td>
</tr>
<tr>
<td>20B5BH</td>
<td>1/4” Industrial Interchange Brass Continuous Flow Control Fitting, Compressed Air</td>
</tr>
</tbody>
</table>

DC5040 Series - Cooling, Use with Cooling Vest, Compressed Air Only (Includes 4612 Nylon Belt)

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<tbody>
<tr>
<td>20B6S</td>
<td>1/4” Industrial Interchange Stainless Steel Continuous Flow Control Fitting, Compressed Air</td>
</tr>
<tr>
<td>20B6B</td>
<td>1/4” Industrial Interchange Brass Continuous Flow Control Fitting, Compressed Air</td>
</tr>
</tbody>
</table>

V5 Series - Self Conn. Hoses, 3/8” ID for Compressed Air, Includes OD Coupler and Nipple

<table>
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<td>933000</td>
<td>V5 3/8” Industrial Interchange Continuous Flow Control Fitting, Compressed Air</td>
</tr>
<tr>
<td>933300</td>
<td>V5 3/8” Industrial Interchange Stainless Steel Continuous Flow Control Fitting, Compressed Air</td>
</tr>
<tr>
<td>933600</td>
<td>V5 3/8” Industrial Interchange Brass Continuous Flow Control Fitting, Compressed Air</td>
</tr>
</tbody>
</table>

Heat/Cooling Flow Controls & Belts (Includes QD Nylon to Air Supply Hose and 4612 Nylon Belt)

<table>
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<tr>
<td>20K</td>
<td>1/4” Industrial Interchange Continuous Flow Control Fitting</td>
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<tr>
<td>20K3S</td>
<td>1/4” Industrial Interchange Stainless Steel Continuous Flow Control Fitting</td>
</tr>
<tr>
<td>20K3B</td>
<td>1/4” Industrial Interchange Brass Continuous Flow Control Fitting</td>
</tr>
<tr>
<td>20K3BH</td>
<td>1/4” Industrial Interchange Stainless Steel Continuous Flow Control Fitting</td>
</tr>
</tbody>
</table>
### Ordering Information

- **V19B**  QD Coupler 1/4” Snap-Tite 1/4” Female NPT Brass (V12 Adapter Separate)
- **V27**  QD Coupler 1/4” Industrial Interchange with V12 Adapter Separate
- **V14**  QD Coupler 1/4” Industrial Interchange, 1/4” Female NPT (V12 Adapter Separate)
- **V10** Air Supply Hose Couplers, Nipples and Adapters
  - **V20100ST**  V20 1/2” ID Starter Industrial Interchange 100’ Black
  - **V2050ST**  V20 1/2” ID Starter Industrial Interchange 50’ Black
  - **V20 Series**  ½” ID for Free Air Pumps – Includes QD Coupler and 54515  V10 3/8” ID Extension 100’ Green
  - **54511**  V10 3/8” ID Extension 50’ Green
  - **54510**  V10 3/8” ID Extension 25’ Green
  - **54513**  V10 3/8” ID Extension 50’ Blue
  - **54514**  V10 3/8” ID Extension 25’ Blue
  - **5454**  V10 3/8” ID Extension 25’ Black

### Replacement Parts & Accessories

- **HS**  Heat Shield Assembly for Single Tube Assemblies, Leather
- **HSSD**  Heat Shield Assembly for Dual Cool Assemblies, Leather

### Return Authorization

The following steps must be completed before Bullard will accept any returned goods. Please read carefully.

1. Contact Bullard Customer Service by telephone or in writing at Bullard
   
2. Follow the steps outlined below to return goods to Bullard for repair or replacement under warranty or for paid repairs:
   - **Bullard**
   - **1898 Safety Way**
   - **Cynthiana, KY 41031-1987**
   - **Toll-Free:** 877-BULLARD (285-5273)
   - **Phone:** 859-234-6616

In your correspondence or conversation with Customer Service, describe the problem as completely as possible. For your convenience, your Customer Service specialist will try to help you correct the problem over the phone.

2. Verify with your Customer Service specialist that the product should be returned to Bullard. Customer Service will provide you with written permission and a return authorization number as well as the labels you will need to return the product.

3. Before returning the product, decontaminate and clean it to remove any hazardous materials which may have settled on the product during use. Lines and/or regulations prohibit the shipment of hazardous or contaminated materials. Products suspected to be contaminated will be professionally discarded at the customer’s expense.

4. Ship returned products, including those under warranty, with all transportation charges pre-paid. Bullard cannot accept returned goods on a discarded at the customer’s expense.

5. Returned products will be inspected upon return to the Bullard facility.

6. To obtain cooler air, turn the air temperature control knob counterclockwise.

### Heat Shield Instructions

#### Assembly

1. Determine whether the climate control device will be worn vertically or horizontally on the waist.

2. Lace the belt supplied with the AC1000 Cool Climate Control Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket.

3. If the tube will be worn in the vertical position, align the tube on the heat shield as shown in Figure 3.

4. Use plastic zip tie to secure the climate control unit to the heat shield.

### Air Pressure

Continuously monitor the air pressure at the point of attachment while operating the respirator. A reliable air pressure gauge must be present to monitor the pressure.

### Preparation and Use of the AC1000

1. In an uncontaminated atmosphere screw the hose connector fitting on the end of the breathing tube into the fitting on the AC1000 Cool Tube, belt bracket, nylon belt and heat shield. (Figure 1)

2. Lace the belt supplied with the AC1000 Cool Climate Control Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket.

3. If the tube will be worn in the horizontal position, align the tube on the heat shield as shown in Figure 4.

4. Use plastic zip tie to secure the climate control unit to the heat shield.

### AC1000 Cool Climate Control Tube

#### Function:

The AC1000 is designed to supply a continuous flow of cool air to certain Bullard supplied air respirators.

#### Air Supply Hose

- **Quick-Disconnect Coupler**
- **Bell Bracket**
- **Pressure Gauge**
- **Air Temperature Control Knob**
- **Grain D breathable air source**

#### WARNING

Failure to supply the minimum required pressure at the point of attachment for the AC1000 Cool Climate Control Tube can result in death or serious injury.

#### Heat Shield Assembly

1. Determine whether the climate control device will be worn vertically or horizontally on the waist.

2. Draw the belt supplied with the AC1000 Cool Climate Control Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket.

3. If the tube will be worn in the horizontal position, align the tube on the heat shield as shown in Figure 3.

4. Use plastic zip tie to secure the climate control unit to the heat shield.

#### WARNING

This climate control system is not recommended for cooling the air supply when the air temperature is less than 70°F (21°C). Since the system may cool the incoming air by more than 30°F (17°C), it is possible for use to form the breathing tube and reduce the air. Failure to observe this warning could result in death or serious injury.

#### Heat Shield Instructions

1. Determine whether the climate control device will be worn vertically or horizontally on the waist.

2. Lace the belt supplied with the AC1000 Cool Climate Control Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket.

3. If the tube will be worn in the vertical position, align the tube on the heat shield as shown in Figure 3.

4. Use plastic zip tie to secure the climate control unit to the heat shield.

#### WARNING

Failure to supply the minimum required pressure at the point of attachment for the AC1000 Cool Climate Control Tube can result in death or serious injury.

#### Preparation and Use of the AC1000

1. In an uncontaminated atmosphere screw the hose connector fitting on the end of the breathing tube into the fitting on the AC1000 Cool Tube, belt bracket, nylon belt and heat shield. (Figure 1)

2. Lace the belt supplied with the AC1000 Cool Climate Control Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket.

3. If the tube will be worn in the horizontal position, align the tube on the heat shield as shown in Figure 3.

4. Use plastic zip tie to secure the climate control unit to the heat shield.

#### Heat Shield Instructions

1. Determine whether the climate control device will be worn vertically or horizontally on the waist.

2. Lace the belt supplied with the AC1000 Cool Climate Control Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket.

3. If the tube will be worn in the horizontal position, align the tube on the heat shield as shown in Figure 3.

4. Use plastic zip tie to secure the climate control unit to the heat shield.

#### WARNING

Failure to supply the minimum required pressure at the point of attachment for the AC1000 Cool Climate Control Tube can result in death or serious injury.

#### Heat Shield Instructions

1. Determine whether the climate control device will be worn vertically or horizontally on the waist.

2. Lace the belt supplied with the AC1000 Cool Climate Control Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket.

3. If the tube will be worn in the vertical position, align the tube on the heat shield as shown in Figure 3.

4. Use plastic zip tie to secure the climate control unit to the heat shield.

#### WARNING

Failure to supply the minimum required pressure at the point of attachment for the AC1000 Cool Climate Control Tube can result in death or serious injury.

#### Heat Shield Instructions

1. Determine whether the climate control device will be worn vertically or horizontally on the waist.

2. Lace the belt supplied with the AC1000 Cool Climate Control Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket. Slots are provided for the Cool Tube through the belt bracket.

3. If the tube will be worn in the horizontal position, align the tube on the heat shield as shown in Figure 3.

4. Use plastic zip tie to secure the climate control unit to the heat shield.
For optional use with Bullard Airline Respirators

Includes: Hot/Cold Tube, Flow Control Valve, Belt Bracket, and Heat Shield

Function

The HC2400 is designed to supply a continuous flow of warm or cool air to certain Bullard Supplied-Air Respirators.

NOTE

HC2400 cannot be used with a low pressure air source such as an ambient air pump.

WARNING

This climate control system is not recommended for cooling the air supply when the air temperature is less than 70°F (21°C). Since the system may cool the incoming air by more than 30°F (17°C), it is possible for ice to form in the breathing tube and reduce the airflow. Failure to follow these instructions could result in death or serious injury.

HC2400 cannot be used without the muffler and flow control valve.

Preparation and Use of the HC2400

1. For Warm Air:
   (a) In an uncontaminated atmosphere screw the nylon hose connector on the end of the breathing tube onto the RED side of the HC2400 Tube.
   (b) Screw the flow control valve and muffler onto the blue side of the HC2400 Tube (Figure 1). Tighten both connections firmly.

2. Lace the belt supplied with the HC2400 through the belt bracket. Slots are provided for wearing the tube either vertically or horizontally on the waist. See Heat Shield instructions below.

3. With the approved Bullard air supply hose connected to the air source and with air flowing into the hose, connect the quick-disconnect coupler on the air supply hose to the quick-disconnect nipple on the Hot/Cold Tube.

4. Adjust the air pressure at the point-of-attachment to within the approved pressure range. See the Respirator Breathing Air Pressure table in the respirator user manual.

5. Put on the hood by following the directions in your respirator instruction manual. If you do not have instructions, contact Bullard Customer Service at the address or phone numbers below.

6. Turn flow control valve to adjust the flow and temperature of incoming air (Figure 1).

7. When finished working, leave the work area wearing the respirator. With the air still flowing into the hood, remove the hood and then disconnect the air supply hose using the quick-disconnect coupler attached to the Hot/Cold Tube.

Heat Shield Instructions

Assembly

1. Determine whether the climate control device will be worn vertically or horizontally on the wrist.

2. If the device will be worn in the horizontal position, align the tube on the heat shield as shown in Figure 3. If the tube will be worn in the vertical position, align the tube on the heat shield as shown in Figure 4.

3. Lace the belt supplied with your climate control device through both the heat shield slots and the climate control belt bracket slots.

WARNING

For adequate air flow, attach the muffler and flow control valve to the end of the hot/cold tube that is opposite the breathing tube end. Failure to observe this warning could result in death or serious injury.

DO NOT USE THE HC2400 WITHOUT THE MUFFLER AND FLOW CONTROL VALVE.

1. Lace the belt supplied with the HC2400 through the belt bracket. Slots are provided for wearing the tube either vertically or horizontally on the waist. See Heat Shield instructions below.

2. With the approved Bullard air supply hose connected to the air source and with air flowing into the hose, connect the quick-disconnect coupler on the air supply hose to the quick-disconnect nipple on the Hot/Cold Tube.

3. Adjust the air pressure at the point-of-attachment to within the approved pressure range. See the Respirator Breathing Air Pressure table in the respirator user manual.

4. Put on the hood by following the directions in your respirator instruction manual. If you do not have instructions, contact Bullard Customer Service at the address or phone numbers below.

5. Turn flow control valve to adjust the flow and temperature of incoming air (Figure 1).

6. When finished working, leave the work area wearing the respirator. With the air still flowing into the hood, remove the hood and then disconnect the air supply hose using the quick-disconnect coupler attached to the Hot/Cold Tube.
Assembly and Use

Assembly must be conducted in an uncontaminated atmosphere.

Assembly and Use

1. Insert the female end of the cooling vest connector hose well into the air entry shown of the vest (Figure 3).

2. Don the belt, belt bracket, and Dual-Cool. Adjust belt comfortably, but loosely, around your waist, ensuring that the Dual-Cool assembly is on your right-hand side.


Operating the Dual-Cool Tube

1. To attain cooler air, turn the air temperature control knobs counterclockwise (Figure 3). Maximum cooling is obtained when knobs are open completely and when there is maximum airflow out of the Dual-Cool tube’s exhaust ports. To obtain air that is closer to ambient temperature, turn air temperature control knobs clockwise. If knobs are closed completely, your respirator will receive air that is essentially at ambient temperature.

2. When finished working, leave the work area wearing the respirator. With the air still flowing, remove the hood, and then disconnect the air supply hose using the quick-disconnect coupler attached to the Dual-Cool.

Cleaning

Machine wash the vest in warm water using a gentle cycle. Use a mild laundry detergent. Air-dry only. After cleaning, carefully inspect the vest for any signs of damage. If any damage is detected, remove the vest from service.
Frigitron 2000 Cool Climate Control Tube Instruction Sheet

V5 (3/8") & V10 (3/8") Breathing Air Supply Hose Installation Instructions

Bullard V5 Hose Kits

V5 Breathing Air Supply Hose Assembly

V10 Starter Hose Instructions

NOTE: Threaded seal tape should be used on all threaded connections. Bewarned end of fittings are for hose side of connections.

V10 Extension Hose Instructions

NOTE: You can repeat the extension hose connection steps using Bullard V10 hoses. However, do not exceed the lengths specified on the approval label or in the instruction manual for your specific respirator.

Frigitron 2000 Cool Climate Control Tube

For optional use with Bullard Airline Respirators

INCREASES: Frigitron 2000 and Belt

FUNCTION: The Frigitron 2000 is designed to supply a continuous flow of cool air as part of certain Bullard supplied air respirators systems.

NOTE: Frigitron 2000 can be used with a low pressure air source such as Bullard ambient air pump Models A600, E1000, and EP1000.

Air Pressure

Continuously monitor the air pressure at the point of attachment while operating the respirator. A reliable air pressure gauge must be present to monitor the pressure.

<table>
<thead>
<tr>
<th>WARNING</th>
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<tbody>
<tr>
<td>Failure to supply the minimum required pressure at the point of attachment for your hose length will reduce airflow and may expose you to life threatening conditions, diseases or death.</td>
</tr>
</tbody>
</table>

The BREATHING AIR PRESSURE TABLE in the user manual defines the air pressure ranges necessary to provide the respirator with a volume of air that falls within the required range of 6–15 cubic feet per minute (cfm) or 170–425 liters per minute (lpm).

Preparation and Use of the Frigitron 2000

1. In an uncontaminated atmosphere, screw the end of the breathing tube to the fitting on the climate control device. Tighten hose connectors firmly.

2. Lace the belt supplied with the Cool Tube through the belt bracket.

3. With the approved Bullard 100 air supply hose connected to the air source and with air flowing into the hose, connect the quick disconnect coupler on the air supply hose to the quick-disconnect nipple on the Frigitron 2000.

4. Adjust the air pressure at the point of attachment to within the approved pressure range (Figure 2).

5. Put the hood on by following the directions in your respirator instruction manual.

6. To obtain cooler air, turn either or both of the air temperature control knobs clockwise (Figure 1).

7. When finished working, leave the work area wearing the respirator. With the air still flowing into the hood, remove the hood and then disconnect the air supply hose using the quick disconnect coupler attached to the Frigitron 2000.

Air Temperature Control Knobs

Quick Disconnect Nipple

Breathing Tube

Grade D Breathable Air Source

Installation Instructions

1. Connect the respirator’s breathing tube fitting to the female quick-disconnect coupler on the V5 hose.

2. Connect the quick-disconnect nipple on the hose to the point of attachment on your breathing air source.

Respirable Breathing Air

Respirable breathing air must be supplied to the point of attachment of the approved breathing air supply hose. Government regulations require that all breathing air meet the specifications for Grade D breathing air as described in Compressed Gas Association Commodity Specification G-7.1-1999 and specified by Federal Law 30 CFR, Part 1, Subpart I, 11.121(b).

Point-of-Attachment

Air pressure at the point of attachment must be regulated within the ranges specified in the respirator user’s manual Breathing Air Pressure Table.

WARNING

Do not connect your Bullard breathing air supply hose to nitrogens, toxic gases, inert gases, or other non-breathable, non-grade D air sources. Breathing air hose connection fittings must be incompatible with fittings for other industrial gases as described by the Compressed Gas Association. Failure to observe this warning may result in death or serious injury.

4. If the air source has a coupling attachment, refer to matching QD nipple specifications and use either a V12 (1/4") or V13 (3/8") to connect the nipple to the hose. Attach QD nipple to QD coupling on the air source.

Installation Instructions

1. Connect the respirator’s breathing tube fitting to the female quick-disconnect coupler on the V5 hose.

2. Connect the quick-disconnect nipple on the hose to the point of attachment on your breathing air source.

Respirable Breathing Air

Respirable breathing air must be supplied to the point-of-attachment of the approved breathing air supply hose. Government regulations require that all breathing air meet the specifications for Grade D breathing air as described in Compressed Gas Association Commodity Specification G-7.1-1999 and specified by federal Law 30 CFR, Part 1, Subpart I, 11.121(b).

Point-of-Attachment

Air pressure at the point-of-attachment must be regulated within the ranges specified on your respirator’s MSHA/NIOSH approval label.

NOTE: You can repeat the extension hose connection steps using Bullard V10 hoses. However, do not exceed the lengths specified on the approval label or in the instruction manual for your specific respirator.
V10 Breathing Air Supply Hose and V10 Extension Hose Kit Assembly

Bullard V20 Hose Kits
include one V20 rubber starter hose with female quick-disconnect coupler on one end and quick-disconnect nipple on the other.

Installation Instructions
1. Connect the respirator’s breathing tube fitting to the female quick-disconnect coupler on the V20 hose.
2. Connect the quick-disconnect nipple on the hose to the point-of-attachment on your breathing air source.

Respirable Breathing Air
Respirable breathing air must be supplied to the point-of-attachment of the approved breathing air supply hose. Government regulations require that all breathing air meet the specifications for Grade D breathing air as described in Compressed Gas Association Commodity Specification G-7.1-1989 and specified by Federal Law 30 CFR, Part II Subpart J, 11.121(b).

Point-of-Attachment
Air pressure at the point-of-attachment must be regulated within the ranges specified on your respirator’s NIOSH approval label.

V20 Breathing Air Supply Hose Assembly

WARNING
Do not connect your Bullard breathing air supply hose to nitrogen, toxic gases, inert gases, or other non-breathable, non-grade D air sources. Breathing air hose connection fittings must be incompatible with fittings for other industrial gases as described by the Compressed Gas Association. Failure to observe this warning may result in death or serious injury.