

**TABLE 1: FILTER RECOMMENDATIONS**

| FILTER AND REPLACEMENT PART ITEM NUMBERS |                     |                    |                           |                         |                        |                            |
|--|---------------------|--------------------|---------------------------|-------------------------|------------------------|----------------------------|
| Vortec Model                             | 5 micron Air Filter | Oil Removal Filter | Single Outlet Flex Nozzle | Dual Outlet Flex Nozzle | Magnetic Mounting Base | Replacement Generator Kits |
| 680                                      | 701S-24A            | 701S-48            | 680-30                    | -                       | 620-26                 | 106GK-8H                   |
| 680-1                                    | 701S-24A            | 701S-48            | 680-30                    | -                       | -                      | 106GK-8H                   |
| 682                                      | 701S-24A            | 701S-48            | -                         | 682-30                  | 620-26                 | 106GK-8H                   |
| 682-2                                    | 701S-24A            | 701S-48            | -                         | 682-30                  | -                      | 106GK-8H                   |

Note: Generator kits consist of five 8 SCFM generators and five 8H bushings

**TABLE 2: DETERMINING COMPRESSED AIR LINE SIZE**

1. Calculate total product compressed air consumption (SCFM, SLPM).
2. Determine length of compressed air line required for connection to main supply.
3. Locate pipe length in left column and read to the right to find the compressed air requirements.
4. Locate pipe size at top of column.

| MAXIMUM AIRFLOW (SCFM) THROUGH PIPE AT 5 PSIG PRESSURE DROP (100 PSIG AND 70°F) |                                   |     |     |     |     |       |       |      |       |
|---|-----------------------------------|-----|-----|-----|-----|-------|-------|------|-------|
| Pipe Length (Feet)  | Pipe Size (Nominal) - Schedule 40 |     |     |     |     |       |       |      |       |
|   | 1/4                               | 3/8 | 1/2 | 3/4 | 1   | 1-1/4 | 1-1/2 | 2    | 2-1/2 |
| 10  | 29                                | 65  | 120 | 254 | 480 | 978   | 1483  | 2863 | 4536  |
| 20  | 21                                | 46  | 85  | 180 | 340 | 692   | 1049  | 2024 | 3208  |
| 30  | 17                                | 37  | 70  | 147 | 277 | 565   | 856   | 1653 | 2619  |
| 40  | 15                                | 32  | 60  | 127 | 240 | 489   | 792   | 1431 | 2268  |
| 50  | 13                                | 29  | 54  | 114 | 215 | 437   | 663   | 1280 | 2029  |
| 60  | 12                                | 26  | 49  | 104 | 196 | 399   | 606   | 1169 | 1852  |
| 70  | 11                                | 25  | 46  | 96  | 181 | 370   | 561   | 1082 | 1715  |
| 80  | 10                                | 23  | 43  | 90  | 170 | 346   | 524   | 1012 | 1604  |
| 90  | 10                                | 22  | 40  | 85  | 160 | 326   | 494   | 954  | 1512  |
| 100   | 9                                 | 21  | 38  | 80  | 152 | 309   | 469   | 905  | 1435  |

| MAXIMUM AIRFLOW (SLPM) THROUGH PIPE AT 0.3 BAR PRESSURE DROP (6.9 BAR AND 21°C) |                                   |      |      |      |       |       |       |       |        |
|---|-----------------------------------|------|------|------|-------|-------|-------|-------|--------|
| Pipe Length (Meters)  | Pipe Size (Nominal) - Schedule 40 |      |      |      |       |       |       |       |        |
|   | 1/4                               | 3/8  | 1/2  | 3/4  | 1     | 1-1/4 | 1-1/2 | 2     | 2-1/2  |
| 3   | 821                               | 1840 | 3396 | 7188 | 13584 | 27677 | 42117 | 81023 | 128369 |
| 6   | 594                               | 1302 | 2406 | 5094 | 9622  | 19584 | 29687 | 57279 | 90786  |
| 9   | 481                               | 1047 | 1981 | 4160 | 7839  | 15990 | 24225 | 46780 | 74188  |
| 12  | 425                               | 906  | 1698 | 3594 | 6792  | 13839 | 20999 | 40497 | 64184  |
| 15  | 368                               | 821  | 1528 | 3226 | 6085  | 12367 | 18763 | 36224 | 57421  |
| 18  | 340                               | 736  | 1387 | 2943 | 5547  | 11292 | 17150 | 33083 | 52412  |
| 21  | 311                               | 708  | 1302 | 2717 | 5122  | 10471 | 15877 | 30621 | 48535  |
| 24  | 283                               | 651  | 1217 | 2547 | 4811  | 9792  | 14829 | 28640 | 45393  |
| 27  | 269                               | 623  | 1132 | 2406 | 4528  | 9226  | 13980 | 26998 | 42790  |
| 31  | 255                               | 594  | 1075 | 2264 | 4302  | 8745  | 13273 | 25612 | 40611  |

Rubber hose maximum airflow rating: 1/2" I.D. rubber hose = 3/8" pipe; 3/4" I.D. rubber hose = 1/2" pipe



# OPERATION & SAFETY INSTRUCTIONS

## MINI COLD AIR GUNS

Models 680, 680-1, 682 and 682-1  
(Includes all BSP versions of models listed above)



**IMPORTANT**

Please read all instructions **BEFORE** attempting to use this product

**TW Air Management**

10125 Carver Road, Cincinnati, OH 45242  
 Phone: 513-891-7474 • Fax: 513-891-4092  
 Toll Free: 800-441-7475  
[www.vortec.com](http://www.vortec.com) • [techsupport@vortec.com](mailto:techsupport@vortec.com)

## GENERAL SAFETY CONSIDERATIONS

### WARNING: COMPRESSED AIR COULD CAUSE DEATH, BLINDNESS OR INJURY

1. Do not operate the Mini Cold Air Gun at air pressures above 150 psig (10.3 Bar).
2. Do not operate the Mini Cold Air Gun at line temperatures above 110°F (43°C).
3. Avoid direct contact with compressed air.
4. Do not direct compressed air at any person.
5. When using compressed air, wear safety glasses with side shields.

## INTRODUCTION

A Mini Cold Air Gun is a device that converts filtered, 100 psig (6.9 Bar) compressed air into a cold airstream.

The Mini Cold Air Gun consumes 8 SCFM (227 SLPM) of compressed air and is perfect for a wide range of industrial spot cooling and dry machining applications.

## COMPRESSED AIR SUPPLY

The compressed air supply must be filtered to remove water and dirt using a 5 micron or smaller filter. Failure to use a filter may cause clogging (and freezing) of the compressed air paths inside the Vortec product. Filter recommendations are given in Table 1.

Filter elements must be changed on a regular basis. Frequency of change is determined by the condition of the compressed air supply. Filters should be installed in the compressed air supply line as close as possible to the Vortec product.

The appropriate size of compressed air supply line should be selected to ensure optimal performance of the Vortec product. Please refer to Table 2 to determine what supply line size is recommended for your application. Contact Vortec at 1-800-441-7475 for further assistance.

If water vapor is present in the compressed air supply, a compressed air dryer may be necessary to prevent ice formation on the inside of the Vortec product.

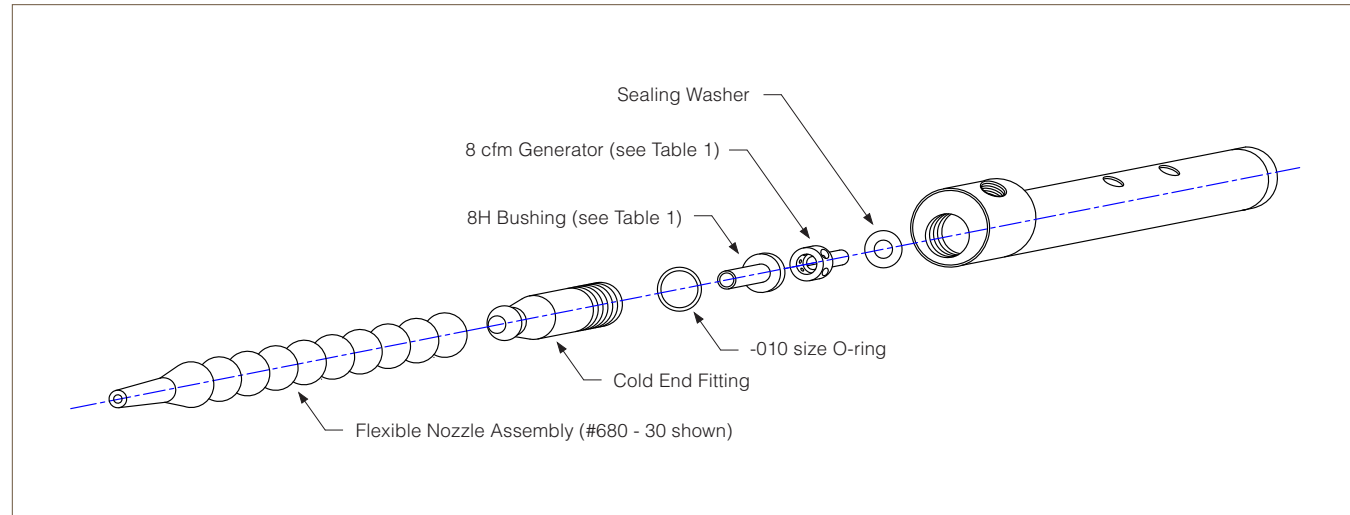
## INSTALLATION

A Mini Cold Air Gun can be installed by directly plumbing to the appropriately-sized hard piped compressed air source that does not exceed 150 psig (10.3 Bar).

## MINI COLD AIR GUN ASSEMBLY

(Drawing shown below is not to scale)

Model 680-1



## OPERATION

Mini Cold Air Guns are designed to create the maximum amount of refrigeration when operated at 100 psig (6.9 Bar) to 150 psig (10.3 Bar) compressed air inlet pressure. They will operate at lower pressures, but the amount of refrigeration will be reduced as well as the compressed air consumption. At compressed air conditions of 100 psig (6.9 Bar) pressure and 70°F (21°C) air temperature, the Mini Cold Air Guns will produce 350 btuh (102 watts) of cooling by creating a total flow of 4 SCFM (113 SLPM) of cold air at 10°F (-12°C). Do not restrict the flow of cold air out of the flexible nozzle(s).

## MAINTENANCE

The Mini Cold Air Gun has no moving parts (other than the adjustment knob), and requires only filtered compressed air for proper operation. The Mini Cold Air Gun can be disassembled for cleaning, if necessary, as shown above. If the Gun has been disassembled for cleaning, the Cold Cap must be reassembled tightly to ensure that the Generator seats tightly against the body assembly. A loose Cold Cap will reduce cooling capacity.

## TROUBLESHOOTING

Insufficient airflow may be caused by the following:

1. Undersized compressed air line size.
2. Compressed air pressure too low.
3. Partial or complete blockage of internal compressed air path, due to dirt. See Maintenance section for cleaning instructions; and Compressed Air Supply section for filter recommendations.
4. Insufficient compressed air volume.
5. Loose cold cap. This may occur if not tightened properly after disassembled for cleaning.

If trouble persists, please contact Vortec at 1-800-441-7475.

## LIMITED WARRANTY

Vortec compressed air products manufactured by ITW Air Management will be replaced or repaired if found to be defective due to manufacture defect within ten years from the date of invoice.

Refer to our website [www.vortec.com](http://www.vortec.com) for full warranty details and limitations. ITW Air Management makes no specific warranty merchantability or warrant of fitness to a particular purpose.