

**TABLE 1: FILTER RECOMMENDATIONS**

| FILTER AND REPLACEMENT PART ITEM NUMBERS |                    |                                   |
|--|--------------------|-----------------------------------|
| Hoffman Model #                          | Oil Removal Filter | Replacement Generator Kits (5 pc) |
| VC091604X                                | VC-OF17            | VAGK09                            |
| VC171604X                                | VC-OF17            | VAGK15                            |
| VC251604X                                | VC-OF25            | VAGK25                            |

**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



**HOFFMAN**

# OPERATION & SAFETY INSTRUCTIONS

## VCool SYSTEM - UL TYPE 4X

Models VC091604X, VC171604X and VC251604X



### IMPORTANT

Please read all instructions BEFORE attempting to use this product

**nVent Hoffman**

2100 Hoffman Way, Anoka, MN 55303 USA  
1.763.422.2211 nVent.com/hoffman

## GENERAL SAFETY CONSIDERATIONS

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

1. Do not operate a VCool System at compressed air pressures above 150 psig (10.3 Bar).
2. Do not operate 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.

### Avertissements pour refroidisseur VCool NEMA 4X Modèles VC091604X, VC171604X et VC251604X:

ATTENTION! Pour maintenir la notation UL, cet appareil doit être installé debout avec le bouchon argent vers le haut.

ATTENTION! Les surfaces extérieures de l'appareil peuvent être chaudes. Eviter le contact.

## INTRODUCTION

A VCool System is designed to use filtered compressed air to cool industrial cabinets without the use of any refrigerants. An internal Vortex tube lowers the temperature and pressure of the compressed air supplied to the enclosure. Hot air in the cabinet is vented to the surroundings through a built in relief valve in the VCool.

## COMPRESSED AIR SUPPLY

The compressed air supply must be filtered to remove water and dirt using the supplied 5 micron air filter. Failure to use the filter may cause clogging (and freezing) of the compressed air paths inside the product. Oil removal 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 product.

The appropriate size of compressed air supply line should be selected to ensure optimal performance of the product. Please refer to Table 2 to determine what supply line size is recommended for your application. Contact nVent Hoffman at phone number 763.422.2211 for further assistance.

## MAINTENANCE

VCool Systems have no moving parts and can be disassembled for cleaning.

## INSTALLATION AND OPERATION

To maintain the Type 4X rating, Type 4X VCool must be installed in a vertical orientation on a flat horizontal surface at the top of the cabinet.

Vents in the cabinets must be covered and sealed to ensure cooling efficiency and to keep out ambient air. A thermostat is supplied with the VCool System for Type 4X enclosures. The thermostat can be easily adjusted using the temperature indicator dial. All wiring must be installed in an approved conduit.

### Installation procedures:

1. Cut a 1-15/16" (49 mm) (1-1/2" knockout size) hole in the enclosure.
2. Insert the VCool into cut-out and secure with the locknut.
3. Attach the cold air muffler to the outlet of the VCool.
4. Perforate the ducting kit with several 1/8" holes and secure to interior of enclosure.
5. Attach the ducting kit to the cold air muffler.
6. Connect compressed air filter, solenoid valve and thermostat to the VCool (wire thermostat directly to solenoid valve). Install the compressed air filter and solenoid valve as close as possible to the VCool, in a location where the temperature does not exceed 125°F (52°C).
7. Connect compressed air supply to the filter.

## 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.

Insufficient cold air temperature may be caused by:

1. Compressed air line temperature too high.
2. Water vapor in the compressed air supply.
3. Loose cold cap. This may occur if not tightened properly after disassembled for cleaning.

If trouble persists, please contact nVent Hoffman at phone number 763.422.2211.

## VCool SYSTEM ASSEMBLY

(Drawing shown below is not to scale)

Models VC091604X, VC171604X and VC251604X

