

OPERATION & SAFETY INSTRUCTIONS

PANEL GUARD™ UL TYPE 4

Models 701, 701-15H, 701-35H, 770, 770-15H, 770-35H
(Includes all BSP versions of models listed above)



IMPORTANT

Please read all instructions BEFORE attempting to use this product



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GENERAL SAFETY CONSIDERATIONS

WARNING: COMPRESSED AIR COULD CAUSE DEATH, BLINDNESS OR INJURY

1. Do not operate 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.

Introduction

A Panel Guard is designed to use filtered compressed air to cool industrial control cabinets without the use of any refrigerants. Hot air in the cabinet is vented to the surroundings through a built in relief valve in the Panel Guard. The Panel Guard uses a fixed mechanical thermostat (non-adjustable) to maintain cabinet temperature within the desired range.

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.

Installation

To maintain the Type 4 rating, the Panel Guard must be installed in a vertical orientation on a flat horizontal surface of a Type 4 rated enclosure (see Panel Guard Assembly).

Installation procedures:

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

Operation

Operate the Panel Guard at 90 to 100 psig (6.2 to 6.9 bar) compressed air pressure. Do not operate at pressures above 150 psig (10.3 bar). Operation at pressures less than 90 psig (6.2 bar) and above 100 psig (6.9 bar) will effect the operation. When properly sized for the application, the Panel Guard will maintain the internal enclosure temperature between 75-100°F (24-38°C). Enclosure temperatures can momentarily reach 125°F (52°C) during initial start-up and after long periods of inactivity. Variations in heat load and compressed air conditions can effect thermostat operation. The mechanical thermostat will regulate an internal valve to minimize compressed air usage and maintain enclosure temperatures within the range specified. In some applications, the Panel Guard may run continuously at lower air usage with the benefit of always keeping the enclosure under slight internal pressure. In other applications, the Panel Guard may cycle on and off to maintain enclosure temperatures.

NOTICE: The thermostat's reaction to temperature change depends on several factors: the internal and external heat loads, enclosure size and proximity to the heat source. When the internal heat load is zero (or very low) and when external temperatures are below 50°F (10°C), the thermostat will take longer to react to air temperature increases. There will be a lag between the rising air temperature and when the thermostat reacts, which can result in temperatures inside the enclosure exceeding 125°F (52°C). When air and thermostat temperatures equalize, the reaction to temperature change is improved and the lag is minimized.

Maintenance

Panel Guards can be disassembled for cleaning. Do not remove or adjust the brass thermostat.

Unscrew the cold cap and remove the generator for cleaning.

Temperature ranges are calibrated at the factory and are non- adjustable.

Troubleshooting

Insufficient airflow or cooling 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 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 for full warranty details and limitations. ITW Air Management makes no specific warranty merchantability or warrant of fitness to a particular purpose.

Panel Guard Assembly

(Drawings shown below are not to scale)

Models 770, 770BSP, 770-15H, 770-15HBSP, 770-35H, 770-35HBSP

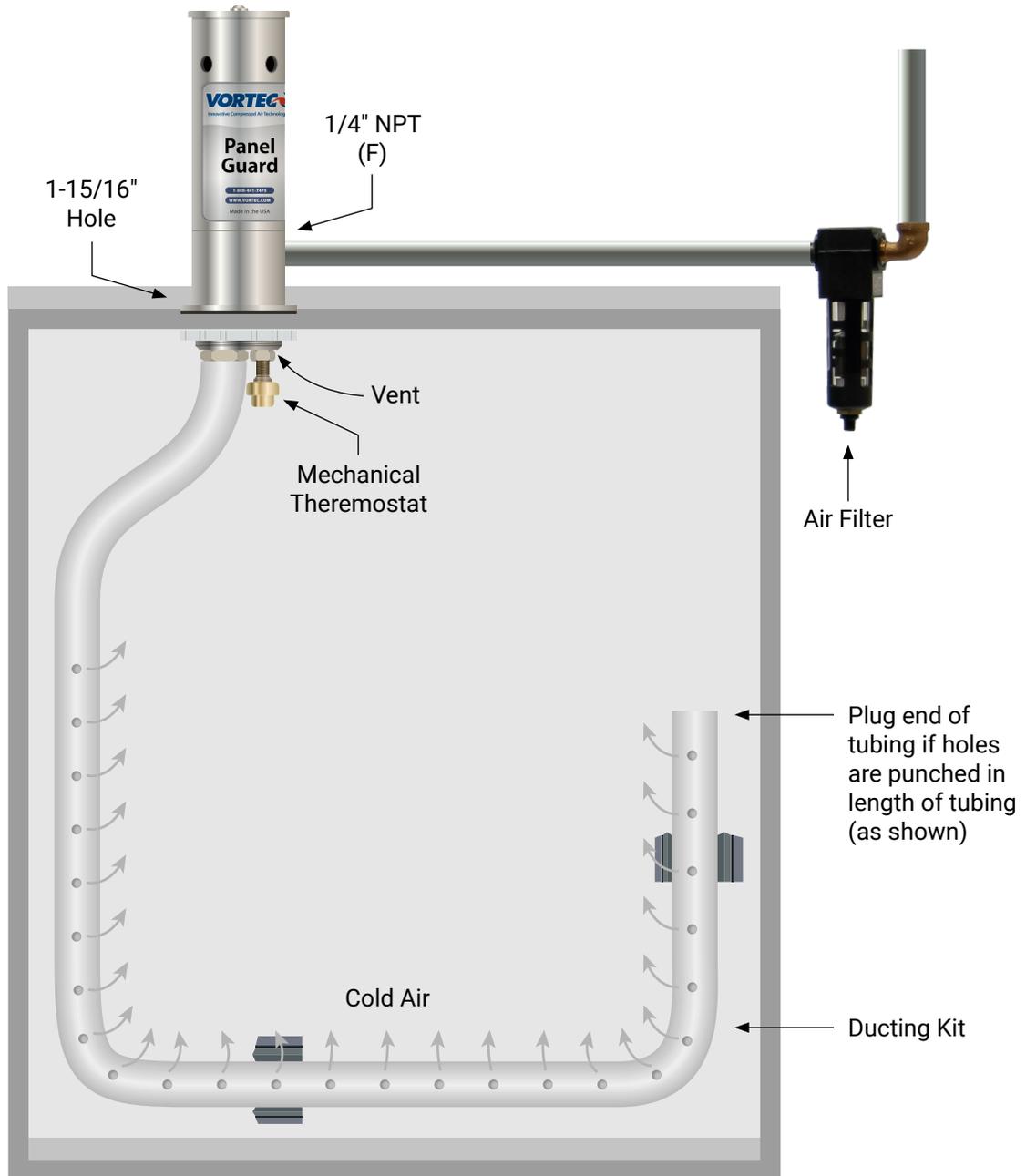


Table 1: Filter Recommendations

FILTER AND REPLACEMENT PART ITEM NUMBERS		
Vortec Model	Oil Removal Filter	Replacement Generator Kits (5 pcs)
701, 770	701S-48	208GK-25H
701-15H, 770-15H	701S-48	208GK-15H
701-35H, 770-35H	701S-48	208GK-35H

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