OPERATION & SAFETY INSTRUCTIONS

THREAD GUARD® NEEDLE COOLER

Model 424 and variants

IMPORTANT

Please read all instructions BEFORE attempting to use this product

VORTEC

ITW Air Management

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GENERAL SAFETY CONSIDERATIONS

WARNING: COMPRESSED AIR COULD CAUSE DEATH, BLINDNESS OR INJURY

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

NOTE: There is no need to limit compressed air pressure to a maximum of 30 psig (2 bar). It is not possible to block the flow of air from the Thread Guard to register 30 psig (2 bar) on a test gauge.

Introduction

The Thread Guard is designed to use filtered compressed air to cool needles on commercial sewing machines without the use of any refrigerants. The Thread Guard consumes 8 SCFM of compressed air at 100 psig and approximately 5 SCFM if operated at 60 psig.

Compressed Air Supply

The compressed air supply must be filtered to remove water and dirt using a 5 micron or smaller filter. A combination filter/regulator is included with some Thread Guard models to accomplish this. If oil is present in the compressed air supply, remove the oil using a 0.01 micron (maximum) coalescing air 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 and Operation

1. Use two supplied mounting clamps to attach the Thread Guard to an appropriate location on your machine. Do not block either of the hot exhaust holes with the mounting clamps.
2. Mount the filter/regulator (if supplied) to a fixed 1/8”pipe so that the filter bowl points downward.
3. Cold airflow and temperature can be changed by adjusting the pressure regulator (if included or supplied separately) in the compressed air supply.
4. Set the pressure regulator to the lowest pressure that permits adequate cooling of the needle.

Maintenance

The Thread Guard has no moving parts and can be disassembled for cleaning.

1. Remove the black cold air outlet fitting with a spanner wrench.
2. Remove the small O-ring, plastic bushing, brass generator and thin plastic “washer”.
3. Clean all parts especially the six small orifices in the brass generator.
4. Reassemble in the reverse order (thin plastic washer first, then the generator, bushing and O-Ring).
5. Tighten the cold air outlet fitting to 50 in-lbs or more.
6. If the orifices in the generator require frequent cleaning, this indicates that the compressed air is not being filtered or the filter element requires changing.
7. Change the filter element as needed. The filter/regulator supplied with some Thread Guard models utilizes a 5 micron element.
8. Be sure to shut off the compressed air supply to the filter before attempting to change the element or before any maintenance.

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. 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.

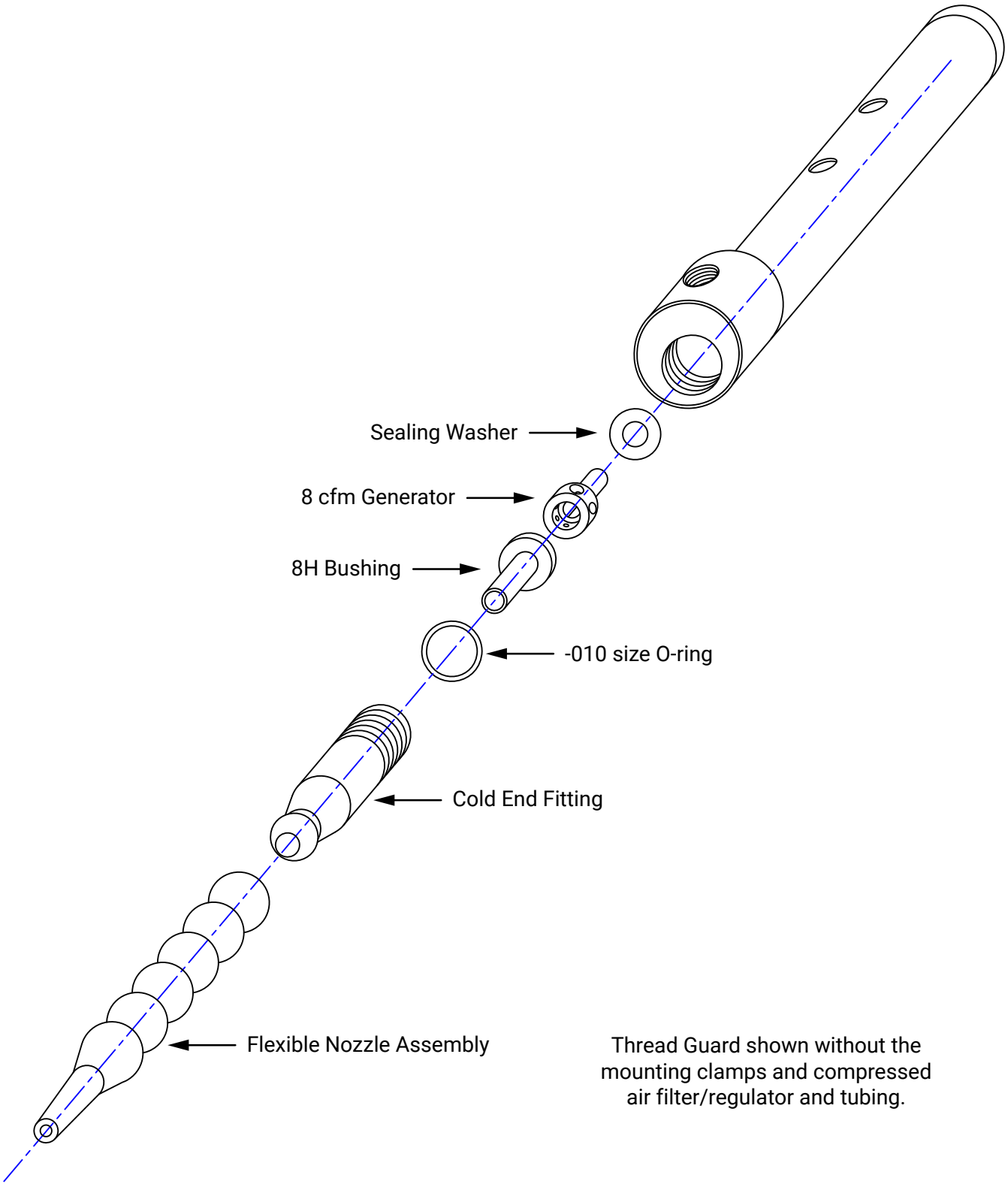
Limited Warranty

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.

Thread Guard® Assembly

(Drawing shown below is not to scale)



Thread Guard shown without the mounting clamps and compressed air filter/regulator and tubing.

Table 1: Filter Recommendations

FILTER AND REPLACEMENT PART ITEM NUMBERS				
Vortec Model	Combination Filter / Pressure Regulator	Oil Removal Filter	Dual Outlet Flex Nozzle	Replacement Generator Kits (5 pcs)
424	402-20	701S-48	424-30	106GK-8H

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