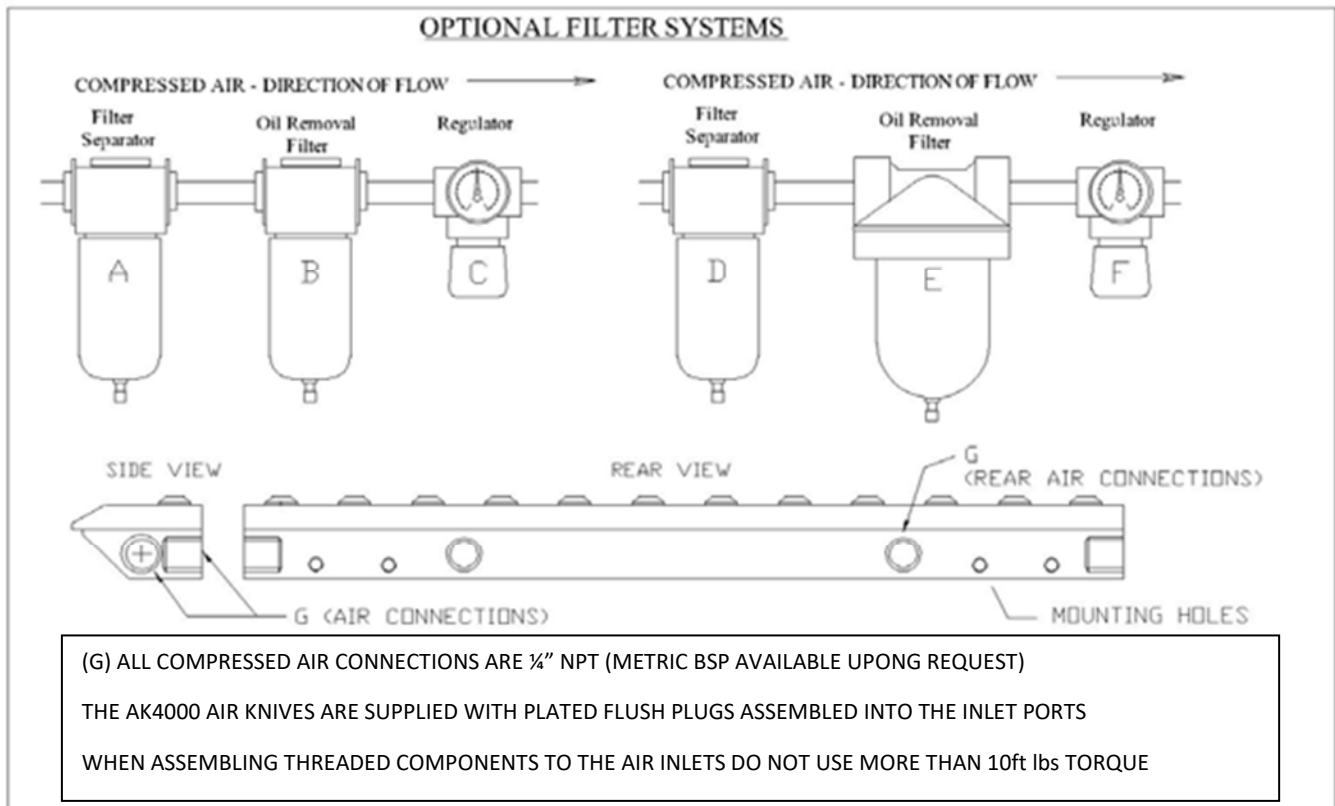




STATIC CLEAN® HIGH PERFORMANCE AIR KNIFE

INSTALLATION & MAINTENANCE

AK4000 & AK4100



Installation and Size of Compressed Air Lines

It is important to keep airline sizes large enough to minimize pressure on air knife or series of them connected to produce a longer length of airflow. Air knives may be connected toe to toe by using the rear entry ports instead of the end ports to butt together for continuous flow at longer lengths. In this situation, a manifold can then feed each of the air knives via the rear ports.

When possible, it is best to supply the air into the air knives at the ends (ports labelled G). For lengths of 24" and longer, it is best to feed both ends. When using rear ports (ports labelled H), always feed into each port if there is more than one. There are mounting holes at the rear to assist in mounting if pipe cannot be used. Similarly, when using a shim to increase the gap size, always feed at both ends when end feeding.

The following table indicates recommended pipe sizes for various total lengths of air knives. For hoses, increase the recommend size by one size larger than what is shown.

Care of the Compressed Air Supply

Because air knives utilize a small gap for the air outlet, it is important to keep the air lines free of moisture, oil and dirt. Keep out dirt and the units will run virtually maintenance free.

For water removal, a minimum 10-micron filter complete with an automatic (float type) drain is recommended (item labeled A for small air knives and D for larger air knives). It should be sized to handle the total airflow of the air knives at the pressure they will be used. If oil could be a concern, an oil removal filter (labeled B for small air knives and E for larger lengths) should be added downstream from the water removal filter and should also have an automatic (float type) drain. Again, they should be sized to handle the total flow of the air knives. Filters should be mounted near any air knife system, typically within 10 to 15 feet.



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Using the Air Blade™ Air Knives, Controlling Force, and Air Saving.

In many cases, air knife can either be supported by the compressed air supply piping or, by using the mounting holes at the rear to mount into a customer supplied bracket.

It is best to keep the blow off target within 12" of the air knives as force decreases rapidly after that. The built-in gap in the air knife is .002". To increase the force, you can add a .002" shim, thereby doubling the gap, by removing the cap and installing the shim under the cap, then re-bolting the cap to the air knife body. This will increase mass flow, velocity and force but also increase air consumption so care must be taken to insure proper airline size. For the line size chart, if you add the shim, assume the doubling of the air knife length to size piping and manifolds.

By moving the air knife towards or away from the target, an optimum distance for operation can be found. To decrease force, a regulator (labeled C for small lengths and F for larger lengths) may be added and simply reduce the pressure to reduce the force required.

To conserve compressed air, it is best to use a regulator to reduce the pressure to the point where the air knife still performs as it must, but by minimizing compressed air use by utilizing the air at a lower pressure. The air Blades are especially ideal for applications where intermittent blow off is required. A sensor or timer can have the compressor go on and off to the air knife system as required utilizing a solenoid valve. Energy is only consumed when the unit is operating.

Cleaning & Troubleshooting

If the air knife does get clogged from contamination dismantle the unit, clean, and reassemble. Care should be taken to reinstall the wire o-ring prior to putting the two pieces (body and cap) and possibly an added shim, back together. Sometimes a buildup of a dirty film can occur on the outside face of the air knife from vapor in the surrounding atmosphere. Clean the surface using mild solvent and clean rag. To prevent contaminants from getting pushed back into the air knife gap, clean with a small amount of compressed air passing through the unit.

If the force or flow seems to be below normal, install a pressure gage near the inlet of the air Knife. If the pressure is low, it may be due to undersized airlines, perhaps restrictive fittings, or from clogged filter elements. These things should be checked, in particular the fittings used and the filter elements.

Fig.1

Minimum Pipe Sizes for Various Manifold Lengths

Total Air Knife Length	Manifold Size	Size of Infeed Pipe and Length of Run		
		10'	50'	100'
Up to 6"	Not Applic.	1/4"	3/8"	1/2"
Over 6" to 12"	Not Applic.	3/8"	1/2"	3/4"
Over 12" to 24"	Not Applic.	1/2"	3/4"	1"
Over 24" to 36"	Not Applic.	3/4"	1"	1-1/4"
Over 36" to 60"	1"	1"	1-1/4"	1-1/4"
Over 60" to 84"	1"	1"	1-1/4"	1-1/2"
Over 84" to 102"	1-1/4"	1-1/4"	1-1/4"	1-1/2"
Over 102" to 120"	1-1/4"	1-1/4"	1-1/2"	2"

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