# COMPRESSED AIR LINE SIZES

Compressed air lines should be sized to hold pressure drops to a minimum. Do not use restrictive fittings or undersized lines that can "starve" the Air Knife by causing excessive line pressure drop. The following chart shows the recommended infeed pipe sizes. If compressed air hose is used, always go one size larger than the recommended pipe size due to the smaller I.D. of hose. (Example: Consider 1/2" I.D. hose the equivalent of 3/8" pipe.)

#### **RECOMMENDED INFEED PIPE SIZES**

Single Air Knife Installation

	inieed Pipe Size	;		
Air Knife Length	Length	Length of Run		
	10'	50'	100'	
6" (#A005-009)	1/4"	3/8"	1/2"	
12"(#A005-010)	3/8"	1/2"	3/4"	
18"(#A005-011)	1/2"	3/4"	1"	
24" (#A005-012)	1/2"	3/4"	1"	
30" (#A005-013)	3/4"	1"	1"	
36" (#A005-014)	3/4"	1"	1"	

For 24" and longer Air Knives, it is best to supply both ends. The standard gap setting is .002". For larger gap settings, it is best to supply both ends of the Air Knife in order to maintain uniform flow. (See Application Shim Set)

#### **MAMFOLD SYSTEMS**

Sometimes, a long continuous sheet of air is needed. When the required length exceeds the standard Air Knife lengths, they can be connected to a manifold. Stagger the Air Knives front to back, or top to bottom. The following are recommended manifold sizes for various web lengths:

#### RECOMMENDED MANIFOLD AND INFEED PIPE SIZES Multiple Air Knife Installation

Web Width	Min. Manifold Size	Infeed Pipe Size Length of Run		
		10'	50'	100'
60"	1"	1"	1-1/4"	1-1/4"
84"	1"	1"	1-1/4"	1-1/2"
102"	1-1/4"	1-1/4"	1-1/4"	1-1/2"
120"	1-1/4"	1-1/4"	1-1/2"	2"

## COMPRESSED AIR SUPPLY

With proper filtration and separation of dirt, moisture and oil from the compressed air supply, the Air Knife will operate for years with no maintenance required. Use a 10 micron or smaller filter separator on the compressed air supply (Model 9001 Automatic Drain Filter Separator for units up to 12", Model 9002 for units larger than 12"). To prevent problems associated with oil, use an

UV Process Supply, Inc. 1229 W. Cortland St. Chicago, IL 60614-4805 oil removal filter (Model 9005 Oil Removal Filter for units up to 1<sup>3</sup>/<sub>4</sub> to 6", Model 9006 Oil Removal Filter for units longer than 6"). The oil removal filter should be used downstream from the automatic drain filter separator. Filters should be used close to each Air Knife (within 10 to 15'). The CON-TROL-CURE- Air Knife is designed to use normal shop air supplies up to 100 PSIG (Pounds Per Square Inch Gage). For infinite control of flow and force, pressure may be regulated (Model 9008 Pressure Regulator for lengths up to 12", Model 9009 Pressure Regulator for lengths over 12").

## **USING THE AIR KNIFE**

In most cases, the Air Knife will be supported by the compressed air supply pipe. It can be mounted by using the flange which may be clamped, drilled and bolted. The existing bolts may be used (be sure to re-tighten for proper performance).

The force (combination of mass flow and velocity) of an Air Knife is reasonably constant up to a 12" distance. Force is lower at distances greater than 12". However, many applications are successful at 18", 24" or more. To increase force, shims may be added to the Air Knife. This will increase mass flow, velocity, and compressed air consumption. See the catalog for ordering shim sets. The high velocity air stream thickens as it flows away from the Air Knife. At 6", it is 2-1/2" thick and at a 12" distance, 5" thick. If the application requires a thin "knife" of air, mount the Air Knife close. This gives a high velocity, thin sheet of air that has lower mass flow. As the distance from the product surface to the Air Knife increases, the thickness of the sheet of air increases, velocity decreases and mass flow increases. By moving the Air Knife up and down, the optimum operating distance may be determined.

## AIR KNIFE SHIM SET

Force and flow through the Air Knife may be easily increased by adding shims to open the air gap. The Air Knife is supplied with a .002" thick shim installed. It sets the air slot to a .002" opening. To increase the air gap, use a shim set (shim set is not included with the Air Knife). A shim set includes shims of .001", .003" and .004" thickness. By changing and stacking them, gaps may be set from .001" to .010". Individual shims are available.

To change shims, remove the assembly nuts and bolts. Inspect the Air Knife and shim to assure no dirt or chips are on matching surfaces or in the plenum chamber. Replace or

# **UV PROCESS SUPPLY, INC.** CON-TROL-CURE<sup>®</sup> AIR KNIFE INSTALLATION & MAINTENANCE

PART # A005-009 (6"); A005-010 (12"); A005-011 (18"); A005-012 (24"); A005-013 (30"); A005-014 (36");

add a shim(s) and re-assemble. If the force is more than needed, regulate pressure down to match the force to the application requirements.

#### **TROUBLESHOOTING & MAINTENANCE** If There Is A Reduction In Flow Or Force From

**The Air Knife,** check the pressure by installing a gage at the inlet of the Air Knife. Large pressure drops are possible due to undersized lines, restrictive fittings and clogged filter elements.

Filters supplied by U. V. Process Supply, Inc. are manufactured by Arrow Pneumatics, Inc. Replacement filter elements are available from your local Arrow Pneumatics, Inc. distributor. For the name of a local distributor, call (708) 438-9100.

# **CLEANING**

If contaminates have clogged the Air Knife, inspect the unit by disassembling. The Air Knife consists of two component parts and between them is a shim that sets the gap the compressed air exhausts through. This shim is usually .002" thick although thicker shims can be used. Inspect each part for dirt contamination and a possible oil film in the area of the slotted nozzle. Clean each part and reassemble with the shim installed in the correct position.

Occasionally, there is a build up which occurs on the face of the Air Knife as a result of vapors in the atmosphere. Clean this surface with a solvent and a clean rag. To prevent contaminants from getting pushed back into the slot, perform this procedure with a small amount of compressed air passing through the Air Knife. This document provides information about a product distributed by UV Process Supply, Inc ("the Seller"). The information provided in this document is offered in good faith and is believed to be reliable, but is made WITHOUT WARRANTY, EXPRESS OR IMPLIED, AS TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER MATTER.

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