

Air Knives Deliver Flat Sheet of Amplified Air

ITW Vortec Curtain Transvector® Air Knives efficiently blowoff wide surfaces of debris as well as provide high speed drying or cooling for a broad range of industrial applications. Ionizing Curtain Transvectors® add a Static Neutralizing Bar to kill static cling and discharge dust and particles for blowoff.



Since Curtain Transvectors® are air amplifiers, they use a small amount of compressed air to deliver a powerful, high velocity, laminar sheet of air over wide areas such as moving webs, film, sheets, strips, auto bodies and other large assemblies and objects. Our patented design produces increased thrust and velocity, reduced noise, excellent uniformity, and significantly outperforms any competing, wide blowoff device. Stainless steel models are ideal for food, pharmaceutical, chemical and other applications where purity, high temperatures or corrosive environments are concerned.

More Compact and Affordable Than Electric Blowers

APPLICATION

notes

On an automated fabric cutting machine, a problem-prone, retracting clamp bar was replaced with two #921-24 Curtain Transvectors. The maintenance free air knives hold the fabric in position for slitting and blow away any loose threads.

After testing many different products, a sheet metal fabrication plant stamping oil pans for automobile engines determined that a #921-18 Curtain Transvector was ideal for replacing their inefficient, drilled-pipe blowoff. The patented air knife did a superior job of stripping moisture and debris from the pans, while reducing air consumption.

A German packaging company increased production rates of their label printing equipment by 34% when a #921-12 Curtain Transvector was installed to speed ink drying.

Cooling parts emerging from a powder coating oven had been the problem for a metal finishing firm until they mounted #921-24 Curtain Transvectors on each side of the product to quickly dissipate the heat.

Curtain Transvectors®, as well as the Ionizing versions, have numerous and diverse processing, finishing, fabrication, assembly, and other industrial uses for cooling, drying, cleaning or static removal on wide surfaces, including:

- ◆ Food processing
- ◆ Shrink wrapping
- ◆ Clean room procedures
- ◆ Form and fill
- ◆ Films and plastics
- ◆ Textiles
- ◆ Printing and labeling
- ◆ Converting and packaging
- ◆ Woodworking and laminates
- ◆ Paint preparation and drying
- ◆ Sheet and web materials
- ◆ Conveying or hold down



High performance patented design

Fraction of the cost of fans and blowers

No guards or rotating machinery

Instant on/off — output air easily regulated

Compact and easily mounted

No moving parts — maintenance free

Quiet — meets OSHA noise specifications

Curtain Transveectors



Curtain Transvector Models:

OAL – Overall Length

EFFECTIVE LENGTH	ALUMINUM		STAINLESS STEEL			IONIZING	
	MODEL	OAL (mm)	MODEL	OAL (mm)	MODEL	OAL (mm)	
3"	921-3	3 11/32" (85)	-	-	-	-	
6"	921-6	6 11/32" (161)	921SS	6 3/16" (157)	981-6	7" (178)	
12"	921-12	12 11/32" (313)	922SS	12 3/16" (310)	981-12	13" (330)	
18"	921-18	18 11/32" (466)	924SS	18 3/16" (462)	981-18	19" (483)	
24"	921-24	24 11/32" (618)	923SS	24 3/16" (614)	981-24	25" (635)	

Curtain Transvector/Ionizing Curtain Transvector Performance Specifications

PRESSURE PSIG	AIR CONSUMPTION (SCFM)					VELOCITY AT DISTANCE FROM OUTLET (FT./MIN.)			THRUST* PER IN. OZ.
	3"	6"	12"	18"	24"	2"	6"	12"	
30	6	11	23	34	45	12,500	5,100	3,700	1.2
40	7	14	29	43	58	14,400	7,100	4,600	1.7
50	9	17	35	52	70	16,200	8,400	5,800	2.3
60	10	20	40	60	80	17,000	9,900	6,700	2.8
70	12	23	46	69	92	17,800	10,600	7,600	3.4
80	13	26	52	78	104	18,600	12,200	8,400	3.9
90	14	29	57	86	114	19,400	13,200	9,200	4.4
100	16	32	64	95	127	20,200	14,200	10,000	4.9

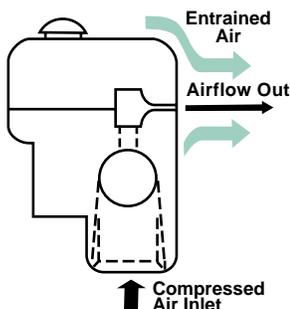
* At 12" from Curtain Transvector outlet (e.g. a 12" Curtain Transvector at 50 PSIG will produce 2.3 x 12 = 27.6 oz. of thrust.)

PRESSURE BAR	AIR CONSUMPTION (SLFM)					VELOCITY AT DISTANCE FROM OUTLET (M/S)			THRUST* PER CM. (G)
	7.6CM	15CM	31CM	46CM	61CM	5CM	15CM	31CM	
2.1	162	323	642	965	1285	64	26	19	14
2.8	204	408	815	1223	1630	73	36	23	19
3.5	246	492	985	1477	1970	82	43	29	25
4.1	284	569	1138	1707	2275	86	50	34	31
4.8	325	651	1302	1953	2604	90	54	39	38
5.5	368	736	1472	2207	2943	94	62	43	44
6.2	404	807	1613	2420	3226	99	67	47	49
6.9	450	900	1800	2700	3600	103	72	51	55

* At 30" from Curtain Transvector outlet.



TECH notes



The Curtain Transveectors' amplification uses an impulse principle to accelerate a large mass of stationary air with a thin sheet of sonic-velocity compressed air. When compressed air enters the Transvector, it fills a plenum which has only one exit path - a linear .002" gap running the length of the curtain. As the air is forced out of the orifice, it accelerates and collides with surrounding air entraining a great volume of free, ambient air. The result is an air knife that delivers a large volume of output air in return for a small amount of compressed air.





Power Supply Units:

A power supply unit is required to operate Ionizing Curtain Transvectors. Based on the number of ionizing bars needed, choose from two or four-cable models, both rated at 115V, 50/60Hz input; 7.0kV output.

MODEL		MODEL	
F167	2 cable model	D167RY	4 cable model

Effective cleaning of dust, shavings and debris, may require discharge of static cling to blow away unwanted particles. The Ionizing Curtain Transvector's Static Neutralizing Bar generates positive and negative charged ions that are carried to your product in a uniform sheet of amplified air. Ionizing Curtain Transvectors kill the static buildup that can attract dust and contaminants and stops static discharges which can damage electronic equipment and shock personnel.

Lower Compressed Air Usage and Noise

Compared with standard nozzle manifolds, drilled pipe, or other blowoff methods, Curtain Transvectors® significantly reduce compressed air consumption and noise. They offer an affordable, easy to install, and maintenance-free alternative to electric blower-driven air knives. The patented, double plenum design results in a highly uniform airflow across the curtain, and the extra thick cap prevents flexing to ensure consistent performance.

APPLICATION

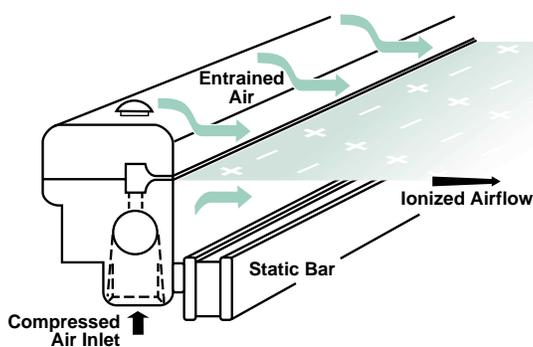
notes

Requiring critical cleaning of surfaces, automobile manufacturers use a "halo" of Ionizing Curtain Transvectors for body pre-paint preparation to effectively remove moisture, dust and contaminants.

Heat buildup and static were deforming plastic sheet film, pulled off rolls at high speeds, as it passed between full width guide rollers. The problem was completely eliminated by a #981-24 Ionizing Curtain Transvector delivering cool, static neutralizing air to the film surface and rollers.

TECH

notes



Ionizing Curtain Transvectors add a mounted MEB static bar as well as a power supply. The static bar emits positively and negatively charged ions directly into the amplified airstream. The Curtain Transvector delivers the ionized air to the surface or product in a very uniform, laminar sheet of air. Ionizing Curtain Transvectors are highly effective at neutralizing static electricity and cling, as it blows away unwanted dust, particles and other contaminants in a flat, powerful airflow. Regulating the compressed air supply easily controls output air velocity and thrust.