

TRION

Air Purification Systems



Air Boss® Model 75

Electrostatic Precipitators



Qualified to UL Category Code
YYXS-YYXS7
Hood and Duct Accessories

UL File #MH27669
New York City, Department of Buildings
MEA 288-01-E and 88-99-E

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Air Boss® 75

When you need one system for cleaning numerous applications, such as kitchen grease and smoke, oil mist, and contaminants from other industrial processes, Trion® has a kitchen exhaust, commercial, or large industrial solution just for you in the Air Boss® 75.

Atmospheric contaminants may be either liquids or solids, in the form of oil, water, grease, smoke, fumes, or dusts, including gaseous and vaporous odors. The Air Boss® 75 readily adapts to the various air collection methods utilised to recover contaminants for collection. Air inlet and outlet flanges on the filter sections include predrilled holes to connect adjoining ductwork. Support rails are optional for multiple installation methods.

Units are factory assembled using four sections that you specify to meet your application requirements.

- ESP (Electrostatic Precipitator): High-Efficiency Primary Or Secondary Filter Device
- Media: Primary, Secondary, or Backup Filter
- Adsorber: Odor Control and Removal
- Fan: Exhaust or recirculation



Features & Benefits

- Effectively removes airborne solids, liquids, and odors.
- Factory assembled, built-up construction for simplified installation and service.
- Durable, efficient cell design for long-term performance and reliability.
- Spiked Ionisers prevent common wire breakage and replacement.
- Integral Programmable Logic Controller (PLC) automates cleaning process to reduce maintenance costs and ensure efficient air cleaning at all times.
- Optional fire suppression system.
- ETL approved to UL standard 867.
- Designed to NFPA 96 standards for kitchen exhaust.
- Up to 95% efficient per DOP or ASHRAE test methods.

Applications

- For Oil Mist: Machine shops, cold heading, screw machines, foundry, machining centers, heat treating, and tenter frames.
- For Smoke: Welding, presses/forging, curing, rubber, plasticisers, and heat treating.
- For HVAC: Return air, outside/makeup air, lounges/ bars, smoking rooms, casinos, and indoor gun ranges.
- For Kitchen Exhaust: Grease, smoke, odors, and wood-fired grills.



About the Technology

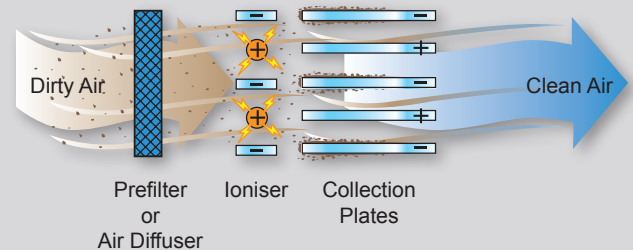
During operation, contaminated air passes across Trion's unique spiked ioniser blades which are supported between flat grounded electrodes. Revolutionary to the industry, the blades are made of stainless steel that will not rust or break, thus eliminating the costly maintenance time and replacement cost of similar units using tungsten wire ionisers.

The DC voltage supplied to the blades creates a high intensity field where the particulate matter in the air becomes electrically charged. The charged particles then pass into a collector plate section made up of a series of equally spaced parallel plates. Each alternate plate is charged with the same polarity as the particles, which repel, while the interleaving plates are grounded, which attract and collect.

Periodically, depending on the type and amount, the contaminant is washed into the cabinet drain basin by an optional automatic activated integral washing system that is located on both the upstream and downstream sides of the ionising/collecting cell(s).

A programmable logic controller (PLC) and dual solid-state Pulse Width Modulated (PWM) high voltage DC power supply are housed in a remote-mounted NEMA 12 enclosure. The PLC controls the system functions of wash, fire suppression, and fan on/off. A 7-day clock is standard. The PWM power supply, which energises the ionising-collecting cells, comes standard with LED indicator lights.

In applications requiring extremely high collection efficiency and low resistance to airflow, two or three electrostatic sections may be placed inline to create a double or triple pass unit.



Particle Size Ranges vs. Cleaning Equipment

Particle Size in Microns		0.01	0.10	1	10	100
Particles	Coal Dust					
	Cement Dust					
	Atmospheric Dust					
	Dust & Fumes					
	Tobacco Smoke					
	Oil Smoke					
	Cooking Smoke					
	Contact Sulfuric Mist					
	Zinc Oxide Fumes					
	Pneumatic Nozzle Drops					
Cleaning Equipment	Electrostatic Precipitators					
	High-Efficiency Filters					
	Liquid Scrubbers					
	Mechanical Separators					
	Common Air Filters					

Note: Darkened horizontal lines indicate range of particle size.

General Information

Durable, Compact Cabinetry

Model 75 housings are constructed using 16-gauge zinc-coated steel. Then all welds and the finished area of welds are treated with a corrosion and rust-inhibiting coating to assure long life. Cabinet finish is completed with a durable industrial grade semi-gloss, baked-on enamel no less than 3 mil thick. All doors are gasketed to prevent air and water leakage. Finally, the housing is furnished completely assembled for easy shipment and installation.

Prefilter / Impinger

The prefilter/impinger track is a standard integral part of the Model 75 ESP cabinet. A 2" rail is positioned upstream of the ESP collector cell to accommodate a standard 40% free area perforated panel for even air distribution, a metal mesh prefilter for light oil mist, or an impinger for more heavy fluid or semifluid particulate matter. The particulate matter may range in viscosities from that of water to relatively heavy greases. In heavy loading applications, the liquid particles strike the impinger, coalesce into droplets and then flow to the drain pan below. If the particles are of a high viscosity nature that do not readily flow into the drain pan, they are periodically flushed down the drain with an optional bolt on collar containing an integral wash system located upstream of the impinger. A similar track, located downstream of the unit, is designed to house a perforated panel and functions as an air distribution device as well as a safety screen like its upstream counterpart.

The Electrostatic Precipitator Section

The electrostatic precipitator section enables extremely small particulate matter to be removed from an air stream with relatively low resistance to airflow due to the open area of the collecting elements. The low resistance is maintained from the start to the completion of the collection cycle. The unit operates in the higher efficiency collection range, upward of 95% DOP Method, on particles ranging in size from 10 Microns down to 0.01 Microns in size.

Standard Fan Package

The energy efficient fan is designed for horizontal air flow and mates with the air purification system to provide a uniform distribution of air. The fan wheel is steel, backward inclined, welded construction. Inline fans are available as an option.

Optional UL-762 Fan

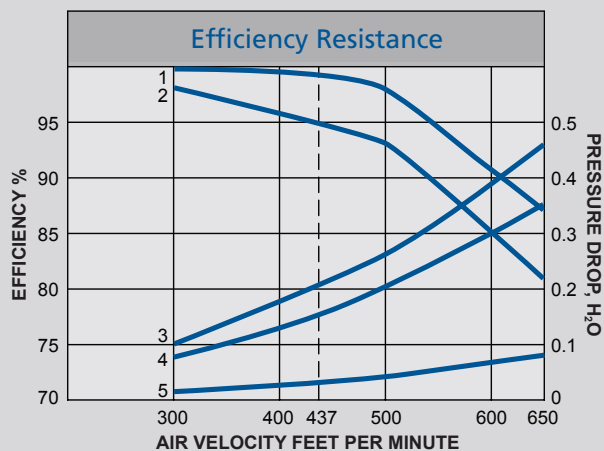
The grease-rated fan is designed to mate with the air purification system and provide uniform air distribution. Backward-inclined centrifugal or inline fans are available with drain and weather covers in compliance with UL-762 for kitchen exhaust applications containing grease-laden air.

Side Access Media Section

The flexibility of the Media section provides an efficient means for high efficiency filtration, as a prefilter or after filter, depending on your requirement. This section is designed to house a variety of mechanical filters that may be required in your application, such as 95% bags, mini-pleated cartridges or other media. The heavy-gauge housings are supplied with industrial-grade hardware.

Side Access Odor Control Section

Unlike particulate filters, odors in the form of undesirable gases and vapors are most commonly removed from the air stream by the process of adsorption that is enhanced by multifaceted porous surfaces of adsorption media. Filter trays of activated carbon or optional potassium permanganate pellets effectively facilitate the adsorption of these odors and gaseous contaminants.



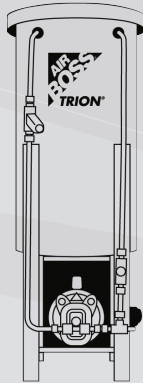
Efficiency Curves

1. ASHRAE Standard 52.1-1992 Dust Spot Efficiency per AFTL Test Report No. 13466.
2. 0.3 Micron DOP efficiency per AFTL Test Report No. 13466.

Pressure Drop Curves

3. Cell with 40% open perforated plate upstream and downstream.
4. Cell with 2" aluminum mesh filter upstream and downstream.
5. Cell only.

Unit Description

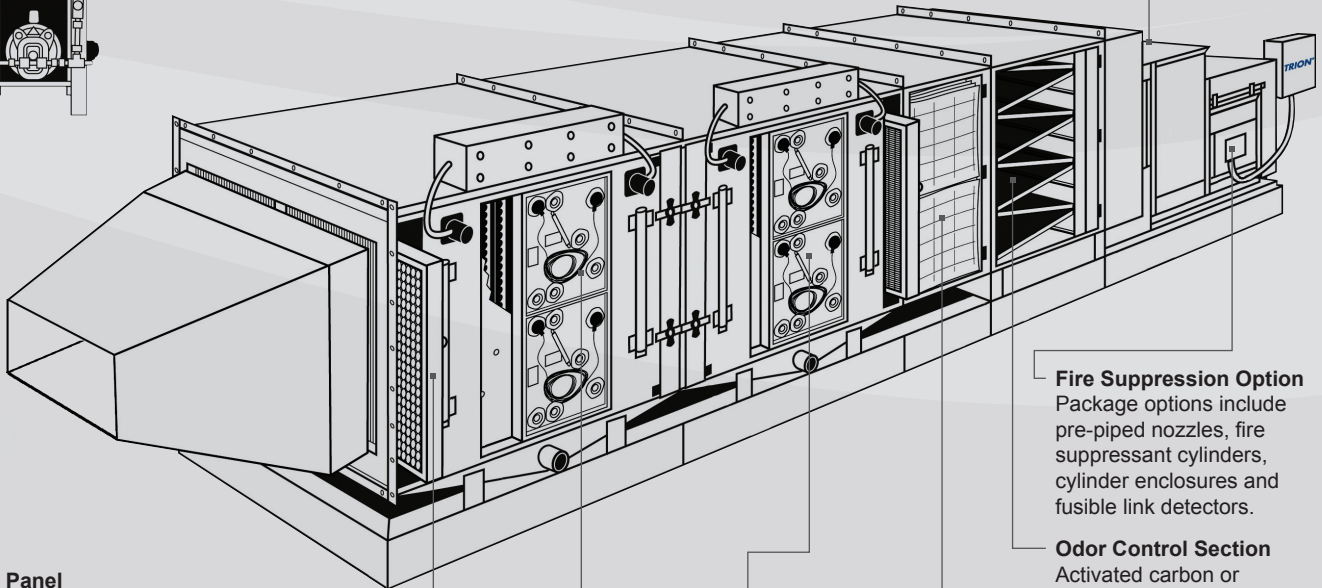


Detergent Tank

Trion approved concentrated detergents used to clean commercial or industrial applications. Includes: tank (16, 30, 55 gallon sizes), feeder pump, pump motor, metering valve, strainers and water control valves.

Fan Package-Standard

Backward-inclined, energy-efficient centrifugal fans of heavy duty AMCA arrangement 9 or arrangement 10 design, belt-driven with belt and drive guards or weather hood. Inline fans also available.



Control Panel

Remote wall-mounted NEMA 12 enclosure housing a PLC (programmable logic controller) for the control of fan, wash system, power supplies, make-up air fans, fire suppression, etc. Also includes the PMW (pulse width modulating) high voltage power supply. 240 Volt/1Phase/50Hz AC.

Fire Suppression Option

Package options include pre-piped nozzles, fire suppressant cylinders, cylinder enclosures and fusible link detectors.

Odor Control Section

Activated carbon or optional potassium permanganate pellets for gaseous odor adsorption.

Media Section

Designed to house a variety of mechanical filters as required for a specific application or to insure extended life of the adsorption media.

Ionising-Collecting Cell

High-efficiency multi-stage collection cell, designed to maintain high-efficiency under heavy loads.

Spiked Ioniser Blades

Revolutionary technology made of stainless steel blades, not wires. Reliable and practically indestructible blades eliminate costly maintenance, replacement, and downtime.

High-Voltage Stand-Off Insulators

Made of self-glazing ceramic, insulates electrical current; helps to prevent and virtually eliminate arcing; prolongs power supply life; and aids in maintaining high efficiency. Prevents tracking, retards contaminant build-up and provides easy cleaning.

Prefilter

Metal mesh or perforated plate prefilter for safety and capture of oversize objects and agglomerated mists. Impinger may be used to knock down heavy mists and kitchen grease.

Dimensional Information

Model 75-XXX-XX (Wash Optional)

Model Number	Collar Dimensions Inside (cm)		Overall Dimensions (cm)		Weight (4)	Water Req'd @50 psi	Water Req'd Per Cycle	Detergent Per Cycle
	Height A	Width B	Height C	Width D	Kg	LPM	Litres	Litres
75-102-XX	66.34	65.25	98.73	94.21	167	20.06	6950	1.14
75-103-XX	66.34	93.68	98.73	122.63	204	30.28	105.99	1.51
75-104-XX	66.34	121.46	98.73	150.42	244	40.13	140.44	1.89
75-105-XX	66.34	149.89	98.73	178.84	281	50.35	176.40	2.65
75-106-XX	66.34	178.28	98.73	207.24	319	60.57	211.98	3.03
75-107-XX	66.34	206.07	98.73	235.03	362	70.41	246.43	3.41
75-108-XX	66.34	234.57	98.73	263.53	399	80.63	282.39	4.16
75-109-XX	66.34	262.99	98.73	291.95	435	90.47	316.84	4.54
75-110-XX	66.34	290.52	98.73	319.48	476	100.70	352.42	4.92
75-203-XX	128.88	93.68	161.29	122.63	335	60.57	211.98	3.03
75-204-XX	128.88	121.46	161.29	150.42	410	80.63	282.39	4.16
75-205-XX	128.88	149.89	161.29	178.84	476	100.70	352.42	4.92
75-206-XX	128.88	178.28	161.29	207.24	539	120.75	422.83	6.06
75-207-XX	128.88	206.07	161.29	235.03	616	140.82	492.86	7.19
75-208-XX	128.88	234.57	161.29	263.53	680	161.26	564.40	7.95
75-209-XX	128.88	262.99	161.29	291.95	743	181.32	634.81	9.09
75-210-XX	128.88	290.53	161.29	319.48	818	201.38	704.84	10.2
75-303-XX	191.44	93.68	223.82	122.63	476	90.47	316.84	4.54
75-304-XX	191.44	121.46	223.82	150.42	578	120.75	422.83	6.06
75-305-XX	191.44	149.89	223.82	178.84	671	151.04	528.82	7.57
75-306-XX	191.44	178.28	223.82	207.24	762	181.32	634.81	9.09
75-307-XX	191.44	206.07	223.82	235.03	870	211.60	740.81	10.6
75-308-XX	191.44	234.57	223.82	263.53	961	241.51	845.28	12.1
75-309-XX	191.44	262.99	223.82	291.95	1054	271.79	951.27	13.6
75-310-XX	191.44	290.53	223.82	319.48	1157	302.08	1057.3	15.1

Model Number	ASHRAE 52.1 m³/h Capacities Efficiencies (1)		.3 Micron DOP m³/h Capacities Efficiencies (2)		Cell Face Area (3)	PWM Power Supplies
	95%	90%	95%	90%	Sq. Meter	Quantity
75-102-XX	2698	3041	2183	2707	.27	1
75-103-XX	4395	4956	3556	4411	.45	1
75-104-XX	5394	6084	4366	5415	.55	1
75-105-XX	7092	7999	5739	7119	.72	1
75-106-XX	8789	9912	7112	8821	.89	2
75-107-XX	9790	11040	7922	9825	.99	2
75-108-XX	11487	12955	9295	11529	1.16	2
75-109-XX	13184	14868	10670	13234	1.34	2
75-110-XX	14183	15996	11478	14236	1.44	2
75-203-XX	8789	9912	7114	8821	.89	2
75-204-XX	10789	12168	8731	10829	1.09	2
75-205-XX	14183	15996	11478	14236	1.44	2
75-206-XX	17578	19824	14226	17644	1.78	4
75-207-XX	19579	22080	15845	19651	1.98	4
75-208-XX	22974	25908	18590	23059	2.33	4
75-209-XX	26368	29738	21338	26465	2.67	4
75-210-XX	28368	31992	22957	28474	2.87	4
75-303-XX	13184	14868	10670	13234	1.34	3
75-304-XX	16185	18252	13098	16244	1.64	3
75-305-XX	21277	23995	17218	21355	2.15	3
75-306-XX	26368	29738	21338	26465	2.67	6
75-307-XX	29367	33120	23766	29476	2.97	6
75-308-XX	34459	38863	27887	34588	3.49	6
75-309-XX	39551	44606	32007	39699	4.00	6
75-310-XX	42551	47988	34435	42709	4.31	6

1) ASHRAE Standard 52.1-1992 Dust Spot Test Method.

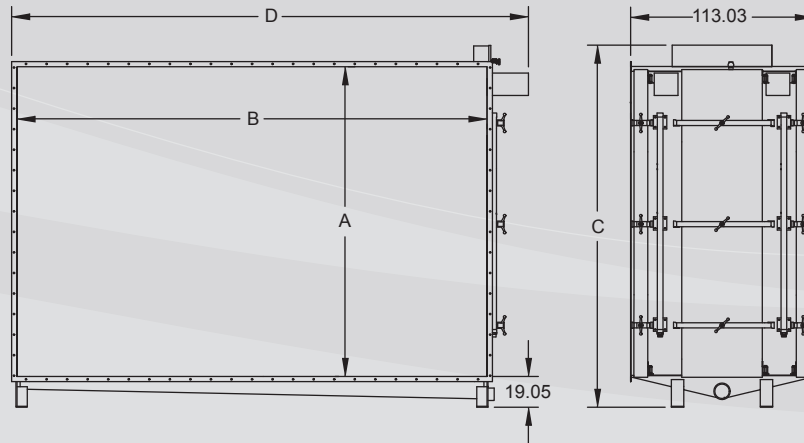
2) DOP efficiency based on use of dioctylphthalate aerosol mist.

3) Total gross face area of ionising-collecting cells in accordance with ASHRAE Standard 5.1. Mounting flange is 2.54 cm wide.

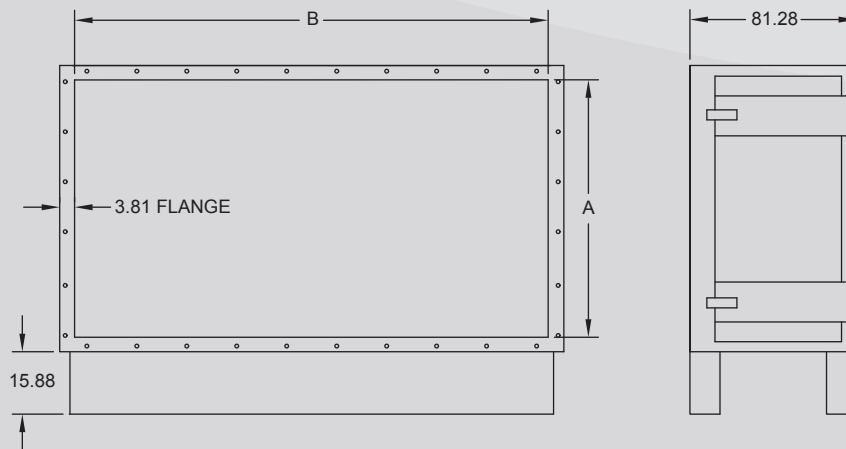
4) Total weight of the unit with control panel(s) and 60.5 liter detergent tank/pump (liquid detergent not included).

Dimensional Information

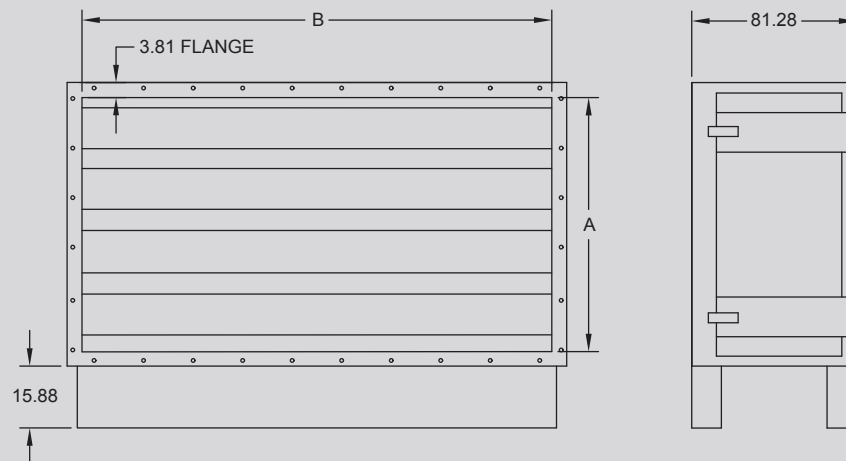
Model 75 Electrostatic Precipitator



Media Housing



Odor Control Housing



Static Pressure Drops

Equipment Losses	Pa
ESP Section	35
40 % Open Perforated Prefilter or After Filter	37
Metal Mesh Prefilter or After Filter	25
2" Impinger	312
Media Section	28
4" Pleated Prefilter, 40% Efficient	42 (Initial) 249 (Final)
10 Pocket Bag, 95% Efficient	99 (Initial) 299 (Final)
HEPA, 99.97% Efficient	249 (Initial) 374 (Final)
Adsorber Section	70
2" Trays	70
4" Modules	89
Fan Transition	28

Note: The ESP section must have both an internal prefilter and after filter (select and add for each). External losses for ductwork, exhaust hoods, manufacturing equipment with associated entry losses, kitchen hoods, etc. must be added to the Trion® internal equipment losses to calculate total fan static pressure required.

Our Air Boss® Model 75 comes with a two-year limited parts only warranty.



T-Series Electronic Air Cleaner

Learn more about other Trion industrial products by contacting your local Trion representative or by visiting us on the web at www.trioniaq-emea.com



Mini M.E. Mist Collector

TRION
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