

Dakota Scrubbers™ are countercurrent gas absorption systems designed as a simple but effective method to remove contaminants from gas exhaust streams. Scrubbers perform by absorbing gaseous contaminants from the exhaust gas and essentially neutralizing the gas contaminants by chemical reaction in a recirculating liquid scrubbing solution.

- Applications include most acid or caustic gas emissions and odors
- Polypropylene construction provides excellent corrosion resistance
- 316SS recirculation pump is seal-less
- Automatic or batch operation
- Simple installation
- Low operating cost
- Low system pressure loss
- Low maintenance
- Commitment to service and technical support
- Standard sizes to 35,000 ACFM
- Custom designs above 35,000 ACFM

## OPERATION

Fume or gas scrubbing is achieved by extracting the contaminated gas stream through a bed of wetted packing media using an exhaust fan. A liquid scrubbing solution is continuously pumped from the scrubber's liquid reservoir (sump) and distributed over the top of the packing media through a spray nozzle. The scrubbing solution cascades down through the packing media countercurrent to the gas flow and returns to the liquid reservoir. The packing media provides a large surface area maximizing absorption of gas contaminants into the scrubbing solution for reaction with chemical reagents.

The gas stream then passes through a mist elimination assembly to remove entrained water droplets from the gas stream prior to discharge from the scrubber and exhaust fan.

After the chemical reagents in solution are consumed, the scrubbing solution is considered "spent" and is drained from the scrubber then replaced with a fresh batch of scrubbing solution. The pH of the scrubbing solution is both continuously and automatically monitored for indication that the scrubber solution is "spent" and needs replacement. Water lost due to evaporation is monitored and automatically replaced.



## ***Dakota International, Inc.***

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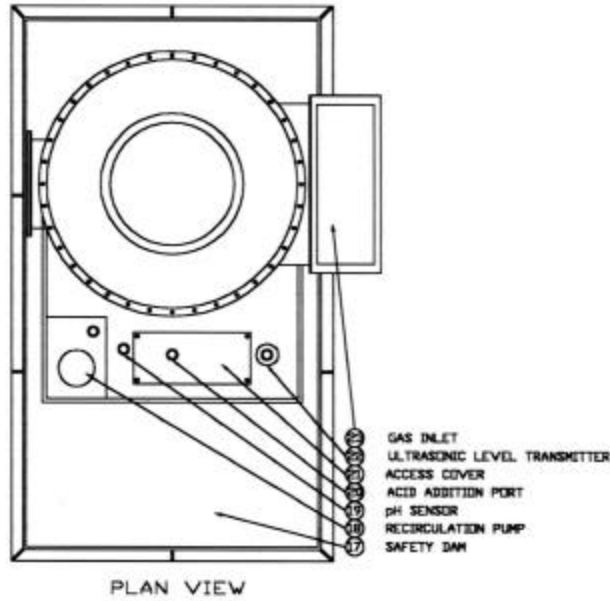
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MODEL	DI-24	DI-30	DI-36	DI-42	DI-48	DI-54	DI-60	DI-68	DI-72	DI-78	DI-84	DI-90	DI-94	DI-96	DI-108	DI-120	DI-1
Nominal ACFM	1300	2000	2900	3900	5000	6400	7900	10000	11300	13300	15400	17700	19300	20000	25500	31400	358
Diameter (inches)	24	30	36	42	48	54	60	68	72	78	84	90	94	96	108	120	12
Capacity (gal)	215	215	215	215	390	390	390	780	780	780	780	1170	1170	1170	1560	2340	234
Height	14' 2.75"	14' 6"	14' 6.5"	14' 7.25"	15'	16' 2.25"	16' 5.5"	20' 0.75"	20' 5.25"	20' 8.25"	20' 11.5"	22' 2.25"	22' 5"	22' 5.5"	23' 8.25"	25' 3.25"	25'
Width	3' 10"	4' 6"	5' 2"	5' 10"	6' 6"	7' 2"	7' 10"	8' 9"	9' 3"	9' 11"	10' 7"	11' 3"	11' 10"	12'	13' 4"	14' 8"	15'
Depth	5' 3"	4' 9"	5' 3"	5' 9"	6' 3"	6' 9"	7' 3"	8'	8' 4"	8' 10"	9' 4"	9' 10"	10' 2"	10' 4"	11' 4"	12' 4"	13'
Pump Motor (HP)	2	2	3	3	3	5	5	7.5	7.5	7.5	7.5	10	10	10	15	25	30
Fan Motor (HP)	3	5	7.5	10	10	10	15	15	15	20	25	25	40	40	50	60	75



Scrubber Vessel - The scrubber vessel is constructed of impact grade polypropylene (PP). This material is stable to temperatures of 180°F maximum and is extremely durable due to its resistance to chemical corrosion.

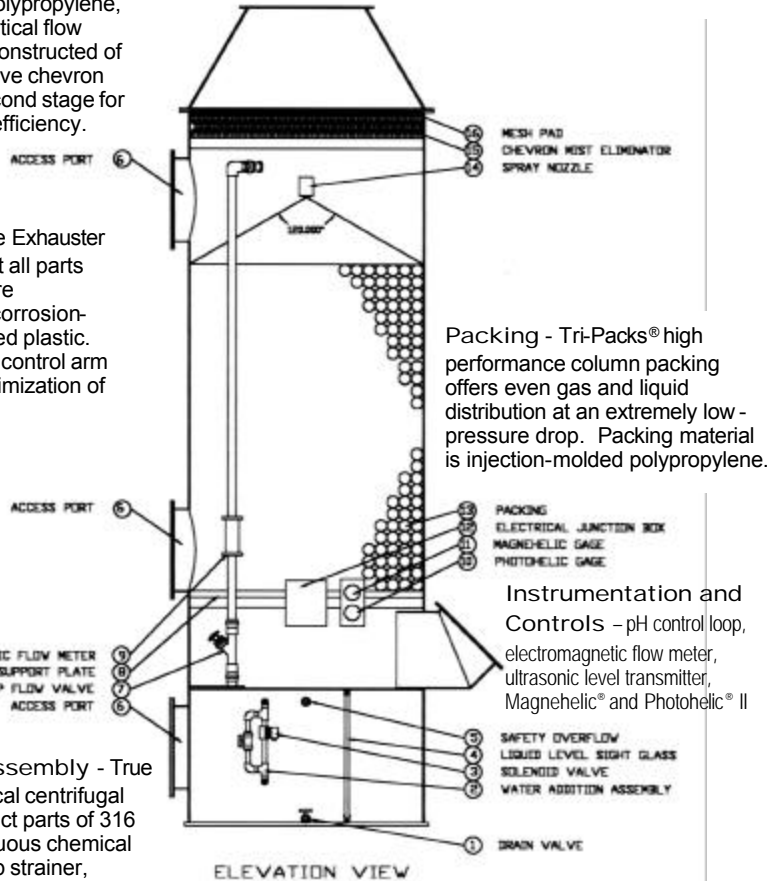
The vessel includes an integral liquid reservoir which serves as a pump shelf and instrumentation deck for mounting: level transmitter; pH sensor; liquid level sight glass; water addition and water make-up assembly; and liquid recirculation assembly. The liquid reservoir features an inspection port for access to pump shelf internals and includes a manual drain ball valve and high-level overflow drain.

The vessel tower includes one upper and two lower access ports with clear Lexan® flange covers and Viton® O-rings, packing support grid, mist eliminator support grid, flanged gas inlet port and flanged gas outlet cone.

Mist Elimination Assembly - Chevron style high efficiency vertical flow mist eliminator, constructed of polypropylene, designed specifically for vertical flow applications. A mesh pad constructed of polypropylene mounted above chevron mist eliminator provides second stage for increased droplet removal efficiency.

Exhaust Fan - FRP Fume Exhauster specifically designed so that all parts exposed to the air stream are constructed of high quality corrosion-resistant fiberglass reinforced plastic. Includes outlet damper with control arm for manual or automatic optimization of blade position.

Liquid Recirculation Assembly - True cantilever shaft design vertical centrifugal pump features all fluid contact parts of 316 (L) stainless steel for continuous chemical duty service. Includes pump strainer, manually adjustable y-globe valve for optimization of liquid flow rate, electromagnetic flow meter and 120° full cone spray nozzle for uniform packing coverage. Multiple union connection points simplify disassembly.



Options - Safety dam, ductwork, sump heater, UV light inhibitor, chemical feed and waste removal pumps.

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