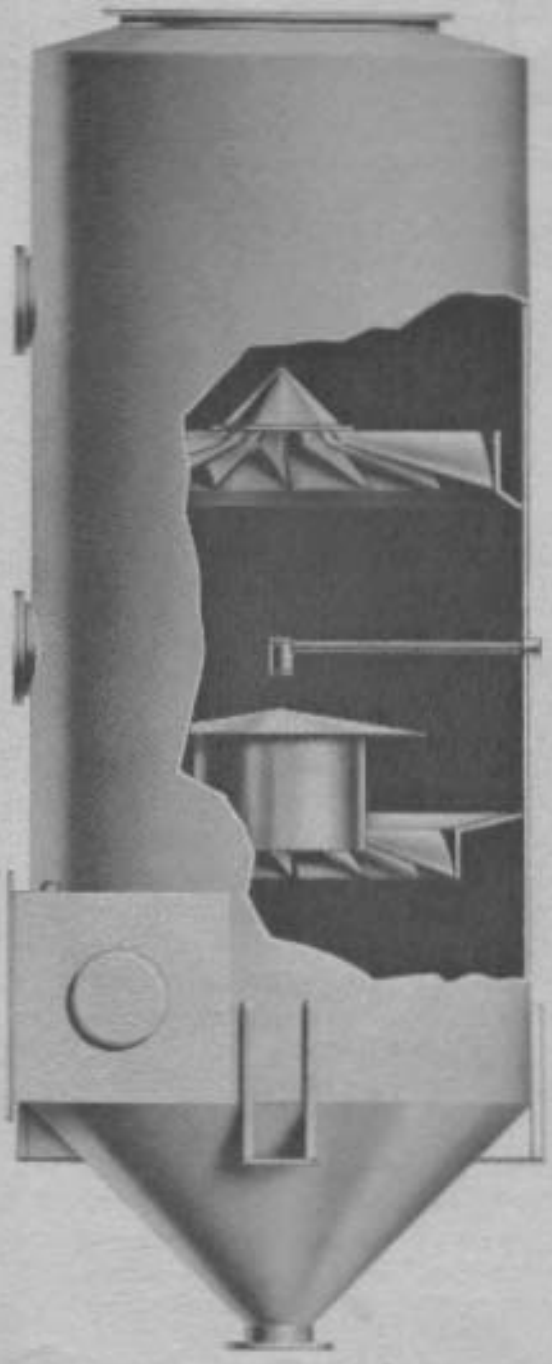
DUCON

DUST CONTROL EQUIPMENT

BULLETIN NUMBER W-1271

MULTIVANE GAS SCRUBBER TYPE L MODEL II



HIGH COLLECTING EFFICIENCY FOR A WIDE RANGE OF APPLICATIONS

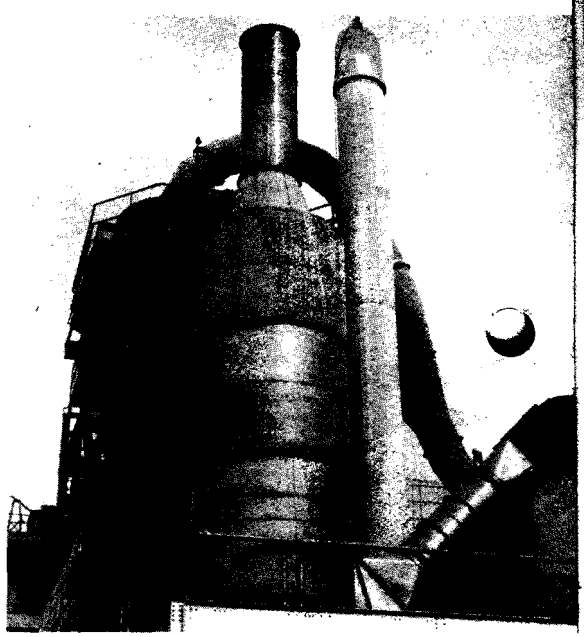
- Handles high loadings
- Minimum space requirements
- Low water pressure
- No moving parts
- Nothing to clog
- Self draining
- No water level to be maintained
- Slurries can be recycled

WET DUST COLLECTION: Dust — finely divided solids suspended in air or gas — is the end product, intermediate product or by-product of an increasing number of industrial processes. It can be a valuable commodity, or a nuisance. In either case, it is important to collect.

In many industrial installations, wet process dust control is the most effective method of recovery; particularly where dust is extremely fine, where fire or explosion is a hazard, or where it is desirable to recover or recycle the material in solution or slurry form. Ducon gas scrubbers have gained wide recognition in such installations. In addition to their use for dust control, Ducon scrubbers are also used effectively in gas absorption, condensation of solvents and in other chemical reactions.

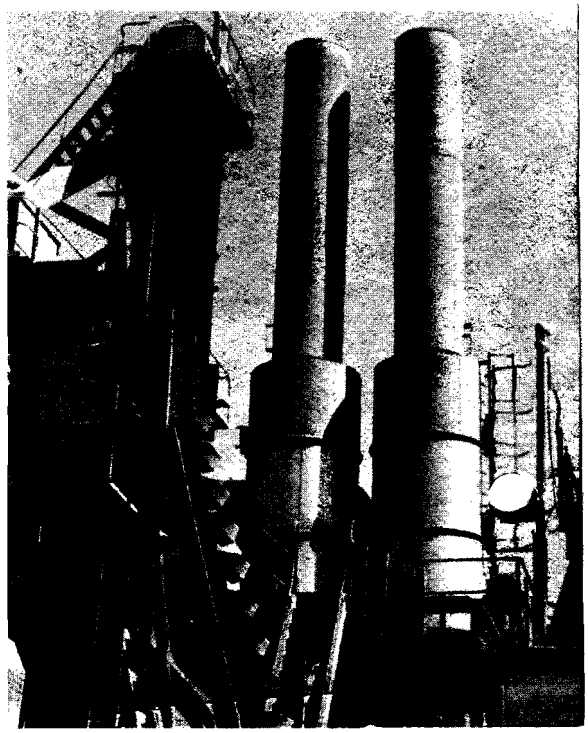
APPLICATIONS: The Ducon Type L Multivane scrubber is particularly well-suited for applications involving heavy dust loads, abrasive materials and slurry recycle. The Type L scrubber provides outstanding results when used for recovery of valuable product or control of dust resulting from drying or other processes. Following are some of the processes for which the Type L Multivane scrubber has proved effective, efficient and economical:

Spray Drying	Calcining	Milling
Spray Glazing	Cooling	Classifying
Rotary Drying	Crushing	Fluid Bed Processes
		Foundries

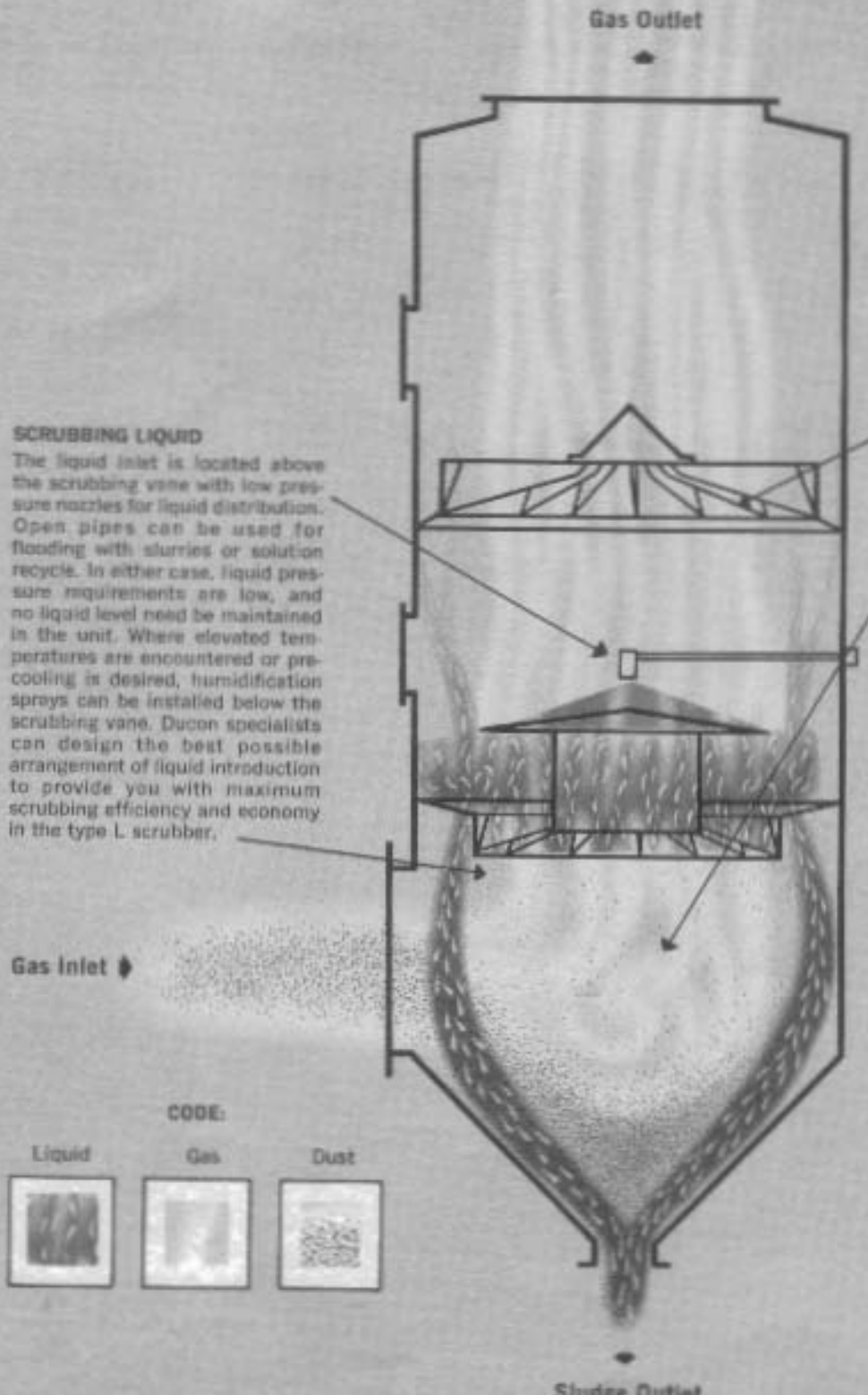


ADVANTAGES:

1. The Type L Multivane has been tried and proven in hundreds of difficult applications.
2. The unit is compact, ruggedly-built, self-draining, with no moving parts, no small holes to plug, and proven virtually maintenance free.
3. Provides up to 99%+ scrubbing efficiency.
4. Built-in "performance versatility" means that although primarily designed for the 3 to 8 micron range at medium pressure drops, the unit can be easily adjusted for efficient collection of particles in the 1 to 2 micron range at pressure drops up to 15 inches.
5. Because of the "performance versatility" of the Type L Multivane, no new dust collecting equipment is required if process conditions change—higher or lower gas flows or smaller particle sizes—or if regulatory standards become more rigid.
6. The lower scrubbing vane is so designed that gas velocity through the vane can be adjusted by a simple mechanical modification whereby the performance can be readily varied.
7. By controlling the flow of scrubbing liquid to the unit, high collecting efficiencies can be maintained at varying gas flows.
8. Scrubbing liquid is introduced through low pressure nozzles for ease of rate control, or through open pipe for recycling slurries.
9. The unit can be constructed from a variety of materials, including alloys and reinforced plastics, and can be lined with rubber, plastic, or other materials to meet special service requirements.



DESIGN FEATURES



ELIMINATOR VANE

The wide open design of the conoidal impingement vane assures trouble-free, non-plugging operation. The efficiency and dependability of this vane design has been proven in a wide variety of applications. The eliminator vane increases and directs gas velocity so that entrained liquid droplets are thrown against the sides of the scrubber shell above the vane (with droplet-free gas discharge). The unique design and location of this vane assures flushing of all surfaces, eliminating the possibility of build-up and plugging. Gases, free of liquid droplets, are discharged through the gas outlet at the top of the unit. The collected liquid droplets descend along the scrubber wall, through bleed holes in the skirt of the eliminator vane, and continue on through the sludge outlet.

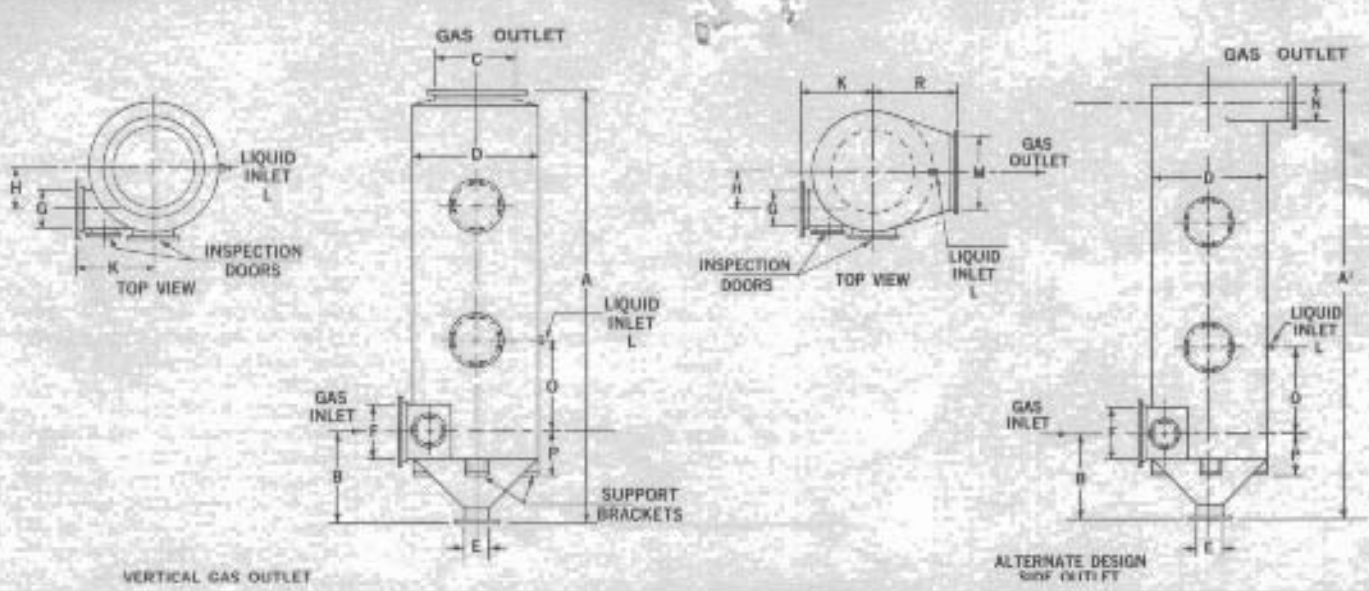
SCRUBBING LIQUID

The liquid inlet is located above the scrubbing vane with low pressure nozzles for liquid distribution. Open pipes can be used for flooding with slurries or solution recycle. In either case, liquid pressure requirements are low, and no liquid level need be maintained in the unit. Where elevated temperatures are encountered or precooling is desired, humidification sprays can be installed below the scrubbing vane. Ducon specialists can design the best possible arrangement of liquid introduction to provide you with maximum scrubbing efficiency and economy in the type L scrubber.

SCRUBBER SECTION

The scrubber section of the Type L Multivane eliminates dust by intermixing the scrubbing liquid with the cyclonic flow of gas to force the dust particles against the sides of the unit. (A significant portion of the dust is then washed down the sides and out through the sludge outlet at the bottom of the unit.) The partially cleaned gas then passes through the scrubbing vane (which provides increased wetted surface areas for particle impingement) and helps form a turbulent bed of water just above the vane. Here, additional particles are collected and carried through the vane and out the sludge outlet.

The high efficiency of this unit is due in part to the turbulence above the vane. This turbulent bed is created by maintaining a balanced relationship between the rate of gas flow and the amount of scrubbing liquid introduced through the inlet pipes. When plant operating requirements result in the lowering of the gas flow, high cleaning efficiency can be maintained by a simple modification of the lower vane to achieve the desired liquid bed action.



DIMENSION CHART FOR DUCON MULTIVANE GAS SCRUBBER

ALL DIMENSIONS ARE APPROXIMATE

SIZE AND D	A	B	C DIA.	E DIA.	INLET F	INLET G	H	K	CPLG L	SIDE OUTLET M	SIDE OUTLET N	O	P	R	A¹	APPROX. WT. IN LBS. Carbon Steel*	APPROX. WT. IN LBS. Stainless Steel**	SIZE AND D
12	5'6"	10	11	3	5½	3	4	8	½	7	4	13	5½	9	5'10"	156	150	12
15	5'11"	13	13½	3	7½	3½	5½	10	½	8	4	15	6½	10½	6'3"	210	200	15
18	6'8"	15	16	4	9½	4	6½	11	¾	10	5	18	8	12	7'1"	280	270	18
21	7'2"	17	19	4	10½	5	7½	13	¾	13	6	20	9	13½	7'8"	350	330	21
24	7'8"	19	22	4	12½	5½	9	14	1	14	7	23	10	15	8'3"	430	410	24
27	8'2"	22	24	4	14½	6	10	16	1	16	8	26	11	16½	8'10"	500	480	27
30	8'7"	23	27	6	15	7	11	17	1	18	9	28	12	18	9'4"	610	580	30
36	9'10"	28	32	6	18½	8	13	20	1¼	21	10	34	14	21	10'8"	850	800	36
42	11'2"	33	38	6	22	9½	15	23	1¼	23	12	39	17	24	12'2"	1,120	1,060	42
48	12'5"	37	43	6	25	11	18	24	1½	28	14	44	19	29	13'7"	1,480	1,410	48
54	14'2"	41	49	8	28	12	20	27	2	31	15	49	23	32	15'5"	1,830	1,740	54
60	15'10"	46	54	8	33	14	22	30	2	34	17	56	26	35	17'3"	2,230	2,120	60
66	16'10"	51	60	8	35	16	24	33	2	37	19	60	27	38	18'5"	2,600	2,480	66
72	17'6"	56	65	8	39	17	26	36	2	41	20	65	29	41	19'2"	4,060	2,930	72
78	17'9"	60	70	8	41	19	28	39	2½	45	21	70	30	44	19'6"	4,850	3,520	78
84	19'0"	64	76	10	45	20	31	42	2½	49	24	75	32	47	21'0"	5,490	3,980	84
90	20'3"	69	81	10	49	21	33	45	2½	54	27	80	34	50	22'6"	6,180	4,470	90
96	21'6"	73	86	10	51	23	36	48	3	58	29	85	37	54	23'11"	6,910	4,980	96
102	22'8"	83	92	10	55	24	38	51	3	61	31	90	39	57	25'3"	8,150	5,970	103
108	24'3"	88	97	10	57	26	40	54	3	64	32	108	41	60	27'3"	9,370	6,970	108
114	24'10"	93	102	10	62	27	42	57	3	67	33	100	43	63	27'7"	10,180	7,550	114
120	25'7"	97	108	10	63	29	44	60	3	70	35	105	44	66	28'6"	11,020	8,160	120
126	26'4"	102	114	10	68	30	47	63	3	73	37	117	46	69	29'5"	12,100	8,990	126
132	27'0"	107	119	12	72	31	50	66	3	76	38	113	48	72	30'2"	13,020	9,650	132
138	27'11"	112	124	12	74	33	52	69	3	79	40	126	52	75	31'3"	13,970	10,340	138
144	28'3"	117	130	12	78	34	54	72	3	82	41	121	54	78	31'8"	14,960	11,060	144

NOTES — *Sizes 12-66, 10 gauge; 72 up 3/16" plate. • **All 11 gauge.
(All dimensions inches except A and A¹. • Do not use for construction; request certified prints.)

SIZE SELECTION TABLE SCRUBBER SIZE VS. MAXIMUM CAPACITY (CFM) AT △P LEVEL

SIZE	△P INCHES (SPWG) 2-3	4-6	7-9	10-15
12	430	670	400	N.A.
15	675	740	610	N.A.
18	970	1060	880	N.A.
21	1330	1450	1200	N.A.
24	1730	1890	1570	N.A.
27	2200	2400	2000	N.A.
30	2700	2900	2700	N.A.
36	3900	4200	3900	N.A.
42	5300	5800	5300	N.A.
48	6900	7500	6900	N.A.
54	8800	9500	8800	N.A.
60	10800	12700	11800	10400
66	13100	15500	14300	12600

SIZE	△P INCHES (SPWG) 2-3	4-6	7-9	10-15
72	15600	18400	17000	15000
78	18300	21600	20000	17600
84	21200	25000	23100	20400
90	24300	28700	26600	23400
96	27600	32700	30200	26700
102	31300	36900	34100	30100
108	35100	41400	38200	33700
114	39100	46200	42700	37600
120	43200	51100	47200	41700
126	47700	56300	52000	45900
132	52200	61700	57000	50400
138	57200	67600	62400	55200
144	62300	73800	68000	60200

Tabulated capacities and △ P are at gas density of 0.075 lb./c.f. Scrubbing liquid rate: 2 Gal./1000 c.f. — 2 to 9" w.g.; minimum 4 gal./1000 c.f. — 10 to 15" w.g. For other gas densities (0.05 lb./c.f. minimum): 1) Operating △ P should be corrected to standard conditions; i.e. 0.075 lb./c.f. 2) Gas volume leaving scrubber at cooled saturated conditions should be divided by: (pg=saturated gas density lb./c.f.) $\sqrt{\frac{0.075}{Pg.}}$ For gas densities lower than 0.06 lbs./c.f., consult Home Office. N.A.=Not available with standard unit dimensions.

DUCON

The Ducon Company manufactures a complete line of centrifugal, dynamic and venturi-type gas scrubbers to meet every scrubbing requirement.

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