

**Burgess-Manning
Dry Gas
Cyclone
Scrubbers**





Applications

Burgess-Manning dry gas scrubbers are used in a variety of applications in the natural gas and chemical processing industries. These include:

- Suction and discharge for air and gas compressors.
- Gas compressor interstage and aftercoolers.
- Gas and fuel transmission lines.
- Gas process lines.
- Air and steam lines.
- Meter installations.
- Product recovery.
- Gas injection and withdrawal.

BACKGROUND AND DESCRIPTION

Introduction

The Burgess-Manning dry gas scrubber is a high-capacity separator designed for removing liquids and/or solids from gas flows with a minimum of pressure drop. It is self-cleaning, requires no scrubbing liquid, can handle relatively large quantities of entrainment and needs only periodic blowdown for removal of collected material. It is highly efficient over a wide range of operating conditions.

Principle of operation

The entrainment-laden gas stream enters the distribution chamber of the scrubber, which contains a multiplicity of small cyclone tubes arranged in parallel. The gas enters each of the tubes through two tangential openings located near the top. The resulting centrifugal action moves the liquid droplets and/or solid particles to the outer periphery of the tube and downward, causing them to drop into the collection chamber at the bottom of the vessel. The cleansed gas then reverses direction at the vortex of the cyclone tube and moves upward through the riser and into the exit plenum.



Efficiency

Efficiency of the Burgess-Manning dry gas scrubber is influenced by particle size, distribution and liquid loading. In general, the dry gas scrubber will remove all solid particles 5 microns and larger, and the outlet gas will contain less than 0.10 gal. of liquid per mm standard cu. ft. of gas flow thru the scrubber (based on a liquid-to-gas weight ratio of 5% or less). See Figures 1 and 2.

Pressure drop

Pressure drop is largely a function of tube velocity and gas density. It may vary from a few inches of water to several psi, depending upon the application.

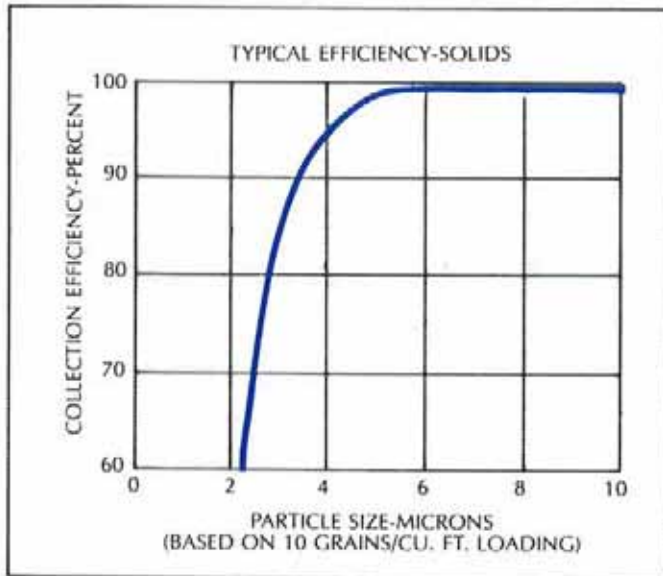


Fig. 1

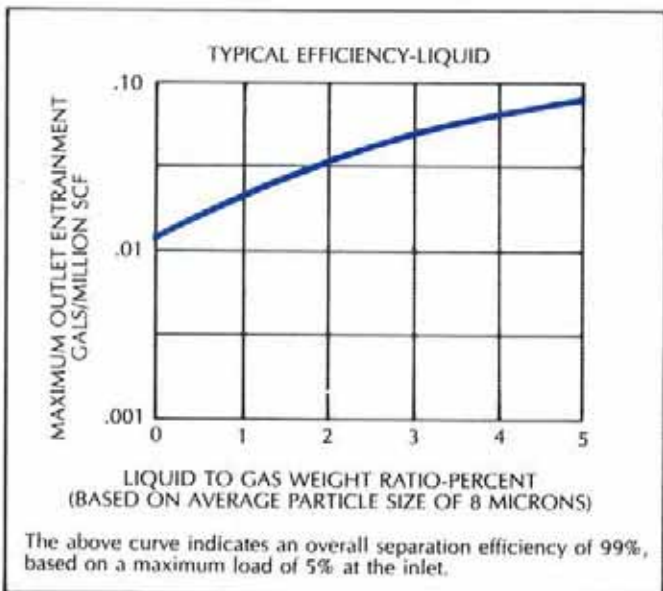
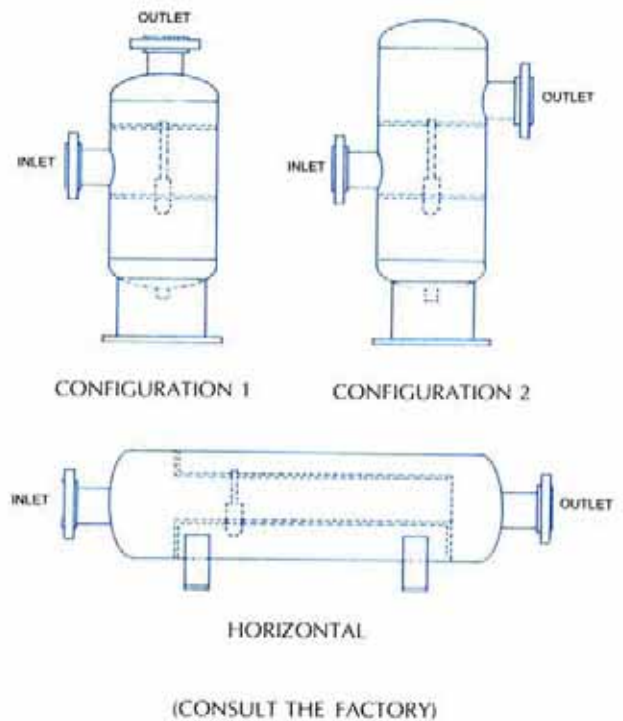


Fig. 2

STANDARD CONFIGURATIONS

Burgess-Manning dry gas scrubbers are available in three configurations, and may be installed vertically or horizontally. The horizontal configuration is recommended for high volume applications.



GENERAL SPECIFICATIONS

Burgess-Manning scrubbers are designed and manufactured in accordance with the ASME Code, Section VIII, Division 1, and can be built in accordance with Section VIII, Division 2, for pressures up to 10,000 psig.

Standard scrubbers are constructed of carbon steel; however, scrubbers can be custom designed and built from stainless steel, aluminum, monel, inconel and other steel alloys.

Cyclone tubes are manufactured from shock and wear-resistant, high alloy cast steel, to provide dependable, trouble-free service under severe operating conditions.

The cyclone tube has no moving parts. It cannot be overloaded, and it effectively removes both liquid and solid particles. It does not use or need a scrubbing liquid; it is self cleaning and requires only periodic blow-down for removal of collected material.

Scrubbers, exclusive of flanges, are rated for design temperature operation from -20°F to $+650^{\circ}\text{F}$. Standard flanged units are furnished with ANSI B16.5 flanges which are rated for design pressures at 100°F .

Other Burgess products

Burgess has supplied a variety of product for industrial applications since 1944. In addition to custom manufacturing code and non-code steel products, Burgess designs and manufactures intake filters, intake filter/silencers, intake silencers, absorptive intake/exhaust silencers, exhaust silencers, pressure reduction silencers, vent silencers, gas and liquid pulsation dampeners, dust collectors, dry gas filters, line filter/separators, scrubbers, vane vertical gas separators and tuyere separators, acoustical enclosures, turbine silencing systems and hi-flow fan silencers.

For specification, installation, application, pricing and delivery information on Burgess-Manning products, contact your local Burgess representative.



BURGESS-MANNING

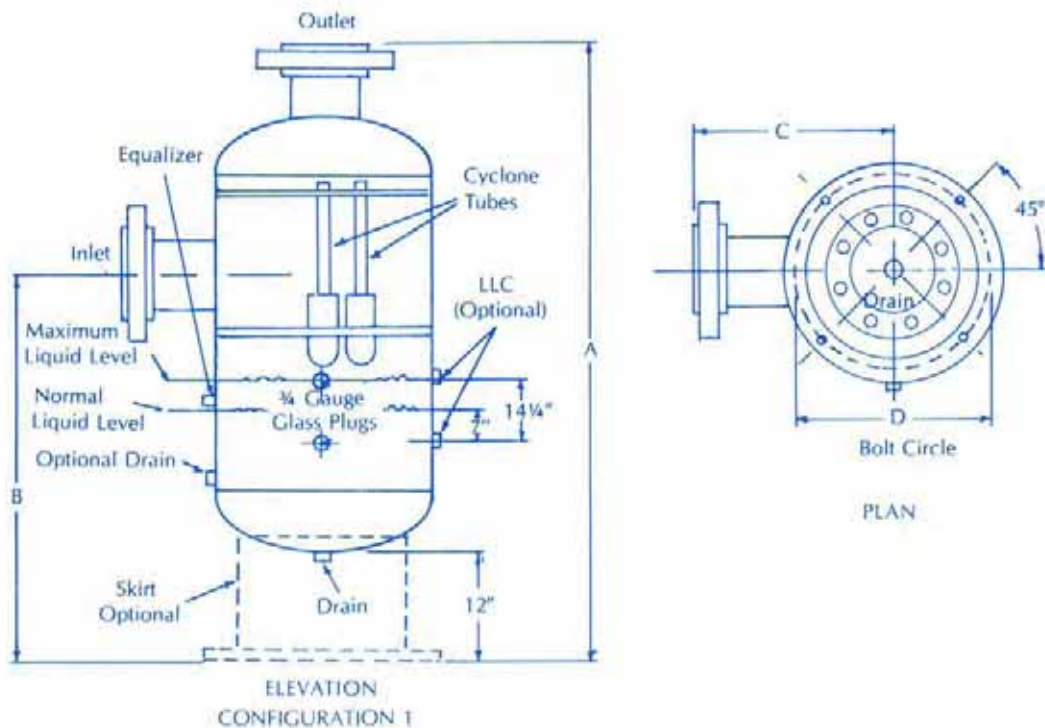
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3000 Series Dry Gas Cyclone Scrubbers / Bulletin 30-1-1



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Model	Vessel Diameter	Inlet & Outlet	A	B	C	D	Drain Size	Anchor Bolt Holes	Weight vs. Design Pressure				
									275	500	720	1000	1400
3002	6 ⁵ / ₈	2	68	51 ⁵ / ₈	9 ¹ / ₂	9	1 ¹ / ₂	4-7/ ₈	108	112	112	114	156
3003	8 ⁵ / ₈	3	72 ¹ / ₈	52 ¹¹ / ₁₆	12 ¹ / ₂	11	1 ¹ / ₂	4-7/ ₈	191	199	199	204	270
3004	10 ³ / ₄	4	73 ¹ / ₄	53 ¹ / ₄	13 ¹ / ₂	13	1 ¹ / ₂	4-7/ ₈	293	312	312	387	431
3005	12 ³ / ₄	6	79 ¹ / ₄	54 ³ / ₄	16 ¹ / ₂	14	2	4-7/ ₈	413	449	449	538	675
3006	14	6	82	56 ¹ / ₈	17	14	2	4-7/ ₈	474	510	561	685	817
3007	16	6	84 ¹ / ₈	56 ¹¹ / ₁₆	18	17 ¹ / ₂	2	4-7/ ₈	582	618	732	882	1061
3008	18	6	86 ¹ / ₈	57 ⁷ / ₁₆	19	17 ¹ / ₂	2	4-7/ ₈	679	715	848	1119	1326
3009	20	8	91 ¹ / ₄	59 ⁹ / ₄	20	21 ¹ / ₂	2	4-7/ ₈	843	1059	1179	1473	1765
3010	24	8	93 ¹ / ₂	60 ⁷ / ₈	22	23 ¹ / ₂	2	4-7/ ₈	1053	1313	1614	2074	2945
3011	30 ID	10	90 ⁵ / ₈	60 ⁷ / ₁₆	25	27 ¹ / ₂	3	4-7/ ₈	1282	1957	2561	3232	4194
3012	36 ID	12	105 ⁷ / ₈	64 ¹¹ / ₁₆	30	33 ¹ / ₂	3	4-7/ ₈	2366	3258	4060	4944	6656
3014	42 ID	14	115 ¹ / ₈	68 ¹¹ / ₁₆	33	42	3	4-7/ ₈	3133	4339	5917	7082	9845
3016	48 ID	16	122 ¹ / ₂	71 ³ / ₈	36	45 ¹ / ₂	3	4-7/ ₈	4805	6344	8324	10425	13868
3018	54 ID	18	125 ³ / ₄	73	39	51 ¹ / ₂	3	4-7/ ₈	5990	8562	10884	13359	18183
3020	60 ID	20	126	71 ³ / ₄	42	57 ¹ / ₂	3	4-7/ ₈	7021	9965	13445	17167	22680
3021	66 ID	20	130 ¹ / ₄	74 ¹ / ₄	45	63 ¹ / ₂	3	4-7/ ₈	9120	12433	16412	20634	27960

All dimensions are in inches. Drain and gauge glass connections are standard; any other connections are optional.