

MINI-PHOENIX® PLUS Odor Control System



Description

Calgon Carbon Corporation's MINI-PHOENIX® PLUS Odor Control System is an integrated 3-stage system which consists of a 1st stage carbon unit and our proven patented PHOENIX® technology for the 2nd and 3rd stages. The 1st stage High Flow HF carbon unit utilizes a bed of high activity activated carbon for the removal of reduced sulfur compounds (RSC) and organics. The 2nd and 3rd stages employ the state-of-the-art PHOENIX® technology which is simply the most effective means of removing airborne H₂S, the most prevalent odorous compound present in wastewater treatment. This combination produces a complete odor control system that can continuously remove RSC, organics, and up to 50 ppm of H₂S with 99% time-weighted average efficiency which will result in the best odor reduction possible.

The HF carbon canister has a removable top and ductwork designed/engineered to facilitate quick and easy changeout of the HF carbon bed. This built-in bypass of the 1st stage carbon unit allows for the continuous treatment of H₂S even while the HF carbon bed is being replaced. Using proprietary computer-based adsorption models, Calgon Carbon can also predict the bed life for the 1st stage carbon unit based on stream composition and conditions provided to optimize system size, design, and operating cost estimates.

The MINI-PHOENIX® Process

The MINI-PHOENIX® 2-stage segmented vessel design works by directing the foul air through a series of chambers containing radial flow carbon canisters. As the air passes through the carbon canisters, the H₂S is catalytically converted to H₂SO₄. The adsorbed and highly water soluble H₂SO₄ is then washed off with water during the automated water regeneration process, thereby restoring the carbon's capacity for H₂S. The system's segmented design allows one chamber to be water regenerated while the rest of the system continues to treat the odorous air stream. This delivers an odor reduction system that has virtually no treatment downtime.

The MINI-PHOENIX® radial flow canisters, using Calgon Carbon's exclusive enhanced catalytic grade CENTAUR® HP carbon, produce a system that can continuously remove up to 50 ppm of H₂S with 99% time-weighted average efficiency.



Individual Canister View

Applications

The MINI-PHOENIX® PLUS Odor Control System is designed for 400 and 800 CFM air flow rates. With its small and flexible footprint design, it is ideally suited for municipal wastewater collection system applications such as pump stations and lift stations, as well as some wastewater treatment plant processes such as headworks, grit tanks, and dewatering applications. For applications other than continuous operation at the design air flow rate, contact Calgon Carbon Corporation's Odor Control Team for review and recommendation.



MINI-PHOENIX® PLUS System

Standard Features

The standard MINI-PHOENIX® PLUS system comes complete with:

- HIGH FLOW HF canister (PE with UV inhibitor)
- Initial load of high activity activated carbon
- MINI-PHOENIX® vessel (black/grey PPL with UV inhibitor)
- Initial set of radial carbon canisters with CENTAUR® HP carbon
- Corrosion resistant steel skid for fan and MINI-PHOENIX®
- PPL interconnecting ductwork and bypass gates
- FRP fan with 480 V / 3 phase / 60 Hz TEFC motor
- Automatic water regeneration package (NEMA 4X)
- System control panel with motor starter (NEMA 4X)
- Inlet PPL flow control damper
- Dilution air PPL damper
- Pressure differential indicators (HF and Mini-Phoenix®)

Optional Features

Some of the options available on a MINI-PHOENIX® PLUS system are:

- Outlet rain caps with bird screen
- Grease filter / mist eliminator (GFME)
- Explosion proof electrical package
- Sound attenuation

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MINI-PHOENIX® PLUS Design Data

Model	Air Flow Capacity Range cfm(m ³ /hr)	HF Carbon Volume ft ³ (m ³)	Number of Canisters	System Dimensions ¹ (LxWxH) feet (meters)	System Operating Weight ² pounds (kg)	System Weight ³ (Maximum) pounds (kg)	System Pressure Drop ⁴ inches WC (N/m ²)	Fan Horsepower HP
P-400	350-400 (595-680)	26 (0.7)	8	16 x 8 x 7.8 (4.9 x 2.5 x 2.4)	4,500 (2,050)	6,600 (2,240)	22 (5,480)	5
P-800	700-800 (1,190-1,360)	26 (0.7)	12	19 x 8 x 7.8 (5.8 x 2.5 x 2.4)	5,200 (2,370)	8,600 (3,910)	28 (6,980)	7.5

Notes:

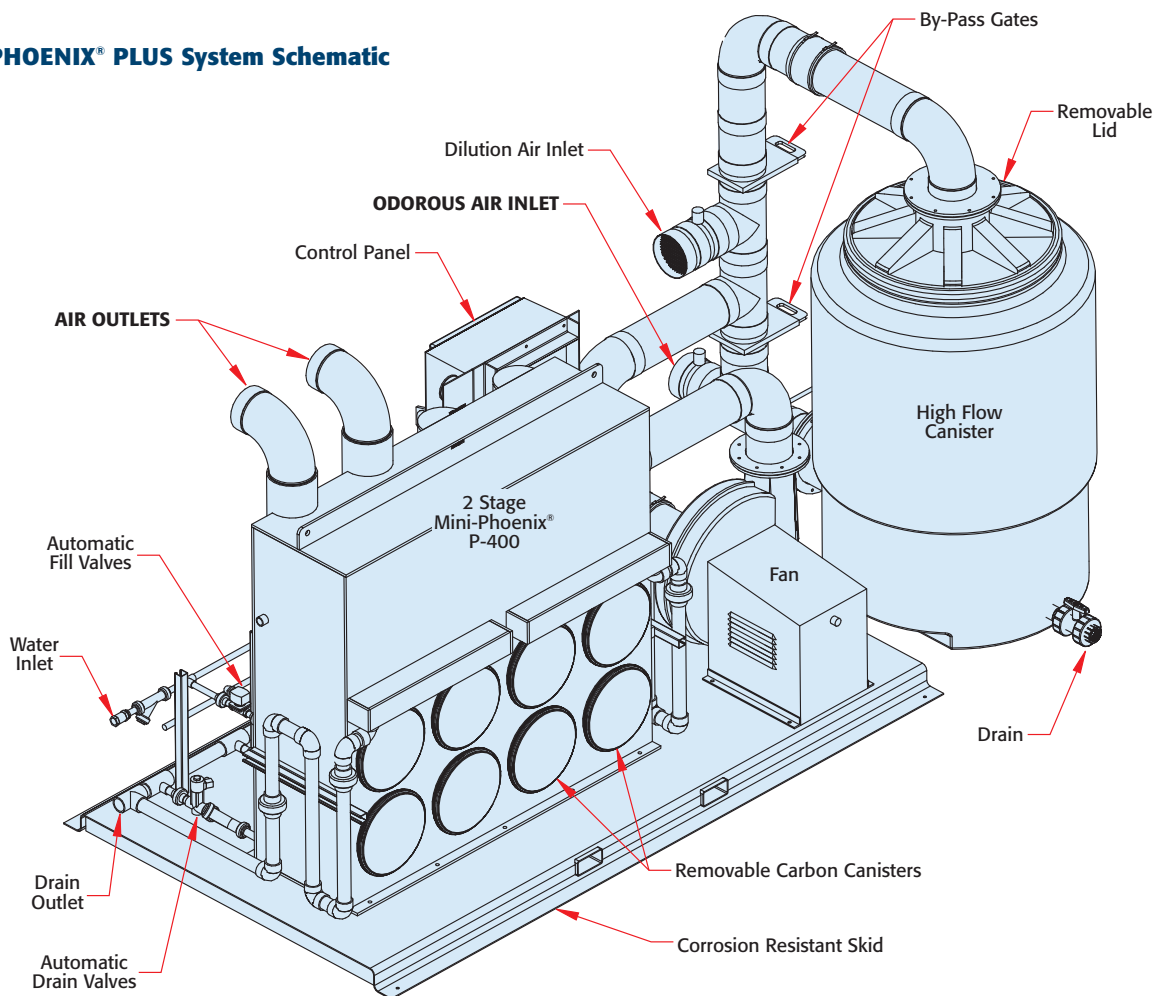
¹ System dimensions are for the MINI-PHOENIX® Skid and HF Canister with interconnecting ductwork, does not include grease filter/mist eliminator. NOTE: The HF Canister is not skid mounted and can be relocated to fit the site layout. The HF canister is a 4 ft. diameter vessel.

² Operating weight is the MINI-PHOENIX® vessel with one bank filled with water.

³ Maximum weight is the MINI-PHOENIX® vessel with all banks filled with water.

⁴ System pressure drop includes the MINI-PHOENIX® vessel, HF canister, carbon, and interconnecting ductwork with a 2" allowance for external pressure losses (i.e. ductwork, dampers, grease filter/mist eliminator, source) to be confirmed by others.

MINI-PHOENIX® PLUS System Schematic



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