# Chemical Package System (CPS Series)

IMS' Chemical Package System is a multi-stage high efficiency scrubber capable of promoting different chemical reactions in each stage and targeting a range of different compounds found in municipal STPs and Pump Stations. The system is designed to be compact and low profile, enabling indoor or outdoor installation. IMS' chemical scrubber system is completely factory assembled for ease of installation treating airflow capacities up to 24000 CFM (40,000 m3/h) in a single system.

IMS' CPS odor control system is a "once-through", two-stage absorption system consisting of a gas conditioning / pre-treatment stage followed by two vertical co-current/counter-current gas absorption sections.

## Advantages

- Reliable in the long term with robust design.
- Minimized footprint and height required for the scrubber system and associated pumps and piping and ductwork.
- Provides flexibility to customize the chemistry of each stage, to optimize the operating chemistry for actual plant odors, and to respond to process variations.
- Will make optimum use of chemical and minimize chemical costs.
- Will be delivered and installed quickly and smoothly, with minimum construction and installation cost and time.
- Will not require downtime for routine calibration and maintenance.
- Provides maximum value measured by effective odor control with minimum problems, maintenance and operating cost.

## Major System Components

- FRP Air Supply Fan
- FRP Vessel Inlet Transition Piece
- FRP Two-Stage Scrubber System
- Two Counter-Current Stage Gas Absorption System
- Two Integral Chemical Sumps
- Packing Media, Nozzles and Mist Eliminator
- Internal Piping and Access Doors
- Exhaust Stack
- PP Chemical Recirculation Pumps (vertical seal-less pumps)
- NaOH and NaOCl Metering
- Pumps
- Control Panel with Motor Starters
- pH, ORP and Level Controls
- Pressure & Differential Pressure Gauges

## How it Works

The system utilizes Sodium Hydroxide (NaOH) and Sodium Hypochlorite (NaOCl) to react with and remove the odorous compounds present in the airstream. The foul air first enters a pre-conditioning stage (Stage 1) where it is contacted with liquid from the Stage 1 sump in a counter-current arrangement. The Stage 1 sump consists of a solution of fresh Sodium Hydroxide (NaOH) used to maintain the set pH. In the first stage, approximately 70 to 80% of the inlet $H_2S$ is removed. This configuration minimizes chemical costs by significantly reducing the amount of Hydrogen Sulfide that reacts with Sodium Hypochlorite. After treatment by the first stage, the air travels through an integral baffle and enters the second counter-current scrubbing stage. In the second stage, the air is contacted with a water solution supplemented with a controlled amount of injected NaOH and NaOCl. This final stage assures the remaining odorous compounds are oxidized. Finally, the "scrubbed" air is discharged from the system through a mist eliminator and into the atmosphere.


| Model | Airflow Rate CFM ($m^3/h$) | Overall Dimension L x W x H ft (mm) | Overall Length (Including Fan) Inches (mm) | Shipping Weight lbs (kg) | Operating Weight lbs (kg) | Fan Motor HP (kw) | Recirc Pump Motors HP (kw) |
|---|---|---|---|---|---|---|---|
| CPS-2250 | 2,200 (3700) | 6.75 x 4.75 x 9.25 (2060 x 1450 x 2820) | 12.5 (3810) | 2,500 (1100) | 7,000 (3200) | 7.5 (5.6) | 8.0 (6.0) |
| CPS-2500 | 2,700 (4600) | 7.50 x 5.00 x 9.50 (2290 x 1520 x 2900) | 13.0 (3960) | 3,100 (1400) | 8,000 (3600) | 7.5 (5.6) | 8.0 (6.0) |
| CPS-2750 | 3,300 (5600) | 8.25 x 5.25 x 9.50 (2520 x 1600 x 2900) | 15.0 (4570) | 3,700 (1700) | 9,500 (3200) | 7.5 (5.6) | 10.0 (7.5) |
| CPS-3000 | 4,000 (6800) | 9.00 x 5.50 x 10.50 (2740 x 1680 x 3200) | 15.5 (4720) | 4,400 (2000) | 11,000 (5000) | 10.0 (7.5) | 10.0 (7.5) |
| CPS-3500 | 5,500 (9300) | 8.75 x 6.00 x 11.00 (2670 x 1830 x 3350) | 16.0 (4880) | 5,000 (2300) | 12,000 (5500) | 15.0 (11.0) | 10.0 (7.5) |
| CPS-4000 | 7,100 (12100) | 10.00 x 6.50 x 11.00 (3050 x 1980 x 3350) | 17.5 (5330) | 5,600 (2500) | 14,500 (6600) | 16.0 (12.0) | 12.5 (9.3) |
| CPS-4500 | 9,100 (11500) | 11.25 x 7.00 x 11.25 (3430 x 2130 x 3430) | 19.5 (5940) | 6,200 (2800) | 17,000 (7700) | 20.0 (15.0) | 12.5 (9.3) |
| CPS-5000 | 11,200 (19000) | 12.50 x 7.50 x 11.50 (3810 x 2290 x 3500) | 20.5 (6250) | 6,800 (3100) | 19,500 (8900) | 25.0 (18.5) | 15.0 (11.0) |
| CPS-5500 | 13,600 (23100) | 13.75 x 8.00 x 11.75 (4190 x 2440 x 3580) | 22.0 (6700) | 7,500 (3400) | 22,000 (10000) | 30.0 (22.0) | 17.5 (13.0) |
| CPS-6000 | 16,200 (27500) | 15.00 x 8.50 x 12.00 (4570 x 2590 x 3660) | 24.0 (7320) | 8,300 (3800) | 22,500 (11600) | 40.0 (30.0) | 17.5 (13.0) |

| Model | Airflow Rate CFM ($m^3/h$) | Overall Dimension L x W x H ft (mm) | Overall Length (Including Fan) Inches (mm) | Shipping Weight lbs (kg) | Operating Weight lbs (kg) | Fan Motor HP (kw) | Recirc Pump Motors HP (kw) |
|---|---|---|---|---|---|---|---|
| CPS-6500 | 20,000 (34000) | 16.25 x 9.00 x 12.25 (4950 x 2740 x 3730) | 26.0 (7930) | 9,100 (4100) | 28,500 (13000) | 50.0 (37.3) | 25 (18.6) |
| CPS-7000 | 24,500 (41600) | 17.50 x 9.50 x 12.50 (5330 x 2900 x 3810) | 27.0 (8230) | 10,000 (4500) | 32,000 (14500) | 60.0 (44.7) | 35 (26.0) |

**cleanwater1**
13135 Danielson Street, Suite 204 | Poway, CA 92064
Tel: 858.486.1620 | Email: info@cleanwater1.com

**cleanwater1.com**