

**Odor Control Systems:**  
*Biological, Chemical Scrubbers & Carbon Adsorbers*



I-BOx<sup>®</sup> Biological Odor Control Systems



Chemical Scrubber Odor Control Systems



Modular Carbon Odor Control Systems (MCS)



Bulk Carbon Odor Control Systems (BCS)

*Engineering Excellence & Product Innovation*

## Odor Control Systems

IMS has developed a line of standardized, pre-engineered, factory assembled odor control systems for treating odors at sewage pump stations and wastewater treatment plants. Pre-engineered systems are simple to install, reducing the overall installed cost and delivery time.

### Biological Odor Control Systems

The I-BOx® Biological Odor Control System (patent pending) uses a two-stage process with a biological stage to remove 99% of the hydrogen sulfide (H<sub>2</sub>S), followed by an activated carbon polishing stage to remove residual H<sub>2</sub>S and organic odors. Standard models are available to treat up to 5,000 cfm (8500 m<sup>3</sup>/h) of odorous air.



### I-BOx® 350 - 5,000 cfm BIOLOGICAL ODOR CONTROL SYSTEM STANDARD MODEL DESIGN DATA

| Model        | Airflow Rate<br>CFM<br>(m <sup>3</sup> /h) | Overall Dimension<br>(without stack)<br>L x W x H<br>ft (mm) | Inlet<br>Connection<br>Inches<br>(mm) | Shipping<br>Weight<br>lbs<br>(kg) | Operating<br>Weight<br>lbs<br>(kg) | Fan Motor<br>HP<br>(kW) |
|--------------|--------------------------------------------|--------------------------------------------------------------|---------------------------------------|-----------------------------------|------------------------------------|-------------------------|
| I-BOx® 4000  | Up to 350<br>(Up to 600)                   | 6.5 x 4.0 x 9.5<br>(1980 x 1220 x 2900)                      | 6.0<br>(150)                          | 5,600<br>(2540)                   | 6,000<br>(2700)                    | 5.0<br>(3.7)            |
| I-BOx® 5000  | 350-580<br>(600-1000)                      | 7.5 x 5.0 x 9.5<br>(2285 x 1525 x 2900)                      | 6.0<br>(150)                          | 8,000<br>(3600)                   | 8,500<br>(3850)                    | 5.0<br>(3.7)            |
| I-BOx® 6000  | 580-850<br>(1000-1450)                     | 8.5 x 6.0 x 9.5<br>(2590 x 1830 x 2900)                      | 7.0<br>(180)                          | 9,000<br>(4082)                   | 10,000<br>(4500)                   | 5.0<br>(3.7)            |
| I-BOx® 7000  | 850-1200<br>(1450-2100)                    | 9.5 x 6.8 x 9.5<br>(2895 x 2083 x 2900)                      | 7.0<br>(180)                          | 11,500<br>(5216)                  | 12,700<br>(5760)                   | 5.0<br>(3.7)            |
| I-BOx® 7010* | 1200-1700<br>(2100-2900)                   | 14 x 6.8 x 9.5<br>(4265 x 2083 x 2900)                       | 12.0<br>(300)                         | 19,500<br>(8845)                  | 21,000<br>(9500)                   | 5.0<br>(3.7)            |
| I-BOx® 7015* | 1700-2590<br>(2900-4400)                   | 19.25 x 6.8 x 9.5<br>(5865 x 2083 x 2900)                    | 16.0<br>(400)                         | 28,500<br>(12927)                 | 31,000<br>(14061)                  | 5.0<br>(3.7)            |
| I-BOx® 7020* | 2590-3500<br>(4400-6000)                   | 25.00 x 6.8 x 9.5<br>(7620 x 2083 x 2900)                    | 16.0<br>(400)                         | 37,500<br>(17010)                 | 41,000<br>(18600)                  | 7.5<br>(5.5)            |
| I-BOx® 8000  | 1200-1500<br>(2100-2550)                   | 12.00 x 8.0 x 9.5<br>(3658 x 2439 x 2900)                    | 12<br>(300)                           | 14,500<br>(6577)                  | 16,000<br>(7257)                   | 5.0<br>(3.7)            |
| I-BOx® 8010  | 1500-2000<br>(2550-3400)                   | 14.00 x 8.0 x 9.5<br>(4265 x 2439 x 2900)                    | 16<br>(400)                           | 19,000<br>(8618)                  | 21,000<br>(9525)                   | 5.0<br>(3.7)            |
| I-BOx® 8015  | 2000-3000<br>(3400-5100)                   | 19.25 x 8.0 x 9.5<br>(5865 x 2439 x 2900)                    | 16<br>(400)                           | 28,000<br>(12700)                 | 31,000<br>(14061)                  | 5.0<br>(3.7)            |
| I-BOx® 8020  | 3000-4000<br>(5100-6800)                   | 25.00 x 8.0 x 9.5<br>(7620 x 2439 x 2900)                    | 16<br>(400)                           | 37,000<br>(16783)                 | 41,000<br>(18600)                  | 7.5<br>(5.5)            |
| I-BOx® 8025  | 4000-5000<br>(6800-8500)                   | 29.75 x 8.0 x 9.5<br>(9068 x 2439 x 2900)                    | 18<br>(457)                           | 47,000<br>(21319)                 | 52,000<br>(23587)                  | 7.5<br>(5.5)            |

\*The I-BOx® 7010, I-BOx® 7015 and I-BOx® 7020 are for use outside the USA.

## ***I-BOx® Biological Odor Control System Benefits***

- Two-stage, non-hazardous odor control process for H<sub>2</sub>S and organic odor removal
- Airflow rate up to 5,000 CFM
- Compact footprint design
- “Plug & Play” installation
- Quiet & easy operation
- Single-piece construction
- Inert, non-hazardous media
- Superior non-corrosive materials
- Pre-assembled & factory tested
- Suitable for outdoor installation - optional weather enclosure



**I-BOx® 75 - 250 cfm (125 - 425 m³/h)**

### ***I-BOx® 75 - 250 cfm BIOLOGICAL ODOR CONTROL SYSTEM STANDARD MODEL DESIGN DATA***

| Model     | Airflow Rate<br>CFM<br>(m³/h) | Overall Dimension<br>(without stack)<br>Φ x H<br>ft (mm) | Inlet<br>Connection<br>Inches<br>(mm) | Shipping<br>Weight<br>lbs<br>(kg) | Operating<br>Weight<br>lbs<br>(kg) | Fan Motor<br>HP<br>(kW) |
|-----------|-------------------------------|----------------------------------------------------------|---------------------------------------|-----------------------------------|------------------------------------|-------------------------|
| I-BOx® 30 | Up to 75<br>(Up to 125)       | 2.5 x 7.6<br>(762 x 2316)                                | 4.0<br>(100)                          | 1,600<br>(726)                    | 1,900<br>(862)                     | 0.5<br>(.37)            |
| I-BOx® 42 | 75-150<br>(125-255)           | 3.5 x 7.6<br>(1067 x 2316)                               | 4.0<br>(100)                          | 2,400<br>(1089)                   | 2,700<br>(1226)                    | 0.5<br>(.37)            |
| I-BOx® 54 | 150-250<br>(255-425)          | 4.5 x 8.0<br>(1067 x 2438)                               | 6.0<br>(150)                          | 3,400<br>(1542)                   | 4,100<br>(1860)                    | 1.0<br>(.75)            |

## Carbon Adsorber Odor Control Systems

The IMS carbon adsorber odor control systems are designed to work with a wide selection of media: virgin activated carbon media for low odor level, and high capacity carbon for higher H<sub>2</sub>S concentrations.



### MCS Benefits

- Superior non-corrosive material
- Easy to operate
- Suitable for outdoor installation
- Fan sound enclosure available
- Compact, skid-mounted design
- Pre-assembled and factory tested

The MCS carbon adsorber odor control systems are single bed, skid-mounted, dry media systems, designed for relatively lower odor levels. The media may be virgin activated carbon or any of a number of specialty catalytic carbon media. Standard models are available to treat up to 1,250 cfm (2,120 m<sup>3</sup>/h) of odorous air.

### MCS ACTIVATED CARBON ODOR CONTROL SYSTEM STANDARD MODEL DESIGN DATA

| Model   | Airflow Rate<br>CFM<br>(m <sup>3</sup> /h) | Vessel Dimensions<br>I.D. x SSH<br>ft<br>(mm) | Overall Dimensions<br>(LxWxH)<br>ft<br>(mm)     | Inlet Connection<br>inches<br>(mm) | Approx. Weight*<br>lbs<br>(kg) | Carbon Weight<br>lbs<br>(kg) | Fan Motor<br>HP<br>(kw) |
|---------|--------------------------------------------|-----------------------------------------------|-------------------------------------------------|------------------------------------|--------------------------------|------------------------------|-------------------------|
| MCS-018 | 110<br>(190)                               | 18" x 54"<br>(460 x 1370)                     | 6'-0" x 3'-11" x 6'-0"<br>(1830 x 1190 x 1830)  | 4<br>(100)                         | 1000<br>(450)                  | 160<br>(70)                  | 1<br>(.75)              |
| MCS-024 | 200<br>(340)                               | 24" x 56"<br>(610 x 1420)                     | 6'-0" x 3'-11" x 6'-2"<br>(1830 x 1190 x 1880)  | 6<br>(150)                         | 1200<br>(550)                  | 280<br>(130)                 | 1<br>(.75)              |
| MCS-030 | 300<br>(510)                               | 30" x 56"<br>(760 x 1420)                     | 7'-0" x 4'-5" x 6'-2"<br>(2130 x 1350 x 1880)   | 6<br>(150)                         | 1500<br>(680)                  | 440<br>(200)                 | 2<br>(1.5)              |
| MCS-036 | 425<br>(720)                               | 36" x 58"<br>(910 x 1470)                     | 7'-0" x 4'-5" x 6'-5"<br>(2130 x 1350 x 1960)   | 8<br>(200)                         | 1700<br>(770)                  | 640<br>(290)                 | 2<br>(1.5)              |
| MCS-042 | 600<br>(1020)                              | 42" x 58"<br>(1070 x 1470)                    | 9'-1" x 5'-3" x 6'-5"<br>(2770 x 1600 x 1960)   | 8<br>(200)                         | 2300<br>(1040)                 | 870<br>(390)                 | 2<br>(1.5)              |
| MCS-048 | 750<br>(1270)                              | 48" x 60"<br>(1220 x 1520)                    | 9'-1" x 5'-3" x 6'-11"<br>(2770 x 1600 x 2110)  | 10<br>(250)                        | 2600<br>(1180)                 | 1130<br>(510)                | 2<br>(1.5)              |
| MCS-054 | 1000<br>(1700)                             | 54" x 60"<br>(1370 x 1520)                    | 10'-1" x 6'-1" x 6'-11"<br>(3070 x 1850 x 2110) | 10<br>(250)                        | 3200<br>(1450)                 | 1430<br>(650)                | 3<br>(2.25)             |
| MCS-060 | 1250<br>(2120)                             | 60" x 62"<br>(1525 x 1570)                    | 10'-1" x 6'-1" x 7'-1"<br>(3070 x 1850 x 2160)  | 12<br>(300)                        | 3600<br>(1630)                 | 1770<br>(800)                | 3<br>(2.25)             |

\*Approximate weight is an estimate



### BCS Benefits

- Superior non-corrosive material
- Easy to operate
- Suitable for outdoor installation

### BCS System

The BCS activated carbon odor control systems are larger bulk media systems, designed for higher air flow rates. The media may be virgin activated carbon or any of a number of specialty catalytic carbon media. Standard models are available to treat up to 6,800 cfm (11600 m<sup>3</sup>/h) in a single carbon bed system and up to 20,000 cfm (34000 m<sup>3</sup>/h) in a dual bed system.

### BCS ACTIVATED CARBON ODOR CONTROL SYSTEM STANDARD MODEL DESIGN DATA

| Model     | Carbon Bed(s) | Airflow Rate<br>CFM<br>(m <sup>3</sup> /h) | Overall Dimension<br>L x W x H<br>ft<br>(mm) | Vessel<br>Diameter<br>ft<br>(mm) | Shipping<br>Weight<br>lbs<br>(kg) | Carbon<br>Weight<br>lbs<br>(kg) | Fan Motor<br>HP<br>(kW) |
|-----------|---------------|--------------------------------------------|----------------------------------------------|----------------------------------|-----------------------------------|---------------------------------|-------------------------|
| BCS-600   | Single        | 1000-1700<br>(1700-2900)                   | 11 x 8 x 8<br>(3300 x 2400 x 2400)           | 6<br>(1800)                      | 3500<br>(1600)                    | 2600<br>(1200)                  | 5<br>(3.7)              |
| BCS-800   | Single        | 1700-3000<br>(2900-5100)                   | 15 x 10 x 8<br>(4500 x 3000 x 2400)          | 8<br>(2400)                      | 6000<br>(2700)                    | 4600<br>(2100)                  | 7.5<br>(5.6)            |
| BCS-1000  | Single        | 3000-4700<br>(5100-8000)                   | 17 x 12 x 8<br>(5100 x 3600 x 2400)          | 10<br>(3000)                     | 9000<br>(4100)                    | 7100<br>(3200)                  | 10<br>(7.5)             |
| BCS-1200  | Single        | 4700-6800<br>(8000-11600)                  | 20 x 14 x 8<br>(6000 x 4200 x 2400)          | 12<br>(3600)                     | 13000<br>(5800)                   | 10200<br>(4600)                 | 15<br>(11.2)            |
| BCS-1000D | Dual          | 6800-9400<br>(11600-16000)                 | 19 x 12 x 13<br>(5700 x 3600 x 3900)         | 10<br>(3000)                     | 17000<br>(7700)                   | 14200<br>(6500)                 | 20<br>(15)              |
| BCS-1100D | Dual          | 9400-11400<br>(16000-19400)                | 20 x 13 x 13<br>(6000 x 3900 x 3900)         | 11<br>(3300)                     | 20000<br>(9100)                   | 17200<br>(7800)                 | 20<br>(15)              |
| BCS-1200D | Dual          | 11400-13600<br>(19400-23000)               | 21 x 14 x 13<br>(6300 x 4200 x 3900)         | 12<br>(3600)                     | 24000<br>(10900)                  | 20400<br>(9300)                 | 25<br>(18.6)            |
| BCS-1400D | Dual          | 13600-20000<br>(23000-34000)               | 23 x 16 x 13<br>(6900 x 4800 x 3900)         | 14<br>(4200)                     | 32000<br>(14500)                  | 27700<br>(12600)                | 40<br>(29.8)            |

## Chemical Scrubber Odor Control Systems

IMS' Packaged Chemical Scrubber 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 Wastewater Treatment Plants 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 40,000 m<sup>3</sup>/h in a single system.

IMS' Packaged Chemical Scrubber is a "once-through", two-stage absorption system consisting of two vertical counter-current gas absorption sections.



CPS-3500

### MAJOR 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

### Chemical Scrubber System Benefits

- Reliable in the long term with robust design
- Minimized footprint and height required for the scrubber system and associated pumps and piping 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.

## 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 hydrogen sulfide (H<sub>2</sub>S) is removed. This configuration minimizes chemical costs by significantly reducing the amount of Hydrogen Sulfide that reacts with Sodium Hypochlorite.

After treatment in 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.



## CHEMICAL SCRUBBER ODOR CONTROL SYSTEM STANDARD MODEL DESIGN DATA

| Model    | Airflow Rate<br>CFM<br>(m <sup>3</sup> /h) | Dimensions<br>L x W x H<br>ft<br>(mm)        | Overall Length<br>(Including fan)<br>ft<br>(mm) | Shipping Weight<br>lbs<br>(kg) | Operating Weight<br>lbs<br>(kg) | Fan Motor<br>HP<br>(kw) | Recirc Pump<br>Motors<br>HP<br>(kw) |
|----------|--------------------------------------------|----------------------------------------------|-------------------------------------------------|--------------------------------|---------------------------------|-------------------------|-------------------------------------|
| CPS-2250 | 2200<br>(3700)                             | 6.75 x 4.75 x 9.25<br>(2060 x 1450 x 2820)   | 12.5<br>(3810)                                  | 2500<br>(1100)                 | 7000<br>(3200)                  | 7.5<br>(5.6)            | 8.0<br>(6.0)                        |
| CPS-2500 | 2700<br>(4600)                             | 7.50 x 5.00 x 9.50<br>(2290 x 1520 x 2900)   | 13.0<br>(3960)                                  | 3100<br>(1400)                 | 8000<br>(3600)                  | 7.5<br>(5.6)            | 8.0<br>(6.0)                        |
| CPS-2750 | 3300<br>(5600)                             | 8.25 x 5.25 x 9.50<br>(2520 x 1600 x 2900)   | 15.0<br>(4570)                                  | 3700<br>(1700)                 | 9500<br>(3200)                  | 7.5<br>(5.6)            | 10.0<br>(7.5)                       |
| CPS-3000 | 4000<br>(6800)                             | 9.00 x 5.50 x 10.50<br>(2740 x 1680 x 3200)  | 15.5<br>(4720)                                  | 4400<br>(2000)                 | 11000<br>(5000)                 | 10.0<br>(7.5)           | 10.0<br>(7.5)                       |
| CPS-3500 | 5500<br>(9300)                             | 8.75 x 6.00 x 11.00<br>(2670 x 1830 x 3350)  | 16.0<br>(4880)                                  | 5000<br>(2300)                 | 12000<br>(5500)                 | 15.0<br>(11.0)          | 10.0<br>(7.5)                       |
| CPS-4000 | 7100<br>(12100)                            | 10.00 x 6.50 x 11.00<br>(3050 x 1980 x 3350) | 17.5<br>(5330)                                  | 5600<br>(2500)                 | 14500<br>(6600)                 | 16.0<br>(12.0)          | 12.5<br>(9.3)                       |
| CPS-4500 | 9100<br>(11500)                            | 11.25 x 7.00 x 11.25<br>(3430 x 2130 x 3430) | 19.5<br>(5940)                                  | 6200<br>(2800)                 | 17000<br>(7700)                 | 20.0<br>(15.0)          | 12.5<br>(9.3)                       |
| CPS-5000 | 11200<br>(19000)                           | 12.50 x 7.50 x 11.50<br>(3810 x 2290 x 3500) | 20.5<br>(6250)                                  | 6800<br>(3100)                 | 19500<br>(8900)                 | 25.0<br>(18.5)          | 15.0<br>(11.0)                      |
| CPS-5500 | 13600<br>(23100)                           | 13.75 x 8.00 x 11.75<br>(4190 x 2440 x 3580) | 22.0<br>(6700)                                  | 7500<br>(3400)                 | 22000<br>(10000)                | 30.0<br>(22.0)          | 17.5<br>(13.0)                      |
| CPS-6000 | 16200<br>(27500)                           | 15.00 x 8.50 x 12.00<br>(4570 x 2590 x 3660) | 24.0<br>(7320)                                  | 8300<br>(3800)                 | 22500<br>(11600)                | 40.0<br>(30.0)          | 17.5<br>(13.0)                      |
| CPS-6500 | 20000<br>(34000)                           | 16.25 x 9.00 x 12.25<br>(4950 x 2740 x 3730) | 26.0<br>(7930)                                  | 9100<br>(4100)                 | 28500<br>(13000)                | 50.0<br>(37.3)          | 25<br>(18.6)                        |
| CPS-7000 | 24500<br>(41600)                           | 17.50 x 9.50 x 12.50<br>(5330 x 2900 x 3810) | 27.0<br>(8230)                                  | 10000<br>(4500)                | 32000<br>(14500)                | 60.0<br>(44.7)          | 35<br>(26.0)                        |



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