Operation and Maintenance
eMWT-20
Mobile Wastewater Treatment System
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Emergency Contacts

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>24/7 Phone Number</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Mulholland</td>
<td>Operations Manager</td>
<td>(989) 413-8103</td>
<td><a href="mailto:john@global-treatmentsolutions.com">john@global-treatmentsolutions.com</a></td>
</tr>
<tr>
<td>Alex Fancy</td>
<td>Geologist/ Certified Water Treatment Operator</td>
<td>(231) 631-4202</td>
<td><a href="mailto:afancy@global-treatmentsolutions.com">afancy@global-treatmentsolutions.com</a></td>
</tr>
</tbody>
</table>
Glossary

**Carbon Vessel** - Pressure vessel designed to hold up to 1,500 pounds of granular activated carbon with internal screening to keep the carbon within the vessel and allow the waste stream to exit.

**Influent** - Incoming waste stream prior to treatment.

**Intermediate** - Waste stream flow between the lead and lag carbon vessels

**Empty Bed Contact Time (EBCT)** - A measure of the time during which water to be treated is in contact with the treatment medium in a contact vessel, assuming that all liquid passes through the vessel at the same velocity. EBCT is equal to the volume of the empty bed divided by the flow rate.

**Effluent** - Waste stream after treatment

**Granular Activated Carbon** - A granular form of carbon processed to have small, low-volume pores that increase the surface area available for adsorption

**Lead Carbon Vessel** - The first bed of carbon contacted by the waste stream. Adsorbs the majority of organic contaminants in a waste stream (dependent on influent concentrations)

**Lag Carbon Vessel** - The last bed of carbon contacted by the waste stream. Gives the waste stream a final polish before discharge.

**Spent Carbon** - Carbon that has reach its maximum adsorption potential causing breakthrough of contaminants through the carbon bed.

Introduction

The purpose of this manual is to provide basic operation and maintenance for Global Treatment Solution’s heated and enclosed MWT-20 activated carbon wastewater treatment trailer. This system includes a single stage trade sized 2 bag filter housing, lead 300 LB FRP carbon vessel, and lag 300 LB FRP vessel. This system is equipped with influent, intermediate, and effluent pressure gauges with sampling ports.

The MWT-20 is a heated and enclosed trailer. All electrical components inside the trailer are XP rated. Power can be supplied using a 30 amp female connector or a 15 amp female connector. There is a light switch and thermostat located at the front right corner of the trailer next to the side door.

The MWT-20 is rated for a maximum flow rate of 20 GPM (dependent on customer’s pump capabilities) with an empty bed contact time (EBCT) of 7.5 minutes. Each carbon vessel can be filled with up to 300 pounds of granular activated carbon (G.A.C.).
This system is designed to remove particulates and organic contaminants from a waste stream in an efficient, user-friendly process. Global Treatment Solutions technicians are available 24/7 to assist with the operation of this waste water treatment system.

**Start-Up Procedures**

Before treatment operations commence, Global recommends wetting the carbon. To do this, both carbon vessels are filled with water above the carbon line. Once this is done, the vessels are to remain inactive for at least 8 hours. After this period, the water within the tank will become saturated with fine carbon granules (often referred to as carbon dust) and will appear black in color. Before effluent is discharged, Global recommends reprocessing the initial effluent until a clear discharge is observed.

**Operating Procedures**

Before the feed pump (customer supplied) can be started, a series of steps must be performed by the treatment system operator:

1. Ensure **appropriate** influent, intermediate valves are open for all components of treatment system.
2. Due to the fragile nature of the flow meter, Global recommends having the flow regulating valve ¼ open for the system start-up to ensure no damage is caused to the flow meter.
3. After double checking valve orientation, pump is started and treatment can commence.

After system start-up, a few additional steps must be followed to ensure the efficient operation of the waste water treatment system:

1. Slowly open the regulating valve until fully open to ensure no damage is caused to the flow meter.
2. Check flowmeter to confirm flow.
3. Bleed air from the bag filter housings. Lead and lag carbon vessels will do so automatically.
4. Observe influent and effluent pressures as well as flow rates to ensure

**System Shut Down:**

For short-term shut downs of the waste water treatment system, turn off feed pump and open air bleed valves on the bag filter housings and carbon vessels. The system has a built-in anti-siphon with vacuum break to ensure the carbon vessels do not drain to the discharge source. If feed pump does not have a built-in check valve, the influent valves for the bag filter chambers should be closed to ensure there is no back flow back to the feed pump.
For periods of extended shut down or in freezing conditions, the carbon vessels and bag filter housing should be drained and all valves should be placed in the open position.

**Maintenance Procedures**

**Bag Filters Change-outs**

This treatment system has one single stage bag filter chamber. The chamber is equipped with an influent and effluent pressure gauge. During regular operations, these two gauges should have no more than a 15 PSI pressure differential. As the bag filters collect particulates, the pressure differential between the two gauges will grow. At about a 15 PSI pressure differential, the filters should be changed. The process for changing the filters is described below:

1. Open 1” bag filter by pass valve or shut down feed pump.
2. Close influent valve and effluent 1” ball valves to stop flow to the bag filter
3. Open drain ball valve located at the bottom of the housing and open air bleeder valve on the lid.
4. Once water is drained out of chamber, loosen all bolts and lift the lid to access the bag filter within the housing.
5. Remove spent filter bag and replace with new one.
6. Inspect gasket that makes the seal between the lid and the canister
7. Lower lid onto the housing, ensure lid is straight before moving on to the next step.
8. Tighten bolts in an alternating pattern to ensure lid is sealed properly
9. Close drain valve and air bleeder
10. Open influent/ effluent valves and resume filtration.
11. Bleed air from bag filter housing, and carbon vessels.

**Back Washing Carbon Vessels**

As the volume of water treated increases, pressure drop across a carbon vessel may increase thus decreasing flow rate. If this occurs, each vessel can be back washed to remove any fine sediments. This will reduce the pressure drop and increase the flow rate. The system must be shut down before a back wash can begin. Back wash water should be discharged into a storage tank where it can be reprocessed. Global recommends using clean water to perform backwash operations, but it is not required. The procedure for backwashing is as follows:

1. Turn off feed pump and shut down water treatment system.
2. Disconnect influent and effluent hoses from vessel to be back washed.
3. Connect back wash discharge hose to the vessel influent 1” camlock located at the top right of the vessel
4. Connect hose from the back wash feed pump (customer supplied) to the vessel effluent 1” camlock located at the top left of the vessel.
5. Ensure appropriate valves are opened and closed before activating backwash feed pump.
6. Turn on backwash feed pump to commence backwash.
   a. Back wash at a low velocity to minimize the loss of carbon
7. Observe clarity of backwash discharge using the air bleed.
8. Back wash for 5 to 20 minutes (depending on clarity)
9. Once complete, shut down back wash feed pump and return system to original configuration.

The duration of the back wash is determined by the clarity of the back wash discharge. The more clarity present, the better the back wash.

### Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Probable Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>High pressure drop across carbon vessel</td>
<td>High discharge pressure coming from feed pump</td>
<td>Throttle down feed pump</td>
</tr>
<tr>
<td></td>
<td>Improper valve configuration</td>
<td>Check valve sequence</td>
</tr>
<tr>
<td></td>
<td>High sediment load in carbon</td>
<td>Back wash vessel, consider smaller micron bag filters</td>
</tr>
<tr>
<td>Leaking Flange</td>
<td>Loose bolts</td>
<td>Tighten bolts</td>
</tr>
<tr>
<td></td>
<td>Rotted gasket</td>
<td>Replace gasket</td>
</tr>
<tr>
<td>Carbon granules in effluent</td>
<td>Internal screen failure</td>
<td>Remove carbon and repair broken screen</td>
</tr>
<tr>
<td>Low or no flow reading on flow meter</td>
<td>Clogged bag filters</td>
<td>Replace bag filters</td>
</tr>
<tr>
<td></td>
<td>Improper valve configuration</td>
<td>Check valve sequence</td>
</tr>
<tr>
<td></td>
<td>High sediment load in carbon</td>
<td>Back wash lead and lag vessels</td>
</tr>
<tr>
<td></td>
<td>Low volume of influent water</td>
<td>Check influent source, consider throttling down feed pump</td>
</tr>
<tr>
<td></td>
<td>Broken flow meter</td>
<td>Remove and replace flow meter</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

IN CASE OF EMERGENCY OUTSIDE OF NORMAL BUSINESS HOURS CALL
JOHN MULHOLLAND (989) 413-8103 OR ALEX FANCY (231) 631-4202

SECTION 1- IDENTIFICATION

CHEMICAL NAME: Carbon
CAS NUMBER: 7440-44-0 (CARBON)
COMMON NAME: ACTIVATED CARBON
TYPE: Reactivated Carbon

CHEMICAL FORMULA: C

SECTION 2- HAZARDOUS INGREDIENTS

CHEMICAL C8  PEL (OSHA)  TLV (ACGIH)  OTHER
CARBON  100  N/A  N/A  N/A

CAUTION SHOULD BE TAKEN FOR A RESPIRABLE DUST.
THE ACGIH TWA FOR RESPIRABLE DUST IS 1.0mg/M3.
CARCINOGENIC PROPERTIES: NONE

SECTION 3- PHYSICAL DATA

DESCRIPTION: ODORLESS BLACK SOLID GRANULES.

VAPOR PRESSURE: N/A
APPARENT DENSITY: 0.3 TO 0.6gm/cc
SOLUBILITY: STABLE

MELTING POINT: 6656 F (3680 C)
BOILING POINT: 7592 F (4200 C)

EMPHASIZE PROTECTION AGAINST REPETITIVE OR LONG TERM EXPOSURE TO CARBON DUST INHALATION.

SECTION 4- FIRE AND EXPLOSION HAZARD DATA

Global Treatment Solutions
7082 Grange Hall Rd. c Holly, MI 48442 c Bus: (800) 423-2043 c Fax: (810) 235-9195
363 W. South Airport c Traverse City, MI 49686 c Bus: (231) 264-3000 c Fax: (231) 264-300
FLASH POINT: N/A
EXISTING MEDIA: WATER, FOAM, CO2, OR DRY CHEMICAL.
SPECIAL FIRE FIGHTING PRECAUTIONS: NONE

UNUSUAL FIRE AND EXPLOSION HAZARDS: CONTACT WITH STRONG OXIDIZERS MAY RESULT IN FIRE.

SECTION 5-REACTIVITY DATA

STABILITY: STABLE
CONDITION TO AVOID: NONE
INCOMPATIBILITY: AVOID CONTACT WITH STRONG OXIDIZERS.
HAZARDOUS DECOMPOSITION PRODUCT: CARBON MONOXIDE MAY BE FORMED IN THE EVENT OF A FIRE.

SECTION 6-HEALTH DATA

ROUTE(S) OF ENTRY:

INGESTION: THIS PRODUCT IS NON-TOXIC THROUGH INGESTION THE ACTIVE ORAL LD 50 (RAT) IS >10 gm/kg.

INHALATION: THE PHYSICAL NATURE OF THIS PRODUCT MAY IRRITATE THE RESPIRATORY SYSTEM.
The acute LC5 (RAT) IS>64.4 mg/L (NOMINAL CONCENTRATION)

DERMAL EXPOSURE: THIS MATERIAL IS NON-TOXIC THROUGH SKIN ABSORPTION.

ACTIVATED CARBON IS NOT A PRIMARY SKIN IRRITANT.
NO SENSITIZATION EFFECTS ARE KNOWN.
EYE IRRITATION: THE PHYSICAL NATURE OF THIS PRODUCT MAY PRODUCE EYE IRRITATION.

FIRST AID: IN CASE OF EYE CONTACT FLUSH WITH WATER FOR AT LEAST 15 MINUTES.

OTHER: THE EFFECTS OF CHRONIC AND SUBCHRONIC EXPOSURE HAVE NOT BEEN DETERMINED. SAFE HANDLING ON A LONG TERM BASIS SHOULD EMPHASIZE PROTECTION AGAINST REPETITIVE OR LONG TERM EXPOSURE TO CARBON DUST INHALATION.
SECTION 7 - SPILL OR LEAK PROCEDURE

IF THE MATERIAL IS RELEASED OR SPILLED: UNUSED PRODUCT SHOULD BE SWEPT UP AND DISCARD OR REPACKAGED.

WASTE DISPOSAL METHOD:
UNUSED CARBON MAY BE DISPOSED OF BY ANY APPROPRIATE MEANS. USED PRODUCTS MAY CONTAIN HAZARDOUS CHEMICALS OR EXHIBIT HAZARDOUS PROPERTIES THAT MAY HAVE TO BE EXAMINED TO DETERMINE APPROPRIATE DISPOSAL METHOD. THIS PRODUCT MUST BE DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS.

SECTION 8 - HANDLING AND STORAGE

EYE PROTECTION: SAFETY GLASSES OR GOGGLES RECOMMENDED.

PROTECTIVE GLOVES: RECOMMENDED.

OTHER PROTECTIVE CLOTHING: NONE REQUIRED.

RESPIRATORY PROTECTION: A HIGH EFFICIENCY PARTICULATE FILTER IS RECOMMENDED WHENEVER EXCESSIVE DUST MAY BE GENERATED.

VENTILATION: LOCAL EXHAUST IS RECOMMENDED SUFFICIENT TO CONTROL DUST.

WORK/HYGIENIC: WASH THOROUGHLY AFTER HANDLING.

SECTION 9 - TRANSPORTATION DATA

PROPER SHIPPING (Article) NAME: Steam Activated Carbon, Non-Regulated OR Carbon, Activated, Non-Regulated

DOT CLASSIFICATION: NMFC 40560 / DOT MARKING: N/A / DOT PLACARD: N/A

EMERGENCY ACCIDENT PRECAUTIONS AND PROCEDURES:
Contact: Global Treatment Solutions
Phone: 989-413-8103
PRECAUTIONS TO BE TAKEN IN TRANSPORTATION: N/A

OTHER CAUTION: WET ACTIVATED CARBON REMOVES OXYGEN FROM THE AIR CAUSING A SEVERE HAZARD TO WORKERS IN REQUIRED SPACE. SAMPLING AND WORK PROCEDURES FOR LOW OXYGEN LEVELS SHOULD BE
TAKEN WHENEVER WORKERS MAY BE ENTERING CARBON VESSELS ENCLOSED OR CONFINED SPACE. ALL FEDERAL STATE AND LOCAL REGULATIONS SHOULD BE OBSERVED.
**Series FV-4M1**

**Automatic Air Vent Valves**

**Sizes:** \(\frac{1}{8}'' - 1''\) (3 - 25mm)

Series FV-4M1 Automatic Air Vent Valves provide automatic air venting for hot or cold water distribution systems. These vents purge air that may be in the water system.

The vent valve utilizes a float to actuate the valve plug which is located at the top of the valve. Once the air is displaced and the system pressure is sustained, the valve plug seals and prevents any water from escaping from the system.

The float vent can also operate as an anti-vacuum device since it will permit air to enter the system when it must be drained. It can also be installed to permit the separation and dispersal of air while fluid is actually circulating in the system.

**Features**

- Body and cover are brass construction
- Air vent with silicone rubber seal
- Impurities do not usually affect function as maximum float line of water is always lower than the valve seal
- Float is high temperature resistant polyethylene
- Suitable for use with glycol systems
- Can be disassembled for inspection and cleaning

**Pressure – Temperature**

Minimum working pressure: 1.45psi (10 kPa)
Maximum working pressure: 150psi (10 bar)
Temperature Range: 33°F – 240°F (5°C – 116°C)

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**Diagram above shows the quantity of air vented by the “Float Vent” according to the pressure in the system.**

**Specifications**

Air vent shall have brass body & cover and silicone rubber seal.
Float shall be constructed of high temperature resistant polyethylene and shall be for use with glycol systems. Air vent shall be Wat Series FV-4M1.
Installation

Figure 1 shows the installation of the FV-4M1 for the venting of air while the fluid is circulating in the system. The figure shows the required increase in pipe size in order to obtain proper separation of air from water. Watts Series AS Air Scoop which is designed for efficient separation of air from water in hydronic heating systems can also be installed. See Watts literature S-AS.

Figure 2 - When the FV-4M1 is installed as shown, the air will not be vented while the fluid is circulating in the system, but it can vent when the system is shut off.

The FV-4M1 should be mounted only in a vertical position as its operation is based on the vertical movement of the float (see Fig. 3).

Note: In order to get the best results in venting air from risers, use connecting pipes of at least 1/4" diameter between the "Float Vent" valves and the installation.

Maintenance

Corrosive water conditions, and/or unauthorized adjustments or repair could render the product ineffective for the service intended. Regular checking and cleaning of the product's internal components helps assure maximum life and proper function. When the FV-4M1 is disassembled for inspection or cleaning, it is important that when reassembling to ensure that the spring loaded lever properly engages under the float collar (see reverse side).

Operation: IMPORTANT!

After installing the FV-4M1, back off the small vent cap two turns (see Fig. 4). This is the proper operating setting which will allow air to be vented from the system. It is advisable to leave the cap on to prevent impurities from entering the valve.

Dimensions - Weights

<table>
<thead>
<tr>
<th>Size (in)</th>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>A: 3/8 B: 3/16 C: 1/4 D: 1/8 E: 1/8 F: 1/8</td>
<td>40</td>
</tr>
<tr>
<td>1/2</td>
<td>A: 3/8 B: 3/16 C: 1/2 D: 1/8 E: 1/8 F: 1/8</td>
<td>40</td>
</tr>
</tbody>
</table>

© 2012 Watts
5/8" (DN 15mm), 3/4" (DN 20mm) and 1" (DN 25mm) Sizes

**DESCRIPTION**

**Applications:** Measurement of cold water where flow is only in one direction; in residential, commercial and industrial services.

**Conformance To Standards:** Sensus Sealed Register® Water Meters comply with ANSI/AWWA Standard C700, latest revision. Each meter is tested to insure compliance.

**Construction:** Sensus SR Water Meters consist of three basic components: maincase; measuring chamber; and permanently, hermetically-sealed register. Maincases are of bronze with externally-threaded spuds. Measuring chambers are of Rocksyn®, a corrosion-resistant thermoplastic material. Bronze measuring chambers are available as an option.

Maincase bottom plates are available in bronze or, if frost protection is desired, in cast iron or synthetic polymer. Simplicity of design and precise machining of components allows interchangeability of parts among like-size meters to provide ease of maintenance. The register, measuring chamber and strainer can be removed without removing the maincase from the installation.

**Sealed Register:** Permanently, hermetically-sealed; proven magnetic drive design; with integral tamper-proof locking device. Guaranteed for 25 years. The standard register includes a straightreading, odometer-type totalization display; a 360° test circle with center sweep hand; and a low flow (leak) detector. Gears are self-lubricating, molded plastic for long life and minimum friction. The hermetic sealing of the register eliminates dirt and moisture, tampering, and lens fogging problems.

No change gears are required for accuracy calibration. Encoded-type remote reading systems are available for all SR Water Meters. (See back of sheet for additional information.)

**Tamperproof Features:** Removing the register to obtain free water is prevented by a locking system inside the meter. Removing the register requires a special tool that is available only to water utilities.

**Magnetic Drive:** The unique design of the direct magnetic drive is a positive, reliable, dependable drive coupling, proven in millions of SR Water Meters.

**Operation:** Water flows through the meter’s strainer and into the measuring chamber where it operates the piston. The piston, which moves freely, oscillates around a central hub, guided by the rubber-coated division plate.

A drive magnet, incorporated in the piston, rotates around the outside of the hermetically sealed register well and magnetically drives the “follower” magnet sealed within the well. The “follower” magnet drives a crank connected to the register gear train, which translates the number of piston oscillations into volume totalization units displayed on the register face.

**Maintenance:** Sensus Sealed Register® Water Meters are engineered to provide long-term value and virtually maintenance-free operation because of their design simplicity and interchangeability of modules. Sensus SR® Water Meters are easy to repair, even without removing the maincase from the installation. As an alternate to repair by the utility, Sensus offers various maintenance programs which provide factory reconditioning of the maincase and replacement of components at low fixed prices.

**Connections:** Tailpieces/Unions for installing the meters on a variety of pipe types and sizes are available as an option.

**AMR / AMI Systems:** Meters and encoders are compatible with current Sensus AMR/AMI systems.

**Guarantee:** Sensus SR® Water Meters are backed by "The Sensus Guarantee." Ask your Sensus representative for details, or see Bulletin G-500.
DIMENSIONS AND NET WEIGHTS

<table>
<thead>
<tr>
<th>Metric Size</th>
<th>A</th>
<th>B</th>
<th>B²</th>
<th>C</th>
<th>Width</th>
<th>Net Weight 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/8&quot; (DN 15mm)</td>
<td>7-1/2&quot;</td>
<td>4-9/16&quot;</td>
<td>6-1/8&quot;</td>
<td>2-1/8&quot;</td>
<td>4-6/8&quot;</td>
<td>5 lb. 13 oz. (2.6 kg)</td>
</tr>
<tr>
<td>5/8&quot; x 3/4&quot; (DN 19mm x 33mm)</td>
<td>7-1/2&quot;</td>
<td>4-9/16&quot;</td>
<td>6-1/8&quot;</td>
<td>2-1/8&quot;</td>
<td>4-6/8&quot;</td>
<td>5 lb. 15 oz. (2.7 kg)</td>
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<tr>
<td>3/4&quot; (DN 20mm)</td>
<td>9&quot;</td>
<td>5-1/8&quot;</td>
<td>6-3/4&quot;</td>
<td>2-9/32&quot;</td>
<td>4-5/8&quot;</td>
<td>6 lb. (2.8 kg)</td>
</tr>
<tr>
<td>3/4&quot; short (DN 25mm)</td>
<td>9-1/2&quot;</td>
<td>5-1/8&quot;</td>
<td>6-3/4&quot;</td>
<td>2-9/32&quot;</td>
<td>4-5/8&quot;</td>
<td>6 lb. (2.8 kg)</td>
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<tr>
<td>1&quot; (DN 25mm)</td>
<td>10-3/4&quot;</td>
<td>5-3/4&quot;</td>
<td>7-3/8&quot;</td>
<td>2-5/8&quot;</td>
<td>6-13/16&quot;</td>
<td>12 lb. (5.5 kg)</td>
</tr>
</tbody>
</table>

* With Rockey measuring chamber.
* The measurement to the top of a TRIP. on an ICE register.

SPECIFICATIONS

- **Service**: Measurement of cold water with flow in one direction only.
- **Normal Operating Flow Range**: 1 m³/h to 20 m³/h (0.28 to 4.5 m³/h).
- **Accuracy**: 100% ± 1.5% of actual throughput.
- **Low Flow Registration**: 1 m³/h (0.28 m³/h) with 95% at 2 m³/h (0.56 m³/h).
- **Pressure Loss**: 108 psi at 20 gal/min (0.7 bar at 4.5 m³/h) in 1" (DN 25mm) with 110 psi at 30 gal/min (0.8 bar at 7 m³/h) in 1-1/4" (DN 32mm).
- **Maximum Operating Pressure**: 150 psi (10.0 bar).
- **Measurement Element**: Oscillating piston.
- **Register**: Straight reading, hermetically sealed magnetic drive. Remote reading unit optional.
- **Registration**: 5/8", 3/4", 1"; 10 gallons, 1 cubic foot, 0.01 m³ or 0.1 m³/100,000 gallons.

METER CONNECTIONS

- 5/8" (DN 15mm) size: 3/4" (24.4mm) threads
- 5/8" x 3/4" (DN 15mm x 33mm) size: 1" (25.4mm) threads
- 3/4" (DN 20mm) size: 1" (25.4mm) threads
- 3/4" x 1-1/4" (DN 20mm x 32mm) size: 1-1/2" (41.91mm) threads
- 1" (DN 25mm) x 1-1/4" (DN 20mm x 32mm) size: 1-1/2" (41.91mm) threads

MATERIALS

- Maincase—Bronze
- Bottom plate—Bronze, cast iron or synthetic polymer
- Magnets—Alnico
- Thread—Stainless Steel
- Casing bolts—Stainless Steel
- Strainer—Thermoplastic

1 Maximum rates listed are for intermittent flow only. Maximum continuous flow rates as specified by AWWA are:
   - 5/8" (DN 15mm) size: 10 gal/min (3.3 m³/h)
   - 3/4" (DN 20mm) size: 15 gal/min (5.4 m³/h)
   - 1" (DN 25mm) size: 25 gal/min (7.5 m³/h)

2 Unless otherwise noted, 5/8" size and 5/8" x 3/4" characteristics are identical.
3 Synthetic polymer maincase bottom plate available on 5/8" meter only.

Sensus
P.O. Box 487 | 450 North Gallatin Avenue
Unisontown, PA 15401 USA
T: 1-800-639-3748
F: 1-800-888-2403
www.sensus.com/water
h2oinfo@sensus.com

Page 2 of 2
Model 8 Basket Strainer and Bag Filters

Strainers or bag filters: Your choice

Model 8 strainer/filter housings are made in 2 sizes and 2 pressure ratings, and can serve as basket strainers (for particle retention down to 74 micron size) or as bag filters (for particle retention down to 1 micron size). In all cases, covers are easily removed, without tools, and the basket or bag is easily cleaned or replaced.

Features
- NSF 61 listed
- Low pressure drops
- Permanently piped housings
- Covers are O-ring sealed
- Carbon steel, or stainless steel (304 or 316) construction for housings
- All housings are electropolished to resist adhesion of dirt and scale
- Easy to clean
- Adjustable-height legs, standard
- Large-area, heavy-duty baskets
- O-ring seals: Buna N, EPDM, Viton®, Teflon®
- ASME code stamp available
- Two pressure ratings: 150 and 300
- Duplex units are available
- Pipe sizes 3/4 thru 6-inch, NPT or flanged
- Two basket depths: 15 or 30 inches (nominal)

Options
- Sanitary construction
- Different outlet connections
- Higher pressure ratings
- Extra-length legs
- Heat jacketing
- Adapters for holding filter cartridges
- Liquid displacers for easier servicing
- Can be fitted with an adapter to hold cartridge filter elements

Choosing A Basket Strainer Or Bag Filter

Choose between straining (removing particles down to 74 micron size) or filtering a fluid (removing particles down to 1 micron). This will direct you in selecting the correct basket when ordering.

Dual Stage Straining/Filter

All Rosedale Model 8 housings can be supplied with a second, inner basket, which is supported on the top flange of the regular basket. Both baskets can be strainers (with or without wire mesh linings) or both can be baskets for filter bags. They can also be mixed: one a strainer basket, the other a filter bag basket. Dual-stage action will increase strainer or filter life and reduce servicing needs.
Operation
Unfiltered liquid enters the housing above the bag or basket and flows through. Solids are contained inside the bag or basket, where they are easily removed when the unit is serviced. A basket ball is pushed down by the closed cover to hold the basket against a positive stop in the housing. A radial seal prevents bypass of unfiltered liquid.

Pressure Drop Data
Basket strainers and bag filters are usually selected so that the pressure drop does not exceed 2 psi, when they are clean. Higher pressure drops may be tolerated, when contaminant loading is low. Bag change occurs at 15 psid.

The pressure drop data is accurate for all housings with strainer or filter bag baskets. When filter bags are added, total pressure drop becomes the sum of the pressure drop as determined by the steps below.

Follow these easy steps:
1. Using the desired pipe size and approximate flow rate, determine the basic pressure drop from the appropriate graph.
2. Multiply the pressure drop obtained in step 1 by the viscosity correction factor found in the accompanying table. This is the adjusted (clean) pressure drop for all baskets without filter bags.
3. Add the pressure drop for the bag.

Note: Filter bags are specified separately. See page 134.

Basket Data

<table>
<thead>
<tr>
<th>Depth Nominal</th>
<th>Diameter (inches)</th>
<th>Surface Area (sq. ft.)</th>
<th>Volume (cu. in.)</th>
<th>Bag Size</th>
<th>Bag No.</th>
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</thead>
<tbody>
<tr>
<td>15</td>
<td>6.7</td>
<td>2.3</td>
<td>500</td>
<td>1</td>
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<tr>
<td>30</td>
<td>6.7</td>
<td>4.4</td>
<td>1000</td>
<td>2</td>
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</table>

Eyehound covers with filter bag and basket.
MODEL B BASKET STRAINER AND BAG FILTERS

Dimensions (IN)

Outlet Styles
Flanged
(150 lb. ANSI)
Threaded
(NPT)

Outlet Styles
Flanged
(300 lb. ANSI)
Threaded
(NPT)

STYLE 1

STYLE 2

STYLE 3

14
Cover Types

150 PSIG Design

300 PSIG Design

A clearance distance equal to basket depth must be available above housing for basket removal.

1/16 MOUNTING HOLES ON 12.0 DIA. CIRCLE

Dimensions (IN) 150 PSIG Design

<table>
<thead>
<tr>
<th>Model</th>
<th>Pipe Size</th>
<th>A</th>
<th>A1</th>
<th>A2</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G/G1</th>
<th>H/H1</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
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<td>22.8</td>
<td>3.25</td>
<td>5.0</td>
<td>4.06</td>
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<tr>
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<td>5.4</td>
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Dimensions (IN) 300 PSIG Design

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<th>C</th>
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<th>E</th>
<th>F</th>
<th>G/G1</th>
<th>H/H1</th>
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<td>9.5</td>
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<td>21.3</td>
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</tbody>
</table>
**D80 Series**

Dry or Liquid Filled • Stainless Steel Case

**Specifications**

- **Models:**
  - D82B (dry)
  - D82LF (liquid filled)
  - D83GG (dry)
  - D83LF (liquid filled)

- **Fill:** Glycerine, other fluids available (See Optional Features Section)

- **Movement:**
  - D82: Brass
  - D83: 316 Stainless steel

- **Connection:** Lower male or center back male, Lower back male on 4” D83

- **Case:** 304 stainless steel, stem-mounted flangeless

- **Ring:** Clipped 304 stainless steel

- **Window:** Acrylic

- **Pointer:** Plain, black finished

- **Dial Face:** Aluminum, white background with black graduations and markings

- **Additional Features:** Restrictor screw standard on D83LFS and D83SS

- **Accuracy:** ±1.5% Full Scale

- **Maximum Temperature:** 150°F (65°C)

- **Approximate Shipping Weight:**
  - 1½” Dial Size: 0.4 lbs [0.18 kg]
  - 2” Dial Size: 0.4 lbs [0.18 kg]
  - 2½” Dial Size: 0.5 lbs [0.23 kg]
  - 4” Dial Size: 1.0 lbs [0.45 kg]

**How to Order**

Sample Order Number: D82LFB 25 02 L A 110

<table>
<thead>
<tr>
<th>Model</th>
<th>Dial Size</th>
<th>Connection Size</th>
<th>Connection Location</th>
<th>Units of Measure</th>
<th>Range Code</th>
<th>Standard Ranges</th>
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<tbody>
<tr>
<td>D82LFB</td>
<td>15 1½</td>
<td>01 1½ NPT**</td>
<td>Lower</td>
<td>A psi</td>
<td>See Standard Ranges</td>
<td></td>
</tr>
<tr>
<td>D82FB</td>
<td>20 2”</td>
<td>02 1¼ NPT**</td>
<td>Back</td>
<td>D psi/kPa</td>
<td></td>
<td></td>
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<tr>
<td>D83</td>
<td>25 2½”</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>D83SS</td>
<td>40 4”</td>
<td></td>
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<td></td>
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* 1½ NPT connection size not available with 4” dial size.
* 1¼ NPT connection size not available with 1½” dial size.
### Materials List

**Filtration Equipment**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Item Descriptions</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>300 LB Carbon Vessels</td>
</tr>
<tr>
<td>1</td>
<td>SS Rosedale 8x30 Bag filter Canisters</td>
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**Pressure Gauges**

<table>
<thead>
<tr>
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<th>Quantity</th>
<th>Item Description</th>
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<tbody>
<tr>
<td>1/4&quot;</td>
<td>4</td>
<td>0-100 PSI Gauges</td>
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<tr>
<td></td>
<td></td>
<td><strong>PVC SCH. 80 Fitting</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1&quot;</td>
</tr>
<tr>
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<td></td>
<td>10'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1&quot; 3</td>
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<tr>
<td></td>
<td></td>
<td>SOC X SOC 90 Degree Elbow</td>
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<tr>
<td></td>
<td></td>
<td>1&quot; 1</td>
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<td></td>
<td>SOC Tee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1&quot; 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SOC X MNPT Adapter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1&quot; 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SOC X FNPT Adapter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1&quot; 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SOC X SOC Union</td>
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</table>

**Camlock Fittings**

<table>
<thead>
<tr>
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<th>Quantity</th>
<th>Item Description</th>
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<tbody>
<tr>
<td>2&quot;</td>
<td>2</td>
<td>Male Cam X FNPT</td>
</tr>
<tr>
<td>1&quot;</td>
<td>12</td>
<td>Male Cam X MNPT</td>
</tr>
<tr>
<td>1&quot;</td>
<td>8</td>
<td>Female Cam X FNPT</td>
</tr>
<tr>
<td>1&quot;</td>
<td>16</td>
<td>16 Female Cam X Hose Barb</td>
</tr>
<tr>
<td>1&quot;</td>
<td>5</td>
<td>Female Cam X FNPT</td>
</tr>
<tr>
<td>1&quot;</td>
<td>3</td>
<td>Female Cam Blind Caps</td>
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**Steel Fittings**

<table>
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<tbody>
<tr>
<td>1&quot;</td>
<td>5</td>
<td>FNPT Brass Ball Valve</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>2</td>
<td>FNPT Brass Ball Valve</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>4</td>
<td>FNPT Brass Ball Valve</td>
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<tr>
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<td><strong>Valves</strong></td>
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<td>2</td>
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</tr>
<tr>
<td>1/4&quot;</td>
<td>4</td>
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**Hoses**

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<td>MNPT Nipple Galv.</td>
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<tr>
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<td>1</td>
<td>Watts Air Eliminator</td>
</tr>
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<tr>
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<td>4</td>
<td>1/4&quot; MNPT X 1/8&quot; Hose Barb</td>
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Customer is responsible for any damages that occur during the rental period. Parts and labor will be added to invoice.