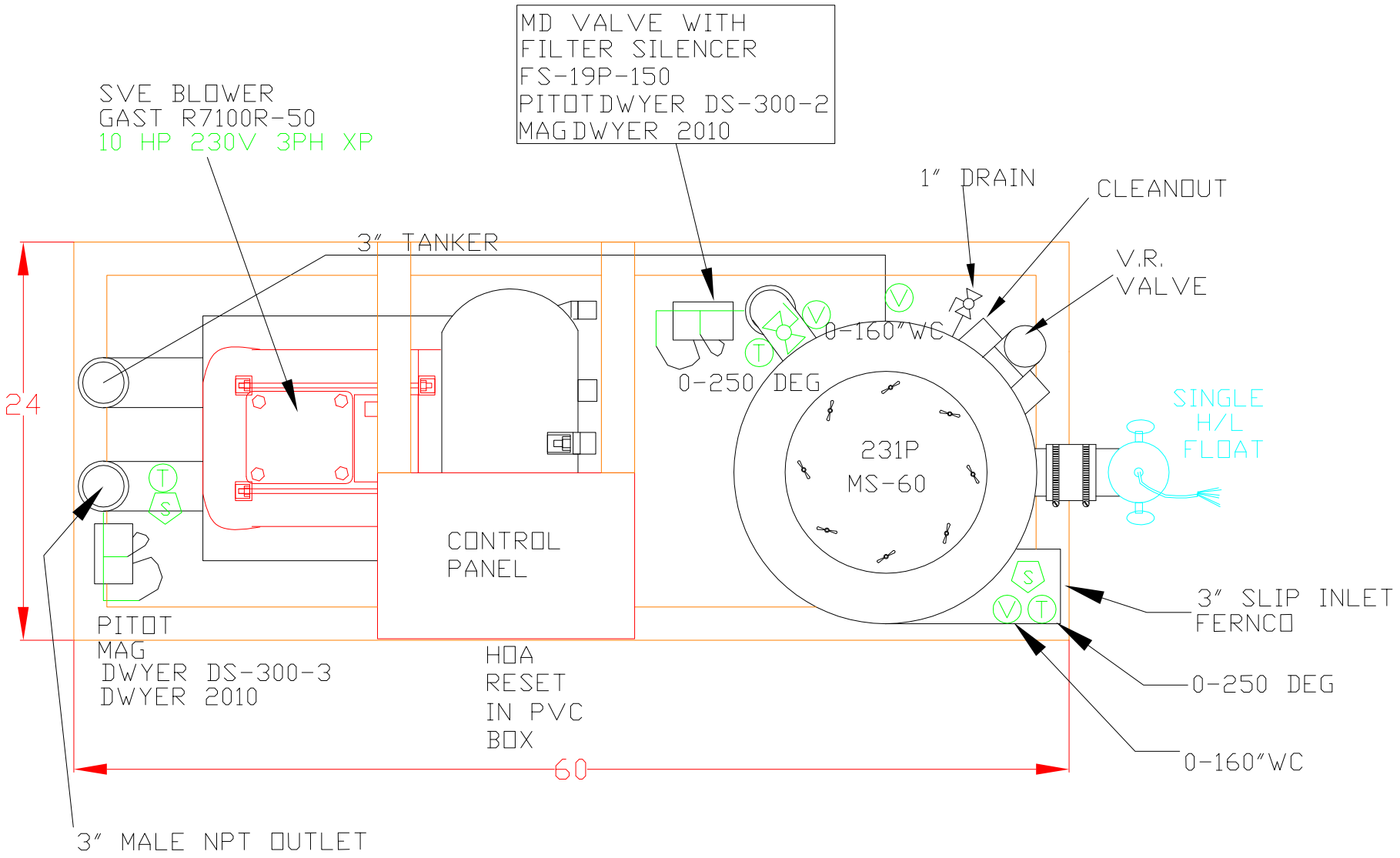



P.R.M.
PRODUCT RECOVERY MANAGEMENT
DIVISION OF PHILLIPS ELECTRIC

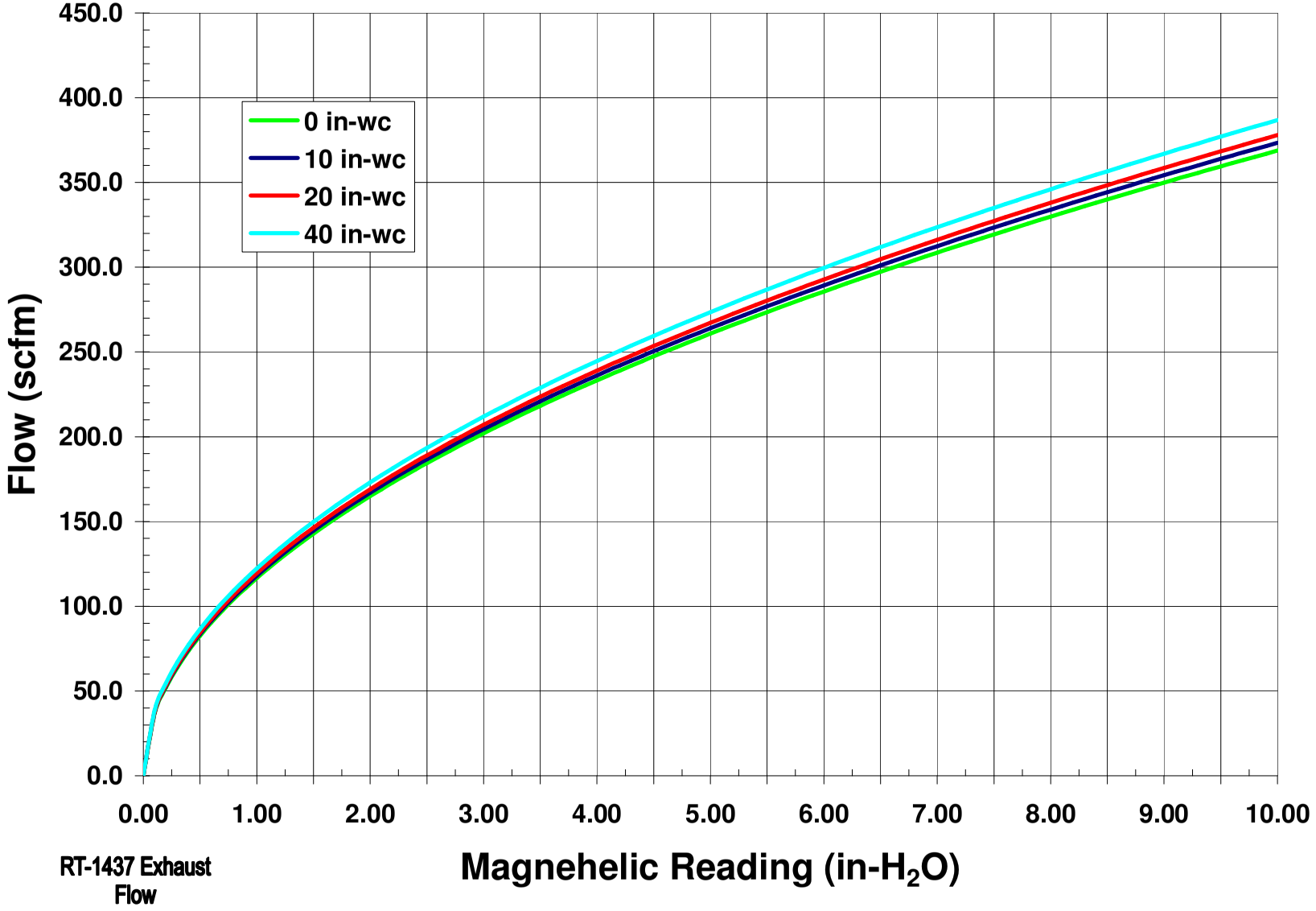
1705 NEW RALEIGH ROAD
DURHAM, NORTH CAROLINA 27703
TEL: (919) 957-8890

PRM
RENTAL SVE SKID
10 HP ELECTRIC UNIT
WO-001437

SCALE:
REV.:
DRAWN BY GAC
DRAWING No.:

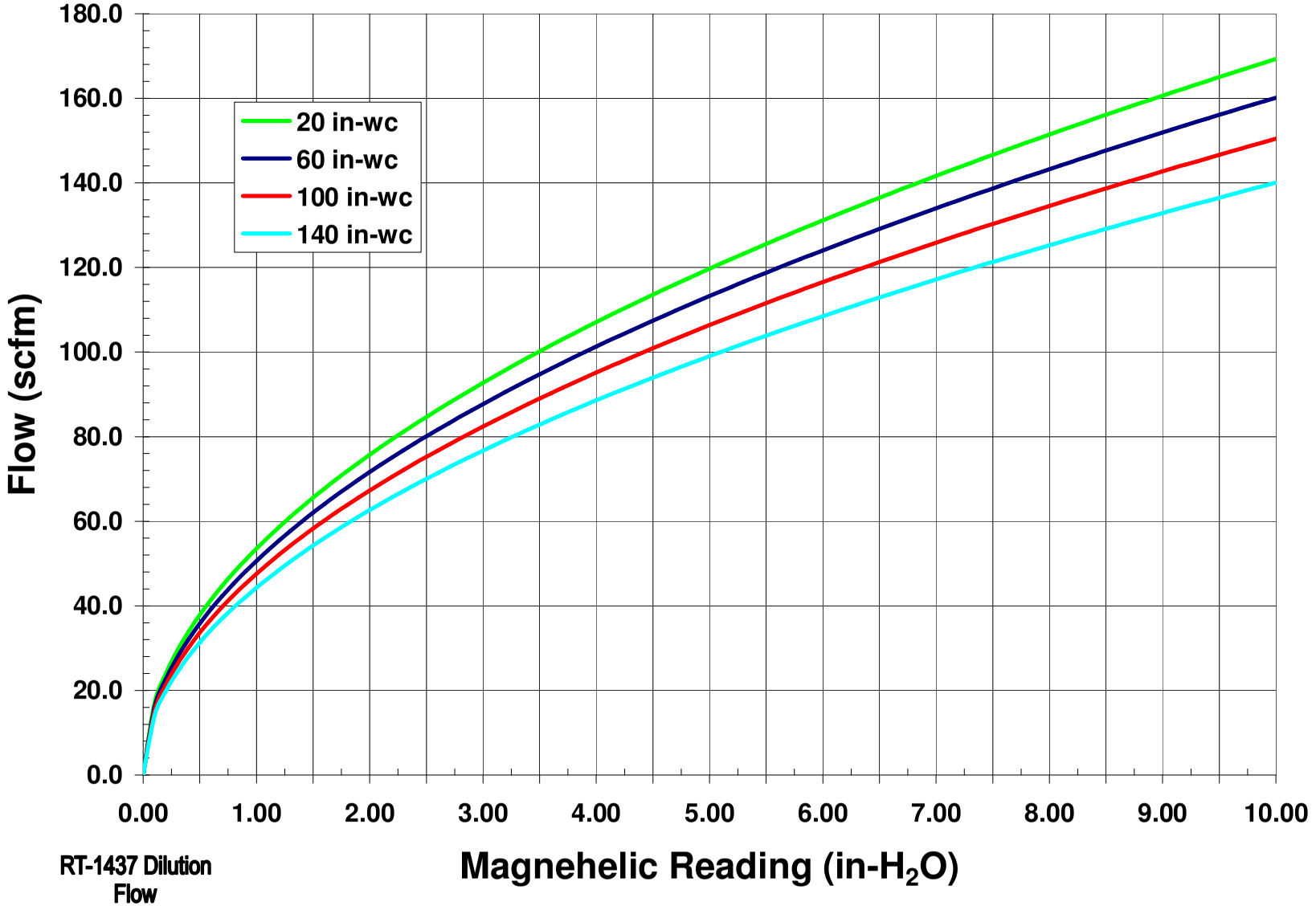
| | | | | | |
|---|---|---|---|---|---|
| Pipe Inside Diameter (In.): | 3 | | Operating pressure (Enter Positive #) | 1 | Pressure (in-wc) |
| Operating Temperature (Deg F): | 180 | | Mag Gauge Range (in-wc) | 10 | |
| Operating Elevation (ft) | 500 | | Kfactor | 0.67 | |

# Pitot Tube Flow Conversion Chart



| | | | | | |
|---|---|---|---|---|---|
| Pipe Inside Diameter (In.): | 2 | | Operating pressure (Enter Positive #) | 1 | Vacuum (in-wc) |
| Operating Temperature (Deg F): | 60 | | Mag Gauge Range (in-wc) | 10 | |
| Operating Elevation (ft) | 500 | | Kfactor | 0.64 | |

# Pitot Tube Flow Conversion Chart

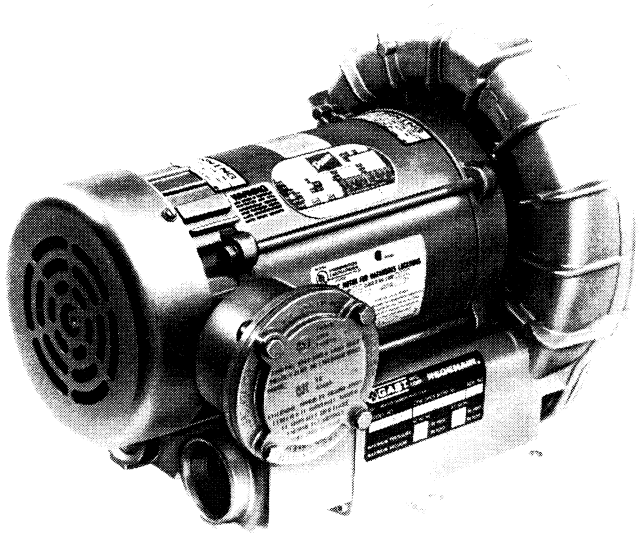


GAST®
A Unit of IDEX Corporation

Post Office Box 97
Benton Habor, MI 49023-0097
Ph: 269-926-6171
Fax: 269-925-8288

70-6100/F2-205
AK811 (Rev. G)

# INSTALLATION AND OPERATING INSTRUCTIONS FOR GAST HAZARDOUS DUTY REGENAIR BLOWERS



**This instruction applies to the following models ONLY: R3105N-50, R4110N-50, R4310P-50, R4P115N-50, R5125Q-50, R5325R-50, R6130Q-50, R6P155Q-50, R6340R-50, R6P355R-50 and R7100R-50.**

## AUTHORIZED SERVICE FACILITIES

Gast Manufacturing Inc.
2550 Meadowbrook Road
Benton Harbor, MI 49022
TEL: 269-926-6171
FAX: 269-925-8288
www.gastmfg.com

Wainbee Limited
215 boul Brunswick
Pointe Claire, Quebec
Canada H9R 4R7
TEL: 514-697-8810
FAX: 514-697-3070

Gast Manufacturing Inc.
505 Washington Avenue
Carlstadt, NJ 07072
TEL: 201-933-8484
FAX: 201-933-5545
www.gastmfg.com

Wainbee Limited
5789 Coopers Avenue
Mississauga, Ontario
Canada L4Z 3S6
TEL: 905/568-1700
FAX: 905/568-0083
http://www.wainbee.ca

Brenner Fiedler & Assoc
13824 Bentley Place
Cerritos, CA 90701
TEL: 800-843-5558
TEL: 310-404-2721
FAX: 310-404-7975
www.brenner-fiedler.com

Japan Machinery Co., Ltd
Central PO Box 1451
Tokyo, 100-91 Japan
TEL: 813 3573 5421
FAX: 813 3571 7865
or: 81-3-3571-7896

Gast Manufacturing Co., Ltd.
Beech House
Knaves Beech Business Centre
Loudwater, High Wycombe
Bucks, England HP10 9SD
TEL: 011-44 1628 532600
FAX: 011-44 1628 532470
http://www.gastltd.com

***NOTE:*** *General correspondence should be sent to—*
Gast Mfg. Inc./A Unit of IDEX Corporation
P O Box 97
Benton Harbor, MI 49023-0097

## SAFETY

This is the safety alert symbol: ⚠. When you see this symbol, be aware that personal injury or property damage is possible. The hazard is explained in the text following the symbol.

The following is an explanation of the three different types of hazards:

| | |
|---|---|
| ⚠ **DANGER** | Severe personal injury or death will occur if hazard is ignored. |
| ⚠ **WARNING** | Severe personal injury or death can occur if hazard is ignored. |
| ⚠ **CAUTION** | Minor injury or property damage can occur if hazard is ignored. |

Read the information carefully before operating.

## GENERAL INFORMATION

This instruction applies to the following models ONLY: R3105N-50, R4110N-50, R4310P-50, R4P115N-50, R5125Q-50, R5325R-50, R6130Q-50, R6P155Q-50, R6340R-50, R6P355R-50 and R7100R-50. These blowers are intended for use in Soil Vapor Extraction Systems. The blowers are sealed at the factory for very low leakage. They are powered with a U.L. listed electric motor Class 1 Div. 1 Group D for Hazardous Duty locations. Ambient temperature for normal full load operation should not exced 40$^{C}$ (105$^{0}$F). For higher ambient operation, contact the factory.

Gast Manufacturing Incorporated may offer general application guidance: however, suitability of the particular blower and/or accessories is ultimately the responsibility of the user, not the manufacturer of the blower.

## INSTALLATION

⚠ **DANGER** Models R5325R-50, R6130Q-50, R6340R-50, R5125Q-50, R6P155Q-50, R6P355R-50 and R7100R-50 use Pilot Duty Thermal Overload Protection. Connecting this protection to the proper control circuitry is mandated by UL674 and NEC501. Failure to do so could/may result in an EXPLOSION. See pages 3 and 4 for recommended wiring schematic for these models.

⚠ **WARNING** Electric shock can result from bad wiring. A qualified person must install all wiring, conforming to all required safety codes. Grounding is necessary.

⚠ **WARNING** This blower is intended for use on soil vapor extraction equipment. Any other use must be approved in writing by Gast Manufacturing, Inc.

Install this blower in any mounting position. Do not block the flow of cooling air over the blower and motor.

## PLUMBING

Use the threaded pipe ports for connection only. They will not support the plumbing. Be sure to use the same or larger size pipe to prevent air flow restriction and overheating of the blower. When installing fittings, be sure to use pipe thread sealant. This protects the threads in the blower housing and prevents leakage. Dirt and chips are often found in new plumbing. Do not allow them to enter the blower.

## NOISE

Mount the unit on a solid surface that will not increase the sound. This will reduce noise and vibration. We suggest the use of shock mounts or vibration isolation material for mounting.

## ROTATION

The Gast Regenair Blower should only rotate clockwise as viewed from the electric motor side. The casting has an arrow showing the correct direction. Confirm the proper rotation by checking air flow at the IN and OUT ports. If needed reverse rotation of three phase motors by changing the position of any two of the power line wires.

## OPERATION

⚠ **WARNING** Solid or liquid material exiting the blower or piping can cause eye damage or skin cuts. Keep away from air stream.

⚠ **WARNING** Gast Manufacturing, Incorporated will not knowingly specify, design or build any blower for installation in a hazardous, combustible or explosive location without a motor conforming to the proper NEMA or U.L. standards.

Blowers with standard TEFC motors should never be utilized for soil vapor extraction applications or where local, state and / or Federal codes specify the use of explosion-proof motors (as defined by the National Electric Code, Articles 100,500 c1990).

⚠ **CAUTION** Attach blower to solid surface before starting to prevent injury or damage from unit movement.

Air containing solid particles or liquid must pass through a filter before entering the blower. Blowers must have filters, other accessories and all piping attached before starting. Any foreign material passing through the blower may cause internal damage to the blower.

⚠ **CAUTION** Outlet piping can burn skin. Guard or limit access. Mark "**CAUTION Hot Surface. Can Cause Burns.**"

Air temperature increases when passing through the blower. When run at duties above 50 in. $H_2O$, metal pipe may be required for hot exhaust air. The blower must not be operated above the limits for continuous duty. Only models R3105N-50, R4110N-50 and R4310P-50 can be operated continuously with no air flowing through the blower. Other units can only be run at the rating shown on the model number label. Do not close off inlet (for vacuum) to reduce extra air flow. This will cause added heat and motor load. Blower exhaust air in excess of 230°F indicates operation in excess of rating which can cause the blower to fail.

## ACCESSORIES

Gast pressure gauge AJ496 and vacuum gauges AJ497 or AE134 show blower duty. The Gast pressure/vacuum relief valve, AG258 will limit the operating duty by admitting or relieving air. It also allows full flow through the blower when the relief valve closes.

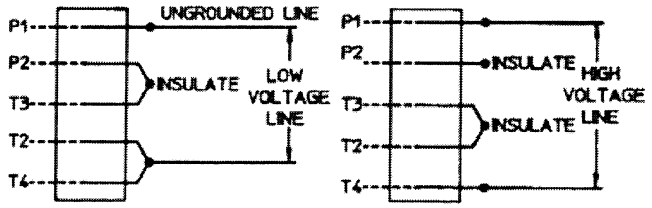
## SERVICING

⚠ **WARNING** To retain their sealed construction they should be serviced by Gast authorized service centers ONLY. These models are sealed at the factory for very low leakage.

⚠ **WARNING** Turn off electric power before removing blower from service. Be sure rotating parts have stopped. Electric shock or severe cuts can result.

Inlet and exhaust filters attached to the blower may need cleaning or replacement of the elements. Failure to do so will result in more pressure drop, reduced air flow and hotter operation of the blower. The outside of the unit requires cleaning of dust and dirt. The inside of the blower also may need cleaning to remove foreign material coating the impeller and housing. This should be done at a Gast Authorized Service Center. This buildup can cause vibration, failure of the motor to operate or reduced flow.

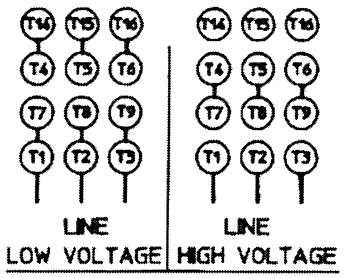
## Motor Wiring Diaphragm for R4110N-50 & R3105N-50




>>* WARNING
This motor is thermally protected and will automatically restart when protector resets. Always disconnect power supply before servicing.

## Motor Wiring Diaphragm for R4310P-50

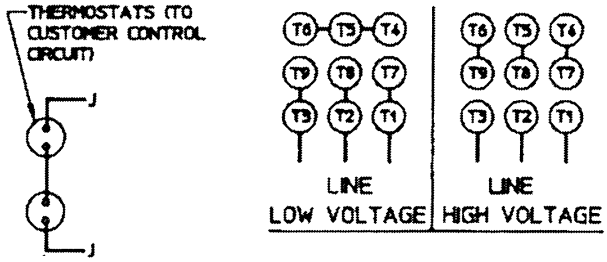
To reverse rotation, interchange the external connections to any two leads.



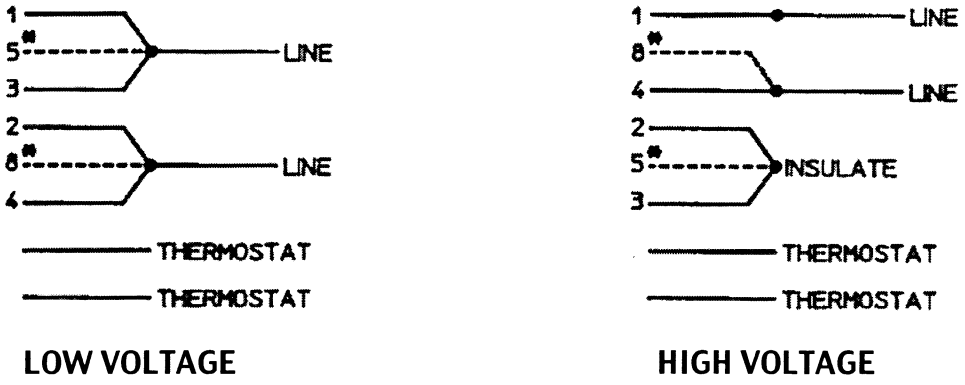

>>* WARNING
This motor is thermally protected and will automatically restart when protector resets. Always disconnect power supply before servicing.

## Motor Wiring Diaphragm for R5325R-50, R6340R-50, R6P355R-50 & R7100R-50

To reverse rotation, interchange the external connections to any two leads.



## Motor Wiring Diaphragm for R5125Q-50 & R4P115N-50

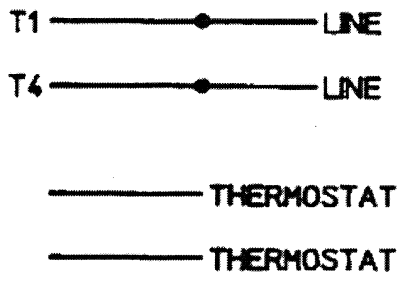



*R5125Q-50 Blowers produced after September 1992 (Serial No. 0992) do not have motor leads 5 & 8.

---

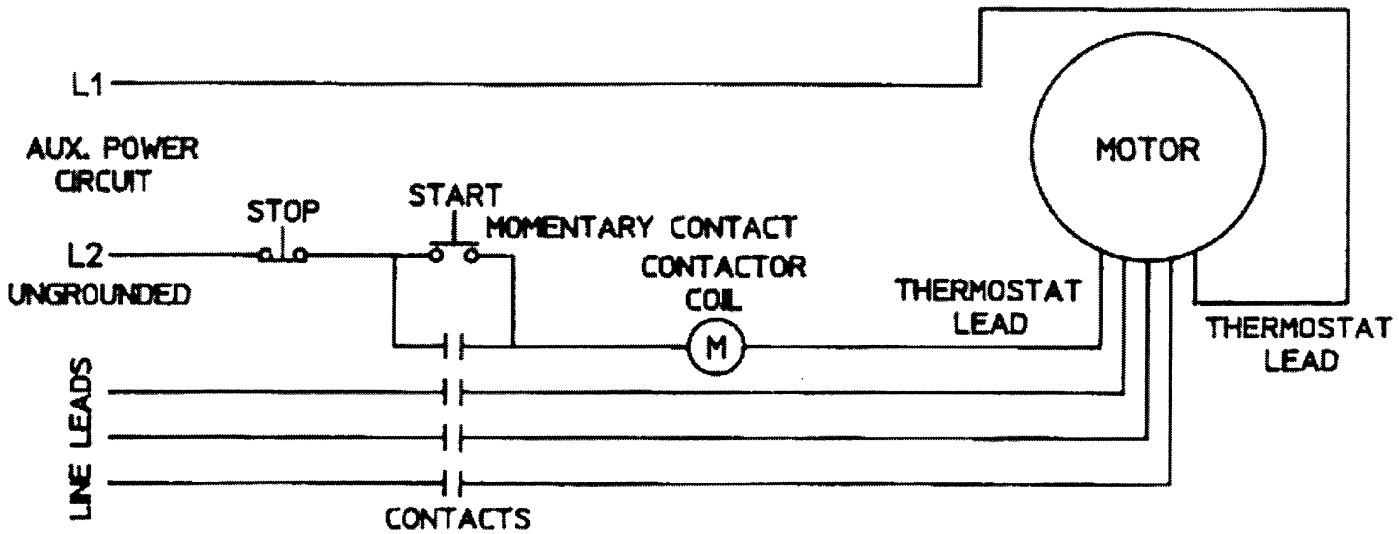
## Motor Wiring Diaphragm for R6130Q-50 & R6P155Q-50

Connect Thermostat to Motor Proection Circuit




---

## Connection for Thermostat Motor Protection




Thermostats to be connected in series with control as shown. Motor furnished with automatic thermostats rated A.C. 115-600V. 720VA circuit shown is for 3 phase motor. Single phase motor has two line leads in the above circuit.

# OPERATIONAL INSTRUCTIONS R1, R2, R3, R4, R5, R6, R7, R8

## - ENGLISH -

**ORIGINAL INSTRUCTIONS**

Read these instructions carefully before you attempt to use this product. Only qualified engineers/electricians suitably trained should undertake the installation and commissioning of this product.

**USE OF PRODUCT**

- Wear eye protectors.
- This product must only be used for the purpose of pumping/evacuating air.
- Do not pump or evacuate any other gases or liquids.
- The performance of the product will be adversely effected at high altitudes.
- This product must be protected from inclement weather. It is not suitable for exterior use.
- Do not stay in line with the air stream.
- Do not try to obtain higher pressures or vacuums than those recommended. Refer to technical data sheet supplied.
- Damage will occur if the product is driven at higher speeds than those recommended. Refer to technical date sheet supplied.

**INSTALLATION**

- Refer to the technical sheet supplied for full technical specification.
- Use pipes that are the same size or a size larger than the product ports.
- See initial starting and putting into service before connecting this product.
- Do not use a hammer on the shaft or any drive coupling being fitted to the shaft.
- Only qualified electricians should undertake the wiring of the electric motor.
- The wiring of the electric motor should be made in accordance with local electrical regulations.
- Ensure that the product ventilation grilles are kept free from obstruction.
- Do not place any objects, fingers, metal tools etc., through the grille holes.
- Check that the mains supply voltage is correct for the product – see nameplate. Contact the factory immediately if the voltage conditions are different.
- Remove the plastic port plugs, retain if you are likely to decommission and store the product in the future. See shutdown and storage.
- Do not touch the product during and just after operation as all parts of the product get very hot.
- Supply and install a check valve, minimum 30 cm from port to prevent back pressure.
- Do not lubricate any part of this product.
- Do not install with pipes that are smaller than the size at the head ports.
- Do not use thread tape to seal pipe threads.
- Use only the correct pipe sealant on the thread.
- Fit a recommended filter/muffler to the inlet/exhaust port.
- For pressure applications always fit a relief valve set to the maximum working pressure but never higher than the maximum permitted pressure specified on the technical data sheet.
- For vacuum applications it is recommended a relief valve is fitted set to the duty vacuum required. When an intermittent vacuum is advised the product is only permitted to operate at this level for short cyclic periods.

**ROTATION**

- For 3 phase electrical motors refer to the technical section/product label for correct rotation.

**MOUNTING**

- Supply and use correct size fasteners.
- Use the fixing holes provided to secure the product.
- Guard all rotating parts.
- Mount the single impeller product in the horizontal or vertical plane. Mount the twin impeller product in the horizontal plane only.

**INITIAL STARTING AND PUTTING INTO SERVICE**

- Wear eye protectors.
- Do not stay in line with the air stream.
- The product will start as soon as the electricity is switched "ON".

**WORK STATION**

- Wear ear protectors if your work area is in the vicinity of the installation.

**SHUTDOWN AND STORAGE**

- Turn the electricity supply "OFF".
- Vent all pressure/vacuum from the product and/or system.
- Disconnect the product from the pipe work.
- Do not stay in line with the air stream.
- Turn the electricity supply "ON" and run the product open to atmosphere for approximately 15 minutes.
- Leave the product to cool down.
- Turn the electricity supply "OFF" and disconnect the motor from the electrical supply.
- Fit plastic port plugs - See installation procedure above (Retain plugs).
- The unit is now ready for storage.

**PRODUCT FAILURE**

Should the product fail to operate for any reason:

- Disconnect the electricity supply.
- Do not attempt to dismantle any part of the product before the electricity is disconnected.
- The product is fitted with an automatic thermal overload which if the product has failed due to overheating will cause the product to restart when it has cooled down.
- Wait until the product has cooled down.
- Refer to the Trouble Shooting Guide.
- Contact the factory or distributor for further advice.
- When the fault has been rectified the product will operate as soon as the electricity supply is switched "ON".
- For products protected by thermal overloads within the motor (Refer to motor label) ensure the product has not failed due to overheating or overload. Automatic reset overloads will restart the product when it has cooled down.

**MAINTENANCE & SERVICE**

- Switch the electricity supply "OFF" and isolate the product.
- Vent all pressure/vacuum from the product.
- Inspect inlet filter/exhaust muffler elements and replace when necessary.
- Filters will become blocked quickly in dirty environments. Establish service periods by checking condition after 200 hours.
- Connect electricity supply and switch "ON".
- The product will start immediately.

**GAST WARRANTY**

Gast finished products, when properly installed and operated under normal conditions of use, are warranted by Gast to be free from defects in material and workmanship for a period of twelve (12) months from the date of purchase from Gast or an authorised Gast Representative or Distributor. In order to obtain performance under this warranty, the buyer must promptly (in no event later than thirty (30) days after discovery of the defect) give written notice of the defect to Gast Manufacturing Company Limited, A Unit of IDEX Corporation, Beech House, Knaves Beech Business Centre, Loudwater, High Wycombe, Bucks HP10 9SD, U.K. or an authorised Service Centre (unless specifically agreed upon in writing signed by both parties or specified in writing as part of a Gast OEM Quotation). Buyer is responsible for freight charges both to and from Gast in all cases.

This warranty does not apply to electric motors, electrical controls, and gasoline engines not supplied by Gast. **Gast's warranties also do not extend to any goods or parts which have been subjected to misuse, lack of maintenance, neglect, damage by accident or transit damage.**

THIS EXPRESS WARRANTY EXCLUDES ALL OTHER WARRANTIES OR REPRESENTATIONS EXPRESSED OR IMPLIED BY ANY LITERATURE, DATE, OR PERSON. GAST'S MAXIMUM LIABILITY UNDER THIS EXCLUSIVE REMEDY SHALL NEVER EXCEED THE COST OF THE SUBJECT PRODUCT AND GAST RESERVES THE RIGHT, AT ITS SOLE DISCRETION, TO REFUND THE PURCHASE PRICE IN LIEU OF REPAIR OR REPLACEMENT.

GAST WILL NOT BE RESPONSIBLE OR LIABLE FOR INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND, however arising, including but not limited to those for use of any products, loss of time, inconvenience, lost profit, labour charges, or other incidental or consequential damages with respect to persons, business, or property, whether as a result of breach of warranty, negligence or otherwise. Notwithstanding any other provision of this warranty, BUYER'S REMEDY AGAINST GAST FOR GOODS SUPPLIED OR FOR NON-DELIVERED GOODS OR FAILURE TO FURNISH GOODS, WHETHER OR NOT BASED ON NEGLIGENCE, STRICT LIABILITY OR BREACH OF EXPRESS OR IMPLIED WARRANTY, IS LIMITED SOLELY, AT GAST'S OPTION, TO REPLACEMENT OF OR CURE OF SUCH NON-CONFORMING OR NON-DELIVERED GOODS OR RETURN OF THE PURCHASE PRICE FOR SUCH GOODS AND IN NO EVENT SHALL EXCEED THE PRICE OR CHARGE FOR SUCH GOODS. GAST EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTIBILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE WITH RESPECT TO THE GOODS SOLD. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTIONS SET FORTH IN THIS WARRANTY, notwithstanding any knowledge of Gast regarding the use or uses intended to be made of goods, proposed changes or additions to goods, or any assistance or suggestions that may have been made by Gast personnel.

Unauthorised extensions of warranties by the customer shall remain the customer's responsibility.

CUSTOMER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF GAST PRODUCTS FOR CUSTOMER'S USE OR RESALE, OR FOR INCORPORATING THEM INTO OBJECTS OR APPLICATIONS WHICH CUSTOMER DESIGNS, ASSEMBLES, CONSTRUCTS OR MANUFACTURES.

This warranty can be modified only by authorised Gast personnel by signing a specific, written description of any modifications.

Effective 01/01/99

**TROUBLE SHOOTING GUIDE**

| Possible Reason | Abnormal Sound | Excessive Noise | Blown Fuse | Over Heating |
|---|---|---|---|---|
| Damaged Impeller | X | X | | |
| Dirt In Body | X | | | |
| Dirty Muffler | | X | | |
| High Pressure | | | | X |
| High Vacuum | | | | X |
| Not Wired Correctly | | | X | |



Gast Manufacturing Co Ltd, Beech House, Loudwater, High Wycombe, Bucks, England. HP10 9SD Tel: +44 (0) 1628 532600

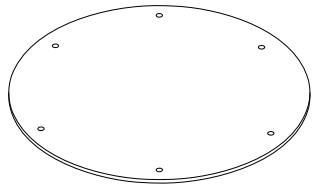
| MODEL# | MAX AIR FLOW(SCFM) | DIAMETER (INCHES) | HEIGHT (INCHES) | LIQUID CAPACITY (GAL) |
|---|---|---|---|---|
| MS-30 | 300 | 14 | 48 | 15 |
| MS-60 | 400 | 18 | 60 | 30 |
| MS-80 | 500 | 20 | 60 | 40 |
| MS-120 | 750 | 24 | 60 | 60 |
| MS-200 | 1100 | 32 | 60 | 100 |
| MS-250 | 1300 | 36 | 60 | 125 |

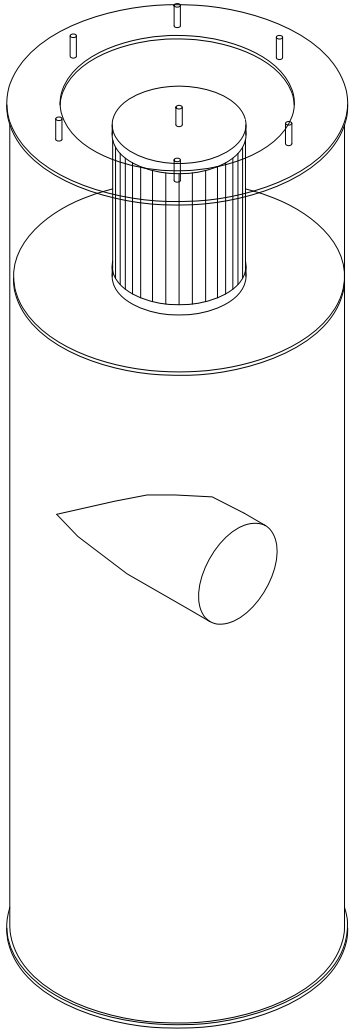
MS-30 NOT SHOWN - THE TANK USES AN EXTERNAL FILTER
INLET AND OUTLET SIZES WILL BE CUSTOM SIZED FOR EACH JOB.

ALL MOISTURE SEPARATORS ARE EPOXY POWDER COATED INSIDE AND OUT. THE INSIDE IS PAINTED BLACK WITH CARDINAL E300-BK11 AND THE OUTSIDE IS PAINTED MACHINE GREY WITH CARDINAL P400-GR16. PAINT SPECIFICATIONS ARE AVAILABLE UPON REQUEST

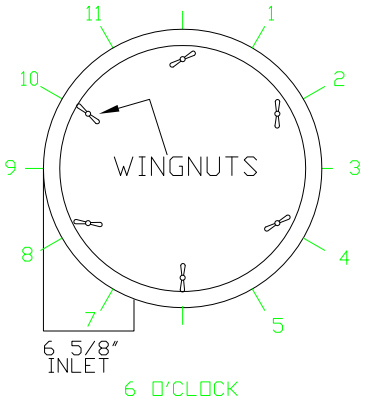
OPTIONAL FILTERS

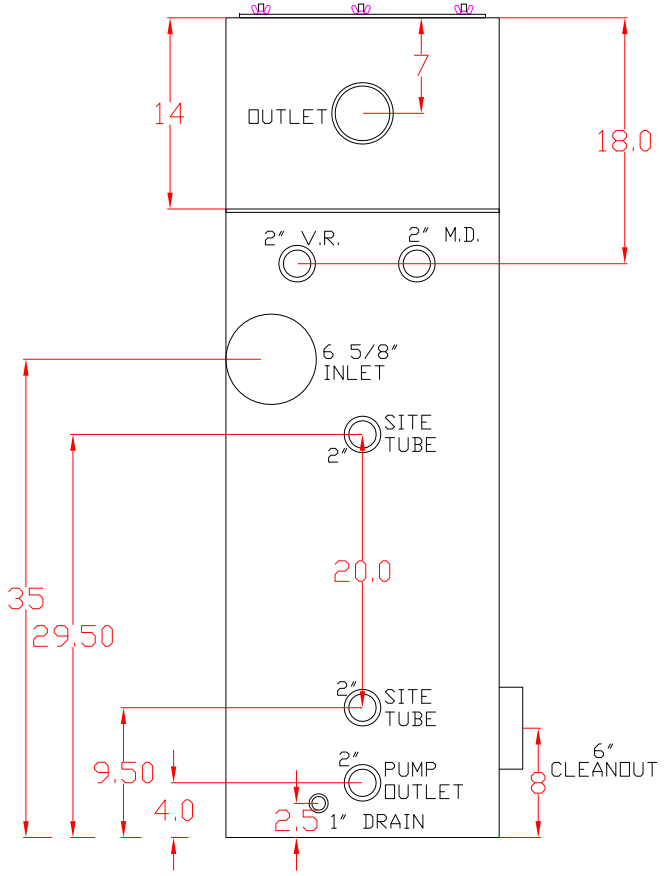
| FILTER # | RATED FLOW (SCFM) |
|---|---|
| 31P | 195 |
| 231P | 300 |
| 235P | 570 |
| 245P | 880 |
| 377P | 1825 |





OVERHEAD VIEW



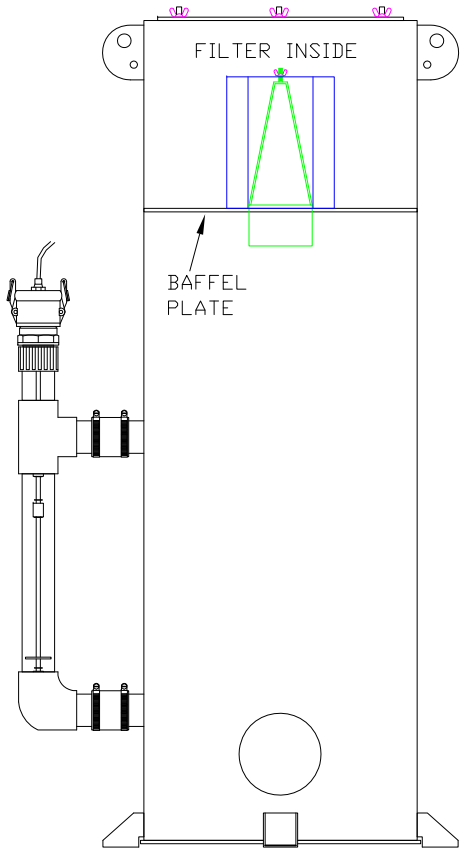




OUTLET _____
MAN DLU. _____
VAC RL. _____
SITE TUBE= _____
PUMP OUTLET _____
DRAIN _____
CLEANOUT _____

FLOAT OPTIONS

IN A 2" CLEAR PVC SITE TUBE
THREE FLOAT STEM (ON/OFF/HL)
SINGLE FLOAT STEM (HL)

IN A 2" TEE FITTING WITH POLY TUBE
DWYER L6 (HL)




P.R.M.
PRODUCT RECOVERY MANAGEMENT
DIVISION OF PHILLIPS ELECTRIC

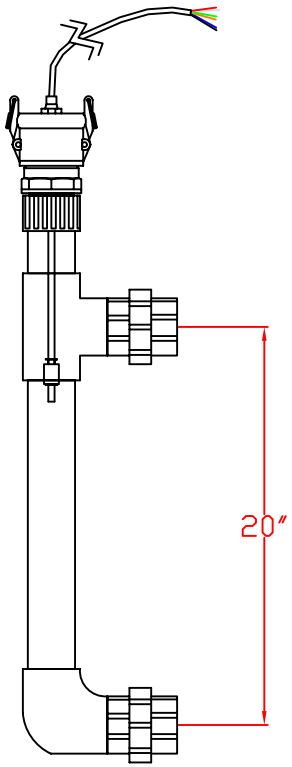
PRODUCT RECOVERY MANAGEMENT

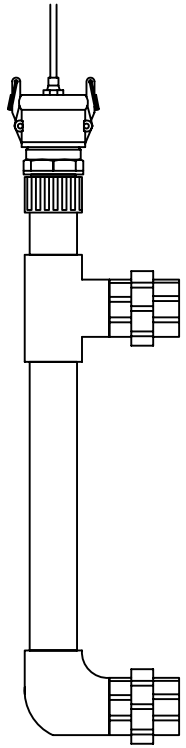
1705 NEW RALEIGH ROAD
DURHAM, NORTH CAROLINA 27703
TEL: (919) 957-8890

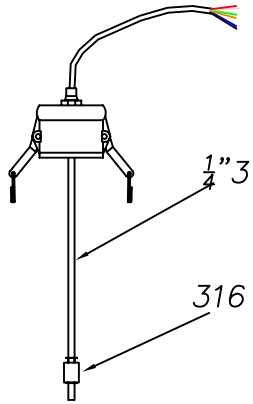
DRAWN BY GAC

# LOW VAC MOISTURE SEPARATORS

20' PVC jacketed probe cable






*These Float assemblies are typically housing in a 2" sight tube assembly with a clear sight inspection tube.*

P.R.M.
PRODUCT RECOVERY MANAGEMENT

205 BROADWAY STREET
DURHAM, NORTH CAROLINA 27701
TEL: (919) 682-2054

# SINGLE FLOAT STEM ASSEMBLY

SCALE:

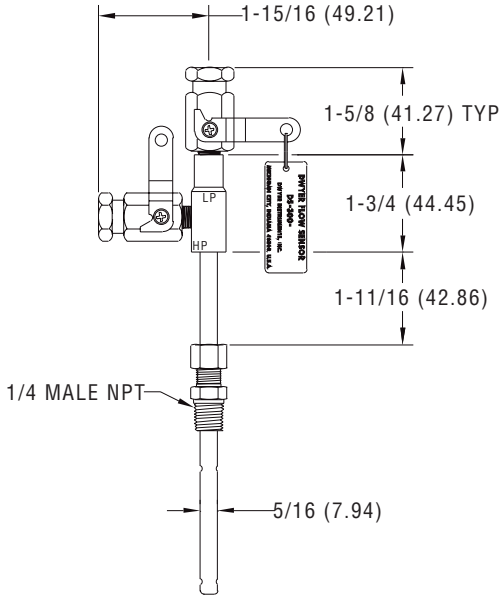
REV.:

DRAWN BY GAC

DRAWING No.: 1

# Series DS-300 Flow Sensors

## Installation and Operating Instructions Flow Calculations


**Series DS-300 Flow Sensors** are averaging pitot tubes that provide accurate, convenient flow rate sensing. When purchased with a Dwyer Capsuhelic® for liquid flow or Magnehelic® for air flow, differential pressure gage of appropriate range, the result is a flow-indicating system delivered off the shelf at an economical price. Series DS-300 Flow Sensors are designed to be inserted in the pipeline through a compression fitting and are furnished with instrument shut-off valves on both pressure connections. Valves are fitted with 1/8″ female NPT connections. Accessories include adapters with 1/4″ SAE 45° flared ends compatible with hoses supplied with the Model A-471 Portable Capsuhelic® kit. Standard valves are rated at 200°F (93.3°C). Where valves are not required, they can be omitted at reduced cost. Series DS-300 Flow Sensors are available for pipe sizes from 1″ to 10″.

### INSPECTION

Inspect sensor upon receipt of shipment to be certain it is as ordered and not damaged. If damaged, contact carrier.

### INSTALLATION

**General -** The sensing ports of the flow sensor must be correctly positioned for measurement accuracy. The instrument connections on the sensor indicate correct positioning. The side connection is for total or high pressure and should be pointed upstream. The top connection is for static or low pressure.

**Location -** The sensor should be installed in the flowing line with as much straight run of pipe upstream as possible. A rule of thumb is to allow 10 - 15 pipe diameters upstream and 5 downstream. The table below lists recommended up and down piping.

### PRESSURE AND TEMPERATURE

Maximum: 200 psig (13.78 bar) at 200°F (93.3°C).

**Upstream and Downstream Dimensions in Terms of Internal Diameter of Pipe***

| Upstream Condition | Minimum Diameter of Straight Pipe | | |
|---|---|---|---|
| | Upstream | | Downstream |
| | In-Plane | Out of Plane | |
| One Elbow or Tee | 7 | 9 | 5 |
| Two 90° Bends in Same Plane | 8 | 12 | 5 |
| Two 90° Bends in Different Plane | 18 | 24 | 5 |
| Reducers or Expanders | 8 | 8 | 5 |
| All Valves** | 24 | 24 | 5 |

* Values shown are recommended spacing, in terms of internal diameter for normal industrial metering requirements. For laboratory or high accuracy work, add 25% to values.

** Includes gate, globe, plug and other throttling valves that are only partially opened. If valve is to be fully open, use values for pipe size change. **CONTROL VALVES SHOULD BE LOCATED AFTER THE FLOW SENSOR.**

**DWYER INSTRUMENTS, INC.**
**P.O. BOX 373 • MICHIGAN CITY, INDIANA 46361, U.S.A.**
**Phone: 219/879-8000** **www.dwyer-inst.com**
**Fax: 219/872-9057** **e-mail: info@dwyer-inst.com**

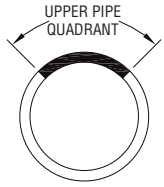
## POSITION

Be certain there is sufficient clearance between the mounting position and other pipes, walls, structures, etc, so that the sensor can be inserted through the mounting unit once the mounting unit has been installed onto the pipe.

Flow sensors should be positioned to keep air out of the instrument connecting lines on liquid flows and condensate out of the lines on gas flows. The easiest way to assure this is to install the sensor into the pipe so that air will bleed into, or condensate will drain back to, the pipe.

**For Air or Gas Flow**

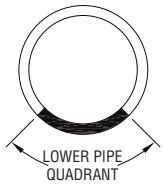
Install in upper quadrant of pipe




Condensate drains back to pipe

**For Liquid or Steam Flow**

Install in lower quadrant of pipe




Air bleeds back to pipe

## INSTALLATION

1. When using an A-160 thred-o-let, weld it to the pipe wall. If replacing a DS-200 unit, an A-161 bushing (1/4˝ x 3/8˝) will be needed.

2. Drill through center of the thred-o-let into the pipe with a drill that is slightly larger than the flow sensor diameter.

3. Install the packing gland using proper pipe sealant. If the packing gland is disassembled, note that the tapered end of the ferrule goes into the fitting body.

4. Insert sensor until it bottoms against opposite wall of the pipe, then withdraw 1/16˝ to allow for thermal expansion.

5. Tighten packing gland nut finger tight. Then tighten nut with a wrench an additional 1-1/4 turns. Be sure to hold the sensor body with a second wrench to prevent the sensor from turning.

## INSTRUMENT CONNECTION

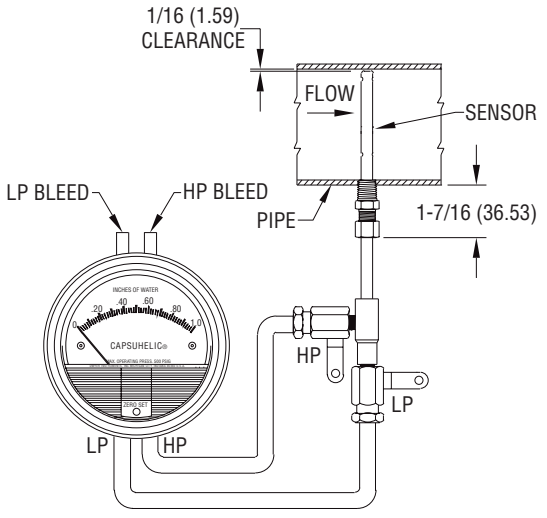
Connect the slide pressure tap to the high pressure port of the Magnehelic® (air only) or Capsuhelic® gage or transmitting instrument and the top connection to the low pressure port.

See the connection schematics below.

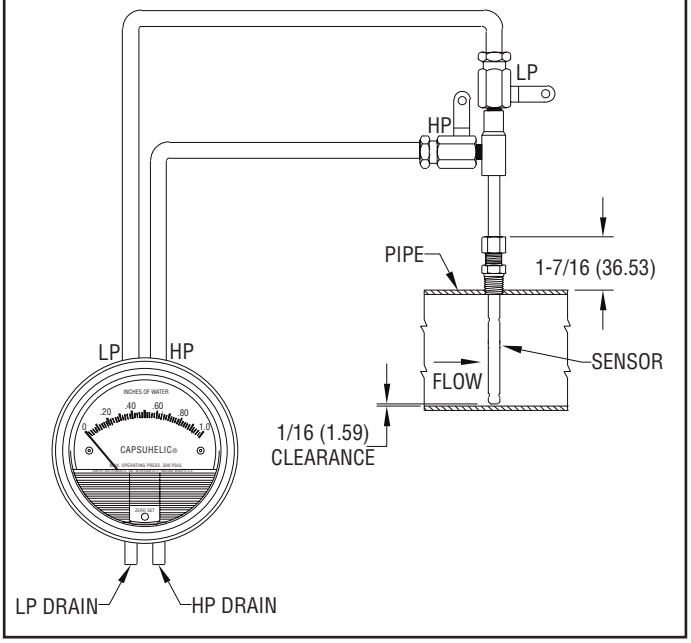
Bleed air from instrument piping on liquid flows. Drain any condensate from the instrument piping on air and gas flows.

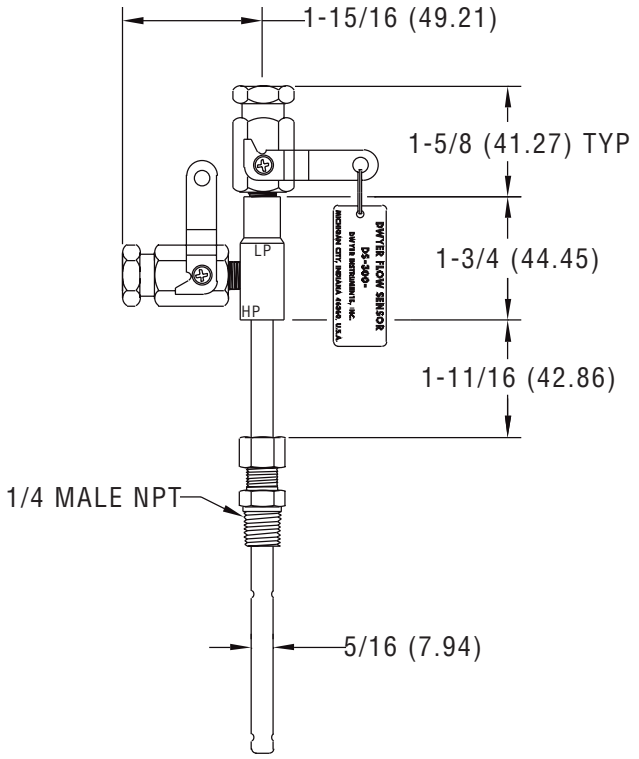
Open valves to instrument to place flow meter into service. For permanent installations, a 3-valve manifold is recommended to allow the gage to be zero checked without interrupting the flow. The Dwyer A-471 Portable Test Kit includes such a device.

**Water Flow**




**Air or Gas Flow**






**Flow Calculations and Charts**

The following information contains tables and equations for determining the differential pressure developed by the DS-300 Flow Sensor for various flow rates of water, steam, air or other gases in different pipe sizes.

This information can be used to prepare conversion charts to translate the differential pressure readings being sensed into the equivalent flow rate. When direct readout of flow is required, use this information to calculate the full flow differential pressure in order to specify the exact range of Dwyer Magnehelic® or Capsuhelic® gage required. Special ranges and calculations are available for these gages at minimal extra cost. See bulletins A-30 and F-41 for additional information on Magnehelic® and Capsuhelic® gages and DS-300 flow sensors.

For additional useful information on making flow calculations, the following service is recommended: Crane Valve Co. Technical Paper No. 410 "Flow of Fluids Through Valves, Fittings and Pipe." It is available from Crane Valve Company, www.cranevalve.com.

---

Using the appropriate differential pressure equation from Page 4 of this bulletin,calculate the differential pressure generated by the sensor under normal operating conditions of the system. Check the chart below to determine if this value is within the recommended operating range for the sensor. Note that the data in this chart is limited to standard conditions of air at 60°F (15.6°C) and 14.7 psia static line pressure or water at 70°F (21.1°C). To determine recommended operating ranges of other gases, liquids an/or operating conditions, consult factory.

**Note:** the column on the right side of the chart which defines velocity ranges to avoid. Continuous operation within these ranges can result in damage to the flow sensor caused by excess vibration.

| Pipe Size (Schedule 40) | Flow Coefficient "K" | Operating Ranges Air @ 60°F & 14.7 psia (D/P in. W.C.) | Operating Ranges Water @ 70°F (D/P in. W.C.) | Velocity Ranges Not Recommended (Feet per Second) |
|---|---|---|---|---|
| 1 | 0.52 | 1.10 to 186 | 4.00 to 675 | 146 to 220 |
| 1-1/4 | 0.58 | 1.15 to 157 | 4.18 to 568 | 113 to 170 |
| 1-1/2 | 0.58 | 0.38 to 115 | 1.36 to 417 | 96 to 144 |
| 2 | 0.64 | 0.75 to 75 | 2.72 to 271 | 71 to 108 |
| 2-1/2 | 0.62 | 1.72 to 53 | 6.22 to 193 | 56 to 85 |
| 3 | 0.67 | 0.39 to 35 | 1.43 to 127 | 42 to 64 |
| 4 | 0.67 | 0.28 to 34 | 1.02 to 123 | 28 to 43 |
| 6 | 0.71 | 0.64 to 11 | 2.31 to 40 | 15 to 23 |
| 8 | 0.67 | 0.10 to 10 | 0.37 to 37 | 9.5 to 15 |
| 10 | 0.70 | 0.17 to 22 | 0.60 to 79 | 6.4 to 10 |

## FLOW EQUATIONS

1. Any Liquid

$$Q\ (GPM) = 5.668 \times K \times D^2 \times \sqrt{\Delta P / S_f}$$

2. Steam or Any Gas

$$Q\ (lb/Hr) = 359.1 \times K \times D^2 \times \sqrt{p \times \Delta P}$$

3. Any Gas

$$Q\ (SCFM) = 128.8 \times K \times D^2 \times \sqrt{\frac{P \times \Delta P}{(T + 460) \times S_s}}$$

## DIFFERENTIAL PRESSURE EQUATIONS

1. Any Liquid

$$\Delta P\ (in.\ WC) = \frac{Q^2 \times S_f}{K^2 \times D^4 \times 32.14}$$

2. Steam or Any Gas

$$\Delta P\ (in.\ WC) = \frac{Q^2}{K^2 \times D^4 \times p \times 128{,}900}$$

3. Any Gas

$$\Delta P\ (in.\ WC) = \frac{Q^2 \times S_s \times (T + 460)}{K^2 \times D^4 \times P \times 16{,}590}$$

## Technical Notations

The following notations apply:

$\Delta P$ = Differential pressure expressed in inches of water column
Q = Flow expressed in GPM, SCFM, or PPH as shown in equation
K = Flow coefficient— See values tabulated on Pg. 3.
D = Inside diameter of line size expressed in inches.

For square or rectangular ducts, use: $D = \sqrt{\frac{4 \times \text{Height} \times \text{Width}}{\pi}}$

P = Static Line pressure (psia)
T = Temperature in degrees Fahrenheit (plus 460 = °Rankine)
p = Density of medium in pounds per square foot
$S_f$ = Sp Gr at flowing conditions
$S_s$ = Sp Gr at 60°F (15.6°C)

## SCFM TO ACFM EQUATION

$$SCFM = ACFM \times \left(\frac{14.7 + PSIG}{14.7}\right) \left(\frac{520^*}{460 + °F}\right)$$

$$ACFM = SCFM \times \left(\frac{14.7}{14.7 + PSIG}\right) \left(\frac{460 + °F}{520}\right)$$

$$\text{POUNDS PER CUBIC FOOT STD.} = \text{POUNDS PER CUBIC FOOT ACT.} \times \left(\frac{14.7}{14.7 + PSIG}\right) \left(\frac{460 + °F}{520^*}\right)$$

$$\text{POUNDS PER CUBIC FOOT ACT.} = \text{POUNDS PER CUBIC FOOT STD.} \times \left(\frac{14.7 + PSIG}{14.7}\right) \left(\frac{520^*}{460 + °F}\right)$$

1 Cubic foot of air = 0.076 pounds per cubic foot at 60° F (15.6°C) and 14.7 psia.
* (520°= 460 + 60°) Std. Temp. Rankine


Printed in U.S.A. 7/04 FR# 72-440451-01 Rev. 2

**DWYER INSTRUMENTS, INC.**
**P.O. BOX 373 • MICHIGAN CITY, INDIANA 46361, U.S.A.**
**Phone: 219/879-8000 www.dwyer-inst.com**
**Fax: 219/872-9057 e-mail: info@dwyer-inst.com**

# Magnehelic® Differential Pressure Gage

**OPERATING INSTRUCTIONS**


## SPECIFICATIONS

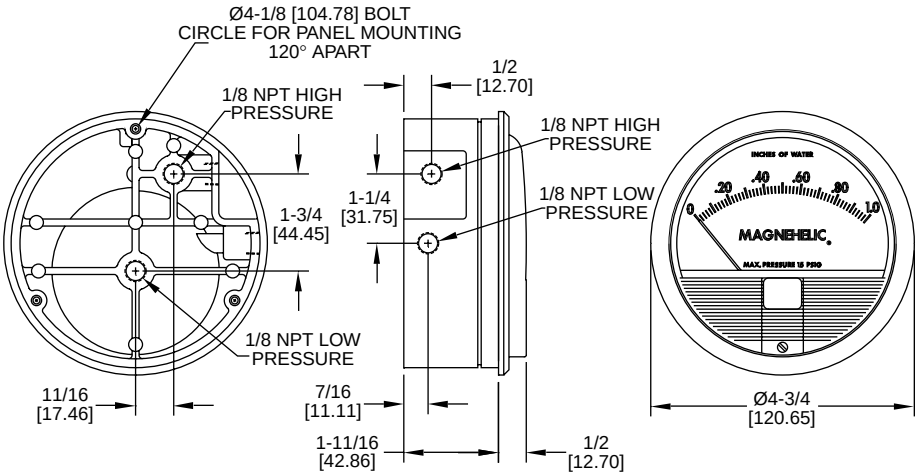
**Dimensions:** 4-3/4″ dia. x 2-3/16″ deep.
**Weight:** 1 lb. 2 oz.
**Finished:** Baked dark gray enamel.
**Connections:** 1/8″ NPT high and low pressure taps, duplicated, one pair side and one pair back.
**Accuracy:** Plus or minus 2% of full scale, at 70°F. (Model 2000-0, 3%; 2000-00, 4%).
**Pressure Rating:** 15 PSI (0,35 bar)
**Ambient Temperature Range:** 20° to 140°F (-7 to 60°C).
**Standard gage accessories** include two 1/8″ NPT plugs for duplicate pressure taps, two 1/8″ NPT pipe thread to rubber tubing adapters, and three flush mounting adapters with screws.

---

**Caution: For use with air or compatible gases only.**

For repeated over-ranging or high cycle rates, contact factory.

**Not for use with Hydrogen gas. Dangerous reactions will occur.**




**DWYER INSTRUMENTS, INC.**
P.O. BOX 373 • MICHIGAN CITY, INDIANA 46361 U.S.A.

Phone: 219/879-8000
Fax: 219/872-9057
Lit-by-Fax: 888/891-4963

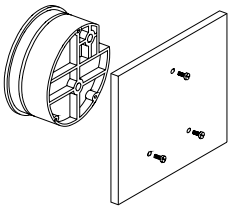
www.dwyer-inst.com
e-mail: info@dwyer-inst.com

# MAGNEHELIC® INSTALLATION

**1.**Select a location free from excessive vibration and where the ambient temperature will not exceed 140°F. Also, avoid direct sunlight which accelerates discoloration of the clear plastic cover. Sensing lines my be run any necessary distance. Long tubing lengths will not affect accuracy but will increase response time slightly. Do not restrict lines. If pulsating pressures or vibration cause excessive pointer oscillation, consult the factory for ways to provide additional damping.

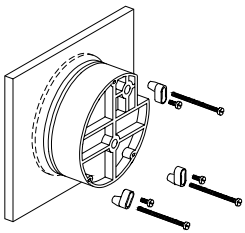
**2.** All standard Magnehelic gages are calibrated with the diaphragm vertical and should be used in that position for maximum accuracy. If gages are to be used in other than vertical position, this should be specified on the order. Many higher range gages will perform within tolerance in other positions with only rezeroing. Low range Model 2000-00 and metric equivalents must be used in the vertical position only.

## 3. Surface Mounting



Locate mounting holes, 120° apart on a 4-1/8″ dia. circle. Use No. 6-32 machine screws of appropriate length.

## 4. Flush Mounting



Provide a 4-9/16″ dia. opening in panel. Insert gage and secure in place with No. 6-32 machine screws of appropriate length, with adapters, firmly secured in place. To mount gage on 1-1/4″-2″ pipe, order optional A-610 pipe mounting kit.

## 5. To zero the gage after installation

Set the indicating pointer exactly on the zero mark, using the external zero adjust screw on the cover at the bottom. Note that the zero check or adjustment can only be made with the high and low pressure taps both open to atmosphere.

## Operation

**Positive Pressure:**Connect tubing from source of pressure to either of the two high pressure ports. Plug the port not used. Vent one or both low pressure ports to atmosphere.

**Negative Pressure:** Connect tubing from source of vacuum or negative pressure to either of the two low pressure ports. Plug the port not used. Vent one or both high pressure ports to atmosphere.

**Differential Pressure:** Connect tubing from the greater of two pressure sources to either high pressure port and the lower to either low pressure port. Plug both unused ports.

When one side of the gage is vented in dirty, dusty atmosphere, we suggest an A-331 Filter Vent Plug be installed in the open port to keep inside of gage clean.

A. For portable use of temporary installation use 1/8″ pipe thread to rubber tubing adapter and connect to source of pressure with rubber or Tygon tubing.

B. For permanent installation, 1/4″ O.D., or larger, copper or aluminum tubing is recommended. See accessory bulletin S-101 for fittings.

**Ordering Instructions:**

When corresponding with the factory regarding Magnehelic® gage problems, be sure to include model number, pressure range, and any special options. Field repair is not recommended; contact the factory for repair service.

# MAINTENANCE

**Maintenance:** No lubrication or periodic servicing is required. Keep case exterior and cover clean. Occasionally disconnect pressure lines to vent both sides of gage to atmosphere and re-zero. Optional vent valves, (bulletin S-101), should be used in permanent installations.

**Calibration Check:** Select a second gage or manometer of known accuracy and in an appropriate range. Using short lengths of rubber or vinyl tubing, connect the high pressure side of the Magnehelic gage and the test gage to two legs of a tee. Very slowly apply pressure through the third leg. Allow a few seconds for pressure to equalize, fluid to drain, etc., and compare readings. If accuracy unacceptable, gage may be returned to factory for recalibration. To calibrate in the field, use the following procedure.

Calibration:

1. With gage case, held firmly, loosen bezel, by turning counterclockwise. To avoid damage, a canvas strap wrench or similar tool should be used.
2. Lift out plastic cover and "O" ring.
3. Remove scale screws and scale assembly. Be careful not to damage pointer.
4. The calibration is changed by moving the clamp. Loosen the clamp screw(s) and move slightly toward the helix if gage is reading high, and away if reading low. Tighten clamp screw and install scale assembly.
5. Place cover and O-ring in position. Make sure the hex shaft on inside of cover is properly engaged in zero adjust screw.
6. Secure cover in place by screwing bezel down snug. Note that the area under the cover is pressurized in operation and therefore gage will leak if not properly tightened.
7. Zero gage and compare to test instrument. Make further adjustments as necessary.

**Caution:** If bezel binds when installing, lubricate threads sparingly with light oil or molybdenum disulphide compound.

**Warning:** Attempted field repair may void your warrenty. Recalibration or repair by the user is not recommended. For best results, return gage to the factory. Ship prepaid to:

Dwyer Instruments, Inc.

Attn: Repair Dept.

102 Indiana Highway 212

Michigan City, IN 46360

Trouble Shooting Tips:

•G*age won't indicate or is sluggish.*

1. Duplicate pressure port not plugged.
2. Diaphragm ruptured due to overpressure.
3. Fittings or sensing lines blocked, pinched, or leaking.
4. Cover loose or "O"ring damaged, missing.
5. Pressure sensor, (static tips, Pitot tube, etc.) improperly located.
6. Ambient temperature too low. For operation below 20°F, order gage with low temperature, (LT) option.

•Pointer stuck-gage can't be zeroed.

1. Scale touching pointer.
2. Spring/magnet assembly shifted and touching helix.

**3. Metallic particles clinging to magnet and interfering with helix movement.**

4. Cover zero adjust shaft broken or not properly engaged in adjusting screw.

We generally recommend that gages needing repair be returned to the factory. Parts used in various sub-assemblies vary from one range of gage to another, and use of incorrect components may cause improper operation. After receipt and inspection, we will be happy to quote repair costs before proceeding.

Consult factory for assistance on unusual applications or conditions.

Use with air or compatible gases only.


Printed in U.S.A. 4/01 FR# 12-440212-00 Rev. 3

**DWYER INSTRUMENTS, INC.**
**P.O. BOX 373 • MICHIGAN CITY, INDIANA 46361 U.S.A.**

**Phone: 219/879-8000** **www.dwyer-inst.com**
**Fax: 219/872-9057** **e-mail: info@dwyer-inst.com**
**Lit-by-Fax: 888/891-4963**

# SMALL COMPACT FILTER SILENCERS WITH STANDARD FILTER DESIGN

## "FS" Series 1/2" - 3" MPT

### APPLICATIONS

- Blowers-PD Type
- Blowers-Side Channel
- Compressor-Piston
- Compressor-Screw
- Construction\Contractor Industry
- Dental
- Engines
- Hydraulic Breathers - fine filtration
- Industrial & Severe Duty
- Medical
- Pneumatic Conveying Systems
- Sparging
- Waste Water Aeration
- Workshop

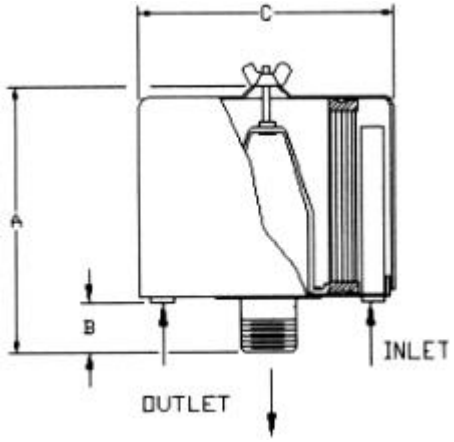
### FEATURES & SPECIFICATIONS

- ;99%+ removal efficiency standard: Paper = 2 micron, Polyester = 5 micron
- Filter change out differential: 10"-15" in. $H_2O$ above initial Delta P
- Interchangeable elements: Polyester, Paper, HEPA
- Pressure drop graphs available upon request
- Tubular silencing design - tube is positioned to maximize attenuation and air flow while minimizing pressure drop
- Durable carbon steel construction with powder coated finish or galvanized steel
- Fully drawn weatherhood - no welds to rust or vibrate apart
- Low pressure drop center bracket and outlet pipe design
- Temp (continuous): min -15° F ( -26° C) max 220° F (104° C)
- Typical noise attenuation up to 25 dB's (due to the wide range of applications and machines these units are used on, a single graph is insufficient. Please inquire for your specific requirement)

### OPTIONS

- 1/8" &1/4" tap holes for differential pressure gauges
- Available in Stainless Steel
- Epoxy coated housings
- Hot dipped galvanized housings
- Special connections, BSPT/Metric
- Various elements available

### Line Drawing




***All measurements are shown in American standards.**

**ADD - typically in stock**
**Add - part normally requires lead time**

| Add To Order | Model Number | Element Type | Outlet in. NPT or FLG | Dim A in. | Dim B in. | Dim C in. | Rated Flow Piston SCFM | Rated Flow Screw Blower Fan SCFM | Element Parent Flow SCFM | Tube Count | Approx. Weight lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ADD | FS-15-050 | Polyester | 0.5 | 4 | 1.5 | 6 | 10 | 10 | 35 | 1 | 1.8 |
| ADD | FS-15P-050 | Polyester | 0.5 | 4 | 1.5 | 6 | 10 | 10 | 35 | 1 | 1.8 |
| ADD | FS-15-075 | Polyester | 0.75 | 4 | 1.5 | 6 | 20 | 25 | 35 | 2 | 2 |
| ADD | FS-15P-075 | Polyester | 0.75 | 4 | 1.5 | 6 | 20 | 25 | 35 | 2 | 2 |
| ADD | FS-15-100 | Polyester | 1 | 4 | 1.5 | 6 | 25 | 35 | 35 | 3 | 2.1 |
| ADD | FS-15P-100 | Polyester | 1 | 4 | 1.5 | 6 | 25 | 35 | 35 | 3 | 2.1 |
| ADD | FS-19P-100 | Polyester | 1 | 6.63 | 1.5 | 6 | 35 | 55 | 100 | 3 | 3 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ADD | FS-19P-125 | Polyester | 1.25 | 6.63 | 1.63 | 6.1 | 55 | 70 | 100 | 5 | 3.3 |
| ADD | FS-19P-150 | Polyester | 1.5 | 6.63 | 1.5 | 6 | 70 | 85 | 100 | 5 | 3.5 |
| ADD | FS-231-200 | Polyester | 2 | 12.25 | 2.25 | 10 | 135 | 135 | 300 | 7 | 14 |
| ADD | FS-231P-200 | Polyester | 2 | 12.25 | 2.25 | 10 | 135 | 135 | 300 | 7 | 14 |
| ADD | FS-31-200 | Polyester | 2 | 7.25 | 2.25 | 10 | 85 | 135 | 195 | 5 | 7.8 |
| ADD | FS-31P-200 | Polyester | 2 | 7.25 | 2.25 | 10 | 85 | 135 | 195 | 5 | 7.8 |
| ADD | FS-231-250 | Polyester | 2.5 | 12.5 | 2.5 | 10 | 195 | 195 | 300 | 9 | 14.5 |
| ADD | FS-231P-250 | Polyester | 2.5 | 12.5 | 2.5 | 10 | 195 | 195 | 300 | 9 | 14.5 |
| ADD | FS-31-250 | Polyester | 2.5 | 7.5 | 2.5 | 10 | 100 | 195 | 195 | 5 | 8.2 |
| ADD | FS-31P-250 | Polyester | 2.5 | 7.5 | 2.5 | 10 | 100 | 195 | 195 | 5 | 8.2 |
| ADD | FS-231P-300 | Polyester | 3 | 13 | 3 | 10 | 200 | 300 | 300 | 9 | 15 |
| ADD | FS-14-050 | Paper | 0.5 | 4 | 1.5 | 6 | 10 | 10 | 35 | 1 | 1.8 |
| ADD | FS-14P-050 | Paper | 0.5 | 4 | 1.5 | 6 | 10 | 10 | 35 | 1 | 1.8 |
| ADD | FS-14-075 | Paper | 0.75 | 4 | 1.5 | 6 | 20 | 25 | 35 | 2 | 2 |
| ADD | FS-14P-075 | Paper | 0.75 | 4 | 1.5 | 6 | 20 | 25 | 35 | 2 | 2 |
| ADD | FS-14-100 | Paper | 1 | 4 | 1.5 | 6 | 25 | 35 | 35 | 3 | 2.1 |
| ADD | FS-14P-100 | Paper | 1 | 4 | 1.5 | 6 | 25 | 35 | 35 | 3 | 2.1 |
| ADD | FS-18P-100 | Paper | 1 | 6.63 | 1.5 | 6 | 35 | 55 | 100 | 3 | 3 |
| ADD | FS-18P-125 | Paper | 1.25 | 6.63 | 1.63 | 6.1 | 55 | 70 | 100 | 5 | 3.3 |
| ADD | FS-18P-150 | Paper | 1.5 | 6.63 | 1.5 | 6 | 70 | 85 | 100 | 5 | 3.5 |
| ADD | FS-230-200 | Paper | 2 | 12.25 | 2.25 | 10 | 135 | 135 | 300 | 9 | 14 |
| ADD | FS-230-200 | Paper | 2 | 12.25 | 2.25 | 10 | 135 | 135 | 300 | 9 | 14 |
| ADD | FS-230P-200 | Paper | 2 | 12.25 | 2.25 | 10 | 135 | 135 | 300 | 9 | 14 |
| ADD | FS-30-200 | Paper | 2 | 7.25 | 2.25 | 10 | 85 | 135 | 195 | 5 | 8.2 |
| ADD | FS-30P-200 | Paper | 2 | 7.25 | 2.25 | 10 | 85 | 135 | 195 | 5 | 8.2 |
| ADD | FS-230-250 | Paper | 2.5 | 12.5 | 2.5 | 10 | 195 | 195 | 300 | 9 | 14.5 |
| ADD | FS-230P-250 | Paper | 2.5 | 12.5 | 2.5 | 10 | 195 | 195 | 300 | 9 | 14.5 |
| ADD | FS-30-250 | Paper | 2.5 | 7.5 | 2.5 | 10 | 100 | 195 | 195 | 5 | 8.2 |
| ADD | FS-30P-250 | Paper | 2.5 | 7.5 | 2.5 | 10 | 100 | 195 | 195 | 5 | 8.2 |
| ADD | FS-30P-250 | Paper | 2.5 | 7.5 | 2.5 | 10 | 100 | 195 | 195 | 5 | 8.2 |
| ADD | FS-230P-300 | Paper | 3 | 13 | 3 | 10 | 200 | 300 | 300 | 9 | 15 |

***Solberg Mfg.***
1151 W. Ardmore Ave.·Itasca, IL 60143·(630)773-1363· Fax: (630)773-0727

SFS_2-2

# SMALL COMPACT POLYESTER ELEMENTS

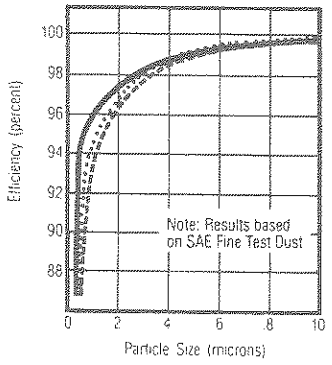
Up to 570 SCFM and Housings up to 3" NPT

## FEATURES & SPECIFICATIONS

- **99%+** removal efficiency standard to 5 micron
- Pleated Media for **High Dirt Holding Capacity**
- Reinforced with epoxy coated steel wire on **Both** sides of the cloth
- Optimal surface area per given size
- Washable - lukewarm water & mild detergent
- Dust loading capacity is increased 40 - 50% with polyurethane prefilter
- Temp: (continuous): min -15°F (-26°C) max 220°F (104°C)
- Filter change out differential: 10"-15" $H_2O$ Over Initial Delta P

**Particle Size vs. Filter Efficiency on polyester media at indicated face velocity:**

15 cfm/ft² media
30 cfm/ft² media
45 cfm/ft² media

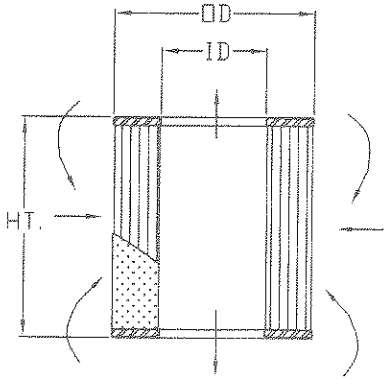



## ADVANTAGES

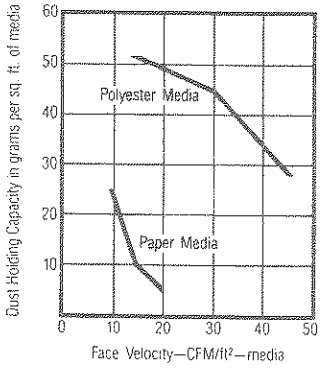
- Less maintenance
- More durable than paper media
- Moisture resistant
- Handles hot air and oil mist from unload cycle of reciprocating/piston compressor

## OPTIONS (Inquiries Encouraged)

- Polyester - 1, 4, 25, & 100 micron
- Paper - 99% efficiency to 2 micron
- HEPA - 99.97% D.O.P. efficiency to 0.3 micron
- Stainless steel wire mesh
- High Temperature Nomex cloth– 99+% efficient
- Stainless Steel Nomex-Reinforced by stainless steel wire mesh & expanded metal
- Polypropylene - Food Grade available
- Activated carbon
- Inquiries Encouraged




**Face Velocity vs. Dust Holding Capacity**




Dimension tolerance ± 1/8"

| Polyester Element | STD Endcap Features | DIMENSIONS - inches ID | OD | HT | Surface Area ft² | Rated Flow SCFM |
|---|---|---|---|---|---|---|
| 15 | M | 3 | 4 3/8 | 2 5/16 | 0.50 | 35 |
| 19P® | M | 3 | 4 3/8 | 4 3/4 | 1.5 | 100 |
| 31P | M | 3 5/8 | 5 3/4 | 4 3/4 | 2.3 | 195 |
| 231P | M | 3 5/8 | 5 3/4 | 9 1/2 | 4.5 | 300 |
| 825 | TC | 1 1/2 | 2 1/2 | 2 1/2 | 0.38 | 25 |
| 843 | T | 2 3/8 | 3 7/8 | 2 3/4 | 0.60 | 55 |
| 849 | T | 2 9/16 | 5 | 4 3/4 | 2.0 | 115 |
| 851 | TR | 3 1/2 | 5 7/8 | 8 3/4 | 4.5 | 290 |
| 879 | TB | 2 9/16 | 5 | 4 3/4 | 2.0 | 115 |
| 239 | GBN | 4 7/8 | 9 1/4 | 10 | 11.5 | 570 |

P = Polyurethane Prefilter Included

Legend
B= Closed one end w/ Bolt hole, open on other end
C= Closed one end, open on other end
F= Felt gaskets on open end(s)
G= Galvanized metal endcaps
I= Injection molded santoprene
M= Molded plastisol
N= Neoprene gaskets on open end(s)
R= Mixed Rubber/cork gasket on open ends
T= Tin plated metal endcaps

REPLACEMENT ELEMENTS


*Solberg - Where the Best is in Store for You!*

1151 W. Ardmore Ave. • Itasca, IL 60143-1387 • (630) 773-1363 • Fax: (630) 773-0727
E-mail: sales@solbergmfg.com • Web Site: www.solbergmfg.com

# COMPACT/BIG BOY POLYESTER ELEMENTS

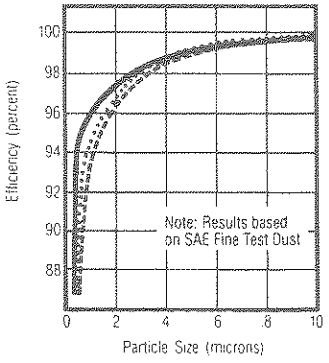
Up to 6600 SCFM and Housings up to 12" Flg

## FEATURES & SPECIFICATIONS

- **99%+** removal efficiency standard to 5 micron
- Pleated Media for **High Dirt Holding Capacity**
- Reinforced with epoxy coated steel wire on **Both** sides of the cloth
- Optimal surface area per given size
- Washable - lukewarm water & mild detergent
- Dust loading capacity is increased 40 - 50% with polyurethane prefilter
- Temp: (continuous): min -15°F (-26°C) max 220°F (104°C)
- Filter change out differential: 10"-15" $H_2O$ Over Initial Delta P

**Particle Size vs. Filter Efficiency on polyester media at indicated face velocity:**

15 cfm/ft² media ——————
30 cfm/ft² media . . . . . .
45 cfm/ft² media — — — — —

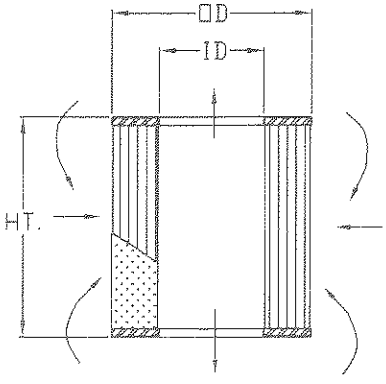



## ADVANTAGES

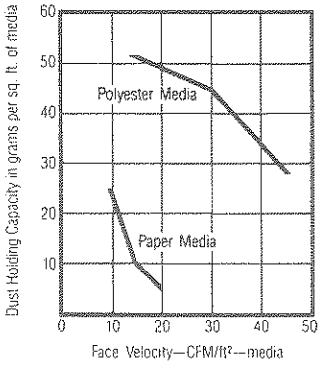
- Less maintenance
- More durable than paper media
- Moisture resistant
- Handles hot air and oil mist from unload cycle of reciprocating/piston compressor

## OPTIONS (Inquiries Encouraged)

- Polyester - 1, 4, 25, & 100 micron
- Paper - 99% efficiency to 2 micron
- HEPA - 99.97% D.O.P. efficiency to 0.3 micron
- Stainless steel wire mesh
- High Temperature Nomex cloth– 99+% efficient
- Stainless Steel Nomex-Reinforced by stainless steel wire mesh & expanded metal
- Polypropylene - Food Grade available
- Activated carbon
- Inquiries Encouraged




**Face Velocity vs. Dust Holding Capacity**




Dimension tolerance ± 1/8"

| Polyester Element | STD Endcap Features | DIMENSIONS - inches ID | OD | HT | Surface Area ft² | Rated Flow SCFM |
|---|---|---|---|---|---|---|
| 35P | M | 4 3/4 | 7 7/8 | 4 13/16 | 4.0 | 275 |
| 235P | M | 4 3/4 | 7 7/8 | 9 5/8 | 8.3 | 570 |
| 335P | M | 4 3/4 | 7 7/8 | 14 1/2 | 12 | 800 |
| 245P | GN | 6 | 9 3/4 | 9 5/8 | 14 | 880 |
| 345P | GN | 6 | 9 3/4 | 14 1/2 | 22.1 | 1100 |
| 275P | GN | 8 | 11 3/4 | 9 5/8 | 19 | 1100 |
| 375P | GN | 8 | 11 3/4 | 14 1/2 | 28 | 1500 |
| 377P | GN | 9 | 14 5/8 | 14 1/2 | 50 | 1825 |
| 385P | GN | 14 | 19 5/8 | 14 1/2 | 50 | 3300 |
| 485P | GN | 14 | 19 5/8 | 21 1/2 | 75 | 4705 |
| 685P | GN | 14 | 19 5/8 | 28 1/2 | 100 | 6600 |

P = Polyurethane Prefilter Included

Legend
B= Closed one end w/ Bolt hole, open on other end
C= Closed one end, open on other end
F= Felt gaskets on open end(s)
G= Galvanized metal endcaps
I= Injection molded santoprene
M= Molded plastisol
N= Neoprene gaskets on open end(s)
R= Mixed Rubber/cork gasket on open ends
T= Tin plated metal endcaps

REPLACEMENT ELEMENTS

*Solberg - Where the Best is in Store for You!*

1151 W. Ardmore Ave. • Itasca, IL 60143-1387 • (630) 773-1363 • Fax: (630) 773-0727
E-mail: sales@solbergmfg.com • Web Site: www.solbergmfg.com