MARSHALL ENGINEERED PRODUCTS CO.

FORM 1438H

# PUMP SECTION

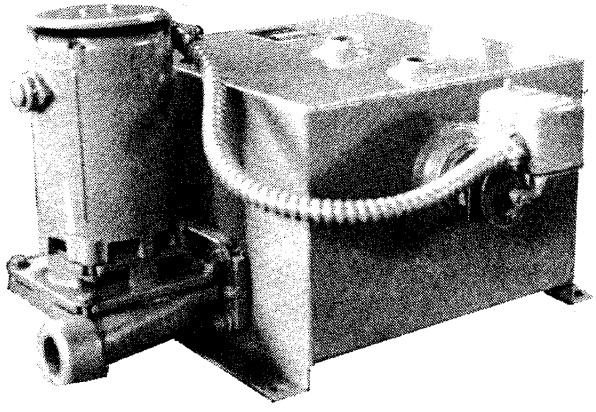
## CONDENSATION - Type GUARDIAN® LINE, Models GCA & GSA

### APPLICATION

MEPCO Type ***Guardian® Pump Line,*** Models **GCA** or **GSA** series condensate pumps are complete, compact, assemblies for returning condensate to low pressure boilers from gravity heating systems, low pressure steam process equipment, or from combinations of both. They are used where low return mains are located at elevations which do not permit gravity flow of condensate to the boiler.

These pumps quickly discharge condensate from return lines and will automatically discharge overflow condensate from auxiliary apparatus to storage tanks. Their use often increases the efficiency of the heated space in a building, by allowing the installation of radiation below the boiler water level.

Installation of a MEPCO ***Guardian®*** Pump can account for impressive fuel savings by returning hot condensate to the boiler instead of wasting it to the sewer, therefore reducing the amount of make-up water required and minimizing difficulties from boiler encrustation.



**Model GCA/GSA SERIES**
***Guardian®* Condensation Pump**

## Construction Features

**COMPLETELY ASSEMBLED** - The MEPCO ***Guardian®*** Pump, Models **GCA & GSA** condensate units are completely assembled with float control and pumps. The float control is wired to motors for 115 volt operation. All units are tested, inspected and packaged for immediate shipment.

**LONG LIFE** - These units are designed so that scale and rust usually found in heating system returns, will not seriously affect the high efficiency and long life of the unit. A mechanical seal shaft rated at 250 degrees F is used in these pumps eliminating all stuffing box maintenance. Motors are mounted well above the floor level, affording increased protection from surface water and splash of floor cleaning operations.

**EXPERIENCE** - MEPCO ***Guardian®*** Pumps are sound in engineering design, constructed of quality materials, and produced to high manufacturing standards. MEPCO Condensation Pumps have the stamina to stand up year after year with very little attention. With this experience and engineering "know-how", MEPCO has produced the ***Guardian®*** pump line incorporating many marked improvements and refinements.

**SUPERIOR PERFORMANCE** - The MEPCO ***Guardian®*** Pump's operation is automatic, quiet, efficient and reliable. They have the ability to handle condensate loads several times normal, assuring dependable operation under all conditions likely to be encountered on a job. In addition, the duplex unit is designed to provide automatic standby service and alternation.

**EASY INSTALLATION** - These pumps are ready for operation after piping and wiring connections are completed.

**SPECIFICATIONS** - Single and Duplex Configurations

| | |
|---|---|
| Capacity | 12,000 EDR (18 GPM) |
| Pressures | 20 PSI Standard |
| Tank Sizes | 10 and 16 gallon - Steel Standard |
| Tank Sizes | 6, 15, and 21 gallon - Cast Iron Standard |
| Motor | 1/3 HP, 3450 RPM |

MEPCO reserves the right to make revisions to its products, their specifications, this bulletin, and related information without notice.

# Construction

The bronze fitted centrifugal pump with its dynamically balanced enclosed impeller is assembled as a unit on the end bracket of the electric motor. The pump case is of a volute design. The mechanical shaft seal rated at 250 degrees F and 75 psig used in these pumps eliminates stuffing boxes and their maintenance.

Motors are provided with deep groove ball bearings. These pumps are available for operation on single phase 60 hertz 115/230 volt A.C. The motor operates at 3450 RPM and has built-in overload protection.

The ***Guardian®*** pump Model **GCA** is furnished with a cast iron tank, with mounting flanges on two sides for securely bolting the pump to the foundation.

The ***Guardian®*** pump Model **GSA** (steel) tank is of welded construction, made of 10 gage copper bearing steel, with flanges on two sides for securely bolting the pump to the foundation.

The tank on the Single pump is equipped with a float switch and second opening with blind flange so that an additional centrifugal pump can be added at a later date.

The Duplex pump employs as standard equipment a mechanical alternator which provides automatic standby service. If one pump is inoperative, the second pump starts automatically as well as alternating on each cycle of float control.

# OPERATION

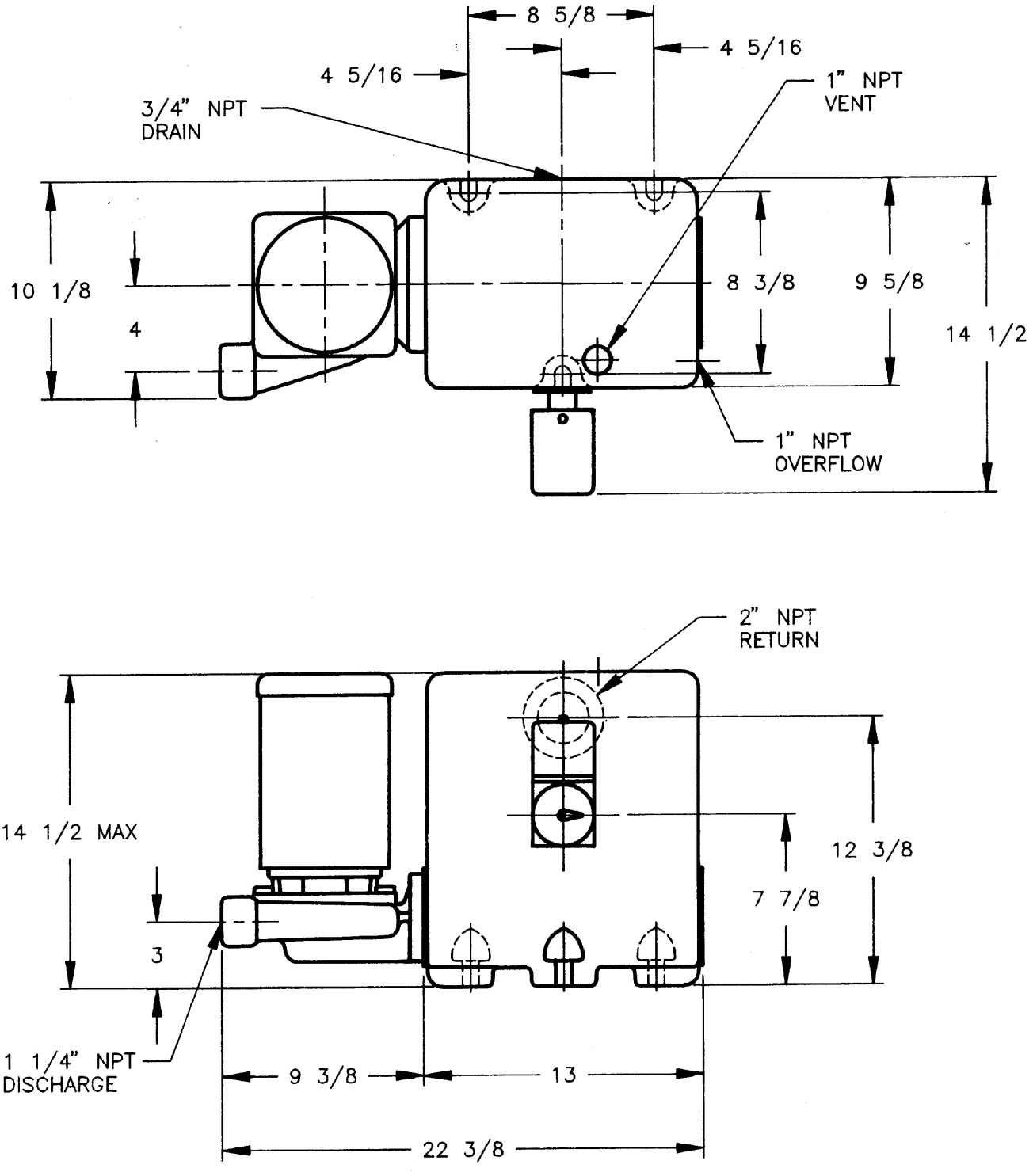
Condensate from the system flows by gravity into the pump tank. When the condensate reaches sufficient height, the float mechanism closes the float switch contacts and starts the motor. The pump discharges the condensate to the boiler and lowers the level in the tank. The pump stops when the condensate in the tank reaches its low level and the float mechanism opens the float switch contacts.

# SELECTION

The capacity tables are arranged for easy selection of the proper unit for the GPM (gallons per minute) load and discharge pressure. For greater flexibility and ease of selection, one model covers a range of capacities and pressures. If the boiler is at a higher level, or located some distance from the pump, care should be exercised to select a pump with sufficient discharge pressure to more than equal *(1)* the maximum boiler pressure, plus *(2)* the difference in elevation reduced to pounds (2.31 feet equals 1 pound) plus *(3)* the friction in the discharge piping expressed in pounds. Frequently, the use of a larger discharge line will reduce the friction head sufficiently to permit the selection of a pump having a lower discharge pressure.

| CATALOG NUMBERS | | | CAPACITY | | RECEIVER | | SHIP. WGT. | |
|---|---|---|---|---|---|---|---|---|
| Model | Pressure PSIG | HP | GPM Pump | TANK (gals.) | Size (Inch) | INLET Tapping (Inch) | Single | Duplex |
| GSA (steel tank) | 20 | 1/3 | 18 | 10 | 17x14x11 | 2 | 100 | 175 |
| GSA (steel tank) | 20 | 1/3 | 18 | 16 | 18x18x12 | 2 | 150 | 235 |
| GCA (cast iron tank) | 20 | 1/3 | 18 | 6 | 13-5/8 x12-5/8 x9-5/8 | 2 | 115 | |
| GCA (cast iron tank) | 20 | 1/3 | 18 | 15 | 21x 12x 18-1/2 | 2 | 180 | 220 |
| GCA (cast iron tank) | 20 | 1/3 | 18 | 21 | 21x 15x 19-5/16 | 2 | 200 | 240 |

# Dimensional Data for Simplex Configuration




**Model GCA (6) Gallon Cast Iron Tank**

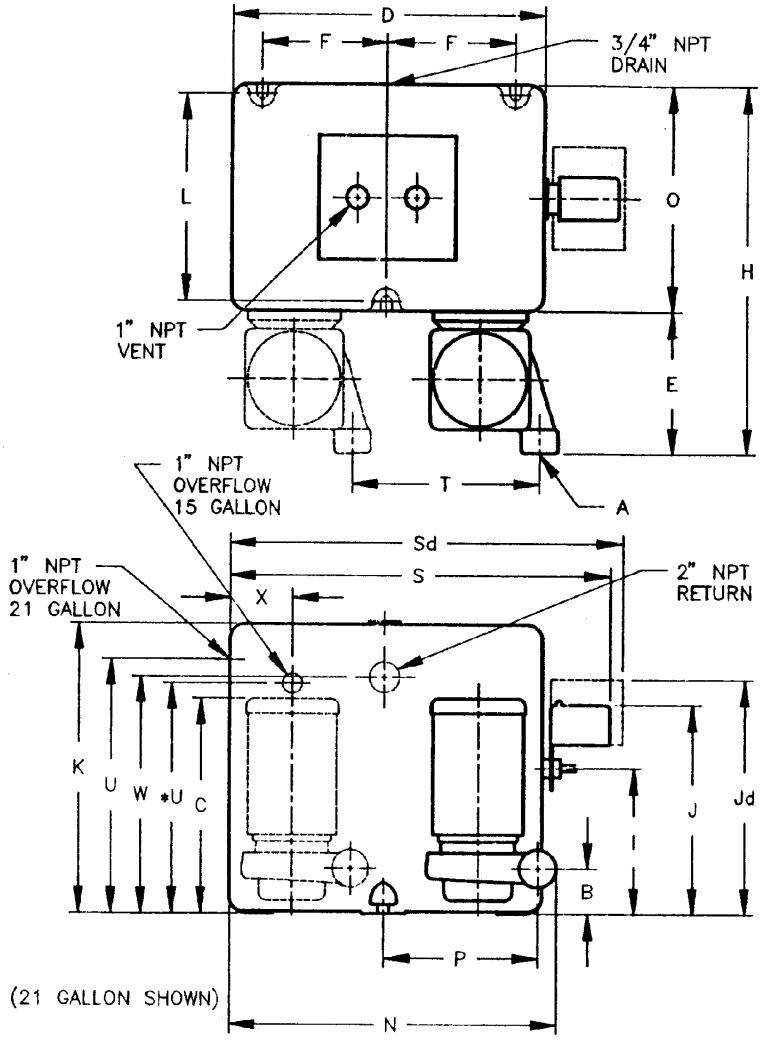
# Dimensional Data for Simplex and Duplex Configurations

| Dims. in Inches | RECEIVER CAPACITY Model GCA 15 Gal. | Model GCA 21 Gal. |
|---|---|---|
| A (NPT) | 1-1/4 | 1-1/4 |
| B | 2-1/2 | 3-1/6 |
| C | 14-1/8 | 14-1/2 |
| D | 21 | 21 |
| E | 9-3/8 | 9-3/8 |
| F | 8-1/2 | 8-1/2 |
| | | |
| H | 21-5/8 | 24-5/8 |
| Hd | --- | --- |
| I | 9-13/16 | 9-11/16 |
| J | 14-3/8 | 14-1/4 |
| Jd | 15-1/2 | 15-3/8 |
| K | 18-11/16 | 19-3/16 |
| L | 10-3/4 | 13-3/4 |
| M | --- | --- |
| N | 22 | 22 |
| O | 12-3/16 | 15-3/16 |
| P | 10-1/4 | 10-1/4 |
| Q | --- | --- |
| R | --- | --- |
| S | 25-11/16 | 25-11/16 |
| Sd | 26-7/16 | 26-7/16 |
| T | 12-1/2 | 12-1/2 |
| U | 15-3/16 | 16-3/4 |
| V | --- | --- |
| W | 15-3/16 | 15-11/16 |
| X | 4-1/4 | --- |
| Y | --- | --- |

## Model GCA

## (15) & (21) Gallon

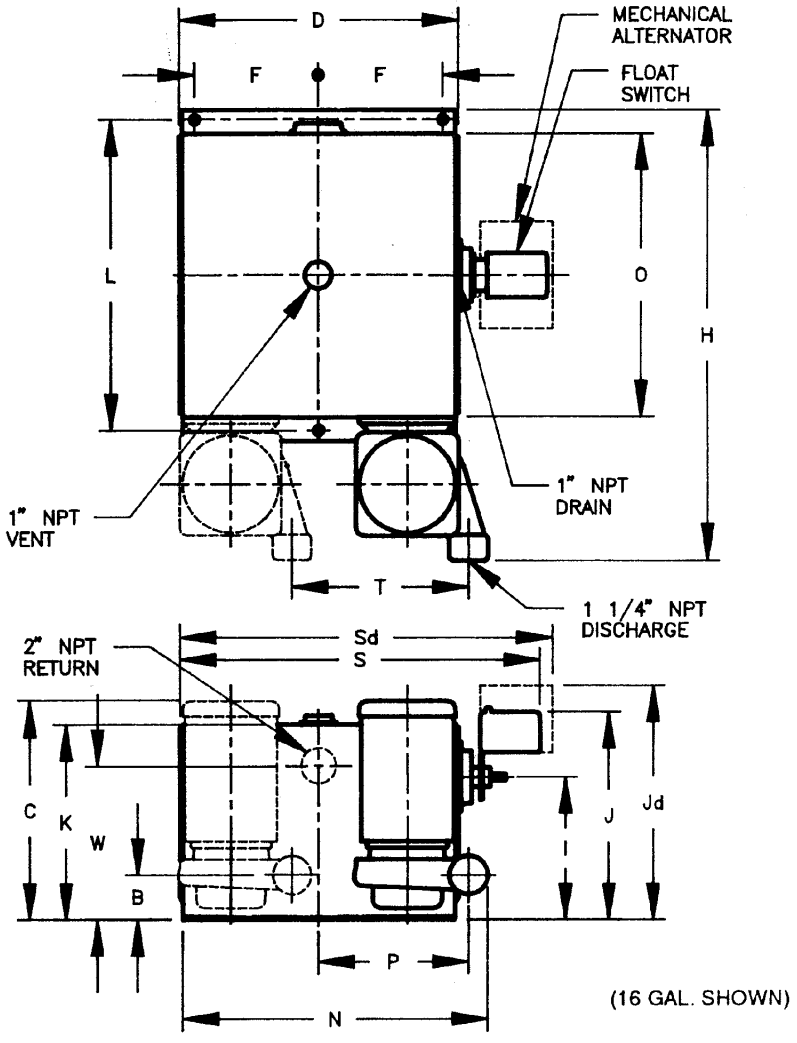
## Cast Iron Tank




* OVERFLOW FOR 15 GALLON TANK

# Dimensional Data for Simplex and Duplex Configurations

| RECEIVER CAPACITY | | |
|---|---|---|
| DIMS. INCHES | GSA 10 GAL. | GSA 16 GAL. |
| A | 1-1/4 | 1-1/4 |
| B | 2-3/4 | 2-3/4 |
| C | 14 | 14 |
| D | 17-1/8 | 18 |
| F | 7-9/16 | 8 |
| H | 24-7/8 | 28-7/8 |
| I | 7-1/2 | 9-1/8 |
| J | 11-3/4 | 13-3/8 |
| Jd | 13-1/4 | 14-7/8 |
| K | 11-3/16 | 12-1/2 |
| L | 15-1/8 | 19-7/8 |
| N | 18-7/8 | 19-3/4 |
| O | 14 | 18 |
| P | --- | 9-3/4 |
| S | 21-3/4 | 22-5/8 |
| Sd | 22-1/2 | 23-1/2 |
| T | 10-1/2 | 11-3/8 |
| W | 9 | 9-7/8 |




MODEL GSA

(10) & (16) GALLON STEEL TANKS

# Typical Specificaiton

**(For Models GCA and GSA *Guardian*® Condensation Pumps)**

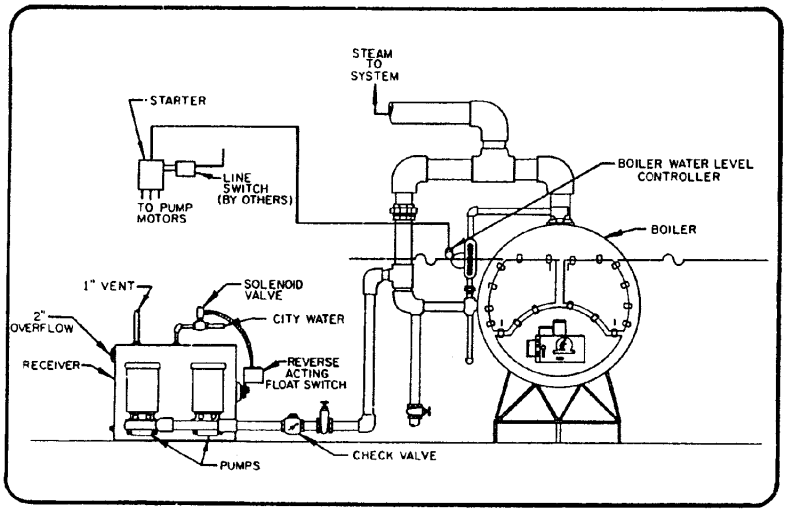
Furnish and install, as directed by plans and manufacturer's instructions, one (single or duplex) MEPCO ***Guardian***® Condensation Pump Type _____ having as rated capacity of 18 GPM capable of operating against a 20 PSIG at the pump. (Each) Pump shall be driven by a 1/3 horsepower motor wound for 1 phase 60 hertz 115/230 volts. The pump(s) shall consist of bronze fitted, enclosed impeller centrifugal pump with mechanical seal, cast iron tank or welded copper bearing steel, motor and float switches all mounted as a unit.

When Duplex pump is specified, add: Pump shall be provided with a mechanical alternator to provide automatic standby service and alternation of pump operation on each cycle of float control.

# *Guardian®* Boiler Feed Pumps

(WITH MAKE-UP WATER VALVE)

The Model **GSB** *(simplex unit)* or **GSBD** *(duplex unit)* ***Guardian® Boiler Feed Pump*** is designed for those installations where it is important to maintain the boiler water line within narrow limits, and to automatically supply "make-up" water from an outside source. Precise boiler line control is accomplished by governing the pump operation with a Boiler Water Line Controller installed at the boiler water line. When the boiler requires water, the float operated switch in the Controller starts the pump motor(s). Water level is maintained in the pump receiver by an electric solenoid water make-up valve activated by a reverse acting float switch. The construction of these pumps is similar to the **GSA/GCA** except that a water make-up circuit (solenoid valve and reverse acting float switch) is furnished in place of the float switch. Alternator is not furnished on the Duplex pump.

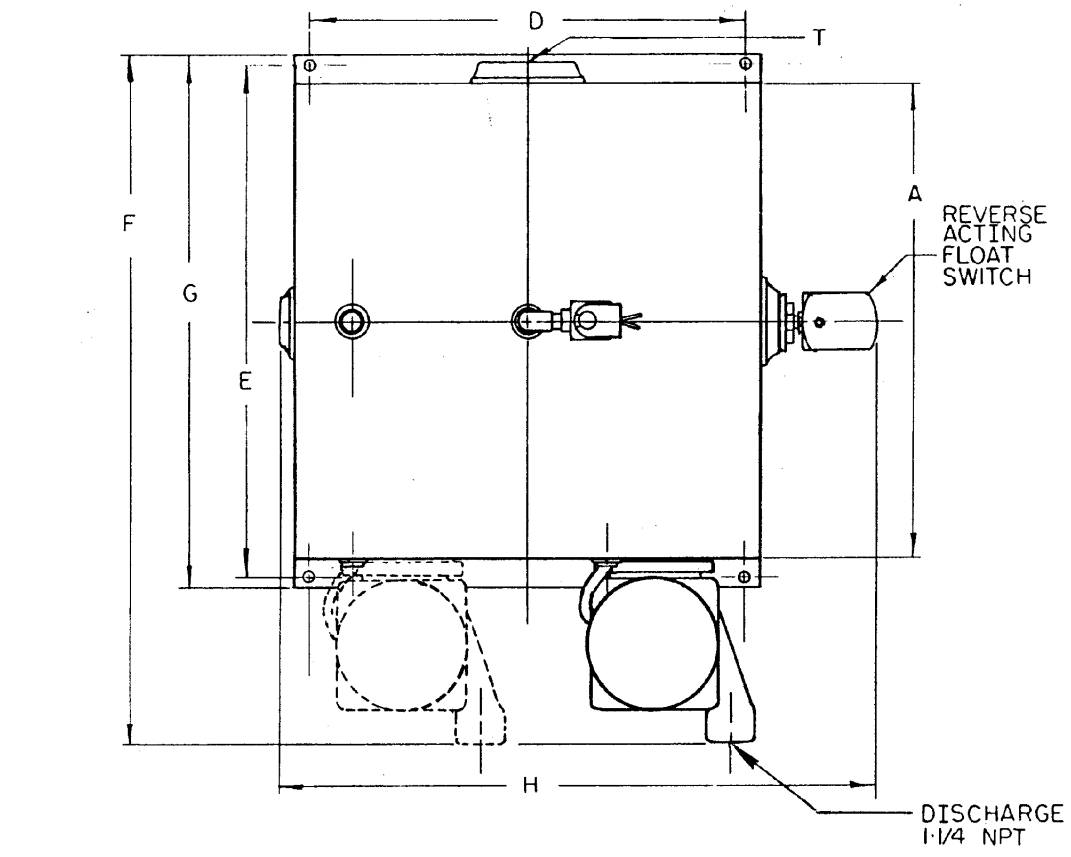


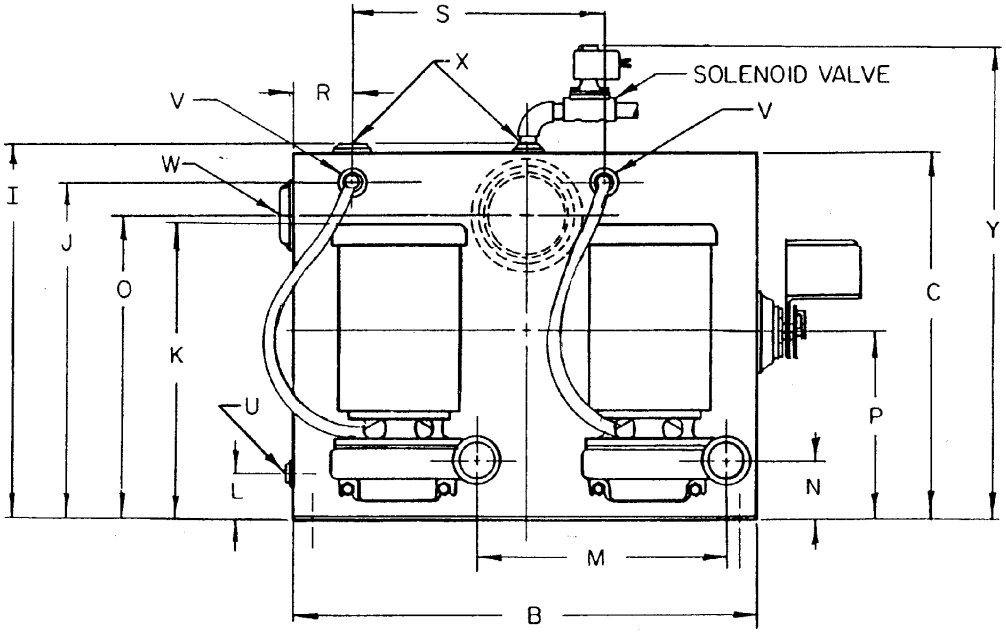

# Dimensional Data for Boiler Feed Pump Configurations

| Dims. in Inches | Models GSB (simplex) and GSBD (duplex) 44 Gal. | 70 Gal. | 100 Gal. |
|---|---|---|---|
| A | 24 | 30 | 36 |
| B | 24 | 30 | 36 |
| C | 18-1/2 | 18 | 18 |
| D | 22-1/8 | 27-13/16 | 33-13/16 |
| E | 25-7/8 | 32-1/4 | 38-1/4 |
| F | 35-3/16 | 41-3/16 | 47-3/16 |
| G | 27-1/2 | 33-1/2 | 39-1/2 |
| H | 30 | 36 | 42 |
| I | 19 | 18-1/2 | 18-1/2 |
| J | 17 | 16-7/16 | 16-7/16 |
| K | 14-3/8 | 15-1/8 | 15-1/8 |
| L | 2-3/8 | 2-11/16 | 2-11/16 |
| M | 13 | 18 | 20 |
| N | 2-3/4 | 3-1/2 | 3-1/2 |
| P | 9-5/8 | 10-5/8 | 10-1/32 |
| R | 3-1/16 | 3-3/32 | 5-3/16 |
| S | 13 | 18 | 20 |
| T | 4" NPT | 4" NPT | 4" NPT |
| U (drain) | 3/4 NPT | 3/4 NPT | 3/4 NPT |
| V (vent) | 1/8 NPT | 1/8 NPT | 1/8 NPT |

| Dims. in Inches | Models GSB (simplex) and GSBD (duplex) 44 Gal. | 70 Gal. | 100 Gal. |
|---|---|---|---|
| W (overflow) | 2" NPT | 2" NPT | 2" NPT |
| X (vent) | 1" NPT | 1" NPT | 1" NPT |
| O | 14-7/8 | 14-7/8 | 14-7/8 |
| Y | 24 | 23-1/2 | 23-1/2 |
| **WEIGHT SIMPLEX** | 252 lbs. | 312 lbs. | 396 lbs. |
| **WEIGHT DUPLEX** | 302 lbs. | 362 lbs. | 446lbs. |

# Dimensional Data for Simplex and Duplex Configurations



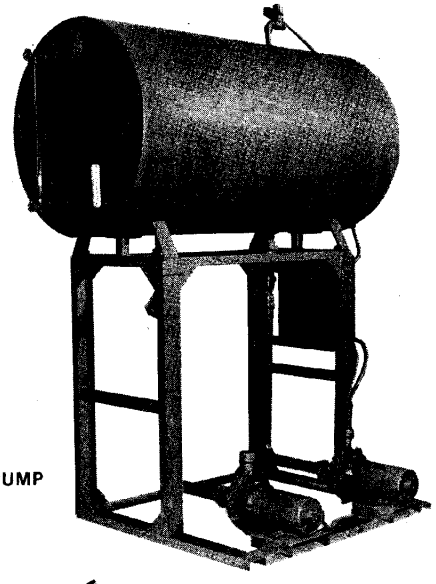




## Boiler Feed Pump, Models GSB (simplex) and GSBD (duplex) dimensional data for steel tank configurations. Available in 44, 70 and 100 gallon sizes.

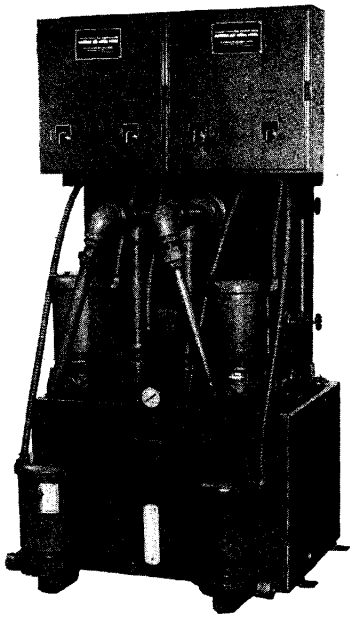
**NOTE:** Boiler Feed units are standard horizontal configurations with 44, 70 and 100 gallon tanks - 3/16" copper bearing steel.

# Special Customer Needs

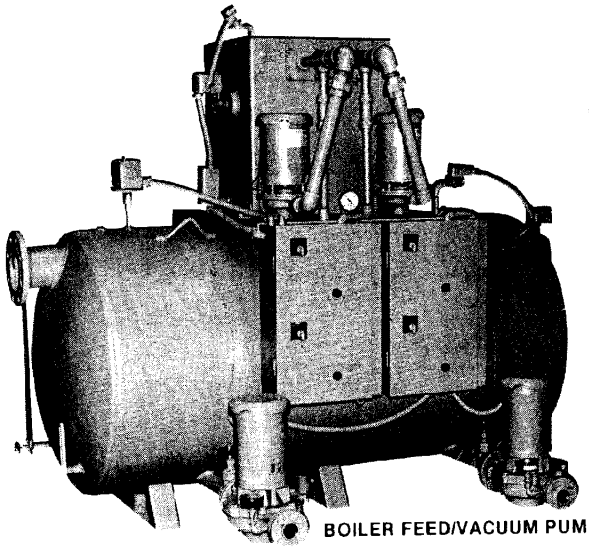
In an effort to meet our customers most special needs, MEPCO is well equipped with trained, experienced personnel to help with even the most special of design and application needs. Built-in design flexibility and personalized manufacturing attention to each unit makes our complete line of heating pumps the perfect choice for your new or retrofit situation . . . whatever the situation.



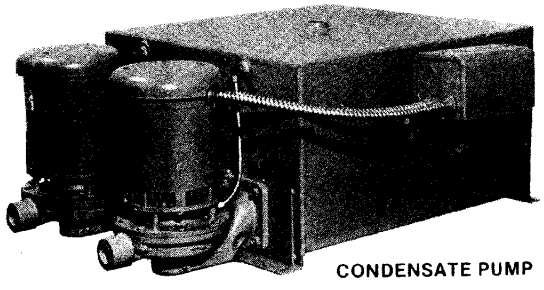
BOILER FEED PUMP



VACUUM PUMP



BOILER FEED/VACUUM PUMP



CONDENSATE PUMP

MEPCO

**MARSHALL ENGINEERED PRODUCTS CO.**

811 East Main • Marshalltown, Iowa 50158 • 641-752-4291 • FAX 641-753-0496 • http://www.mepcollc.com

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