SHIPCO® PUMPS

Take the technological step into MODERN Condensate Handling Equipment for steam systems MANUFACTURED IN AMERICA with craftsmanship and quality.

Condensate Return Units / Boiler Feed Units / Vacuum Units (Heating) / Deaerators & Surge Tanks / Underground Units / Vacuum Units (Industrial) / Centrifugal Pump & Motor Assemblies / Flash Tanks / Blow Down Separators / Fill Tanks

THE TECHNOLOGY OF TOMORROW HERE TODAY!

MISSION STATEMENT

SHIPPENSBURG PUMP COMPANY is a manufacturing company of pumps, metal fabrication, electrical panels, and steam related products. We are in business to provide dependable and durable quality products utilizing the pride and craftsmanship of our people to meet our customers' needs. Our marketing sectors are the industrial, residential and commercial markets located nationally and internationally.

A **SHIPCO®** Cast Iron Receiver is warranted for 20 years from date of shipment against corrosion failure when installed according to manufacturer's recommendations.

NEMA labeled control panels and assorted accessories are available as a standard option.

For information, assistance in designing, or troubleshooting systems consult your local **SHIPCO®** Representative.

CONDENSATE UNITS OVERVIEW

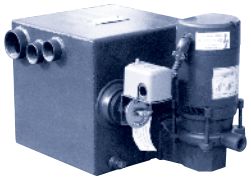
Condensate pumps are designed to collect condensed liquid at remote locations in a steam system and move it back to the boiler room. Condensate can be driven by either electricity or steam. Motor-driven pumps typically have centrifugal type pumps and include controls that de-energize the pump when water level in receiver is low. A typical motor-driven unit consists of a 3/16" thick, welded steel receiver or cast iron receiver with an industry-standard electric motor that is close coupled to a bronze-fitted, centrifugal pump. Both simplex and duplex configurations are available with/without mounted, pre-wired control panels. The steam-driven units are typically used in hazardous environments or where electricity may not be readily available.

The motor-driven condensate units in the **SHIPCO®** Defender Series are typically equivalent to units in the ITT Hoffman Watchman Series or the Mepco Guardian Series or the Skidmore Protector Series.

Benefits

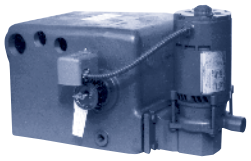
- Achieve substantial energy savings by collecting the already heated condensate and returning it to the boiler thereby lowering the consumption of fuel needed to heat the much cooler make-up water.
- Lower operating costs by reusing condensate already chemically treated thereby reducing the consumption of additional chemicals needed to treat fresh make-up water.

TYPE LP CONDENSATE PUMP



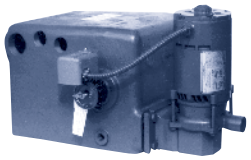
A small Low Price condensate unit for pumping water temperatures up to 200°F. A standard 3/16" thick, black steel receiver is provided for years of service. Units are floor-mounted style and designed for up to 20,000 square foot EDR and discharge pressures up to 40 psig. Units are available in either simplex or duplex configurations with 3500 RPM, single-phase motors. Pumps typically equipped with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

TYPE EC CONDENSATE PUMP



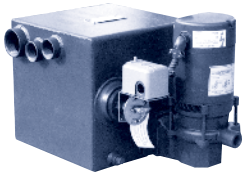
A small Economical Condensate unit for pumping water temperatures up to 200°F. A standard cast iron receiver is provided with a standard 20-year warranty against corrosion failure for years of service. Units are floor-mounted style and designed for up to 20,000 square foot EDR and discharge pressures up to 40 psig. Units are available in either simplex or duplex configurations with 3500 RPM, single-phase motors. Pumps typically equipped with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

TYPE ECP CONDENSATE PUMP



A small Economical Condensate Pump unit for pumping water temperatures up to 210°F with low NPSH pump requirements. A stainless steel, axial flow impeller (often referred to as a propeller or inducer) directs the suction flow of condensate into the eye of the impeller to minimize pump cavitations. A cast iron receiver is provided with a standard 20-year warranty against corrosion failure for years of service. Units are floor-mounted style and designed for up to 12,000 square foot EDR and discharge pressures up to 20 psig. Units are available in either simplex or duplex configurations with 3500 RPM, single-phase motors. Pumps typically equipped with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

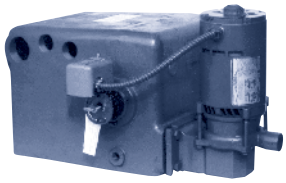
TYPE LPC CONDENSATE PUMP



A Low Price Customized condensate unit for pumping water temperatures up to 200°F. A standard 3/16" thick, black steel receiver is provided for years of service. Units are floor-mounted style and designed for up to 20,000 square foot EDR and discharge pressures up to 40 psig. Units are available in either simplex or

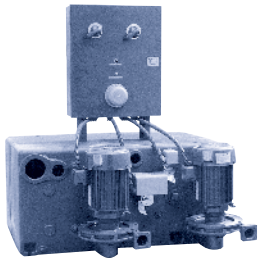
duplex configurations with a variety of options including gauge glass, thermometer, control panel; motors are 3500 RPM, single or three phase. Pumps typically equipped with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

TYPE ECC CONDENSATE PUMP



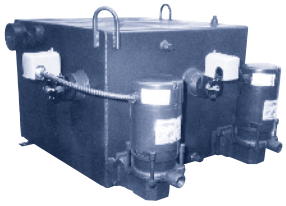
An Economical Customized Condensate unit for pumping water temperatures up to 200°F. A standard close-grained cast iron receiver is provided with a standard 20-year warranty against corrosion failure for years of service. Units are floor-mounted style and designed for up to 20,000 square foot EDR and discharge pressures up to 40 psig. Units are available in either simplex or duplex configurations with a variety of options including gauge glass, thermometer, control panel; motors are 3500 RPM, single or three phase. Pumps typically equipped with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

TYPE DC / DEC CONDENSATE PUMP



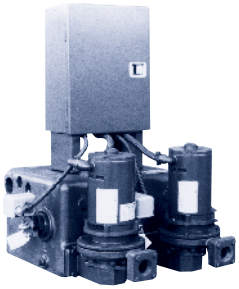
A Durable condensate unit with Cast iron receiver for pumping water temperatures up to 200°F. A standard cast iron receiver is provided with a standard 20-year warranty against corrosion failure for years of service. Units are floor-mounted style and designed for capacities from 1,000 to 100,000 sq. ft. EDR with tank sizes ranging from 10 gallons up to 500 gallons. Units are available in either simplex or duplex configurations with a variety of options including gauge glass, thermometer, control panel; motors can be either 1750 RPM or 3500 RPM, single or three phase. Pumps typically equipped with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

TYPE DS / DES CONDENSATE PUMP



A Durable condensate unit with Steel receiver for pumping water temperatures up to 200°F. A standard 3/16" thick black steel receiver is provided for years of service. Units are floor-mounted style and designed for capacities ranging from 1,000 to 100,000 sq. ft. EDR with tank sizes ranging from 15 gallons up to 235 gallons. Units are available in either simplex or duplex configurations with a variety of options including gauge glass, thermometer, control panel; motors can be either 1750 RPM or 3500 RPM, single or three phase. Pumps typically equipped with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

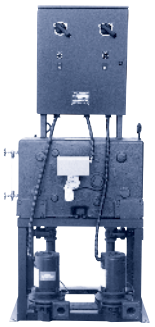
TYPE PC CONDENSATE PUMP



A Propeller Condensate unit for pumping water temperatures up to 210°F. A standard, close-grained cast iron receiver is provided with a standard 20-year warranty against corrosion failure for years of service. Units are floor-mounted style and designed for capacities from 6,000 to 112,000 sq. ft. EDR with tank sizes ranging from 10 gallons up to 500 gallons. Units are available in either simplex or duplex configurations with a variety of options including gauge glass, thermometer, control panel; motors are 3500 RPM, single or three phase. Unit equipped with bronze-fitted Model “P” that has low NPSH requirements. Pumps equipped with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

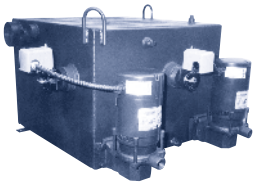
Model “P” pumps with low NPSH requirements are bronze fitted to resist corrosion and prevent seizing; pump also equipped with mechanical seals rated for temperatures up to 250°F.

TYPE PEC CONDENSATE PUMP



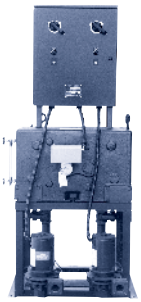
A Propeller Elevated Condensate unit for pumping water temperatures up to 212°F. A standard, close-grained cast iron receiver is provided with a standard 20-year warranty against corrosion failure for years of service. Units are elevated style and designed for capacities from 6,000 to 112,000 sq. ft. EDR with tank sizes ranging from 10 gallons up to 500 gallons. Units are available in either simplex or duplex configurations with a variety of options including gauge glass, thermometer, control panel; motors are 3500 RPM, single or three phase. Unit equipped with bronze-fitted Model “P” that has low NPSH requirements. Pumps equipped with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

TYPE PS CONDENSATE PUMP



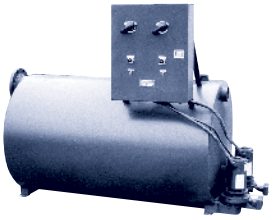
A Propeller condensate unit with Steel receiver for pumping water temperatures up to 210°F. A standard, 3/16" thick black steel receiver is provided for years of service; receiver can be stainless steel if required. Units are floor-mounted style and designed for capacities from 6,000 to 112,000 sq. ft. EDR with tank sizes ranging from 15 gallons up to 235 gallons. Units are available in either simplex or duplex configurations with a variety of options including gauge glass, thermometer, control panel; motors are 3500 RPM, single or three phase. Unit equipped with bronze-fitted Model "P" pumps typically equipped with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

TYPE PES CONDENSATE PUMP



A Propeller Elevated condensate unit with Steel receiver for pumping water temperatures up to 212°F. A 3/16" thick standard, black steel receiver is provided for years of service. Units are elevated style and designed for capacities from 6,000 to 112,000 sq. ft. EDR with tank sizes ranging from 15 gallons up to 235 gallons. Units are available in either simplex or duplex configurations with a variety of options including gauge glass, thermometer, control panel; motors are 3500 RPM, single or three phase. Unit equipped with bronze-fitted Model "P" pumps typically fitted with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

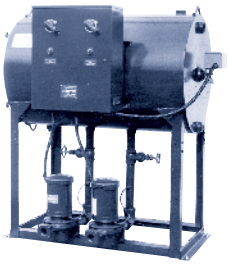
TYPE CSC-B CONDENSATE PUMP



A Cylindrical Steel Condensate unit for holding a large volume of water and pumping water temperatures up to 200°F (with Model D pump) and temperatures up to 210°F (with Model P pump). A standard black steel receiver is built with flat heads and thickness ranging from 3/16" to 3/8" for years of service; an option for heavier thickness is available. Receiver also can be 300 series stainless steel for maximum corrosion resistance; most receiver sizes can be epoxy-lined or plasite-lined. Units are floor-mounted for low-piped gravity returns and with tank sizes ranging from 70 gallons to 1488 gallons; custom-sized tanks can be made for unique applications. Unit can handle a wide range of flows and pressures.

Units are available in either simplex or duplex configurations with a variety of options including gauge glass, thermometer, control panel; motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with bronze-fitted Model "D" or "P" pumps typically fitted with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

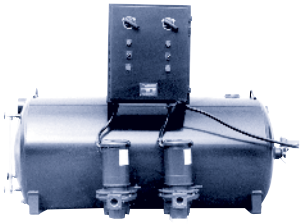
TYPE CSEC CONDENSATE PUMP



A Cylindrical Steel Elevated Condensate unit for holding a large volume of water and pumping water temperatures up to 210°F (with Model D pump) and temperatures up to 212°F (with Model P pump). A standard black steel receiver is built with flat heads and thickness ranging from 3/16" to 3/8" for years of service; an option for heavier thickness is available. Receiver also can be 300 series stainless steel for maximum corrosion resistance; most receiver sizes can be epoxy-lined or plasite-lined. Units are elevated on a fabricated steel base with tank sizes ranging from 77 gallons to 1578 gallons; custom-sized tanks can be made for unique applications. Unit can handle a wide range of flows and pressures.

Units are available in either simplex or duplex configurations with a variety of options including gauge glass, thermometer, control panel; motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with bronze-fitted Model "D" or "P" pumps typically fitted with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

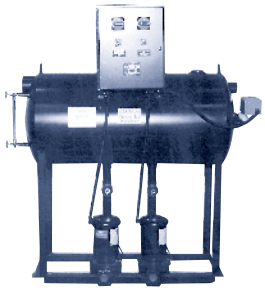
TYPE SHC CONDENSATE PUMP



A Steel Horizontal Condensate unit for holding a large volume of water and pumping water temperatures up to 200°F (with Model D pump) and temperatures up to 210°F (with Model P pump). A standard black steel receiver is ASME code constructed with dished heads; tank can be ASME code stamped if needed. Material thickness ranges from 3/16" to 3/8" for years of service; an option for heavier thickness is available. Receiver also can be 300 series stainless steel for maximum corrosion resistance; most receiver sizes can be epoxy-lined or plasite-lined. Units are floor-mounted for low-piped gravity returns and with tank sizes ranging from 77 gallons to 1578 gallons; custom-sized tanks can be made for unique applications. Unit can handle a wide range of flows and pressures.

Units are available in either simplex or duplex configurations with a variety of options including gauge glass, thermometer, control panel; motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with bronze-fitted Model "D" or "P" pumps typically fitted with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

TYPE SHEC CONDENSATE PUMP



A Steel Horizontal Elevated Condensate unit for holding a large volume of water and pumping water temperatures up to 210°F (with Model D pump) and temperatures up to 212°F (with Model P pump). A standard black steel receiver is ASME code constructed with dished heads; tank can be ASME code stamped if needed. Material thickness ranges from 3/16" to 3/8" for years of service; an option for heavier thickness is available. Receiver also can be 300 series stainless steel for maximum corrosion resistance; most receiver sizes can be epoxy-lined or plasite-lined. Units are elevated on a fabricated steel base with tank sizes ranging from 77 gallons to 1560 gallons; custom-sized tanks can be made for unique applications. Unit can handle a wide range of flows and pressures.

Units are available in either simplex or duplex configurations with a variety of options including gauge glass, thermometer, control panel; motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with bronze-fitted Model “D” or “P” pumps typically fitted with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

TYPE DUC CONDENSATE PUMP

A Durable Underground Condensate unit uses a patented design to pump water in applications where the return piping is at or below floor level. The underground basin is made of stainless steel in various sizes. Pumps are close-coupled, bronze fitted with industry standard motors. Pumps are located above the basin cover plate allowing for easy maintenance without disturbing the cover plate. The propeller shaft and its high temperature patented (U.S. Patent #4,932,846) bearing design is more durable and simpler than most other designs.

Units available in either simplex or duplex configurations with a variety of options including thermometer, control panel; motors are 3500 RPM, single or three phase. Unit equipped with bronze-fitted Model “U” pumps fitted with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

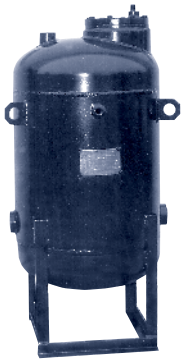
TYPE HT / HT-PMV CONDENSATE PUMP

A High Temperature return unit designed for pumping water temperatures up to 300°F. Unit reduces flash steam losses and conserves energy by eliminating the need for cooler, traps, and flash tanks in a steam system. Operating costs are lower since condensate does not need to be reheated as much as in a vented system. A standard black steel receiver with dished heads is ASME code-stamped for 125 psig. Unit can handle a wide range of flows and pressures. Units are elevated style and designed for capacities from 2,500 to 40,000 lbs per hour with tank sizes ranging from 66 gallons up to 190 gallons; however custom-sized tanks can be made for applications outside the standard tank dimensions.

Units are available in either simplex or duplex configurations with a variety of options including gauge glass, thermometer, control panel; motors are 3500 RPM, single or three phase. Unit equipped with bronze-fitted, two-foot, NPSH Model “P” pumps typically fitted with industry standard motor and with mechanical seals rated for temperatures up to 300°F. Higher temperature seals and special faces available upon request.

A HT-PMV unit is equipped with a proportioning motorized value (PMV). This valve is located in the discharge piping; it balances the water discharged by the continuously running pumps with the returning condensate input to the tank in order to maintain a constant water level in the tank. The valve closes when the water level in tank is low to prevent high pressure in unit from blowing through the pumps. A HT-PMV is ideal for use on a Steam Absorption Chiller because it improves the efficiency of the absorber by eliminating need for the trap.

FLOT & PK / FLOT “MOTIVE POWERED” CONDENSATE PUMP

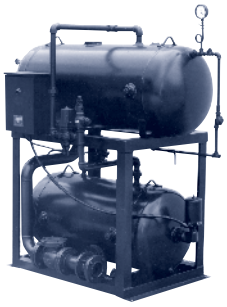


A Forced Liquid Operated Transfer (FLOT), also known as a motive powered pump is designed to transfer high temperature water (over 250°F) in applications where no electricity is available. Also used in environments that are potentially explosive or hazardous and environments that are wet or extremely humid that would require use of special motors.

The motive powered pump uses a pressurized gas up to 125 psig, such as steam, or compressed air as the motive force for pumping water temperatures up to 300°F. Receiver material can be either black steel receiver ASME code-stamped for 150 psig or ductile iron. Motive powered pump units are available in either simplex or duplex configurations with a variety of options including gauge glass, cycle counter assembly, and insulation.

A “packaged” motive powered pump (PK/FLOT) unit combines the motive powered pump (either steel or ductile iron) with a receiver that is typically elevated above the motive powered pump on a fabricated steel frame. The receiver can be either an atmospheric tank that is 3/16" black steel or a pressured tank that is ASME code-stamped for 150 psig.

PP-HT CONDENSATE PUMP



A Pressure Powered High Temperature pump which transfers high temperature water up to 338°F. Designed for applications where no electricity is available, electricity would be too expensive to install, or where a single-phase power supply is available and three-phase would be required to run the larger horsepower motors. Also used in environments that are potentially explosive or hazardous and environments that are wet or extremely humid that would require use of special motors.

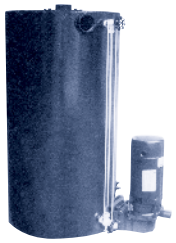
Tanks are black steel receivers ASME code-stamped for 150 psig. Units are available in either simplex or duplex configurations with a variety of options including gauge glass, cycle counter assembly, and insulation.

AC AND ACH CONDENSATE PUMP

All temperature Condensate pumps which pump hot condensate up to 210°F. Cold condensate drips from an air conditioning system or coil. Pumps to a sink or drains to places where gravity is not possible. Features a 60-cycle, 3500 RPM motor running at 1/3 HP, 115/208- or 230-volt. Pumps up to 18 GPM at 20 psig with 3/4" discharge size. The 5-1/2 gallon, heavy-fabricated steel tank contains a NEMA 1 float switch to control pump. An industry standard 56J frame motor can be purchased at anytime.

All AC units can be converted to ACH units in the field. ACH unit has optional high water alarm switch or automatic cut-off switch to prevent receiver overflow (NEMA 1 Standard). ACH switch will shut down an air conditioning unit and also activate an audible or visual alarm, preventing an overflow condition in the tank.

ECV AND ECH CONDENSATE PUMP



A small Economical Vertical Condensate unit (ECV) or Economical Horizontal Condensate unit (ECH) for pumping water temperatures up to 200°F and a 3/16" thick, black steel receiver. Unit is floor-mounted, vertical style to minimize amount of floor space required for installation; numerous size receivers are available. Units are built in either simplex or duplex configurations with 3500 RPM, single-phase motors that provide low inertia for intermittent operation. Two pump openings provided on all units.

Pumps are bronze-fitted to resist corrosion and prevent seizing; pump also equipped with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request. Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, float switch on simplex or mechanical alternator on duplex units, electrical control panels and tank insulation.

DSS-GNU CONDENSATE PUMP

Type DSS-GNU condensate unit is designed for reverse osmosis ((RO), deionized (DI) and clean steam applications where you need 100% stainless steel interior material touching liquid. The unit is equipped with specially designed, 100% interior stainless steel float switches and mechanical alternators with stainless parts and bushings. Therefore everything coming in contact with liquid is stainless steel.

DSS-GNU uses a patented design GNU pump which handles up to 200°F condensate and is made with a rectangular 300 series stainless steel receiver. Unit has a 6-1/2" inlet height from floor to cernterline for all sizes and models to help with extremely low inlet situations. The top-mounted, close-coupled pump is 316L stainless steel and utilizes a propeller shaft with its high temperature patented bearing design (U.S. patent #4,932,846). DSS-GNU is available in simplex or duplex configurations with a variety of options and accessories including a special all interior and exterior stainless steel option. These units eliminate the need for pump isolation valves since the pump is mounted on top of the receiver. As an added advantage these units can fit into a smaller floor space area than conventional Type DS or Type PS units. The standard mechanical seals are for 250°F and higher temperature seals and special faces are available upon request.

DS-MU, DSS-MU and DSSF CONDENSATE PUMP

This unit uses a patented design pump which handles up to 210°F condensate with a 2 ft. NPSH pump. This unit is made with a rectangular steel (Type DS-MU) or 300 series stainless steel receiver (Type DSS-MU). Unit has an inlet height of 6-1/2" from floor to centerline for all sizes and models to help with extremely low inlet issues. The top mounted close-coupled pump is bronze fitted with an industry standard motor and utilizes a propeller shaft and its high temperature patented (U.S. patent #4,932,846) bearing design. The unit can be either simplex or duplex configurations with a variety of options including a Special all exterior stainless steel (Type DSSF) design for all Food and Dairy applications. These units also eliminate the need for pump isolation valves since the pump is mounted on top of the receiver. An added advantage is that these units can also fit into a smaller floor space area than the conventional DS or PS units. The standard mechanical seals are for 250°F. Higher temperature seals and special faces available upon request.

BOILER FEED UNITS OVERVIEW

Designed to provide feed water to a boiler. A level controller on the boiler activates the boiler feed pumps. Both atmospheric tanks and pressurized tanks are available with or without a direct injection style heater (sometimes called a preheat tube). Pressurized tanks can be ASME code constructed or ASME code stamped. Tanks material may be cast iron, black steel or stainless steel; black steel tanks may be epoxy-lined or plasite-lined. A typical package includes the receiver, feed pumps assembled and piped, along with a mounted, pre-wired control panel. Unit can be elevated on steel frame.

Benefits

- Achieve substantial energy savings and operating efficiency by raising the temperature of the boiler feed water.
- Prevent thermal shock to the boiler (if boiler feed unit) or to the deaerator (if surge tank) by raising the temperature of the feed water.
- Prevent today's smaller, modern boilers from running dry.

SURGE TANK OVERVIEW

A surge tank increases the storage capacity of boiler feed system. It performs similar function to a boiler feed unit except it feeds a deaerator instead of a boiler. A surge tank is typically used on systems having more than 20% hot condensate returns. Two designs are available—either a two-compartment style (deaerator models with "2C") or a two-tank style (deaerator models with "2T"). The tank can be floor-mounted or elevated.

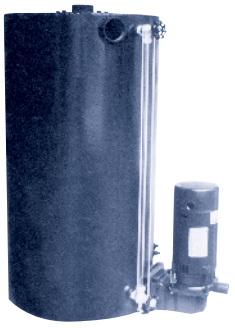
The make-up water is added into the surge tank and blended with the hot condensate returns to avoid shocking the deaerator with extreme variations in water temperature and capacity. The pumps, typically referred to as transfer pumps, must run continuously.

Unit can be built to handle a wide range of flows and pressures. Receiver materials can be steel or cast iron; cast iron receivers come with a standard 20-year warranty against corrosion failure. Steel receivers available in 3/16" or thicker, black steel or 300 series stainless steel; black steel receivers can be epoxy-lined or plasite-lined. Steel receivers can have flat heads or dished heads; floor mounted or elevated; and cylindrical or rectangular shaped. Steel receivers can be custom designed in terms of diameter, length and height to meet job specific requirements. Steel receivers can also be ASME code stamped. Standard cast iron receiver is available up to 500 gallons using a single tank; larger capacities possible with custom designs using multiple receivers.

Benefits

- Enable deaerator to run effectively on systems with more than 20% return hot condensate by controlling fluctuations in capacity and temperature of the feed water. Controlling the fluctuations minimizes the effects of corrosive gases on the boiler and helps prolong the life of the boiler system.
- Mixes hot condensate return with cold make-up water to create a constant, blended water temperature to prevent thermal shock to boiler.

EMV BOILER FEED PUMP



A small Economical Make-up Vertical boiler feed unit for pumping water temperatures up to 200°F and a 3/16" thick, black steel receiver. Unit is floor-mounted, vertical style to minimize amount of floor space required for installation; numerous size receivers are available. A mechanical make-up water valve is standard with stainless steel float and rubber fitted sealing face. Units are built in either simplex or duplex configurations with 3500 RPM, single-phase motors that provide low inertia for intermittent operation. Two pump openings provided on all units.

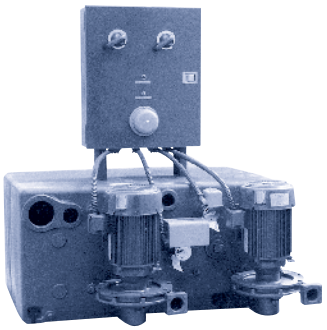
Pumps are bronze-fitted to resist corrosion and prevent seizing; pump also equipped with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request. Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, submerged heater tube for preheating feed water, electrical control panels and tank insulation.

EMH BOILER FEED PUMP

A small Economical Make-up Horizontal boiler feed unit for pumping water temperatures up to 200°F and a 3/16" thick, black steel receiver. Units are floor-mounted, horizontal style allowing for low inlet returns; numerous size receivers are available. A mechanical make-up water valve is standard with stainless steel float and rubber fitted sealing face. Units are built in either simplex or duplex configurations with 3500 RPM, single-phase motors that provide low inertia for intermittent operation. Two pump openings provided on all units.

Pumps are bronze-fitted to resist corrosion and prevent seizing; pump also equipped with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request. Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, submerged heater tube for preheating feed water, electrical control panels and tank insulation.

DMC / DMEC BOILER FEED PUMP



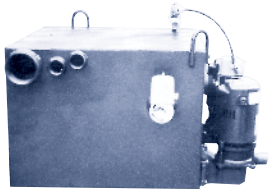
A Durable Make-up Cast iron receiver boiler feed unit for water temperatures up to 200°F and boiler capacities typically ranging from 20 BHP up to 750 BHP. A standard, close-grained, cast iron receiver is provided with a standard 20-year warranty against corrosion failure for years of service; receiver sizes range from 25 gallons to 500 gallons; unit is floor-mounted allowing for low inlet returns.

An electrical solenoid make-up water valve with float switch control is standard. Unit built in either simplex or duplex configurations with single-phase or three-phase motors; motors available at both 1750 RPM and 3500 RPM for low inertia, intermittent operation. Two pump openings provided on all units. Pumps are bronze-fitted to resist corrosion and prevent seizing; pump also equipped with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, submerged heater tube for preheating feed water, and electrical control panels.

Type DMEC is simply an elevated version of DMC.

DMS / DMES BOILER FEED PUMP



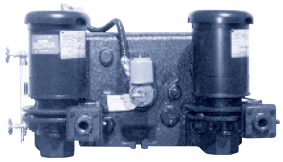
A Durable Make-up Steel receiver boiler feed unit for water temperatures up to 200°F and for boiler capacities typically ranging from 20 BHP up to 300 BHP. A 3/16" thick or thicker, black steel receiver is provided as standard for years of service; receiver sizes range from 21 gallons to 235 gallons. Unit is floor-mounted allowing for low inlet returns.

An electrical solenoid make-up water valve with float switch control is standard. Unit built in either simplex or duplex configurations with single-phase or three-phase motors; motors available at both 1750 RPM or 3500 RPM for low inertia, intermittent operation. Two pump openings provided on all units. Pumps are bronze-fitted to resist corrosion and prevent seizing; pump also equipped with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, submerged heater tube for preheating feed water, electrical control panels and tank insulation.

Type DMES is simply an elevated version of DMS.

PMC BOILER FEED PUMP

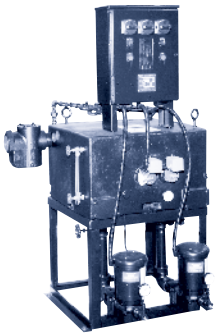


A Propeller Make-up Cast iron receiver boiler feed unit for water temperatures up to 210°F and boiler capacities ranging from 40 BHP up to 750 BHP. A standard, close-grained, cast iron receiver is provided with a standard 20-year warranty against corrosion failure for years of service; receiver sizes range from 25 gallons to 500 gallons. Unit is floor-mounted allowing for low inlet returns.

An electrical solenoid make-up water valve with float switch control is standard. Units built in either simplex or duplex configurations with single-phase or three-phase motors; motors available at 3500 RPM for low inertia, intermittent operation. Unit equipped with model “P” pumps that have low NPSH requirements. Pumps are bronze-fitted to resist corrosion and prevent seizing; pumps also furnished with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, submerged heater tube for preheating feed water, and electrical control panels.

PMEC BOILER FEED PUMP

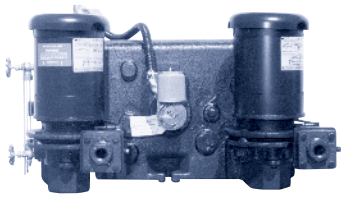


A Propeller Make-up Elevated Cast iron receiver boiler feed unit for water temperatures up to 212°F and boiler capacities ranging from 40 BHP up to 750 BHP. A standard, close-grained, cast iron receiver is provided with a standard 20-year warranty against corrosion failure for years of service; receiver sizes range from 25 gallons to 500 gallons. Unit is elevated allowing for hot condensate without pump cavitations.

An electrical solenoid make-up water valve with float switch control is standard. Units built in either simplex or duplex configurations with single-phase or three-phase motors; motors available at 3500 RPM for low inertia, intermittent operation. Unit equipped with model “P” pumps that have low NPSH requirements. Pumps are bronze-fitted to resist corrosion and prevent seizing; pumps also furnished with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch and electrical control panels.

PMS BOILER FEED PUMP

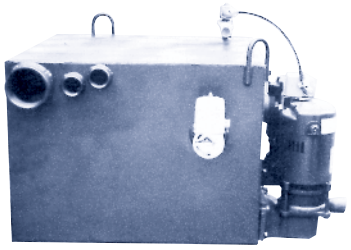


A Propeller Make-up Steel receiver boiler feed unit for water temperatures up to 210°F and boiler capacities ranging from 20 BHP up to 300 BHP. A 3/16" thick or thicker, black steel receiver is provided for years of service; receiver sizes range from 21 gallons to 235 gallons. Unit is floor-mounted allowing for low inlet returns.

An electrical solenoid make-up water valve with float switch control is standard. Unit built in either simplex or duplex configurations with single-phase or three-phase motors; motors available at 3500 RPM for low inertia, intermittent operation. Unit equipped with model “P” pumps that have low NPSH requirements. Pumps are bronze-fitted to resist corrosion and prevent seizing; pumps also furnished with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, submerged heater tube for preheating feed water, electrical control panels and tank insulation.

PMES BOILER FEED PUMP

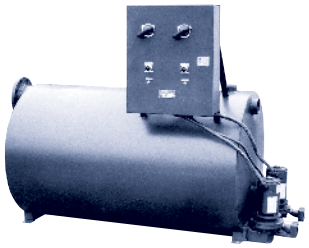


A Propeller Make-up Elevated Steel receiver boiler feed unit for water temperatures up to 212°F and boiler capacities ranging from 20 BHP up to 300 BHP. A 3/16" thick or thicker, black steel receiver is provided for years of service; receiver sizes range from 21 gallons to 235 gallons. Unit is elevated allowing for hot condensate without pump cavitations.

An electrical solenoid make-up water valve with float switch control is standard. Unit built in either simplex or duplex configurations with single-phase or three-phase motors; motors available at 3500 RPM for low inertia, intermittent operation. Unit equipped with model “P” pumps that have low NPSH requirements. Pumps are bronze-fitted to resist corrosion and prevent seizing; pumps also furnished with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, submerged heater tube for preheating feed water, electrical control panels and tank insulation.

CS-B BOILER FEED PUMP

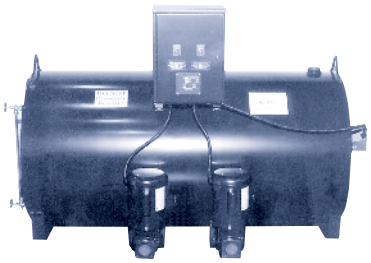


A Cylindrical Steel Boiler feed unit for pumping water temperatures up to 200°F (with Model D pump) and temperatures up to 210°F (with Model P low NPSH pump). Unit floor-mounted for low-piped gravity returns and equipped with standard, 3/16" thick, black steel receiver designed for applications with narrow access ways; an option for heavier thickness is available. Receiver also can be 300 series stainless steel for maximum corrosion resistance; most receiver sizes can be epoxy-lined or plasite-lined. Standard receiver sizes range from 49 gallons and up; customized receivers can be made for unique applications. Unit can handle a wide range of flows and pressures.

An electrical solenoid make-up water valve with float switch control is standard. Units typically available in either simplex or duplex configurations; other configurations available if needed. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with bronze-fitted Model “D” or “P” pumps fitted with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request. Pumps can be mounted in either a vertical or horizontal orientation.

Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, submerged heater tube for preheating feed water, electrical control panels and tank insulation.

CS BOILER FEED PUMP



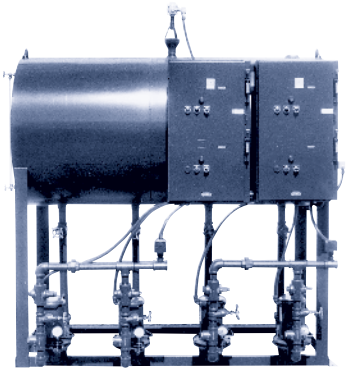
A Cylindrical Steel boiler feed unit for pumping water temperatures up to 200°F (with Model D pump) and temperatures up to 210°F (with Model P low NPSH pump). Unit floor-mounted for low-piped gravity returns and equipped with standard, 3/16" thick, black steel receiver; an option for heavier thickness is available. Receiver also can be 300 series stainless steel for maximum corrosion resistance; most receiver sizes can be epoxy-lined or plasite-lined. Standard receiver sizes range from 70 gallons and up; customized receivers can be made for unique applications. Unit can handle a wide range of flows and pressures.

An electrical solenoid make-up water valve with float switch control is standard. Units typically available in either simplex or duplex configurations; other configurations such as triplex or quadruplex available if needed. Pump motors can be either 1750 RPM or 3500

RPM, single or three phase. Unit equipped with bronze-fitted Model “D” or “P” pumps fitted with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request. Pumps can be mounted in either a vertical or horizontal orientation. Unit can also be equipped with bronze-fitted, multi-stage pumps for high-pressure applications; tungsten carbide mechanical seals on multi-stage pumps rated up to 300°F.

Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, submerged heater tube for preheating feed water, electrical control panels and tank insulation.

CES BOILER FEED PUMP

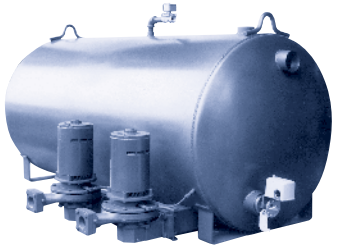


A Cylindrical Elevated Steel boiler feed unit for pumping water temperatures up to 212°F (with Model P low NPSH pump). Unit equipped with standard, 3/16" thick, black steel receiver; an option for heavier thickness is available. Receiver also can be 300 series stainless steel for maximum corrosion resistance; most receiver sizes can be epoxy-lined or plasite-lined. Standard receiver sizes range from 70 gallons to 1468 gallons; customized receivers can be made for unique applications. Unit can handle a wide range of flows and pressures.

An electrical solenoid make-up water valve with float switch control is standard. Units typically available in either simplex or duplex configurations; other configurations such as triplex or quadruplex available if needed. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with bronze-fitted Model “D” (for temperatures 210°F or lower) or “P” pumps fitted with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request. Pumps can be mounted in either a vertical or horizontal orientation. Unit can also be equipped with bronze-fitted, multi-stage pumps for high-pressure applications; tungsten carbide mechanical seals on multi-stage pumps rated up to 300°F.

Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, submerged heater tube for preheating feed water, electrical control panels and tank insulation.

SHM BOILER FEED PUMP

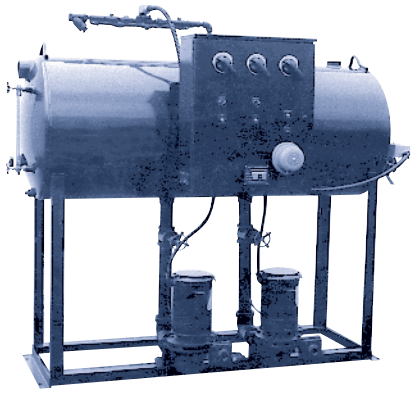


A Steel Horizontal Make-up boiler feed unit for pumping water temperatures up to 200°F (with Model D pump) and temperatures up to 210°F (with Model P low NPSH pump). A standard, 3/16" thick, black steel receiver is ASME code constructed with dished heads; tank can be ASME code stamped if needed. An option for heavier thickness is available. Receiver also can be 300 series stainless steel for maximum corrosion resistance; most receiver sizes can be epoxy-lined or plasite-lined. Standard receiver sizes range from 77 gallons and up; customized receivers can be made for unique applications. Unit can handle a wide range of flows and pressures.

An electrical solenoid make-up water valve with float switch control is standard. Units typically available in either simplex or duplex configurations; other configurations such as triplex or quadruplex available if needed. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with bronze-fitted Model “D” or “P” pumps fitted with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request. Pumps can be mounted in either a vertical or horizontal orientation. Unit can also be equipped with bronze-fitted, multi-stage pumps for high-pressure applications; tungsten carbide mechanical seals on multi-stage pumps rated up to 300°F.

Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, submerged heater tube for preheating feed water, electrical control panels and tank insulation.

SHEM BOILER FEED PUMP



A Steel Horizontal Elevated Make-up boiler feed unit for pumping water temperatures up to 212°F (with Model P low NPSH pump). A standard, 3/16" thick, black steel receiver is ASME code constructed with dished heads; tank can be ASME code stamped if needed. An option for heavier thickness is available. Receiver also can be 300 series stainless steel for maximum corrosion resistance; most receiver sizes can be epoxy-lined or plasite-lined. Standard receiver sizes range from 77 gallons and up; customized receivers can be made for unique applications. Unit can handle a wide range of flows and pressures.

An electrical solenoid make-up water valve with float switch control is standard. Units typically available in either simplex or duplex configurations; other configurations such as triplex or quadruplex available if needed. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with bronze-fitted Model “D” or “P” pumps fitted with industry standard motors and with mechanical seals rated for temperatures up to 250°F.

Higher temperature seals and special faces available upon request. Pumps can be mounted in either a vertical or horizontal orientation. Unit can also be equipped with bronze-fitted, multi-stage pumps for high-pressure applications; tungsten carbide mechanical seals on multi-stage pumps rated up to 300°F.

Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, submerged heater tube for preheating feed water, electrical control panels and tank insulation.

DUMC BOILER FEED PUMP

A Durable Underground Make-up boiler feed unit with stainless steel receiver uses a patented design to pump water in applications where the return piping is at or below floor level. The underground basin is made of cast iron in various sizes. Pumps are located above the basin cover plate allowing for easy maintenance without disturbing the cover plate. The propeller shaft and its high temperature patented (U.S. Patent #4,932,846) bearing design is more durable and simpler than most other designs.

An electrical solenoid make-up water valve with float switch control is standard. Units available in either simplex or duplex configurations; motors are 3500 RPM, single or three phase. Unit equipped with bronze-fitted Model “U” pumps fitted with industry standard motors and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, low-water cut-off and electrical control panels.

HT-M BOILER FEED PUMP

A High Temperature Make-up boiler feed unit designed for pumping water temperatures up to 300°F. Unit used when there are no other return loads and the temperature of load is higher than the saturation temperature. Pumping at temperatures higher than saturation temperature directly to boiler eliminates vent loss and exposure to atmospheric oxygen. A standard black steel receiver with dished heads is ASME stamped for 125 psig. Unit can handle a wide range of flows and pressures. Units are elevated style and designed for capacities from 2,500 to 40,000 lbs per hour with tank sizes ranging from 66 gallons up to 190 gallons; however customized receivers can be made for applications outside the standard tank dimensions.

An electrical solenoid make-up water valve with float switch control is standard. Units are available in either simplex or duplex configurations; motors are 3500 RPM, single or three phase. Unit equipped with bronze-fitted, Model “P” low NPSH pump fitted with industry standard motors and with mechanical seals rated for temperatures up to 300°F.

Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, low-water cut-off and electrical control panels.

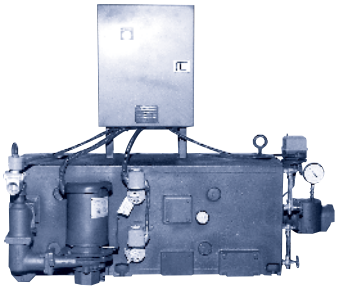
VACUUM UNITS OVERVIEW

Designed to remove air and lift condensate in the condensate recovery portion of your steam heating system. Receiver typically has two compartments—one to collect hot condensate and one to produce the vacuum. Tank material can be close-grained cast iron or black steel. Thicker black steel or 300 series stainless steel is option on some models for increased corrosion resistance. Both simplex and duplex configurations are available with/without mounted, pre-wired control panels.

Benefits

- Lower boiler operating costs by enabling boiler to run at a lower operating pressure and still get a pressure differential across traps in steam system.
- Achieve substantial energy savings by collecting the already heated condensate and returning it faster to the boiler, thereby lowering the consumption of fuel needed to heat additional cold make-up water.
- Lower operating costs by reusing hot condensate already chemically treated, thereby reducing the consumption of additional chemicals needed to treat fresh make-up water.

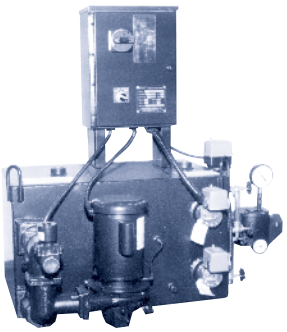
LRV VACUUM PUMP



Low Return Vacuum heating unit with a combination air and water pump that performs both the condensate and vacuum pumping functions. Multi-jet design proven to be effective and reliable means for removing air and lifting hot condensate in the return system. A standard cast iron receiver is provided with a standard 20-year warranty against corrosion failure for years of service. Standard unit designed for applications with low returns and system capacities ranging up from 2,500 square feet EDR; air pumps range up from 3 cubic feet per minute (cfm) at 5½" HG at 160°F. Unit completely packaged, including electrical controls.

Units are available in either simplex or duplex configuration with either 1750 RPM or 3500 RPM motors in either single or three phase. Pumps are flange mounted to the receiver and equipped with industry standard motors. Pumps bronze-fitted with removable bronze wearing ring and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

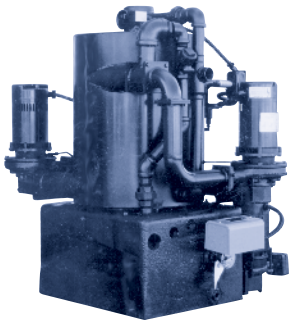
LRV-S VACUUM PUMP



Low Return Vacuum heating unit with a combination air and water pump that performs both the condensate and vacuum pumping functions. Multi-jet design proven to be effective and reliable means for removing air and lifting hot condensate in the return system. A standard steel receiver is provided for years of service. Standard unit designed for applications with low returns and system capacities ranging up from 2,500 square feet EDR; air pumps range up from 3 cubic feet per minute (cfm) at 5½" HG at 160°F. Unit completely packaged, including electrical controls.

Units are available in either simplex or duplex configuration with either 1750 RPM or 3500 RPM motors in either single or three phase. Pumps are flange mounted to the receiver and equipped with industry standard motors. Pumps bronze-fitted with removable bronze wearing ring and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

BVC / BVMC VACUUM PUMP



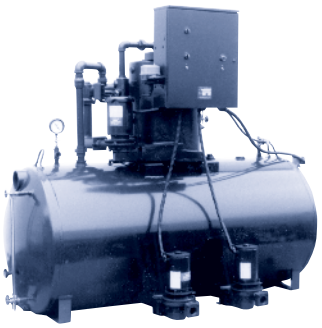
Big Vacuum and Condensate unit with independent air and water pumps. Multi-jet design proven effective and reliable for removing air and lifting hot condensate in the return system. A standard cast iron receiver is provided with a standard 20-year warranty against corrosion failure for years of service or a rectangular steel tank. The vacuum tank (or hurling chamber) is either heavy gauge, black steel or cast iron depending upon sizing. Standard unit designed for applications with system capacities ranging up from 1,000 square feet EDR; air pumps range up from 5.8 cubic feet per minute (cfm) at 5½" HG at 160°F. Unit completely packaged, including electrical controls.

Units are available in either simplex or duplex configuration with either 1750 RPM or 3500 RPM motors in either single or three phase. Pumps are flange mounted to the receiver and equipped with industry standard motors. Pumps bronze-fitted with removable bronze wearing ring and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

Air and water pumps can be sized separate for customized applications that standard unit configurations can not meet.

Type BVMC is the boiler feed unit version of the BVC. An electrical solenoid make-up water valve with float switch control is standard. A low water cut-off switch is furnished to prevent pumps from operating should the make-up water assembly fail to prevent the pumps from running dry and burning up the mechanical seals. Numerous options are available.

SHVC / SHVM VACUUM PUMP



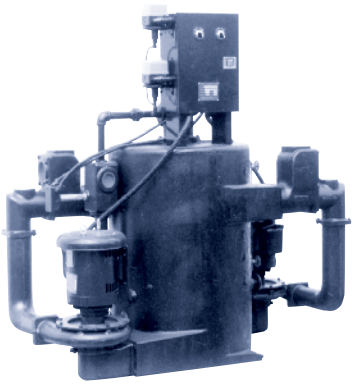
Steel Horizontal Vacuum and Condensate unit with independent air and water pumps. Multi-jet design proven effective and reliable for removing air and lifting hot condensate in the return system. A standard heavy gauge black steel receiver from 3/16" to 3/8" thick provided for years of service. Receiver is divided into two compartments: one side is used for collecting hot condensate and the other side is the vacuum chamber. Standard unit designed for applications with system capacities ranging up from 1,000 square feet EDR; air pumps range up from 6 cubic feet per minute (cfm) at 5½" HG at 160°F. Unit completely packaged, including electrical controls.

Units are available in either simplex or duplex configuration with either 1750 RPM or 3500 RPM motors in either single or three phase. Pumps are flange mounted to the receiver and equipped with industry standard motors. Pumps bronze-fitted with removable bronze wearing ring and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

Air and water pumps can be sized separate for customized applications that standard unit configurations can not meet.

Type SHVM is the boiler feed unit version of the SHVC. An electrical solenoid make-up water valve with float switch control is standard. A low water cut-off switch is furnished to prevent pumps from operating should the make-up water assembly fail to prevent the pumps from running dry and burning up the mechanical seals. Numerous options are available.

BV VACUUM PUMP



Big Vacuum producing unit for clinical (such as hospitals and laboratories) and industrial processes. Mufflers or silencers are not required because design is quieter than other types of vacuum pumps.

Multi-jet design proven effective and reliable for removing air and for lifting hot condensate in the return system. The vacuum tank (or hurling chamber) is either heavy gauge, black steel or cast iron depending upon sizing. Standard unit designed for applications with system capacities ranging up from 1,000 square feet EDR; air pumps range up from 5.8 cubic feet per minute (cfm) at 5½" HG at 160°F. Unit completely packaged, including electrical controls.

Units are available in either simplex or duplex configuration with either 1750 RPM or 3500 RPM motors in either single or three phase. Pumps are flange mounted to the receiver and equipped with industry standard motors. Pumps bronze-fitted with removable bronze wearing ring and with mechanical seals rated for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

DEAERATOR UNITS OVERVIEW

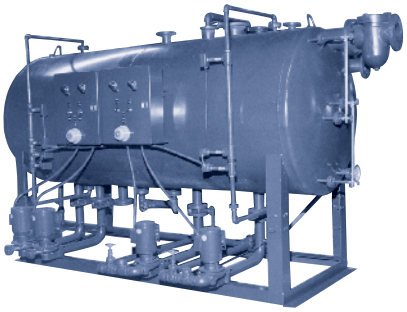
The mechanical deaeration process is one of the most economical methods for removing corrosive gases such as dissolved oxygen from boiler feed water. Dissolved oxygen in feed water is the major cause of boiler corrosion. A standard .03 design removes dissolved oxygen to a maximum level of .03 cubic centimeters per liter of feed water; rating can also be expressed as 44 parts per billion of oxygen in the feed water by weight. A standard .005 design removes dissolved oxygen to a maximum level of .005 cubic centimeters per liter of feed water; rating can be expressed as 7 parts per billion of oxygen per liter of feed water.

The atmospheric design provides unrestricted venting of the non-condensing gases. Both atmospheric deaerators and pressurized deaerators are available with either spray style or tray style designs. Unit may be two-tank design with surge tank or two-compartment tank. Tank construction conforms to section VIII of the ASME code and can be ASME code stamped. Tank material may be black steel or stainless steel; tank can be lined with plasite. A typical package includes the deaerator tank mounted on a stand of appropriate height along with all operating controls, feed pumps assembled and piped.

Benefits

- Prolong the life of the boiler system by minimizing the effects of corrosive gases on the boiler.
- Achieve substantial energy savings and prevent thermal shock to boiler by raising the temperature of the boiler feed water.
- Lower operating costs by reducing consumption of chemicals needed and less maintenance resulting from reduction of corrosive gases and prevention of thermal shock.

.03 DA / .03 DA-2T / .03 DA-2C DEAERATORS



Atmospheric deaerators are recommended for low-pressure boiler applications. The standard .03 design removes dissolved oxygen to a maximum level of .03 cubic centimeters per liter of feed water. The amount of hot condensate returns influences which design is most appropriate for applications. A single-compartment .03 DA unit is typically used on systems having 80% or more make-up water. Two-compartment design (.03 DA-2C) or two-tank design (.03 DA-2T) that includes a stand-alone surge tank is typically used on systems having more than 20% return hot condensate.

Two-compartment deaerators also recommended:

- where floor space may not be sufficient for a two-tank design
- when a complete, factory-packaged unit is preferred instead of field wiring and piping of a free-standing surge tank and deaerator

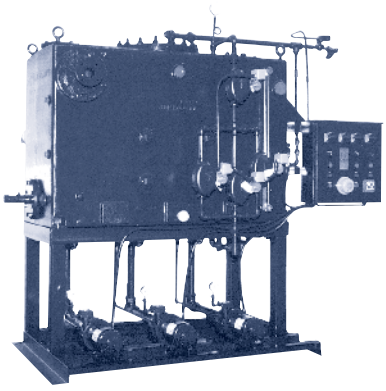
The two-compartment design enables the flash steam that escapes the deaeration compartment to be recovered by the direct contact vent condenser in the accumulator compartment. This method allows minimal vent loss.

Standard deaerator receivers available in black steel. On two-tank designs the free-standing surge tank can be plasite-lined or made 300 series stainless steel; on two-chamber designs, the surge tank can be plasite-lined or the complete tank made 300 series stainless steel. Unit can be built to handle a wide range of flows and pressures; receiver can be customized in terms of diameter, length and height to meet job specific requirements.

Number of pumps on unit depends upon number of boilers to be supported and stand-by specifications. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with single stage or multi-stage pumps depending upon operating conditions. Pumps typically bronze-fitted with industry standard motors and mechanical seals rated for temperatures up to 300°F. Higher temperature seals and special faces available upon request. Pumps can be mounted in either a vertical or horizontal orientation.

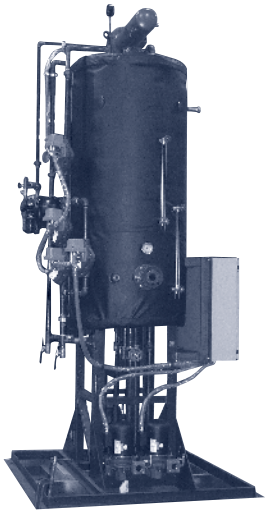
Deaerators equipped with direction steam injection assembly with stainless steel preheat tube; assembly includes temperature regulator that can be either pneumatic controlled or self-contained. Other accessories include but are not limited to gauge glass assembly thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, electrical control panels and tank insulation.

.03 DA-CI / .03 DA-CI-2T DEAERATORS



Atmospheric deaerators are recommended for low-pressure boilers. Unit design similar to the .03 DA or .03 DA-2T except that receiver material is close-grained with a standard 20-year warranty against corrosion failure for maximum corrosion resistance. Standard receiver sizes available up to 500 gallons using a single tank; larger capacities possible with customized designs using multiple receivers.

.005 DA-STV / .005 DA-STV-2T DEAERATORS



Atmospheric deaerators are recommended for high-pressure boiler applications. Vertical orientation makes model ideal for applications where available floor space is limited. The atmospheric design allows for gravity returns and generally produces less steam loss under partial load conditions than pressurized deaerators. The standard .005 design removes dissolved oxygen to a maximum level of .005 cubic centimeters per liter of feed water. Atmospheric deaerators provide unrestricted venting of the non-condensing gases.

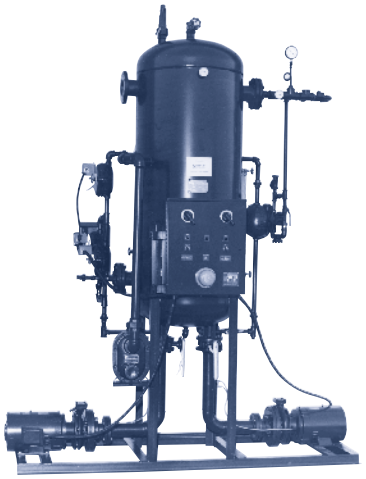
The amount of hot condensate returns influences which design is most appropriate for applications. A single-tank design is typically used on systems having 80% or more make-up water. A two-tank design (DA-STV-2T) that includes a stand-alone surge tank is typically used on systems having more than 20% return hot condensate.

Standard deaerator receivers available in black steel. For two-tank designs, the surge tank can be either plasite-lined or made 300 series stainless steel. Unit can be built to handle a wide range of flows and pressures; receiver can be customized in terms of diameter, length and height to meet job specific requirements.

Number of pumps on unit depend upon number of boilers to be supported and stand-by specifications. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with single stage or multi-stage pumps depending upon operating conditions. Pumps bronze-fitted with industry standard motors and mechanical seals rated for temperatures up to 300°F. Special seal faces available upon request. Pumps can be mounted in either a vertical or horizontal orientation.

Deaerators equipped with direct steam injection assembly with stainless steel preheat tube; assembly includes temperature regulator that can be either pneumatic controlled or self-contained. Other accessories include but are not limited to gauge glass assembly thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, electrical control panels and tank insulation.

.005 DA-STVP / .005 DA-STVP-2T DEAERATORS



Pressurized deaerators are recommended for high-pressure boiler applications or where available floor space is limited since the design uses a vertical orientation. The standard .005 design removes dissolved oxygen to a maximum level of .005 cubic centimeters per liter of feed water.

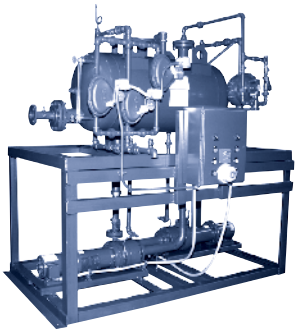
The amount of hot condensate returns influences which design is most appropriate for applications. A single-tank design (DA-STVP) is typically used on systems having 80% or more make-up water. A two-tank design (DA-STVP-2T) is typically used on systems having more than 20% return hot condensate.

Standard deaerator receivers made of black steel and also ASME code stamped. For two-tank designs, the surge tank can be either plasite-lined or made 300 series stainless steel. Unit can be built to handle a wide range of flows and pressures; receiver can be customized in terms of diameter, length and height to meet job specific requirements.

Number of pumps on unit depends upon number of boilers to be supported and stand-by specifications. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with single stage or multi-stage pumps depending upon operating conditions. Typically, pumps are bronze-fitted with industry standard motors and mechanical seals rated for temperatures up to 300°F. Special faces on seals available upon request. Pumps can be mounted in either a vertical or horizontal orientation.

Deaerator equipped with direct steam injection assembly with stainless steel preheat tube; assembly includes pressure regulator that is self-contained. Other accessories include but are not limited to gauge glass assembly thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, electrical control panels and tank insulation.

.005 DA-SCP / .005 DA-SCP-2T DEAERATORS



The affordable, small capacity (from 20 BHP), pressurized deaerator is recommended for high-pressure applications where customers typically could not afford a deaerator and settled for a boiler feed unit with preheat. Unit equipped with internal spray-tray design. The standard .005 design removes dissolved oxygen to a maximum level of .005 cubic centimeters per liter of feed water. Unit designed so that undeaerated water only comes in contact with stainless steel to prolong life of unit.

The amount of hot condensate returns influences which design is most appropriate for applications. A single-tank design (DA-SCP) is typically used on systems having 80% or more make-up water. A two-tank design (DA-SCP-2T) that includes a stand-alone surge tank is typically used on systems having more than 20% return hot condensate.

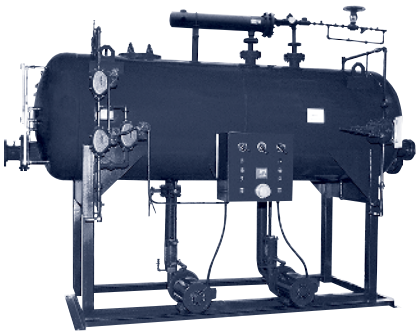
Standard deaerator receiver available in black steel and ASME code stamped with an extra corrosion allowance of 1/16" beyond ASME code requirements added. For two-tank designs, the surge tank can be either plasite-lined or made of 300 series stainless steel. Unit

can be built to handle a wide range of flows and pressures; receiver can be customized in terms of diameter, length and height to meet job specific requirements.

Number of pumps on unit depends upon number of boilers to be supported and stand-by specifications. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with single stage or multi-stage pumps depending upon operating conditions. Pumps bronze-fitted with industry standard motors and mechanical seals rated for temperatures up to 300°F. Pumps can be mounted in either a vertical or horizontal orientation.

Deaerators equipped with direct steam injection assembly with stainless steel preheat tube; assembly includes pressure regulator that is self-contained. Other accessories include but are not limited to gauge glass assembly thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, electrical control panels and tank insulation.

.005 DA-IST / .005 DA-IST-2T DEAERATORS



Atmospheric deaerators are recommended for high-pressure boiler applications. Unit equipped with internal spray-tray design. The standard .005 design removes dissolved oxygen to a maximum level of .005 cubic centimeters per liter of feed water. The atmospheric deaerator design provides unrestricted venting of the non-condensing gases, allows for gravity returns, and generally produces less steam loss under partial load conditions than a pressurized deaerator. Unit designed so that undeaerated water only comes in contact with stainless steel to prolong life of unit.

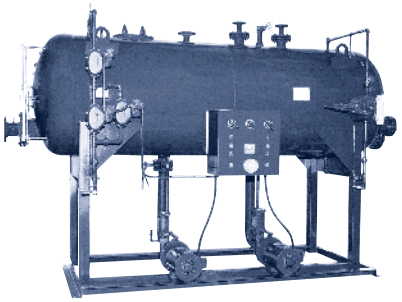
The amount of hot condensate returns influences which design is most appropriate for applications. A single-tank design (DA-IST) is typically used on systems having 80% or more make-up water. A two-tank design (DA-IST-2T) that includes a stand-alone surge tank is typically used on systems having more than 20% return hot condensate.

Standard deaerator receivers available in black steel. For two-tank designs, the surge tank can be either plasite-lined or made of 300 series stainless steel. Unit can be built to handle a wide range of flows and pressures; receiver can be customized in terms of diameter, length and height to meet job specific requirements.

Number of pumps on unit depends upon number of boilers to be supported and stand-by specifications. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with single stage or multi-stage pumps depending upon operating conditions. Pumps bronze-fitted with industry standard motors and mechanical seals rated for temperatures up to 300°F. Higher temperature seals and special faces available upon request. Pumps can be mounted in either a vertical or horizontal orientation.

Deaerators equipped with direct steam injection assembly with stainless steel preheat tube; assembly includes temperature regulator that can be either pneumatic controlled or self-contained. Other accessories include but are not limited to gauge glass assembly thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, electrical control panels and tank insulation.

.005 DA-ISTP / .005 DA-ISTP-2T DEAERATORS



Pressurized deaerators are recommended for high-pressure boiler applications. Unit equipped with internal spray-tray design. The standard .005 design removes dissolved oxygen to a maximum level of .005 cubic centimeters per liter of feed water. Unit designed so that undeaerated water only comes in contact with stainless steel to prolong life of unit.

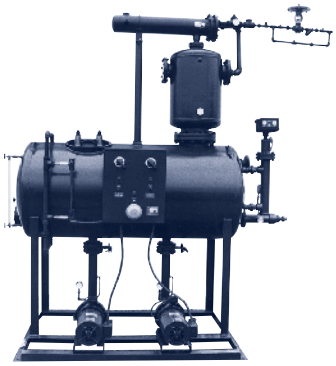
The amount of hot condensate returns influences which design is most appropriate for applications. A single-tank design (DA-ISTP) is typically used on systems having 80% or more make-up water. A two-tank design (DA-ISTP-2T) that includes a stand-alone surge tank is typically used on systems having more than 20% return hot condensate.

Standard deaerator receiver available in black steel and ASME code stamped with an extra corrosion allowance of 1/16" beyond ASME code requirements added. For two-tank designs, the surge tank can be either plasite-lined or made of 300 series stainless steel. Unit can be built to handle a wide range of flows and pressures; receiver can be customized in terms of diameter, length and height to meet job specific requirements.

Number of pumps on unit depends upon number of boilers to be supported and stand-by specifications. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with single stage or multi-stage pumps depending upon operating conditions. Pumps bronze-fitted with industry standard motors and mechanical seals rated for temperatures up to 300°F. Special faces available on seals upon request. Pumps can be mounted in either a vertical or horizontal orientation.

Deaerator equipped with direct steam injection assembly with stainless steel preheat tube; assembly includes pressure regulator that is self-contained. Other accessories include but are not limited to gauge glass assembly thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, electrical control panels and tank insulation.

.005 DA-ST / .005 DA-ST-2T DEAERATORS



Atmospheric deaerators are recommended for high-pressure boiler applications. The standard .005 design removes dissolved oxygen to a maximum level of .005 cubic centimeters per liter of feed water. The atmospheric deaerator design provides unrestricted venting of the non-condensing gases, allows for gravity returns and generally produces less steam loss under partial load conditions than a pressurized deaerator. Unit designed so that undeaerated water only comes in contact with stainless steel to prolong life of unit.

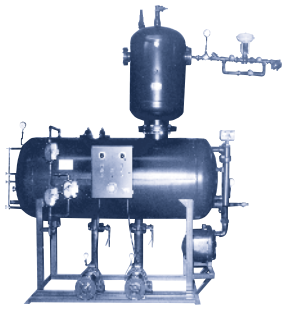
The amount of hot condensate returns influences which design is most appropriate for applications. A single-tank design (DA-ST) is typically used on systems having 80% or more make-up water. A two-tank design (DA-ST-2T) that includes a stand-alone surge tank is typically used on systems having more than 20% return hot condensate.

Standard deaerator receivers available in black steel. For two-tank designs, the surge tank can be either plasite-lined or made of 300 series stainless steel. Unit designed with stainless steel trays in external black steel dome with removable trays in the dome. Unit can be built to handle a wide range of flows and pressures; receiver can be customized terms of diameter, length and height to meet job specific requirements.

Number of pumps on unit depends upon number of boilers to be supported and stand-by specifications. Motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with single stage or multi-stage pumps depending upon operating conditions. Pumps bronze-fitted with industry standard motors and mechanical seals rated for temperatures up to 300°F. Special faces on seals available upon request. Pumps can be mounted in either a vertical or horizontal orientation.

Deaerator equipped with direct steam injection assembly with stainless steel preheat tube; assembly includes temperature regulator that can be either pneumatic or self-contained. Other accessories include but are not limited to gauge glass assembly thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, electrical control panels and tank insulation.

.005 DA-STP / .005 DA-STP-2T DEAERATORS



Pressurized deaerators are recommended for high-pressure boiler applications. The standard .005 design removes dissolved oxygen to a maximum level of .005 cubic centimeters per liter of feed water. Unit designed so that undeaerated water only comes in contact with stainless steel to prolong life of unit.

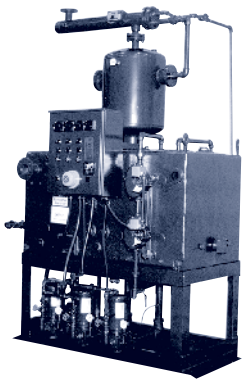
The amount of hot condensate returns influences which design is most appropriate for applications. A single-tank design (DA-STP) is typically used on systems having 80% or more make-up water. A two-tank design (DA-STP-2T) that includes a stand-alone surge tank is typically used on systems having more than 20% return hot condensate.

Standard deaerator receiver available in black steel and ASME code stamped with an extra corrosion allowance of 1/16" beyond ASME code requirements added. Unit designed with stainless steel trays in external black steel dome that is removable from the receiver; with removable trays in the dome. For two-tank designs, the surge tank can be either plasite-lined or made 300 series stainless steel. Unit can be built to handle a wide range of flows and pressures; receiver can be customized in terms of diameter, length and height to meet job specific requirements. Options for stress relieving and radiography testing of receiver available upon request.

Number of pumps on unit depends upon number of boilers to be supported and stand-by specifications. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with single stage or multi-stage pumps depending upon operating conditions. Pumps bronze-fitted with industry standard motors and mechanical seals rated for temperatures up to 300°F. Higher temperature seals and special faces available upon request. Pumps can be mounted in either a vertical or horizontal orientation.

Deaerator equipped with direct steam injection assembly with stainless steel preheat tube; assembly includes pressure regulator that is self-contained. Other accessories include but are not limited to gauge glass assembly thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, electrical control panels and tank insulation.

.005 DA-CI / .005 DA-CI-2T DEAERATORS



Atmospheric deaerators are recommended for high-pressure boiler applications. Designed with stainless steel trays in external black steel dome that is removable from the receiver. The standard .005 design removes dissolved oxygen to a maximum level of .005 cubic centimeters per liter of feed water. The atmospheric deaerator provides unrestricted venting of the non-condensing gases, allows for gravity returns and generally produces less steam loss under partial load conditions than a pressurized deaerator. Unit designed so that undeaerated water only comes in contact with stainless steel to prolong life of unit.

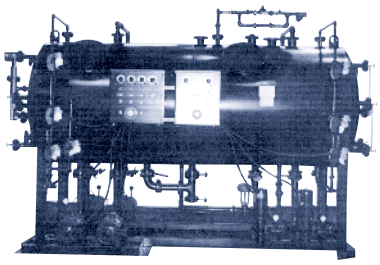
The amount of hot condensate returns influences which design is most appropriate for applications. A single-tank design (DA-CI) is typically used on systems having 80% or more make-up water. A two-tank design (DA-CI-2T) that includes a stand-alone surge tank is typically used on systems having more than 20% return hot condensate.

A close-grained, cast iron receiver is provided with a standard 20-year warranty against corrosion failure for maximum corrosion resistance. Standard receiver sizes available up to 500 gallons using a single tank; larger capacities possible with customized designs using multiple receivers.

Number of pumps on unit depends upon number of boilers to be supported and stand-by specifications. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with single stage or multi-stage pumps depending upon operating conditions. Pumps bronze-fitted with industry standard motors and mechanical seals rated for temperatures up to 300°F. Higher temperature seals and special faces available upon request. Pumps can be mounted in either a vertical or horizontal orientation.

Deaerator equipped with direct steam injection assembly with stainless steel preheat tube; assembly includes temperature regulator that can be either pneumatic or self-contained. Other accessories include but are not limited to gauge glass assembly thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, electrical control panels and tank insulation.

.005 DA-2C DEAERATORS



Atmospheric deaerators are recommended for high-pressure boiler applications. The standard .005 design removes dissolved oxygen to a maximum level of .005 cubic centimeters per liter of feed water. Two-compartment design is typically used:

- on systems having more than 20% return hot condensate
- where floor space may not be sufficient for a two-tank design
- when a complete, factory-packaged unit is preferred instead of field wiring and piping of freestanding surge tank and deaerator

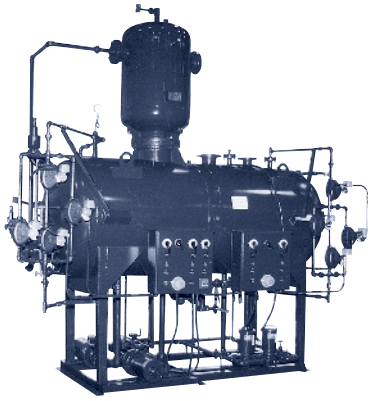
The two-compartment design enables the flash steam that escapes the deaeration compartment to be recovered by the direct contact vent condenser in the accumulator compartment. This method allows minimal vent loss.

Standard deaerator receivers available in black steel. The complete unit can be plasite-lined or made of 300 series stainless steel. Unit can be built to handle a wide range of flows and pressures; receiver can be customized in terms of diameter, length and height to meet job specific requirements.

Number of pumps on unit depends upon number of boilers to be supported and stand-by specifications. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with single stage or multi-stage pumps depending upon operating conditions. Pumps bronze-fitted with industry standard motors and mechanical seals rated for temperatures up to 300°F. Higher temperature seals and special faces available upon request. Pumps can be mounted in either a vertical or horizontal orientation.

Unit equipped with direction steam injection assembly with stainless steel preheat tube; assembly includes temperature regulator that can be either pneumatic controlled or self-contained. Other accessories include but are not limited to gauge glass assembly thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, electrical control panels and tank insulation.

.005 DA-STP-2C DEAERATORS



Pressurized deaerators are recommended for high-pressure boiler applications. The standard .005 design removes dissolved oxygen to a maximum level of .005 cubic centimeters per liter of feed water. Two-compartment design is typically used:

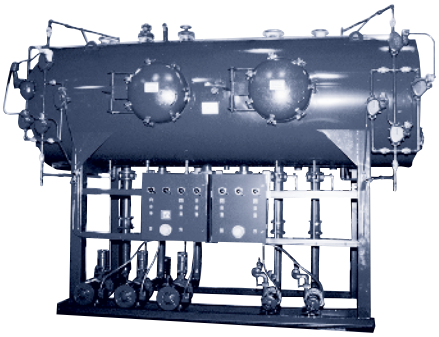
- on systems having more than 20% return hot condensate
- where floor space may not be sufficient for a two-tank design
- when a complete, factory-packaged unit is preferred instead of field wiring and piping of freestanding surge tank and deaerator

Standard deaerator receiver available in black steel and ASME code stamped with an extra corrosion allowance of 1/16" beyond ASME code requirements added. Unit designed with trays removable from the dome. The surge chamber can be plasite-lined or the complete tank made of 300 series stainless steel. Unit can be built to handle a wide range of flows and pressures; receiver can be customized in terms of diameter, length and height to meet job specific requirements. Options for stress relieving and radiography testing of receiver available upon request.

Number of pumps on unit depends upon number of boilers to be supported and stand-by specifications. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with single stage or multi-stage pumps depending upon operating conditions. Pumps typically bronze-fitted with industry standard motors and mechanical seals rated for temperatures up to 300°F. Higher temperature seals and special faces available upon request. Pumps can be mounted in either a vertical or horizontal orientation.

Deaerator equipped with direction steam injection assembly with stainless steel preheat tube; assembly includes pressure regulator that is self-contained. Other accessories include but are not limited to gauge glass assembly thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, electrical control panels and tank insulation.

.005 DA-ISTP-2C DEAERATORS



Pressurized deaerators are recommended for high-pressure boiler applications. Design has trays internal to receiver. The standard .005 design removes dissolved oxygen to a maximum level of .005 cubic centimeters per liter of feed water. Two-compartment design is typically used:

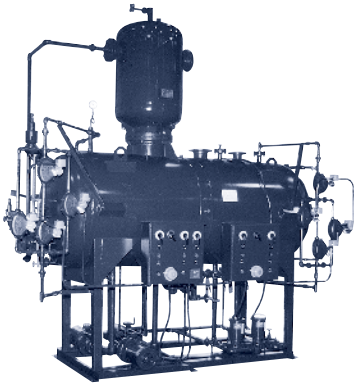
- on systems having more than 20% return hot condensate
- where floor space may not be sufficient for a two-tank design
- when a complete, factory-packaged unit is preferred instead of field wiring and piping of freestanding surge tank and deaerator

Standard deaerator receiver available in black steel and ASME code stamped with an extra corrosion allowance of 1/16" beyond ASME code requirements added. The surge chamber can be plasite-lined or the complete tank made of 300 series stainless steel. Unit can be built to handle a wide range of flows and pressures; receiver can be customized in terms of diameter, length and height to meet job specific requirements. Options for stress relieving and radiography testing of receiver available upon request.

Number of pumps on unit depends upon number of boilers to be supported and stand-by specifications. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with single stage or multi-stage pumps depending upon operating conditions. Pumps bronze-fitted with industry standard motors and mechanical seals rated for temperatures up to 300°F. Special faces on seals available upon request. Pumps can be mounted in either a vertical or horizontal orientation.

Deaerator equipped with direction steam injection assembly with stainless steel preheat tube; assembly includes pressure regulator that is self-contained. Other accessories include but are not limited to gauge glass assembly thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, electrical control panels and tank insulation.

HS SYSTEM DEAERATORS



.005 DA-ISTP-2THS, .005 DA-STP-2THS, .005 DA-ISTP-2CHS or .005 DA-STP-2CHS.

Pressurized two-compartment or two-tank units where most if not all the returns coming back are above the saturation point. Condensate returns are not vented to atmosphere.

PUMP & MOTOR ASSEMBLIES OVERVIEW

Various models and styles designed specifically to pump hot condensate over a wide range of flow and pressure applications. Pumps can be centrifugal or turbine; centrifugal pumps available as single stage or multi-stage. Pumps can be vertical or horizontal flange mounted with 1750 RPM or 3500 RPM motors in single or three-phase. Pumps with low required NPSH for applications with minimal available NPSH to minimize effects of cavitations. Pumps typically bronze fitted with removable wear ring and impeller and equipped with industry standard motors that can be purchased locally. Suction strainers are not recommended on centrifugal pumps for these applications.

A patented design underground pump is available for applications where hot condensate return piping is at or below floor level. A horizontal design with threaded suction is available for in-line applications of either hot or chilled water systems. Automatic flow control valves for balancing and throttling pump to run at design conditions are typically provided for high-pressure applications.

Pumps typically equipped with mechanical seals rated for temperatures up to 250°F; higher ratings standard on deaerator applications. Higher temperature seals and special faces available upon request.

SHIPCO® pumps can typically be directly bolted to installed condensate units, boiler feed units and surge tanks built by ITT Domestic, ITT Domestic-Ames and ITT Hoffman.* With adaptor flanges designed by SHIPCO®, our pumps can also be easily retrofitted to receivers made by the following manufacturers:

Aurora, BFS, Burnham, Cleaver Brooks, Deaerator Design, Dunham Bush, Economy, Federal, Guardian, ITT Domestic, ITT Hoffman, Kansas City Deaerator, Lockwood, Mepco, Nash, PACO, Peerless, Protector, Sellers, Skidmore, Sterling, Superior, Watchman, Weil, Weinman, York-Shipley

For manufacturers not explicitly listed above, custom adapter flanges can typically be designed.

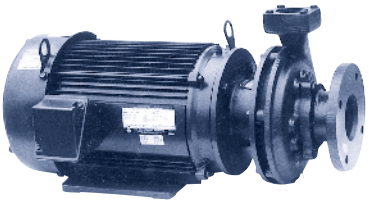
Benefits

- Bronze-fitted wear rings and impellers provided for long life.
- Low NPSH design with axial flow propeller typically eliminates need to elevate unit to increase available NPSH.
- Patented underground design with low NPSH requirements provides cost effective solution where return piping is at floor level.
- Motors can be removed without disturbing the plumbing.
- Industry standard motors that can be obtained at local hardware stores to minimize cost and time if motor needs to be replaced.
- Can be easily retrofitted to tanks of most manufacturers with SHIPCO® adapter flanges (see listing above).
- SHIPCO®'s experience at both pump and unit design helps ensure pump is properly sized to specific application.
- High pressure, multi-stage pumps furnished with automatic flow control valves to throttle pump to designed condition point.

* ITT Hoffman is a trademark of ITT Corporation.

MODEL D

Centrifugal Pump



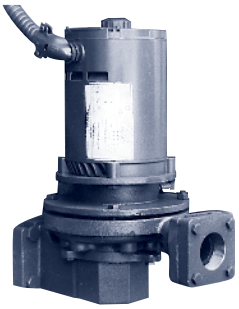
A single-stage, centrifugal, bronze-fitted design for applications with temperatures typically 200°F or less. However, higher temperatures are possible depending on specific operating conditions. Pump types (such as 106-D, 110-D, etc.) selected depend on the design operating conditions—flow rate, discharge pressure and NPSH requirements; impellers trimmed to operating conditions. Can be flange-mounted (DF) either vertically or horizontally (DH). Vertical mounting saves floor space and avoids dirt and water. Pump can also be fitted with a threaded suction adapter flange for in-line applications (DFT).

Equipped with industry standard motors available in single or three-phase at either 1750 RPM or 3500 RPM. Pumps are furnished with bleed lines, sometimes called seal flushing lines, to help prevent the pump from vapor binding and to allow pump operation against a dead shut-off for a period of time without burning seals. Standard mechanical seals provide for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

An optional isolation valve for installation in the suction piping is available to quickly remove the pump for repair and maintenance without draining the receiver and saving labor costs.

MODEL P

Centrifugal Pump (Low NPSH Applications)



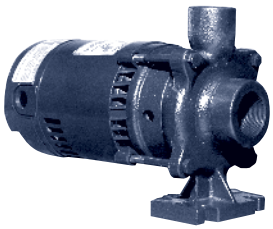
A two-stage, centrifugal, bronze-fitted design for applications requiring low NPSH. The pump is fitted with an axial flow propeller (sometimes called an inducer) and straightening vanes that provide the necessary NPSH for pumping high temperature water without cavitation occurring. Pump types (such as 110-P, 116-P, etc.) selected depend upon the design operating conditions—flow rate, discharge pressure and NPSH requirements; impellers trimmed to operating conditions. Can be flange-mounted (PF) either vertically or horizontally (PH). Vertical mounting saves floor space and avoids dirt and water. Pump can also be fitted with a threaded suction adapter flange for in-line applications (PFT).

Equipped with industry standard motors available in single or three-phase at 3500 RPM. Pumps are furnished with bleed lines, sometimes called seal flushing lines, to help prevent the pump from vapor binding and to allow pump operation against a dead shut-off for a period of time without burning seals. Standard mechanical seals provide for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

An optional isolation valve for installation in the suction piping is available to quickly remove the pump for repair and maintenance without draining the receiver and saving labor costs.

MODEL H

Centrifugal Pump (In-line Pump Applications)



A single-stage, centrifugal, bronze-fitted, horizontal design. Pump is fitted with a threaded suction enabling pump to be used for in-line applications such as chilled water systems, cooling towers, circulators, washer and booster, etc. Pump types (such as 110-H, 116-H or 127-H) selected depend on the design operating conditions—flow rate, discharge pressure and NPSH requirements; impellers trimmed to operating conditions. Can be flange-mounted either vertically or horizontally. Vertical mounting saves floor space and avoids dirt and water.

Equipped with industry standard motors available in single or three-phase at either 1750 RPM or 3500 RPM. Pumps are furnished with bleed lines, sometimes called seal flushing lines, to help prevent the pump from vapor binding and to allow pump operation against a dead shut-off for a period of time without burning seals. Standard mechanical seals provide for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

MODEL U / MODEL MU

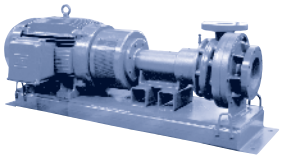
Centrifugal Pump (Underground or Basin Applications)

A centrifugal, bronze-fitted, vertical design. Pump is fitted with propeller shaft for applications where the return piping is at or below floor level. A patented design (U.S. Patent #4,932,846) is typically more durable and simpler than most other designs which often have chronic lower bearing failure. Column depths can range from 6 inches to 23 inches for Model MU or from 24 inches up to 27 feet for Model U. Pump types (such as 113-U, 114-U, etc.) selected depend on the design operating conditions—flow rate, discharge pressure and NPSH requirements; impellers trimmed to operating conditions.

Equipped with industry standard motors available in single or three-phase at 3500 RPM only. Pumps are typically furnished with bleed lines, sometimes called seal flushing lines, to help prevent the pump from vapor binding and to allow pump operation against a dead shut-off for a period of time without burning seals. Standard mechanical seals provide for temperatures up to 250°F. Higher temperature seals and special faces available upon request.

MODEL AW / MODEL AWF / MODEL AWF-B

Multistage, Centrifugal Pumps



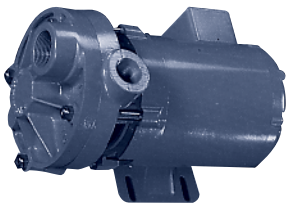
A multi-stage, centrifugal, bronze-fitted pump, available in either horizontal or vertical design. Pump typically used for applications with flows up to 500 GPM and pressures up to 340 psig. Pump types (such as 129 AW, 221 AWF, etc.) selected depend on the design operating conditions—flow rate, discharge pressure and NPSH requirements; impellers trimmed to operating conditions. Pumps available either as close-coupled (AW) or flex-coupled (AWF) or vertical (AWF-B) and fitted with both suction and discharge ASA flanges.

Typically equipped with industry standard motors available in single or three-phase at 3500 RPM only. Pumps are typically furnished with bleed lines, sometimes called seal flushing lines, to help prevent the pump from vapor binding and to allow pump operation against a dead shut-off for a period of time without burning seals. Standard silicon carbide/viton mechanical seals provide for temperatures up to 300°F. Higher temperature seals and special faces available upon request. All pumps come equipped with an automatic flow control valve for balancing or throttling pump to the designed condition point.

On deaerator applications, where pumps run continuously, an additional bypass orifice must be installed when motor exceeds 7-1/2 HP.

MODEL T

Turbine Pump



A regenerative, turbine pump design that is horizontal style. Pump typically used for applications with low flows and high pressures. Pump types selected depend on the design operating conditions—flow rate, discharge pressure and NPSH requirements.

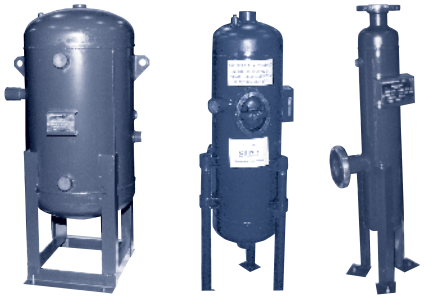
SPECIALTY AND TURBINE PUMP OVERVIEW

Specialty models include Vertical or Horizontal Flash Tanks, Flash Tanks, Discharge Chemical Feeders, Blow Down Separators, Blow Down Tanks, Fill Tanks and Turbine Models.

Benefits

- Reduce high-pressure steam to low-pressure steam.
- Economically add chemicals into system.
- Pipe blow down chemicals and debris to drain.
- Add glycol into system without contaminating the water source.
- Lubricate and flush mechanical seals or stuffing boxes on large municipal or industrial pumps.

VFT & HFT & FRV



Flash Tanks & FRV Flash Recovery Vessel

Vertical Flash Tanks or Horizontal Flash Tanks or Flash Recovery Vessels are used to reduce high-pressure steam to a low-pressure state before returning the steam in your system. Tanks can be built with a horizontal or vertical orientation with a stand. Horizontal design is available without a stand for hanging. Tanks made of heavy-duty steel and designed up to 150 psig with national board stamp as standard; other ASME stamped ratings available upon request. Various sizes available.

BDS

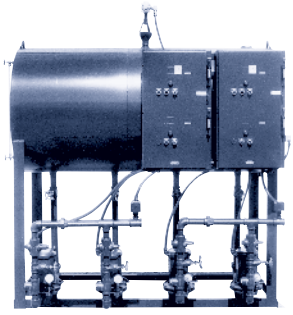
Blow Down Separator

A Blow Down Separator reduces the boiler blow-down water (along with chemicals and dirt) to atmospheric pressure and cools its temperature before being piped into a drain. Tanks can be built as vertical orientation with stand. Tanks made of heavy-duty steel with stainless steel wear plates and designed to 150 or 300 psig with national board stamp. An optional manual or automatic after cooler is available. Various sizes are available.

FT SERIES

Glycol Fill Tanks come with an air gap fitting to eliminate back flow that might contaminate the water supply. Unit can be used to add glycol to a system or Seal Flush Unit. Design comes standard with either simplex or duplex, bronze-fitted pumps and 3/16" thick, black steel tank; an option for heavier thickness is available. Standard unit also includes a removable lid, gauge glass assembly and low water cut-off switch.

CES-T



Turbine Pump Unit

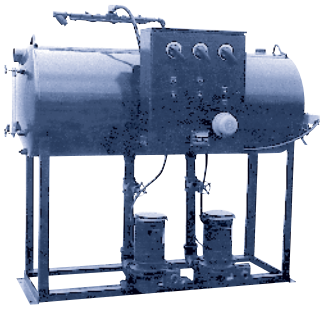
A Cylindrical Elevated Steel boiler feed unit with turbine pumps for low flow, high pressure applications. Unit equipped with standard, 3/16" thick, black steel receiver; an option for heavier thickness is available. Receiver also can be 300 series stainless steel for maximum corrosion resistance; most receiver sizes can be epoxy-lined or plasite-lined. Standard receiver sizes range from 70 gallons and up; customized receivers can be made for unique applications.

An electrical solenoid make-up water valve with float switch control is standard. Units typically available in either simplex or duplex configurations; other configurations such as triplex or quadruplex available if needed. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with bronze-fitted, turbine pumps with industry standard motors and with mechanical seals rated for temperatures up to 225°F.

Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, low-water cut-off or alarm switch, submerged heater tube for preheating feed water, electrical control panels and tank insulation.

SHEM-T

Turbine Pump Unit

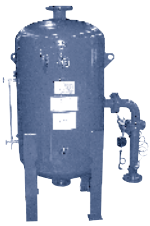


A Steel Horizontal Elevated Make-up boiler feed unit with turbine pumps for low flow, high pressure applications. A standard, 3/16" thick, black steel receiver is ASME code constructed with dished heads; tank can be ASME code stamped if needed. Material thickness ranges from 3/16" to 3/8" for years of service; an option for heavier thickness is available. Receiver also can be 300 series stainless steel for maximum corrosion resistance; most receiver sizes can be epoxy-lined or plasite-lined. Standard receiver sizes range from 77 gallons and up; customized receivers can be made for unique applications. Unit can handle a wide range of flows and pressures.

An electrical solenoid make-up water valve with float switch control is standard. Units typically available in either simplex or duplex configurations; other configurations such as triplex or quadruplex available if needed. Pump motors can be either 1750 RPM or 3500 RPM, single or three phase. Unit equipped with bronze-fitted, turbine pumps bronze fitted with industry standard motors and with mechanical seals rated for temperatures up to 225°F.

Other accessories include gauge glass assembly, thermometer, inlet strainer, butterfly isolation valve, low-water cut-off, submerged heater tube for preheating feed water, electrical control panels and tank insulation.

BDT



Blow Down Tanks (BDT) are ASME code stamped for 150 psig (minimum 5/16" thick). These vessels provide an alternative way of cooling the bottom boiler blowdown. The tank is designed to break up the blowdown flow by hitting the tangential stainless steel wear plate in the vessel. Unit can be fitted with optional after cooler. Various sizes and shapes are available to meet your specifications.

ABT-H SERIES

The Air Break Tank (ABT-H) unit comes standard with either a simplex or duplex bronze fitted Pump & Motor assembly and a 3/16" thick black steel receiver. Receivers are available in three popular sizes–30 gallon, 50 gallon and 100 gallon. All receivers have a gauge glass assembly, a low-water cutoff float switch and a solenoid valve and float switch assembly with an air gap.

Air break tank units provide a positive air gap fitting to eliminate back flow and possible contamination of water supply. It is used anywhere system water loss is present. The unit functions as an air break tank when the optional float switch and solenoid valve are supplied with an air gap fitting. Excellent for process loads, cooling towers, hydronic applications or anywhere loss of water necessitates make-up because they provided a detached central make-up supply reservoir.

CUSTOM DESIGNED UNITS

Do you have doorway limitations?

Do you have limited a “footprint”?

Do you need a steel tank with special tappings?

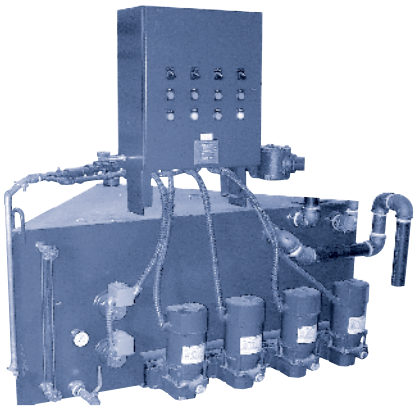
Do you require a uniquely shaped steel tank?

Do you need to “yoke” cast iron receivers?

Is your budget restricted so that the only way to acquire a deaerator is to use a design approach that spreads the purchase cost over multiple years?

Do you need a custom-built unit?

Most models in any of the product lines can be custom-built to meet the unique requirements of the end user. And if an existing model cannot meet your requirements, **Shipco®** will partner with you to custom design a product that does. We offer tanks, either vertical or horizontal configurations, with flat or dished tops or sides on legs or cradles and a variety of accessories. Tank fittings, man-ways, brackets, interior baffles, legs, sight-glass, gauge panels, ladders, hand-rails, etc. are available. Contact your local representative to discuss ordering a custom-built model for your specific application.



QUADRUPLEX BOILER FEED UNIT
DESIGNED TO FIT INTO
CORNER OF BOILER ROOM

TEAM UP WITH AN ENTHUSIASTIC, INNOVATIVE, QUALITY-CONSCIOUS COMPANY DEDICATED TO DESIGNING AND MANUFACTURING EFFICIENT, TOP QUALITY CONDENSATE, BOILER FEED, AND VACUUM PUMPS AT COMPETITIVE PRICES!

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Why Specify SHIPCO®?

To start with, SHIPCO® has the largest selection of condensate, boiler feed, vacuum and deaerator models in the industry.

For condensate, boiler feed and vacuum units, SHIPCO® offers these key advantages:

- The largest number of one-piece "close-grained" cast iron condensate receivers with a standard 20-year warranty against corrosion failure (sizes from 6 gallons up to 500 gallons available)
- 2' Net Positive Suction Head (NPSH) pumps that incorporate a propeller and straightening vanes to operate at the most efficient point on the pump curve and at the best operating speed of 3500 RPM
- Underground pumps that can handle water temperatures >200˚F with depths ranging from 6 inches to 27 feet (U.S. Patent #4,932,846)
- Automatic flow control (balancing) valves with temperature ratings above 250˚F provided as standard equipment on pumps with discharge pressures >75 PSIG
- Industry standard motors are used on all pump and motor assemblies

For surge tanks and deaerators, SHIPCO® offers these key advantages:

- 3/16" thick black steel is used as a standard minimum thickness for receivers up to 1000 gallons
- 300 series stainless steel tanks can typically be provided at the same or lower cost than Plasite #7156 lined steel tanks
- Manufactures both .03 and .005 atmospheric deaerators as well as .005 pressurized deaerator units
- Manufactures and warranties its own pumps for its deaerator units
- ASME code deaerator units have an extra 1/16" corrosion allowance as part of the standard design

Additional engineering support services:

- CAD drawings of our units and wiring diagrams available to engineers at no additional cost
- Factory-certified pump test results provided at no additional cost
- Factory-certified NPSH test results provided at no additional cost
- Most of our units with steel tanks can be custom sized at no additional cost
- Isolation valves available for floor-mounted units with the "O" ring located in the suction valve housing

When you purchase a SHIPCO® pump, you are purchasing the newest ideas in today's technology, built by people with years of experience in the industry — one of the finest products available today.

We are continually striving for new designs that improve our current product line and will expand our future product line. We hope to fill your specific needs with these future products. Any questions or suggestions concerning our product line are always welcome.

FORM TECH TODAY *Revised 10/14*

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