

FPC & FPS Series

Electric Condensate
Pumps



Armstrong

FPC & FPS Series Electric Condensate Pumps

The Armstrong FPC (cast iron) & FPS (steel) electric condensate pumps are offered as packaged units, preassembled, wired and factory tested.

Quality components such as the cast bronze impellers, dependable float switches and heavy wall receivers provide smooth, trouble free operation. All major components are easily accessible for quick and simple maintenance.

Duplex units are offered to assure longer service life, system overload protection and back-up capability.

Features

- Available with cast iron or steel condensate receivers
- Drip proof enclosures on motors
- Choice of simplex and duplex units
- 3500 RPM motors provide low inertia for intermittent operation
- Float switches with stainless steel float and rod provide optimum levels in the receiver for pump operation
- Factory wired for 115 volt, can be field wired for 230/1/60 operation
- Adapter flanges available to connect a new pump to an existing manufacturer's condensate receiver
- Bronze impellers are cast one piece construction trimmed and balanced to design capacities
- Available Accessories:
 - Inlet suction strainer
 - Discharge pressure gauges
 - Discharge check valve and gate valve
 - Magnetic starter
 - Thermometer
 - Water gauge glass with shut-off valves and protective rod guards.

For preassembled packaged electric condensate pumps contact your local Armstrong Representative.

FPC Series Cast Iron Receiver Condensate Pumps

Table 2-1 Specifications — Cast Iron Receiver Condensate Pumps

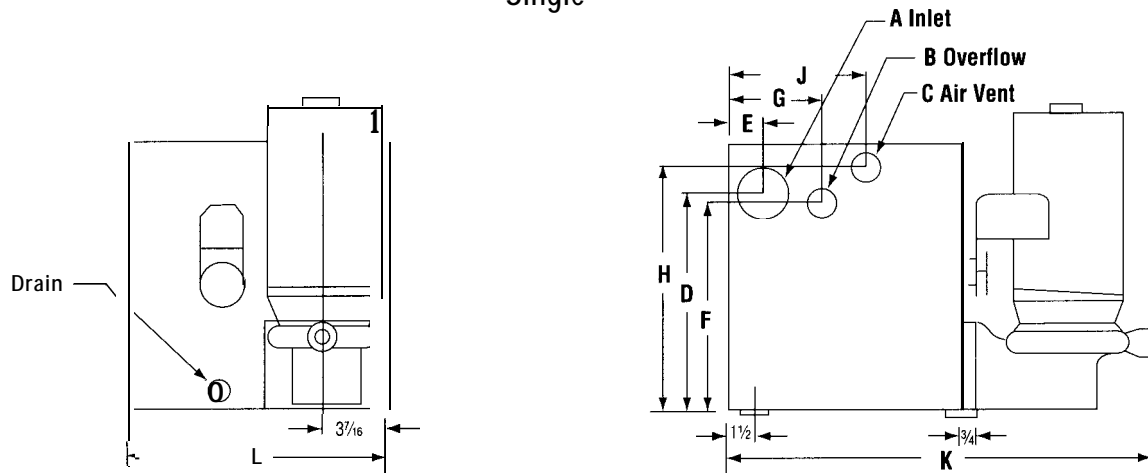
Model No.		Pump GPM	Standard Motor Voltage*	Maximum Pump Discharge PSIG	Pump HP	Receiver Size Gallons	Sq. Ft. EDR
Simplex	Duplex						
FPC-112	—	12	115V/1Ph 3500 RPM	20	1/3	10	8,000
FPC-115	—	15	115V/1Ph 3500 RPM	20	1/3	15	10,000
FPC-118	FPC-218	18	115V/1Ph 3500 RPM	20	1/3	25	12,000
FPC-130	FPC-230	30	115V/1Ph 3500 RPM	20	3/4	37	20,000

*Can be field wired to 230V/1Ph/50 Hz

Table 2-2 Dimensions — Cast Iron Receiver Condensate Pumps

Receiver Size Gallons	Receiver Size (in)	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	J (in)	K (in)	L (in)	Drain (in)
10	16 x 13 1/2 x 12 5/16	2	1 1/4	1 1/4	10 5/16	1 3/4	9 7/8	4 3/4	10 13/16	7 1/4	25	19 1/2	1/2
15	16 x 19 x 12 5/16	2	1 1/4	1 1/4	10 5/16	1 3/4	9 7/8	4 3/4	10 13/16	7 1/4	25	25	1/2
25	19 x 24 1/2 x 13 1/2	2	1 1/4	1 1/4	11 1/4	1 3/4	10 1/4	5 1/4	12	8 1/4	28	30 1/2	1/2
37	20 x 28 x 17 1/4	3	1 1/2	1 1/2	15 1/4	2 1 1/16	14 1/4	6 3/16	16	8 1 1/16	29	34	1/2

Single



Sizing Condensate Pumps

Step 1 - Determine the condensing rate of the system:

Where: C = Condensing Rate in lb/hr
 F₁ = Conversion to GPM = 500
 F₂ = Conversion to EDR = 00005

Formula: $C \div F_1 = \text{GPM}$ $\text{GPM} \div F_2 = \text{sq. ft. EDR}$

Example: $2000 \text{ lb/hr} \div 500 = 4 \text{ GPM}$ $4 \text{ GPM} \div 0.0005 = 8,000 \text{ sq. ft. EDR}$

Step 2 - Apply a 3:1 Safety Factor by multiplying by 3,

Example: $4 \text{ GPM} \times \text{safety factor of } 3 = 12 \text{ GPM}$
 Select a pump with a 12 GPM rating with a sq. ft. EDR of 8,000.

Step 3 - Determine system back pressure

The total back pressure is determined by vertical lift, system pressure on the discharge side of the pump, plus frictional loss through pipe, valves and fittings.

All dimensions and weights are approximate. Use certified print for exact dimensions.

FPS Series Steel Receiver Condensate Pumps

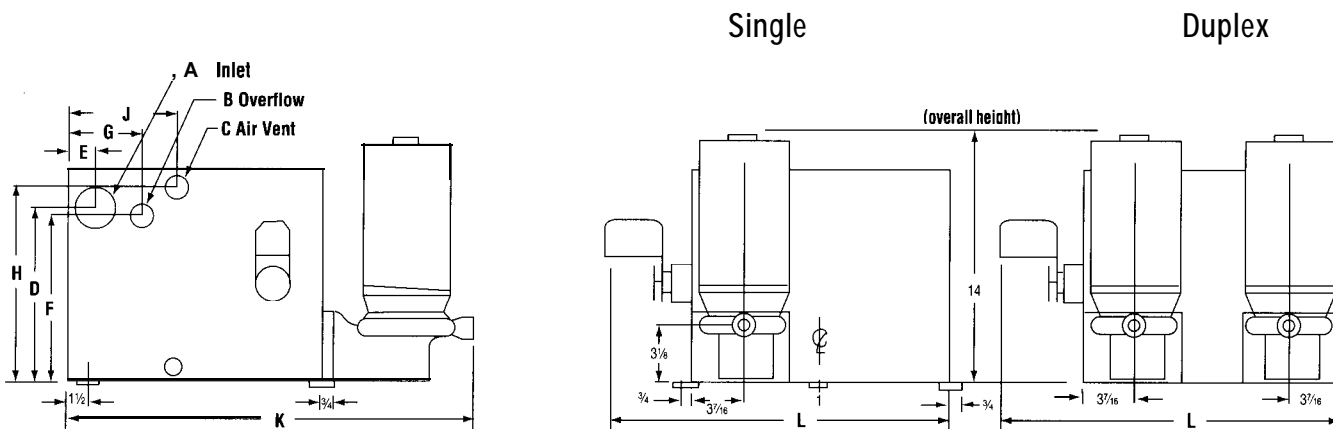
Table 3-1 Specifications — Steel Receiver Condensate Pumps

Model No.		Pump GPM	Standard Motor Voltage*	Maximum Pump Discharge PSIG	Pump HP	Receiver Size Gallons	Sq. Ft. EDR
Simplex	Duplex						
FPS-112	—	12	115V/1Ph 3500 RPM	20	1/3	7½	8,000
FPS-115	—	15	115V/1Ph 3500 RPM	20	1/3	12½	10,000
FPS-118	FPS-218	18	115V/1Ph 3500 RPM	20	1/3	21	12,000
FPS-130	FPS-230	30	115V/1Ph 3500 RPM	20	3/4	35	20,000

*Can be field wired to 230V/1 Ph/50 Hz

Table 3-2 Dimensions — Steel Receiver Condensate Pumps

Receiver Size Gallons	Receiver Size (in)	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	J (in)	K (in)	L (in)	Drain (in)
7½	12¼ x 12¼ x 12¼	2	1¼	1¼	10⅞	1¾	9 ¹⁵ / ₁₆	4¾	10 ⁵ / ₈	7¼	23⅞	20	½
12½	15¼ x 15¼ x 12¾	2	1¼	1¼	10 ⁹ / ₈	1¾	10 ⁷ / ₁₆	4¾	11 ¹ / ₈	7¼	26⅞	23	½
21	18¼ x 18¼ x 15¼	2	1¼	1¼	13 ³ / ₈	1¾	13 ³ / ₁₆	4¾	13 ⁷ / ₈	7¼	20⅞	26	½
35	20¼ x 20¼ x 20¼	3	1½	1½	17½	2 ⁷ / ₈	17	7 ¹ / ₈	18	10⅞	31⅞	28	½



Vertical lift, 2.31 ft. = 1 psig + system pressure (psig) + frictional loss (psig) = total system back pressure.

Select a pump that has a maximum discharge pressure greater than the total system back pressure calculated for the system.

Special Notes:

- Floor mounted condensate receivers have a maximum operating temperature rating of 200°F. Higher temperature applications will require that the receiver be elevated to achieve proper (NPSH) Net Positive Suction Head.
- Duplex units are typically sized for system redundancy, using a mechanical alternator for less wear on each pump.
- For systems that require vacuum pumps, control panels, high performance motors and special condensate receivers, consult the factory for engineering and pricing assistance.
- Condensate receivers are typically sized for one to three minutes of storage capacity.
- The condensate receiver that is mounted to the pump must always remain vented to the atmosphere.

(NPSH) Net Positive Suction Head, is critical to the proper operation of an electric condensate pump. NPSH is the measure of how close the suction passage of the pump is to boiling. NPSH can be calculated by the following formula: $NPSH = H_s + H_p - H_v - H_f$

Where:

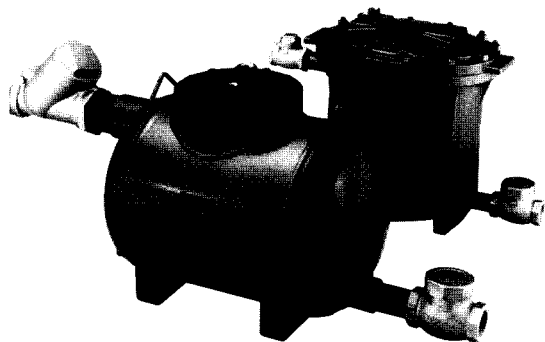
- H_s = static head of the liquid at the pump suction
- H_p = absolute pressure above the static head of the liquid
- H_v = vapor pressure of the liquid at the pump suction
- H_f = friction loss in the suction piping

All dimensions and weights are approximate. Use certified print for exact dimensions.

Other Fluid Handling Products

Pumping Traps

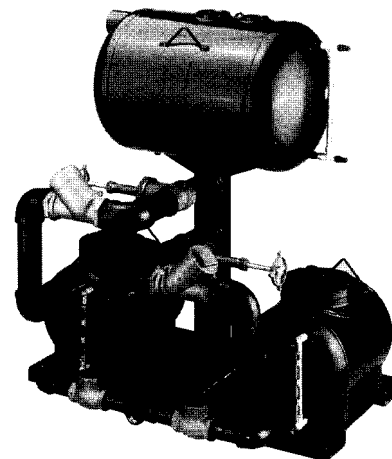
Armstrong Fluid Handling also offers non-electric mechanical condensate pumps for all types of condensate return applications. An Armstrong pumping trap can be used in vacuum systems, sump pump applications, and explosion proof areas, without any additional components. For more information, request Bulletin No. 230 and learn more about mechanical pumping traps.



Pumping Trap Receiver Package

Armstrong Fluid Handling also offers receiver packages. One package includes a vented receiver pre-piped to a single pumping trap. An alternate package includes a vented receiver pre-piped to two pumping traps. The second pumping trap may be valved off for standby duty or used for duplex pump operation. The packages are designed for simple and quick installation.

Vented receivers frequently are used to mix condensate from different pressure systems resulting in an equalized pressure. This helps ensure proper condensate drainage by steam traps servicing the lower pressure systems.



Limited Warranty and Remedy

Armstrong International, Inc. warrants to the original user that those products supplied by it and used in the service and in the manner for which they are intended shall be free from defects in materials and workmanship for a period of one (1) year after installation, but not longer than fifteen (15) months from date of shipment. Except as may be expressly provided for in a written agreement between Armstrong International, Inc. and the user, which is signed by both parties, Armstrong International, Inc. DOES NOT MAKE ANY OTHER REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

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