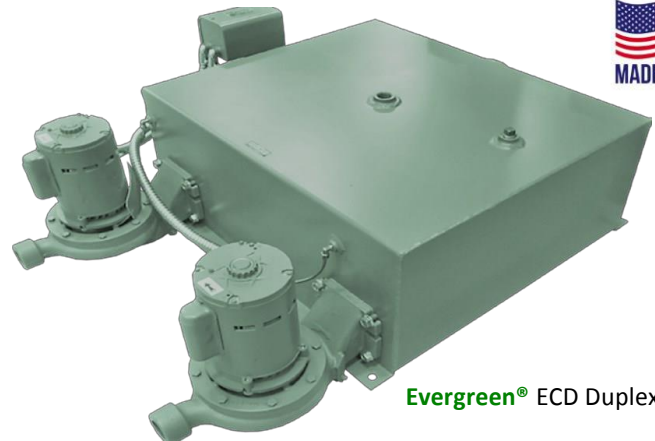


#### Features

- Simplex and Duplex Pump Packages
- Carbon-Steel Tanks or Optional Stainless Steel
- High Efficiency 3450 RPM Motors
- Bronze Impeller, Peak Efficiency Pumps
- Cast Iron Bodies
- Heavy Duty Float Switches and Operating Controls
- Capacities 10,000—50,000 EDR
- Discharge Pressures 20—80 PSIG
- Standard Receiver Sizes: 10-15-30-45-75-95 gallons.



Evergreen® ECD Duplex

#### Condensate Return Recovery Systems

Evergreen® Series Condensate Return Pumps are designed to provide an efficient means of condensate recovery for steam heating systems and steam process applications. A float actuated switch turns the pump on and off based on the water level in the tank. Evergreen Condensate Pumps are available in simplex and duplex packages.

#### Boiler Feed Recover Systems

Evergreen® Series Boiler Feed Pumps are designed to maintain boiler water level and provide make-up water from an outside source. A boiler water line control turns the pump on and off when the boiler requires it. Water level in the receiver tank is maintained by using a water make-up valve activated by a reverse acting float switch. If the water in the receiver is inadequate, additional boiler feed water is automatically added to the receiver tank. Some typical applications include gravity return comfort heating system, low pressure boilers or low pressure process equipment.

#### Low Operating Costs

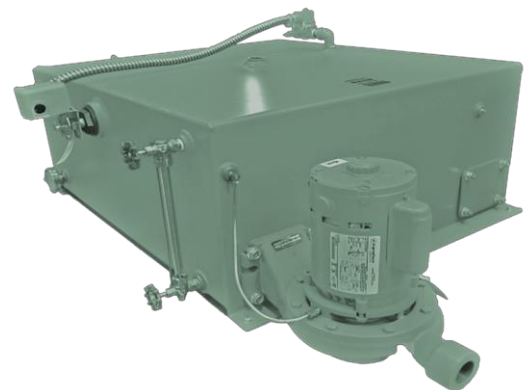
Evergreen® Series designed with high efficiency 3450 RPM motors and peak efficiency pumps which yield lower energy costs. Our pumps have long life, high temperature ceramic seals (250°) eliminating the stuffing box designed leakage of valuable condensate. The motors are mounted off the floor in a lower maintenance environment.

#### Overload Protection

Evergreen® Series Control Panel comes with high quality electrical controls which provide peak overload protection, featuring across the line magnetic starters and circuit breakers and are accurately tuned to the specific loading needs of the motors. Units with 2HP and larger motors require an electrical control panel. Smaller HP motors can be ordered with a control panel providing the same protection afforded the larger motors.

#### Oversized Rated Duty

Evergreen® Series units are designed for low NPSH® giving them the ability to handle high temperature condensate quietly and efficiently at a much higher than specified EDR. This assures low maintenance and long life. Duplex models provide 100% stand-by with alternation.



Evergreen® ECS Simplex Unit

**EVERGREEN®** Condensate Pumps

Capacity	Pump	Discharge	Motor	Receiver	Inlet	Outlet	Model No.		Shipping Weight Lbs.	
Sq. Ft. EDR	G.P.M.	PSI	H.P.	Gallons	NPT	NPT	Simplex	Duplex	Simplex	Duplex
2,000	3	10	1/3	10	2"	1-1/4"	ECS2110-003X	N/A	95	N/A
2,000	3	20	1/3	10	2"	1-1/4"	ECS2210-003X	N/A	95	N/A
2,000	3	30	1/2	10	2"	1-1/4"	ECS2310-005X	N/A	100	N/A
2,000	3	40	1	10	2"	1-1/4"	ECS2410-010X	N/A	107	N/A
2,000	3	50	1-1/2	10	2"	1-1/4"	ECS2510-015X	N/A	109	N/A
4,000	6	10	1/3	10	2"	1-1/4"	ECS4110-003X	N/A	95	N/A
4,000	6	20	1/3	10	2"	1-1/4"	ECS4210-003X	N/A	95	N/A
4,000	6	30	1/2	10	2"	1-1/4"	ECS4310-005X	N/A	100	N/A
4,000	6	40	1	10	2"	1-1/4"	ECS4410-010X	N/A	107	N/A
4,000	6	50	1-1/2	10	2"	1-1/4"	ECS4510-015X	N/A	109	N/A
6,000	9	10	1/3	10	2"	1-1/4"	ECS6110-003X	N/A	95	N/A
6,000	9	20	1/3	10	2"	1-1/4"	ECS6210-003X	N/A	95	N/A
6,000	9	30	3/4	10	2"	1-1/4"	ECS6310-007X	N/A	103	N/A
6,000	9	40	1	10	2"	1-1/4"	ECS6410-010X	N/A	107	N/A
6,000	9	50	1-1/2	10	2"	1-1/4"	ECS6510-015X	N/A	109	N/A
8,000	12	10	1/3	10	2"	1-1/4"	ECS8110-003X	N/A	95	N/A
8,000	12	20	1/2	10	2"	1-1/4"	ECS8210-005X	N/A	95	N/A
8,000	12	30	3/4	10	2"	1-1/4"	ECS8310-007X	N/A	103	N/A
8,000	12	40	1	10	2"	1-1/4"	ECS8410-010X	N/A	107	N/A
8,000	12	50	1-1/2	10	2"	1-1/4"	ECS8510-015X	N/A	109	N/A
8,000	12	60	2	10	2"	1-1/4"	ECS8610-020X	N/A	113	N/A
10,000	15	20	1/2	15	2-1/2"	1-1/4"	ECS10215-005X	ECD10215-005X	135	185
10,000	15	30	1/2	15	2-1/2"	1-1/4"	ECS10315-005X	ECD10315-005X	140	190
10,000	15	40	3/4	15	2-1/2"	1-1/4"	ECS10415-007X	ECD10415-007X	143	193
10,000	15	50	1-1/2	15	2-1/2"	1-1/4"	ECS10515-015X	ECD10515-015X	150	200
10,000	15	60	2	15	2-1/2"	1-1/4"	ECS10615-020X	ECD10615-020X	155	205
10,000	15	70	3	15	2-1/2"	1-1/4"	ECS10715-030X	ECD10715-030X	163	210
10,000	15	80	3	15	2 1/2"	1-1/4"	ECS10815-030X	ECD10815-030X	163	210
15,000	22.5	20	3/4	30	2-1/2"	1-1/4"	ECS15230-007X	ECD15230-007X	185	231
15,000	22.5	30	3/4	30	2-1/2"	1-1/4"	ECS15330-007X	ECD15330-007X	194	240
15,000	22.5	40	1	30	2-1/2"	1-1/4"	ECS15430-010X	ECD15430-010X	199	245
15,000	22.5	50	1-1/2	30	2-1/2"	1-1/4"	ECS15530-015X	ECD15530-015X	202	249
15,000	22.5	60	2	30	2-1/2"	1-1/4"	ECS15630-020X	ECD15630-020X	207	254
15,000	22.5	70	3	30	2-1/2"	1-1/4"	ECS15730-030X	ECD15730-030X	215	263
20,000	30	20	1/2	30	2-1/2"	1-1/4"	ECS20230-005X	ECD20230-005X	190	236
20,000	30	30	3/4	30	2-1/2"	1-1/4"	ECS20330-007X	ECD20330-007X	194	240
20,000	30	40	1-1/2	30	2-1/2"	1-1/4"	ECS20430-015X	ECD20430-015X	202	249
20,000	30	50	2	30	2-1/2"	1-1/4"	ECS20530-020X	ECD20530-020X	207	254
20,000	30	60	3	30	2-1/2"	1-1/4"	ECS20630-030X	ECD20630-030X	215	263
20,000	30	70	3	30	2-1/2"	1-1/4"	ECS20730-030X	ECD20730-030X	215	263
25,000	37.5	20	1	30	2-1/2"	1-1/4"	ECS25230-010X	ECD25230-010X	194	240
25,000	37.5	30	1-1/2	30	2-1/2"	1-1/4"	ECS25330-015X	ECD25330-015X	199	245
25,000	37.5	40	1-1/2	30	2-1/2"	1-1/4"	ECS25430-015X	ECD25430-015X	202	249
25,000	37.5	50	2	30	2-1/2"	1-1/4"	ECS25530-020X	ECD25530-020X	207	254
25,000	37.5	60	2	30	2-1/2"	1-1/4"	ECS25630-020X	ECD25630-020X	207	254
30,000	45	20	1	45	3"	1-1/4"	ECS30245-010X	ECD30245-010X	239	291
30,000	45	30	1-1/2	45	3"	1-1/4"	ECS30345-015X	ECD30345-015X	245	297
30,000	45	40	2	45	3"	1-1/4"	ECS30445-020X	ECD30445-020X	251	307
30,000	45	50	3	45	3"	1-1/4"	ECS30545-030X	ECD30545-030X	260	318
30,000	45	60	3	45	3"	1-1/4"	ECS30645-030X	ECD30645-030X	260	318
40,000	60	20	1-1/2	75	4"	1-1/4"	ECS40275-015X	ECD40275-015X	285	341
40,000	60	30	1-1/2	75	4"	1-1/4"	ECS40375-015X	ECD40375-015X	285	341
40,000	60	40	2	75	4"	1-1/4"	ECS40475-020X	ECD40475-020X	293	349
40,000	60	50	3	75	4"	1-1/4"	ECS40575-030X	ECD40575-030X	301	356
50,000	75	20	1-1/2	75	4"	1-1/4"	ECS50275-015X	ECD50275-015X	285	341
50,000	75	30	3	75	4"	1-1/4"	ECS50375-030X	ECD50375-030X	301	356

NOTE: When ordering denote Single Phase or Three Phase by placing a 1 or 3 in place of the X in the model number .  
Please refer to page 3 for available optional accessories.

**EVERGREEN®** Boiler Feed Systems

Capacity	Pump	Discharge	Motor	Receiver	Inlet	Model No.		Shipping Weight Lbs.	
Sq. Ft. EDR	G.P.M.	PSI	H.P.	Gallons	NPT	Simplex	Duplex	Simplex	Duplex
15	3	20	1/3	30	2 1/2"	EBFS15230-003X	EBFD15230-003X	195	241
15	3	30	3/4	30	2 1/2"	EBFS15330-007X	EBFD15330-007X	205	251
15	3	40	1	30	2 1/2"	EBFS15430-010X	EBFD15430-010X	210	263
15	3	50	2	30	2 1/2"	EBFS15530-020X	EBFD15530-020X	219	272
30	6	20	1/3	30	2 1/2"	EBFS30230-003X	EBFD30230-003X	195	241
30	6	30	3/4	30	2 1/2"	EBFS30330-007X	EBFD30330-007X	205	251
30	6	40	1	30	2 1/2"	EBFS30430-010X	EBFD30430-010X	210	263
30	6	50	2	30	2 1/2"	EBFS30530-020X	EBFD30530-020X	219	272
45	9	20	1/3	45	3"	EBFS45245-003X	EBFD45245-003X	244	290
45	9	30	3/4	45	3"	EBFS45345-007X	EBFD45345-007X	249	300
45	9	40	1	45	3"	EBFS45445-010X	EBFD45445-010X	255	312
45	9	50	2	45	3"	EBFS45545-020X	EBFD45545-020X	261	321
60	12	20	3/4	75	4"	EBFS60275-007X	EBFD60275-007X	275	323
60	12	30	1	75	4"	EBFS60375-010X	EBFD60375-010X	280	329
60	12	40	1	75	4"	EBFS60475-010X	EBFD60475-010X	280	329
60	12	50	2	75	4"	EBFS60575-020X	EBFD60575-020X	300	350
75	15	20	3/4	95	4"	EBFS75295-007X	EBFD75295-007X	360	420
75	15	30	1	95	4"	EBFS75395-010X	EBFD75395-010X	420	480
75	15	40	1	95	4"	EBFS75495-010X	EBFD75495-010X	420	480
75	15	50	2	95	4"	EBFS75595-020X	EBFD75595-020X	435	510
100	20	20	3/4	95	4"	EBFS100295-007X	EBFD100295-007X	360	420
100	20	30	1	95	4"	EBFS100395-010X	EBFD100395-010X	420	480
100	20	40	1-1/2	95	4"	EBFS100495-015X	EBFD100495-015X	428	495
100	20	50	2	95	4"	EBFS100595-020X	EBFD100595-020X	435	510
150	30	20	3/4	120	4"	EBFS1502120-007X	EBFD1502120-007X	415	475
150	30	30	1	120	4"	EBFS1503120-010X	EBFD1503120-010X	475	535
150	30	40	2	120	4"	EBFS1504120-020X	EBFD1504120-020X	483	550
150	30	50	3	120	4"	EBFS1505120-030X	EBFD1505120-030X	490	565

Note: Discharge Connection 1-1/4" NPT on all Pumps. When ordering denote single phase or three phase by placing a 1 or 3 in place of the X

**Options: Condensate Receivers & Boiler Feed Units**

- Gauge Glass
- Isolation Valve
- Dial Thermometer
- Pressure Gauge
- Pressure Gauge
- Check Valves
- Lifting Eye Bolts
- Float Switch (NEMA 4)

**NEMA 4 Mechanical Alternator for Duplex Units**

- Complete NEMA 4 Control Panel
- UI Label (Standard)
- Pilot Light (Standard)
- Test Push Button (Standard)
- Low Water Cutoff (Boiler Feed units)
- High Level Alarm Horn & Light w/ Silencing Switch (CP)
- Low Level Alarm Horn & Light w/ Silencing Switch (BF)
- TEFC Motor

Product Nomenclature Example: **Evergreen®** M/N ECD15730-0302 x 3.25

ECD	15	7	30	030	2	3.25
Model	EDR: Condensate H.P. Boiler Feed	Discharge PSI	Tank Size Gallons	Motor HP	Phase	Impeller Diameter
<b>ECS = Evergreen Condensate Simplex</b>	2 = 2,000 EDR 4 = 4,000 EDR	1 = 10 2 = 20	10 = 10 15 = 15	003 = 1/3 005 = 1/2	1 = Single 2 = Three	
<b>ECD = Evergreen Condensate Duplex</b>	6 = 6,000 EDR 8 = 8,000 EDR	3 = 30 4 = 40	30 = 30 45 = 45	007 = 3/4 010 = 1		
<b>EBFS = Evergreen Boiler Feed Simplex</b>	10 = 10,000 EDR 15 = 15,000 EDR	5 = 50 6 = 60	75 = 75 95 = 95	020 = 2 030 = 3		
<b>EBFD = Evergreen Boiler Feed Duplex</b>	20 = 20,000 EDR 25 = 25,000 EDR 30 = 30,000 EDR 40 = 40,000 EDR 50 = 50,000 EDR	7 = 70 8 = 80	120 = 120 150 = 150			

## EVERGREEN® Pump and Motor Assemblies

Pump & Motor Assemblies	Motor H.P.	Phase	RPM	Shipping Wt. Lbs.
EPM12-003-1	1/3	Single	3,450	40
EPM12-005-1	1/2	Single	3,450	45
EPM12-007-1	3/4	Single	3,450	48
EPM12-010-1	1	Single	3,450	52
EPM12015-1	1 1/2	Single	3,450	54
EPM12-020-1	2	Single	3,450	58
EPM12-030-1	3	Single	3,450	65
EPM12-003-3	1/3	Three	3,450	40
EPM12-005-3	1/2	Three	3,450	45
EPM12-007-3	3/4	Three	3,450	48
EPM12-010-3	1	Three	3,450	52
EPM12015-3	1 1/2	Three	3,450	54
EPM12-020-3	2	Three	3,450	58
EPM12-030-3	3	Three	3,450	65

Motor Model #	Motor H.P.	Phase	RPM	Shipping Wt. Lbs.
ES-402	1/3	Single	3,450	14
ES-460	1/2	Single	3,450	18
ES-461	3/4	Single	3,450	19
ES-462	1	Single	3,450	22
ES-463	1 1/2	Single	3,450	26
ES-464	2	Single	3,450	36
ES-4898	3	Single	3,450	38
ES-2770	1/3	Three	3,450	14
ES-2771	1/2	Three	3,450	16
ES-2772	3/4	Three	3,450	17
ES-2773	1	Three	3,450	19
ES-2774	1 1/2	Three	3,450	23
ES-2775	2	Three	3,450	27
ES-4551	3	Three	3,450	38

## EVERGREEN® Accessories and Repair Parts

Base Tanks	
Item/Model Number	Tank Gallons
ECP-0010	10
ECP-0015	15
ECP-0030	30
ECP-0045	45
ECP-0075	75
ECP-0095	95
ECP-0120	120
ECP-0150	150

Pump Adapter Kits	
Item/Model Number	OEM
ECP-0008-SH	Shipco
ECP-0008-AU	Aurora
ECP-0008-SK	Skidmore
ECP-0008-EC	Economy
ECP-0008-FD	Federal
ECP-0008-ST	Sterling
ECP-0008-NA	Nash
ECP-0008-HF	Hoffman/ITT/BG
ECP-0008-WE	Weinman
Not Needed	Dunham Bush
Not Needed	MEPCO Pump Packages

Receiver Tanks		
Item/Model Number	Gallons	Shipping Wt. Lbs.
ECP-0010	10	58
ECP-0015	15	81
ECP-0030	30	116
ECP-0045	45	169
ECP-0075	75	219
ECP-0095	95	278
ECP-0120	120	350
ECP-0150	150	438

\*Carbon Steel Tanks—Stainless Steel Optional

\*Adapter Kits include gaskets

Repair Parts	
Item/Model Number	Description
ECP-0001	Adapter Gasket
ECP-0002	Tank Gasket
ECP-0003	Adapter
ECP-0004	Casing
ECP-0005	Impeller
EML10235	Isolation Valve
E129Q02A1	Dial Thermometer
ES-2152	Gauge Glass 10/15/30 Gallon Tanks
ES-2153	Gauge Glass 45 Gallon Tanks
ES-2154	Gauge Glass 75/95 Gallon Tanks
ES-2155	Gauge Glass 100 + Gallon Tanks
ES-3654	Float Switch - Simplex
ES-3655	Mechanical Alternator - Duplex
E90021	Bleeder Assembly
ESSK-0001	Pump Seal Kit



High Efficiency Pumps



Deluxe Dual Pump Control Panels

### Construction

Evergreen Condensate Pumps and Boiler Feed systems have durable closed coupled centrifugal pumps with dynamically balanced impellers that are mounted directly to the shaft extension of efficient 3450 RPM motors. A volute designed pump case and attached motor adapter form the impeller enclosure. Pumps are furnished with high temperature carbon-ceramic mechanical seals rated @ 250° F for handling hot condensate and eliminating messy stuffing boxes. L50 (B50) rated motor bearings assure motor/pump assembly longevity. Units are available on 3Φ 50/60Hz 208v/230v-460v and 1Φ 50/60Hz 115v-230v AC.

Our carbon Steel receiver tanks have mounting feet so they can be easily secured to a house keeping foundation and a pair of vortex breakers to eliminate problems of loss in NPSHA (Net Positive Suction Head Available) and cavitation associated with the creation of vortices within pump suction. They also assist in the handling of hot condensate and prevent leakage by minimizing tank distortion by external plumbing forces through added rigidity at tank discharge.

Optional isolation valves prevent the loss of valuable condensate when pump/motor assemblies require removal for maintenance. A simplex unit may be converted to a duplex by removing the outlet cover plate, adding a second pump assembly (with isolation valve if added) and replacing the float switch with an alternator. (Note if your simplex unit came with a factory control panel it can easily be converted to a duplex by added the required components).

Duplex control panels include one NEMA 1 enclosure, main non-fused disconnect, two fuse blocks, two across the line magnetic starters with over load relays, two test-auto-off (T-O-A) selector switches. Switch handles are illuminated and double as pump running lights. There is one multi tap (460v-230v-208v-115v/115v) control circuit transformer with primary/secondary protection. Simplex control panels have a similar design with one of the above.

The duplex unit comes standard with a mechanical alternator that provides 100% automatic stand-by capabilities. With each rising and lowering condensate cycle in the receiver there is pump alternation. If the operating pump fails, the second pump will automatically start and carry the load. When condensate is returning to the receiver tank at a higher rate than one pump can handle the second pump will automatically assist the first pump.

### Operation

Condensate formed in the heating terminal units and the steam distribution system flows by gravity to the handling unit's receiver. As the receiver tank fills the level is monitored by a float and it's connecting mechanism. At a pre-determined level the contacts of the float switch close, energizing the motor/pump assembly which discharges water (condensate) to a boiler or a boiler feed unit. Once the level in the receiver tank is lowered to a pre-set level the switch contacts open shutting off the pump action and it waits for another cycle to begin.

### Selection

Evergreen® Series capacity is rated in EDR\* X 1,000. Once you have determined your EDR requirements select the correct unit rated for the required load. The first column in the charts indicates units EDR capacity. Also in the charts is units discharge pressure rating. To determine discharge pressure rating add the boiler shut-off pressure to the elevation height difference of the boiler inlet connection and the pump discharge plus the calculated friction pressure drop in the connecting line from the pump discharge to the boiler inlet.\*\* When discharge pressure requirements have been determined the forth column in the charts indicates the units discharge pressure rating. Finally using column five for simplex and column six for duplex select the model number of the unit that fits your requirements.

\* 1,000 EDR = 1/2 GPM or 500 pounds per hour.

\*\* To determine PSIG divide the difference of height in feet by 2.31.

**Caution:** Pump discharge should always be below boiler inlet.