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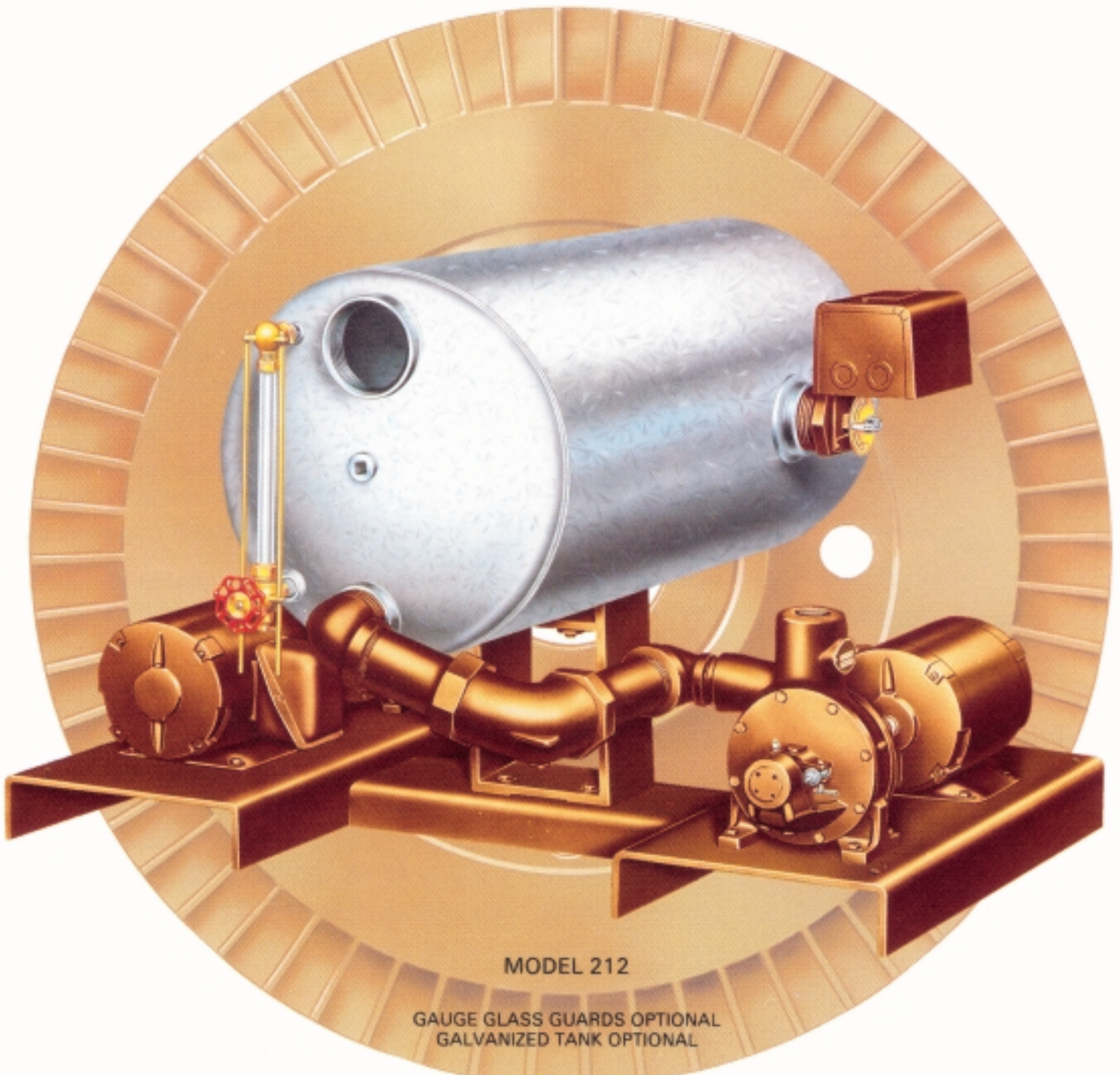
AURORA PUMP A member of PENTAIR PUMP GROUP

**AURORA PUMP**

BULLETIN 210/REV. G

**210 SERIES  
ONE & TWO STAGE  
CONDENSATE  
PUMPS**

CAPACITIES TO 150 G.P.M.  
HEADS TO 270 FEET  
TEMPERATURES TO 190°F.



MODEL 212

GAUGE GLASS GUARDS OPTIONAL  
GALVANIZED TANK OPTIONAL

**motralec**

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# INTRODUCTION AURORA CONDENSATE UNITS

Condensate units provide for an automatic return of hot water condensation from radiators, coils, pipe, etc., to high or low pressure boilers. They are also utilized in industrial complexes for returning liquids to overhead storage tanks of gravitational circulating systems as well as many other unique uses. Condensate return requirements call for a system that will provide uninterrupted service for single or multiple boiler installations. Aurora Packaged Systems deliver those values which you need and expect. Quality features include a steel receiver, float switch and pumps all completely assembled. In Aurora's

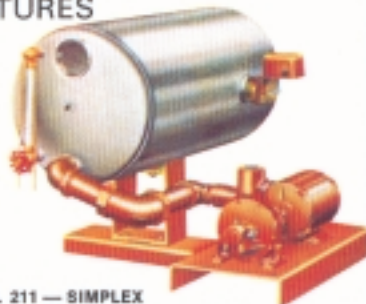
design, the pumps, support, and piping are mounted beneath the receiver on a common steel base. As your heating system grows, the receiver design will allow you to convert from simplex to duplex. Just add a pump and pipe it up! In a duplex system, single pump operation provides service when capacity and demand call for normal service. Duplex units require very little additional floor space than a simplex unit requires. The two APCO pumps used in the system operate alternately to extend the life of both pumps. Both pumps operate simultaneously when service demands exceed the capabilities of a single pump. This

Aurora product offers:

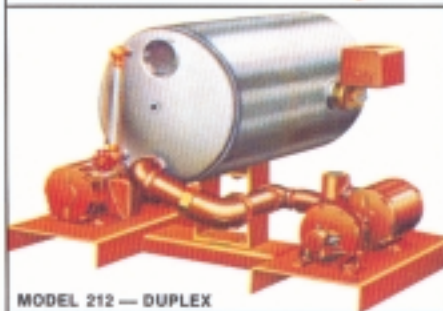
- Turbine design that handles vapor bubbles with no vapor lock.
- Design simplicity with a minimum of parts.
- Complete system package pre-piped on a one-piece common base.
- Versatile, rugged, compact construction.
- Simplex and Space Saving Duplex Systems.

The following pages explain the reasons why AURORA PUMP is able to offer you a modern, packaged, customer proven system.

## FEATURES



MODEL 211 — SIMPLEX



MODEL 212 — DUPLEX

**1 STEEL RECEIVER** is 3/16" thick to insure long life. Receiver connections are threaded and include vent, inlet and drain.

**2 STAINLESS STEEL FLOAT** has adjustable travel to permit 1-1/2 times maximum return rate between stops. Combination float switch and alternator is standard on duplex units.

**3 TEMPERATURES TO 190° F.** water and selected for a minimum capacity of twice the rate of evaporation.

**4 BRASS WATER LEVEL GAUGE** glass assembly is furnished complete with shut-off valve.

**5 INTERCHANGEABLE DESIGN** provides future system expansion with receiver connections for up to 2 pumps. Just add a pump and pipe it up.

**6 COMPLETELY ASSEMBLED PIPING** from receiver to pump. Included are expansion type elbows to eliminate pipe strain.

**7 ACCESSIBILITY** to pump and other components for easier maintenance. All pumps and piping are mounted beneath the receiver. The unit bolts to a steel base.

**8 PUMPS** designed for condensate applications will handle entrained vapor and air with liquid to eliminate vapor lock.

## QUICK REFERENCE 210 SERIES FEATURE SELECTOR

### STANDARD

Quality Aurora Pumps  
V.I.P. pump test  
3/16" thick steel flat head receiver  
w/inlet, vent & drain connections  
Simplex pump with float switch  
Bronze fitted pump construction  
Removable channel rings  
Self-venting casings  
Piping from receiver to pumps  
Expansion type suction elbows  
Gauge glass assembly  
Factory assembled  
Coupling guards

### OPTIONAL

Duplex pumps with combination  
float switch and alternator  
Control panel prewired  
Electric alternator  
Thermometer  
Pressure gauges  
A.S.M.E. receivers  
Electrolytic corrosion inhibitors  
Make-up feeder valve  
Inlet "Y" strainer  
Special units  
3/16" gauge galv. steel receiver  
w/inlet, vent & drain  
connections

# TURBINE PUMP OPERATION AND OPTIONAL EQUIPMENT

## STANDARD EQUIPMENT

### SIMPLEX — Model 211

Receiver with float switch, sight gauge glass with gauge cock, support, expansion elbow, piping, pump, motor, base, coupling and coupling guard. **RECOMMENDED OPTIONS:** pressure gauge, thermometer, magnetic starter and one hand-off-auto switch mounted and wired complete.

### DUPLEX — Model 212

Receiver with a combination float switch alternator assembly, sight gauge glass with gauge cock, support, expansion elbows and piping, two pumps (one operational and one

standby), motors, bases, coupling guards and couplings. **RECOMMENDED OPTIONS:** pressure gauges, thermometer, NEMA 1 control panel with two starters, two hand-off-automatic switches and two selector switches, mounted and wired complete. **OPTIONAL EQUIPMENT THERMOMETER** provided with direct reading scale from 40° to 260° F.

- A) Back angle
- B) 3" Dial

**MAKE-UP FEEDER VALVE** — 3/4" includes electric solenoid, reverse action float switch and necessary fittings.

**125# ASME CODE RECEIVERS** of equal capacity.

**ADDITIONAL PIPE TAPS** such as vents in receiver as required. **MAGNESIUM ANODE** provides electrolytic corrosion protection for the receiver.

**ELECTRIC ALTERNATOR** conveniently mounted and wired on duplex units.

**MECHANICAL SEALS** for single or two stage turbine pumps.

**SPECIAL PUMPS** such as centrifugals.

**PRESSURE GAUGES** on pump discharge.

**DUPLEX UNITS** completely assembled.

**SPECIAL MOTORS** — Voltages and enclosures.

## PRINCIPLE OF OPERATION

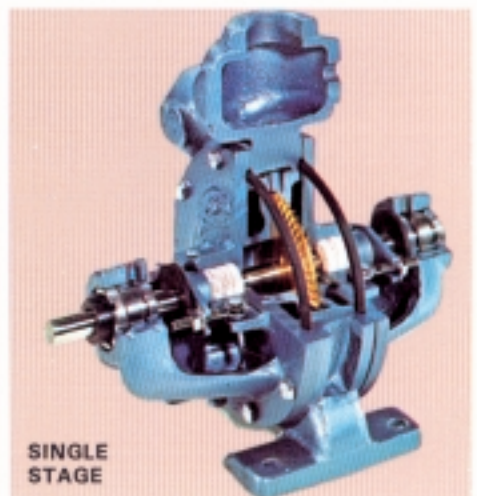
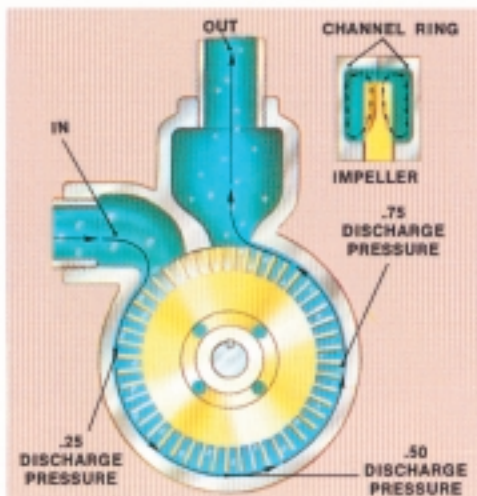
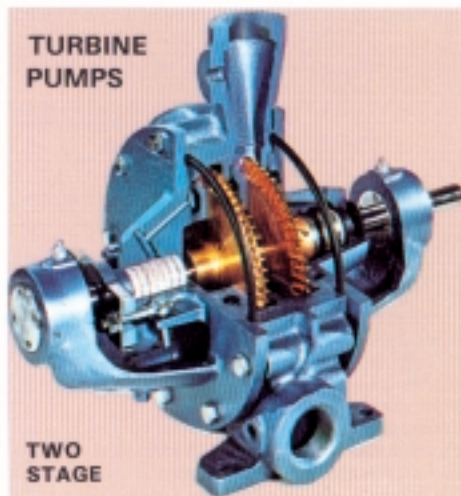
The turbine pump derives its name from the many buckets machined into the periphery of the rotating impeller which permits development of a relatively high pressure in an efficient and economic manner. More pressure is developed within the turbine pump than with a comparable size centrifugal pump. The pumped liquid is directed by the water passage so that it circulates in and out of the buckets many times on its way from the pump inlet to the pump outlet. Additional energy is added to the liquid each time it passes through the buckets so the numerous passes generate a high

discharge pressure. The pressure is developed without pulsations. While close clearances are used within the turbine pumps, there is no metal to metal contact. Volatile liquids are handled easily because a turbine pump readily handles vapor and air along with the liquid, thus eliminating the possibility of a vapor lock within the pump. Free-flowing and non-lubricating liquids are handled with a minimum of wear to pump parts because there is no metal to metal contact within the pump channel. The illustrations indicate the principle used in the handling of the liquid and developing of pressure

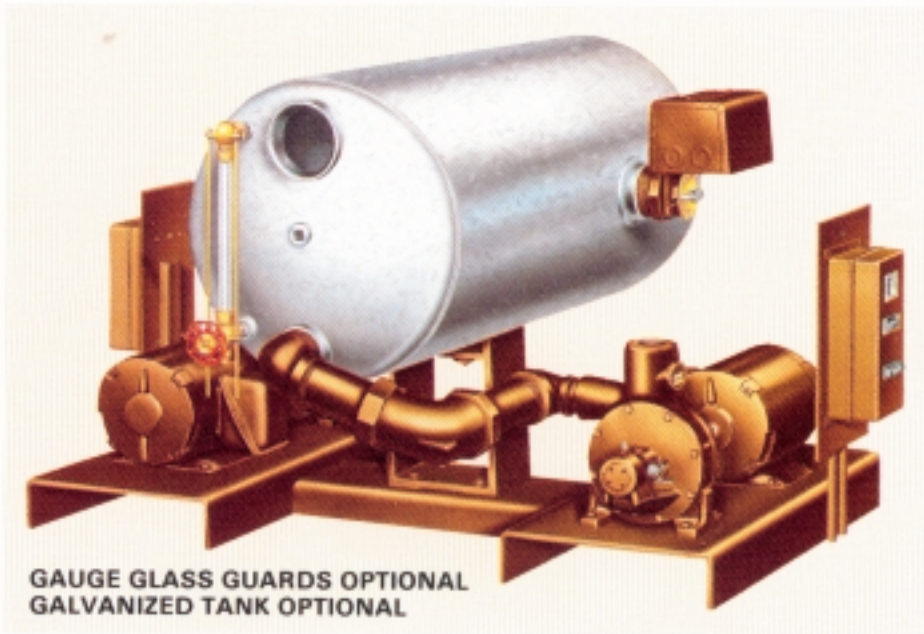
in a regenerative turbine pump.

## AURORA APCO TURBINE PUMP FEATURES

- Double suction minimizes axial thrust.
- Replaceable channel rings and impellers.
- Opposed discharges to balance radial loads (two stage).
- Interchangeable packing or mechanical seals. Seals are optionally available on single as well as two stage pumps.
- Large shaft for minimum deflections.
- Slings protect bearings.
- O-rings prevent leakage.



# SELECTION TABLE — 1750 R.P.M.



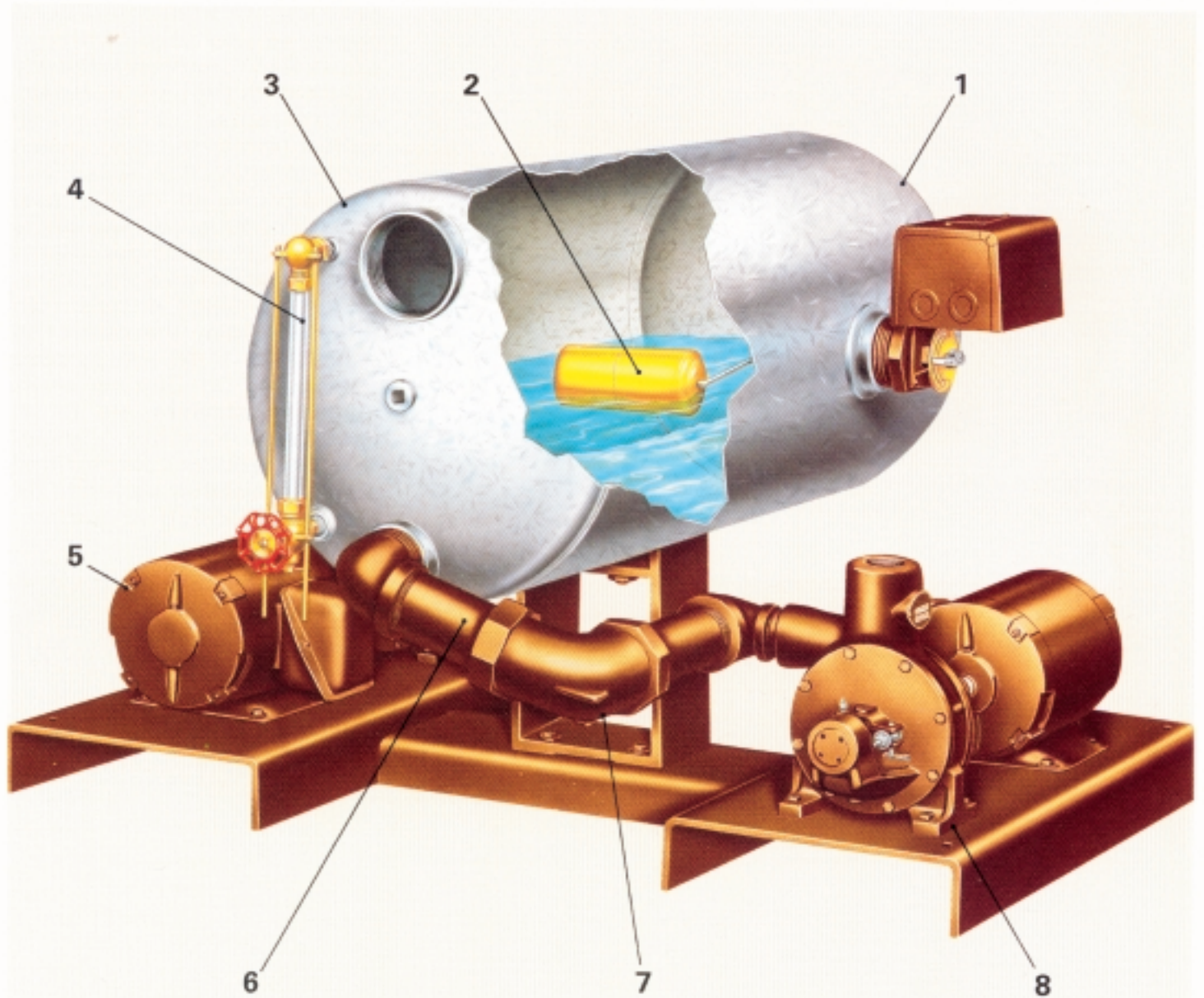
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MAGNETIC STARTERS with overload and under-voltage protection are conveniently mounted on the unit. The starters are wired to the pump motors, and to the float switch or combination float switch and alternator. Rated for 3 phase, 1/3 H.P. and larger; and single phase 1 H.P. and larger. (Starters not required on single phase, 3/4 H.P. motors or less). On Simplex units, the starter is mounted in a general purpose enclosure. On Duplex units, magnetic starters are panel mounted in a NEMA 1 enclosure. Reset buttons are provided outside the starter enclosure for easy operation and service.

E.D.R.		2000	3000	4000	6000	8000	10,000	15,000	20,000	25,000	30,000	35,000	40,000	50,000	65,000	100,000	
PUMP CAPACITY G.P.M.		3	4-1/2	6	9	12	15	22-1/2	30	37-1/2	45	52-1/2	60	75	97-1/2	150	
RECEIVER	CAPACITY IN GALLONS	15	15	15	15	30	30	30	60	60	60	60	60	100	100	200	
	DIAMETER (IN.)	14	14	14	14	16	16	16	22	22	22	22	22	24	24	30	
	LENGTH (IN.)	30	30	30	30	38	38	38	38	38	38	38	38	50	50	66	
	INLET (IN.)	2	2	2	2	3	3	3	3	3	3	3	3	3	3	4	
PRESSURE — POUNDS PER SQUARE INCH	10	UNIT	15A35	15C4	15D4	15E4	30F4	30G4	30H4	60I4A	60M4	60M4	60P4	60R4	100M5	100N5	200J6
		H.P.	1/3	1/3	1/3	1/3	1/3	1/3	1/2	3/4	1	1	1-1/2	1-1/2	1-1/2	2	3
	15	UNIT	15A4	15C4	15D4	15E4	30F4	30G4	30H4	60I4A	60M4	60M4	60P4	60R4	100M5	100N5	200J6
		H.P.	1/3	1/3	1/3	1/3	1/3	1/3	1/2	1	1	1-1/2	1-1/2	1-1/2	2	3	3
	20	UNIT	15A4	15C4	15D4	15F4	30F4	30G4	30I4	60I4A	60M4	60P4	60P4	60L5	100N5	100P5	200J6
		H.P.	1/3	1/3	1/3	1/3	1/3	1/2	3/4	1	1-1/2	1-1/2	1-1/2	3	2	5	5
	30	UNIT	15C4	15C4	15E4	15F4	30G4	30H4	30I4A	60P4	60R4	60R4	60L5	60L5	100N5	100P5	200J6T
		H.P.	1/3	1/3	1/3	1/2	1/2	3/4	1-1/2	2	3	3	3	5	5	7-1/2	10
	40	UNIT	15D4	15D4	15E4	15F4	30G4	30I4	30I4A	60P4	60R4	60R4	60L5	60L5	100N5	100P5	200J6T
		H.P.	1/3	1/3	1/2	3/4	3/4	1	1-1/2	2	3	3	3	5	5	7-1/2	10
	50	UNIT	15D4	15E4	15F4	15G4	30I4	30I4	30P4	60R4	60K5	60K5	60L5	60N5	100P5	100P5	200K6T
		H.P.	1/3	1/2	3/4	1	1	1-1/2	2	3	3	3	5	5	7-1/2	7-1/2	15
	60	UNIT	15D4	15E4	15F4	15G4	30I4	30P4	30R4	60I5	60K5	60L5	60L5	60P5	100P5	100J6	200K6T
		H.P.	1/2	3/4	1	1	1-1/2	3	3	3	5	5	5	7-1/2	7-1/2	10	15
	75	UNIT	15E4	15F4	15G4	15R4	30R4	30R4	30I4TA	60K5	60K5	60L5	60P5	60P5	100J6	100K6	200K6T
		H.P.	3/4	1	1	1-1/2	2	2	3	3	5	5	7-1/2	10	10	10	15
	85	UNIT	15F4	15G4	15E4T	15G4T	30G4T	30I4T	30I4TA	60K5	60L5	60L5	60H6	60H6	100J6	100K6	
		H.P.	1	1	1	1-1/2	2	3	3	5	5	7-1/2	7-1/2	10	10	15	
	100	UNIT	15D4T	15E4T	15F4T	15G4T	30I4T	30I4TA	30I5	60K5	60L5	60G6	60J6	60K6	100G6T	100H6T	
		H.P.	1	1-1/2	1-1/2	2	3	3	3	5	7-1/2	10	10	10	10	15	
115	UNIT	15E4T	15F4T	15F4T	15G4T	30I4T	30H5	30I5	60L5	60L5	60F6T	60F6T	60G6T	100H6T	100J6T		
	H.P.	1-1/2	1-1/2	2	2	3	3	5	7-1/2	7-1/2	10	10	15	15	20		

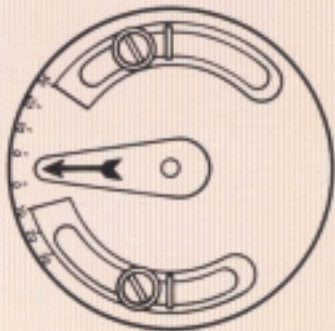
UNIT NUMBER EXAMPLE: 15D4 DESIGNATES 15 GALLON RECEIVER AND D4 SIZE PUMP. FOR SELECTIONS NOT SHOWN, PLEASE REFER TO FACTORY.  
NOTE: TABLE SELECTIONS ARE FOR INTERMITTENT OPERATION — IF SYSTEM REQUIRES CONTINUOUS OPERATING PUMPS, CONSULT FACTORY FOR PUMP SELECTION.

# UNIT FEATURES

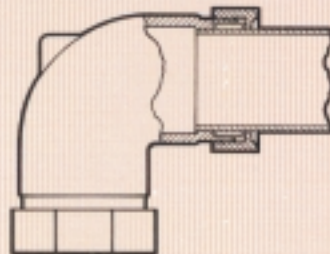


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## FLOAT ADJUSTMENT



## EXPANSION ELBOW



## UNIT OPERATION

