



PRECISION BOILERS

CF CONDENSATE RETURN/ BOILER FEEDWATER SYSTEMS



SELECTION & SIZING

Basic to the optimal performance of any boiler feed system is the proper selection of the boiler feed pump. The following are sizing guidelines for both continuous and on-off (intermittent) service. In each case, per ASME Power Boiler Code, the feedpump(s) "shall be capable of supplying water to the boiler at a pressure of 3% higher than the highest setting of any safety valve on the boiler," and of quantity "to prevent damage to the boiler."

Continuous Service

Use centrifugal type pump sized for 150% (not inclusive of bypass) of maximum steaming capacity assuming 10-20 psi drop across the feedwater control valve, plus line loss and boiler head to water level, less suction head and DA pressure. PRECISION uses centrifugal pumps manufactured by Goulds, Grundfos, Peerless, Weinman, Flowserve, etc. depending on application and performance fit.

Intermittent Service

Use turbine or centrifugal type pumps sized for 200% of maximum steaming capacity plus line loss and boiler head to water level, less suction head and DA pressure. PRECISION uses high quality single or multiple stage turbine pumps manufactured by MTH Pumps, and single or multiple stage centrifugal pumps as listed above.

NOTE

Feeding of water into boilers too rapidly may cause a collapse of steam bubbles of sufficient magnitude to effect a low water alarm/trip on the boiler.

STANDARD FEATURES AND ACCESSORIES

- Non-code 1/4" Steel tank
- Structural steel legs & base
- Overflow, Return & Vent connections
- Makeup Water Valve (float-type)
- Sight & Temperature Gauges
- Pump suction Strainer & Stop Valve
- Pump suction Flex Connector
- Motor Control Panel
- Fused Magnetic Motor Starter(s)
- H-O-A switch(es) with Pilot Light
- Pump(s) mounted, piped & wired
- Simplex or Duplex configuration
- Full-port Drain Valve
- Handhole (4" x 6")

OPTIONAL EQUIPMENT AND ACCESSORIES

- Stainless Steel Tank
- Code Tank (ASME Sect. VIII, Div. 1)
- Sparge-tube Preheater assembly
- Temperature control Steam Valve
- Pump discharge Pressure Gauge(s)
- Pump discharge Pressure Switch(es)
- Pump discharge Stop & Check valves
- U-tube Preheater assembly
- Pump Alternator
- Pump standby/run Selector Switch
- Solenoid Makeup Valve w/float switch
- Makeup water Spray Valve
- Level Switch(es)
- Alarm Bell (w/pilot light & silence PB)
- Chemical Feed Connection
- UL Listed Control Panel



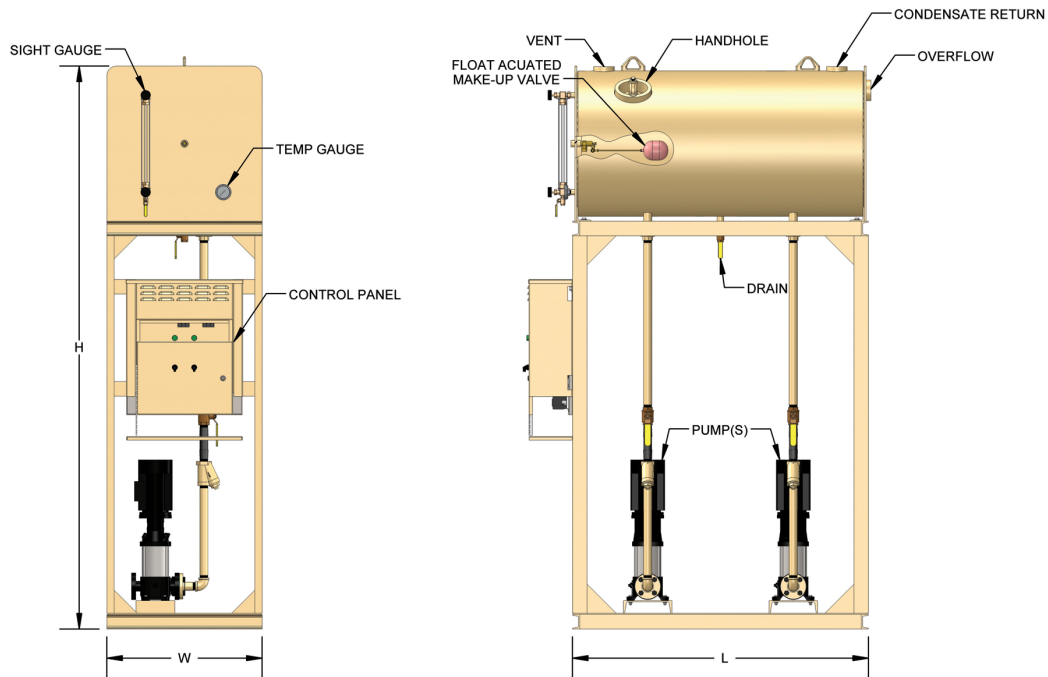
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PRECISION Model CF boiler feed systems are designed to receive condensate, accommodate condensate surges, and, when condensate return is insufficient, automatically add make-up to maintain sufficient boiler or deaerator water supply. Standard receiver tanks are vented (non-code) and are constructed of high quality 1/4" thick carbon steel.

Make-up valves are either internal or external float-operated to maintain a minimum water level. Systems can be supplied with single or multiple pumps, their starters and controls, and optional items such as alternators, alarm system, auto stand-by provision, sparge-tube preheat system, makeup water spray valve, special tank materials/linings, etc.

DRAWING



MODEL NUMBERS, RATINGS AND DIMENSIONS

Model Number	Tank Capacity	Max Boiler Rating		Dimensions			Standard Connections (NPT)			Approx. Ship Wt. (Lbs.)****
		Hp	KW	L	W	W***	Return & Vent	Overflow	Make-up & Drain	
CF-16-020	20	15	150	24"	16"	48"	1-1/2"	1-1/2"	1/2"	250
CF-16-030	30	23	230	36"	16"	48"	1-1/2"	1-1/2"	1/2"	275
CF-20-040	40	30	300	30"	20"	54"	1-1/2"	1-1/2"	1/2"	325
CF-20-050	50	38	380	38"	20"	54"	1-1/2"	1-1/2"	1/2"	350
CF-20-060	60	45	450	45"	20"	54"	1-1/2"	1-1/2"	1/2"	375
CF-24-075	75	56	560	40"	24"	60"	2"	2"	3/4"	450
CF-24-100	100	75	750	52"	24"	60"	2"	2"	3/4"	475
CF-24-125	125	95	940	66"	24"	60"	3"	2"	3/4"	500
CF-30-145	145	110	1090	48"	30"	66"	3"	3"	3/4"	600
CF-30-180	180	135	1350	60"	30"	66"	3"	3"	3/4"	650
CF-30-215	215	160	1610	72"	30"	66"	3"	3"	3/4"	700
CF-36-260	260	200	1950	60"	36"	72"	4"	3"	1"	850
CF-36-315	315	240	2360	72"	36"	72"	4"	3"	1"	900
CF-36-365	365	275	2740	84"	36"	72"	4"	3"	1"	950
CF-42-430	430	325	3230	72"	42"	78"	4"	3"	1-1/4"	1150
CF-42-500	500	375	3750	84"	42"	78"	4"	3"	1-1/4"	1225
CF-48-650	650	490	4880	84"	48"	84"	5"F	4"	1-1/2"	1400
CF-48-750	750	560	5630	96"	48"	84"	5"F	4"	1-1/2"	1500
CF-48-850	850	640	6380	108"	48"	84"	5"F	4"	1-1/2"	1600
CF-48-950	950	720	7130	120"	48"	84"	5"F	4"	1-1/2"	1700

* Suffix Model Number with S, D or T to signify Simplex (1 pump), Duplex (2 pump) or Triplex (3 pump)

** Based on 10 minute storage and one pump sized @ twice the steaming rate

*** Height may vary due to installation limitations and/or pump NPSH requirements

**** Add pump weight(s) to obtain total shipping weight



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SPECIFICATIONS

1. GENERAL

Furnish and install as shown on the plans a Condensate Return / Boiler Feedwater System, fabricated per these specifications, including all accessories and construction features as described herein.

2. Tank

Tank shall be _____ gallon capacity non-code or code (ASME Section VIII) of nominal dimensions _____ diameter x _____ long with flat heads (non-code) or dished heads (code). Connections shall include anti-vortex pump suction, overflow, return, vent, drain and all necessary connections for sight gauge, makeup valve, and thermometer.

3. Pumps

Quantity _____ boiler feed pump(s) will be supplied. Pump(s) shall be Centrifugal or Turbine type with mechanical seals. Pump(s) will have a capacity of _____ GPM @ _____ PSIG for 210°F water. Pump(s) shall be driven by _____ HP, _____ VOLT, _____ PHASE, _____ HERTZ, _____ RPM, ODP or TEFC Motor(s).

4. Connections

Pump(s) will be piped to tank suction with full port ball valve(s) and strainer(s). Suction piping shall also include flexible coupling(s). Control Panel to be complete with hand-off auto switch(es), pilot light(s) and magnetic starter(s) in a NEMA number _____ enclosure. Panel shall be mounted on steel unit frame and wired to motor(s) using liquid-tight conduit system. (Optional UL Panel Available)

5. Makeup Control

Make-up control valve shall be internal or external and shall have a capacity equal to the total evaporation rate of the boiler(s) at a minimum water pressure of 40 PSIG.

6. Trim

System trim shall include sight gauge with bronze shut off cocks, drain, glass and glass protector rods, Bi-metal thermometer, drain valve, and optional items as listed.

6. Manufacturer

System shall be PRECISION Model CF-_____-____ or approved equivalent.

CONTACT US FOR THESE QUALITY PRODUCTS

- Electric Hot Water and Steam Boilers 10KW-5000KW to 3000 PSI; Carbon Steel & Stainless Steel
- Electric Storage Heaters 125 to 5500 Gallons
- Electrode High Voltage Boilers
- Thermal Storage Systems Space Heating & Domestic or Process
- Water; Electric, Gas or Steam Fired
- Pressure Vessels Water Storage Tanks Flash Tanks Blowdown Tanks
- Unfired Hot Water and Steam Generators
- Deaerators and Surge Tanks
- Steam Superheaters-Electric
- Circulation Heaters-Electric
- Gas or Oil-Fired Vertical Firetube Boilers and Water Heaters
- Gas or Oil-Fired WaterTube Boilers (Flextube Type)
- Chemical Bypass Feeders and Automatic Chemical Feed Systems

NOTE: In pursuing our policy of continuous development of products, PRECISION reserves the right to vary any detail in this bulletin without notice.

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20 BHP - 150 PSI - LIGHT OIL - CF - BD

Condensate return systems are designed to receive condensate, accommodate condensate surges and, when return is insufficient, automatically make-up and maintain sufficient boiler water.

Precision's CF systems are available in simplex, duplex, triplex and quadplex models with different pumps, control and trim packages available.

The CF can be used as a stand alone unit or for the convenience and speed of installation the CF can be factory packaged on a common skid with all inter-connecting piping with single point connections for electricity/gas, service water and drains.



200 KW (20BHP) - 150 PSI - ELECTRIC - CF - BD

Other Precision Boiler room equipment can also be packaged on the skid including blowdown separators, blowdown and flash tanks, water softeners and chemical feed tank.

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