

## Series CBM and CBEM Boiler Feed Units

**For Systems up to 600 Boiler Horsepower**

### **CBM Units**

- Floor mounted for low return lines
- Pumps condensate up to 210°F (99°C) at sea level

### **CBEM Units**

- Receiver is elevated 24" above the floor
- Require a minimum 2' NPSH
- Pumps condensate up to 212°F (100°C) at sea level

### **CBM and CBEM units feature the Series B-35™ pump**

- The original low NPSH pump
- Two-stage bronze construction
- Available as simplex or duplex units
- Mechanical seals rated for 250°F (121°C)

### **Cast Iron Receivers**

- Warranted for 20 years against failure due to corrosion
- Include a low inlet connection, an overflow and a minimum 2" (51mm) NPT air vent connection

Part of the



Equipment Selection Programs

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**Domestic**

ITT Fluid Technology Corporation

## APPLICATION

Series CBM and CBEM units are designed for small boiler feed systems handling condensate from steam heating or process applications. In any system, large or small, temperature fluctuates and can approach boiling temperature. Domestic™ offers these two styles of boiler feed units to meet high temperature and low return line applications.

### Featuring these reliable components ...

**CAST IRON RECEIVERS** are high quality, close grained gray iron of uniform dimensions. These receivers offer maximum protection from corrosion failure and are warranted for 20 years from date of shipment against failure due to corrosion. Each receiver comes standard with a low inlet connection, an overflow and a minimum 2" (50mm) NPT air vent connection.

**SERIES CBEM RECEIVERS** are elevated 24 inches (610mm) above the floor and recommended where height return lines permits their use. Featuring Series B-35 pumps, the CBEM unit will handle boiling condensate up to 212°F (100°C) at sea level.

**SERIES CBM UNITS** are designed for systems with low return lines. Fitted with Series B-35 pumps, which require a maximum of 2 ft. (0.6M) NPSH, the CBM unit will handle condensate up to 210°F (99°C) at sea level.

**SERIES B-35™ PUMPS** assure condensate handling, even when steam traps start to leak. The B35 pump features two-stage construction. A bronze first-stage axial flow impeller provides the necessary NPSH for high temperature water and a bronze centrifugal second-stage impeller. These pumps require a maximum of only 2 ft. (0.6M) NPSH. When return line height permits, the receiver can be elevated 24 inches (610mm) for pumping condensate at boiling temperature at 212°F (100°C) at sea level.

## OPTIONAL FEATURES

- Water level gauge w/shutoff valve
- Dial Thermometer
- Inlet Basket Strainer
- Discharge Pressure Gauges
- 3-Valve By-Pass Assembly around Solenoid make-up water valve
- Control Panels — See page 6 or catalog Section 190.
- Suction Butterfly Valves on Series CBM units (flow rates up to 75 GPM [284L/m])
- Air Gap Fitting
- Lifting Eye Bolts

**NOTE:** TEFC and explosion proof motors are available. The motor horsepower requirement is often greater using explosion proof motors as they have unity service factor. A horsepower increase is not necessary using TEFC motors.

## SELECTION DATA

ALL PUMPS ARE 3500 RPM

SYSTEM CAPACITY	PUMP CAP IN GPM (L/M)	DISCH PRESS IN PSIG (kPa)	MOTOR HORSEPOWER 3500 RPM	DISCHARGE SIZE IN. (MM)	SERIES CBM CATALOG NO.	REC. CAP IN GALS (L)	INLET SIZE IN. (MM)	SERIES CBEM CATALOG NO.
1,000 to 9,000 Sq. Ft. EDR (113-1020 Kg/Hr) 55 BHP	9 (34)	10-15 (69-103)	1/3	1 1/2" (38)	36CBM9-15	36 (136)	3 (76)	36CBEM9-15
		20 (138)	1/3		36CBM9-20			36CBEM9-20
		25 (172)	1/2		36CBM9-25			36CBEM9-25
		30 (207)	3/4		36CBM9-30			36CBEM9-30
		40 (276)	1 1/2		36CBM9-40			36CBEM9-40
		50 (345)	1 1/2		36CBM9-50			36CBEM9-50
		60 (414)	3		36CBM9-60			36CBEM9-60
		75 (517)	3		36CBM9-75			36CBEM9-75
		85 (586)	5		36CBM9-85			36CBEM9-85
		100 (690)	5		36CBM9-100			36CBEM9-100
12,000 Sq. Ft. EDR (1360 Kg/Hr) 80 BHP	12 (45)	10-15 (69-103)	1/3	1 1/2" (38)	52CBM12-15	52 (197)	3 (76)	52CBEM12-15
		20 (138)	1/3		52CBM12-20			52CBEM12-20
		25 (172)	1/2		52CBM12-25			52CBEM12-25
		30 (207)	3/4		52CBM12-30			52CBEM12-30
		40 (276)	1 1/2		52CBM12-40			52CBEM12-40
		50 (345)	2		52CBM12-50			52CBEM12-50
		60 (414)	3		52CBM12-60			52CBEM12-60
		75 (517)	5		52CBM12-75			52CBEM12-75
		85 (586)	5		52CBM12-85			52CBEM12-85
		100 (690)	5		52CBM12-100			52CBEM12-100

## STANDARD UNIT FEATURES

### Series CBM

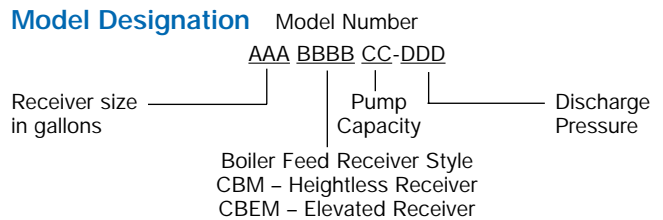
- Cast iron receiver  
All simplex receivers have a blanked opening for second pump. Receiver sized for 5 minute net storage.\*
- Cast iron receivers are warranted for 20 years from date of shipment against failure due to corrosion.
- Centrifugal Series B-35 pump(s) with drip-proof motors. Pump capacity sized 2 times system return rate.
- Float switch and solenoid valve with "Y" strainer to add make-up water on low level.

### Series CBEM

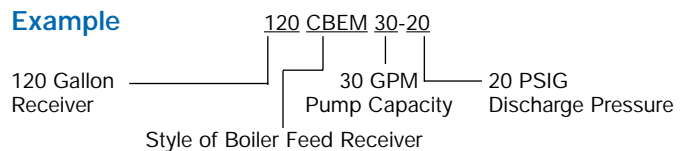
- Cast iron receiver mounted on a welded steel stand.  
All simplex receivers have a blanked opening for second pump. Receiver sized for 5 minute net storage.\*
- Cast iron receivers are warranted for 20 years from date of shipment against failure due to corrosion.
- Centrifugal Series B-35 pump(s) with drip-proof motors. Pump capacity sized 2 times system return rate.
- Float switch and solenoid valve with "Y" strainer to add make-up water on low level.
- Suction piping isolation valves.

\* For larger storage capacities, receiver can be increased accordingly up to 250 gal. (946L).

## Model Designation



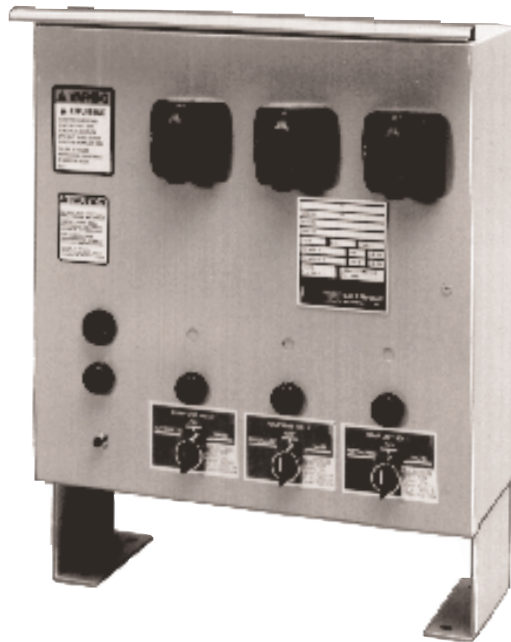
## Example



## ORDERING INSTRUCTIONS

Specify catalog no., single or duplex, phase, operating voltage, special features.

SYSTEM CAPACITY	PUMP CAP IN GPM (L/M)	DISCH PRESS IN PSIG (kPa)	MOTOR HORSEPOWER 3500 RPM	DISCHARGE SIZE IN IN. (MM)	SERIES CBM CATALOG NO.	REC. CAP IN GALS (L)	INLET SIZE IN IN. (MM)	SERIES CBEM CATALOG NO.
15,000 Sq. Ft. EDR (1700 Kg/Hr) 100 BHP	15 (57)	10-15 (69-103) 20 (138) 25 (172) 30 (207) 40 (276) 50 (345) 60 (414) 75 (517) 85 (586) 100 (690)	<sup>1</sup> / <sub>3</sub> <sup>1</sup> / <sub>2</sub> <sup>3</sup> / <sub>4</sub> <sup>3</sup> / <sub>4</sub> 1 <sup>1</sup> / <sub>2</sub> 2 3 5 5 5	1 <sup>1</sup> / <sub>2</sub> " (38)	75CBM15-15 75CBM15-20 75CBM15-25 75CBM15-30 75CBM15-40 75CBM15-50 75CBM15-60 75CBM15-75 75CBM15-85 75CBM15-100	75 (284)	4 (102)	75CBEM15-15 75CBEM15-20 75CBEM15-25 75CBEM15-30 75CBEM15-40 75CBEM15-50 75CBEM15-60 75CBEM15-75 75CBEM15-85 75CBEM15-100
22,000 Sq. Ft. EDR. (2495 Kg/Hr) 150 BHP	22 (83)	10-15 (69-103) 20 (138) 25 (172) 30 (207) 40 (276) 50 (345) 60 (414) 75 (517) 85 (586) 100 (690)	<sup>1</sup> / <sub>2</sub> <sup>1</sup> / <sub>2</sub> <sup>3</sup> / <sub>4</sub> <sup>3</sup> / <sub>4</sub> 1 <sup>1</sup> / <sub>2</sub> 2 3 5 5 5	1 <sup>1</sup> / <sub>2</sub> " (38)	75CBM22-15 75CBM22-20 75CBM22-25 75CBM22-30 75CBM22-40 75CBM22-50 75CBM22-60 75CBM22-75 75CBM22-85 75CBM22-100	75 (284)	4 (102)	75CBEM22-15 75CBEM22-20 75CBEM22-25 75CBEM22-30 75CBEM22-40 75CBEM22-50 75CBEM22-60 75CBEM22-75 75CBEM22-85 75CBEM22-100
30,000 Sq. Ft. EDR (3402 Kg/Hr) 200 BHP	30 (114)	10-15 (69-103) 20 (138) 25 (172) 30 (207) 40 (276) 50 (345) 60 (414) 75 (517) 85 (586) 100 (690)	<sup>1</sup> / <sub>2</sub> <sup>3</sup> / <sub>4</sub> <sup>3</sup> / <sub>4</sub> 1 2 3 3 5 5 7 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub> " (38)	120CBM30-15 120CBM30-20 120CBM30-25 120CBM30-30 120CBM30-40 120CBM30-50 120CBM30-60 120CBM30-75 120CBM30-85 120CBM30-100	120 (284)	4 (102)	120CBEM30-15 120CBEM30-20 120CBEM30-25 120CBEM30-30 120CBEM30-40 120CBEM30-50 120CBEM30-60 120CBEM30-75 120CBEM30-85 120CBEM30-100
37,000 Sq. Ft. EDR (4196 Kg/Hr) 250 BHP	37 (140)	10-15 (69-103) 20 (138) 25 (172) 30 (207) 40 (276) 50 (345) 60 (414) 75 (517) 85 (586) 100 (690)	<sup>1</sup> / <sub>2</sub> <sup>3</sup> / <sub>4</sub> 1 1 3 3 5 5 5 7 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub> " (38)	120CBM37-15 120CBM37-20 120CBM37-25 120CBM37-30 120CBM37-40 120CBM37-50 120CBM37-60 120CBM37-75 120CBM37-85 120CBM37-100	120 (284)	4 (102)	120CBEM37-15 120CBEM37-20 120CBEM37-25 120CBEM37-30 120CBEM37-40 120CBEM37-50 120CBEM37-60 120CBEM37-75 120CBEM37-85 120CBEM37-100
45,000 Sq. Ft. EDR (5103 Kg/Hr) 300 BHP	45 (170)	10-15 (69-103) 20 (138) 25 (172) 30 (207) 40 (276) 50 (345) 60 (414) 75 (517) 85 (586) 100 (690)	<sup>3</sup> / <sub>4</sub> <sup>3</sup> / <sub>4</sub> 1 1 <sup>1</sup> / <sub>2</sub> 3 3 5 5 7 <sup>1</sup> / <sub>2</sub> 7 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub> " (38)	250CBM45-15 250CBM45-20 250CBM45-25 250CBM45-30 250CBM45-40 250CBM45-50 250CBM45-60 250CBM45-75 250CBM45-85 250CBM45-100	250 (946)	4 (102)	250CBEM45-15 250CBEM45-20 250CBEM45-25 250CBEM45-30 250CBEM45-40 250CBEM45-50 250CBEM45-60 250CBEM45-75 250CBEM45-85 250CBEM45-100
60,000 Sq. Ft. EDR. (6804 Kg/Hr) 400 BHP	60 (227)	10-15 (69-103) 20 (138) 25 (172) 30 (207) 40 (276) 50 (345) 60 (414) 75 (517) 85 (586) 100 (690)	1 <sup>1</sup> / <sub>2</sub> 1 <sup>1</sup> / <sub>2</sub> 2 2 3 5 5 7 <sup>1</sup> / <sub>2</sub> 7 <sup>1</sup> / <sub>2</sub> 7 <sup>1</sup> / <sub>2</sub>	2" (51)	250CBM60-15 250CBM60-20 250CBM60-25 250CBM60-30 250CBM60-40 250CBM60-50 250CBM60-60 250CBM60-75 250CBM60-85 250CBM60-100	250 (946)	4 (102)	250CBEM60-15 250CBEM60-20 250CBEM60-25 250CBEM60-30 250CBEM60-40 250CBEM60-50 250CBEM60-60 250CBEM60-75 250CBEM60-85 250CBEM60-100
75,000 Sq. Ft. EDR (8505 Kg/Hr) 600 BHP	75 (284)	10-15 (69-103) 20 (138) 25 (172) 30 (207) 40 (276) 50 (345) 60 (414) 75 (517) 85 (586) 100 (690)	1 <sup>1</sup> / <sub>2</sub> 2 2 3 5 5 7 <sup>1</sup> / <sub>2</sub> 10 10 15	2" (51)	250CBM75-15 250CBM75-20 250CBM75-25 250CBM75-30 250CBM75-40 250CBM75-50 Not Available Not Available Not Available Not Available	250 (946)	4 (102)	250CBEM75-15 250CBEM75-20 250CBEM75-25 250CBEM75-30 250CBEM75-40 250CBEM75-50 250CBEM75-60 250CBEM75-75 250CBEM75-85 250CBEM75-100



## OPTIONAL ELECTRIC CONTROLS

### Description of Optional Panel Components

- Magnetic Starters must be used on all 3 phase motors and single phase motors over 2 HP.
- Disconnect Switches and Circuit Breakers. Either fuses or a circuit breaker is required ahead of the starters to protect against short circuits. A disconnect switch or circuit breaker also provides a means of shutting off power for service.
- Control Power Switching Relay – should be supplied in Duplex or Triplex units when individual pump disconnect switches are specified. This relay is recommended in order to maintain control power to the water makeup system in the event pump #1 disconnect switch is turned off or pump #1 fails. In this event the control power will be automatically supplied by pump #2.
- Selector Switches – “Auto-Off-Hand” selector switches provide a means of shutting off pumps and a means of testing in the “Hands” position. “Off-Hand-Lead-Lag” selector switches may be furnished on duplex units with 2 float switches to provide manual alteration.
- Electric Alternator may be furnished on duplex units to provide automatic sequencing of lead pump. Use only when magnetic starters are provided and only with 2 float switches.
- Transformer is required by the National Electrical Code to reduce control voltage when power supply exceeds 250 volts. A transformer is recommended when voltage exceeds 130 volts. Refer to local codes for requirements.
- Pilot Lights – Pump running pilot lights are available to indicate pump operation.
- Audible Alarm – An alarm to indicate low or high water level may be furnished. A separate tank mounted level switch should be provided with an alarm.

Specified Panel Components to be furnished with unit at extra cost.

**Standard panels are supplied with NEMA 2 enclosures and are U.L. listed unless otherwise specified.**

For further information, contact ITT Bell & Gossett, 8200 N. Austin Avenue, Morton Grove, IL 60053, Phone (847) 966-3700 — Facsimile (847) 966-9052.