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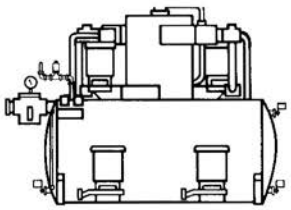
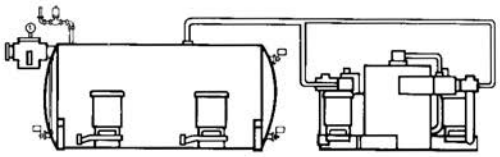
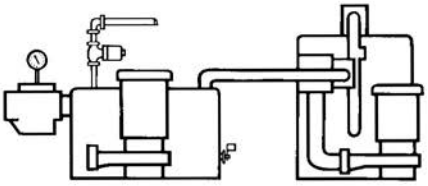
SPECIFICATIONS
160A

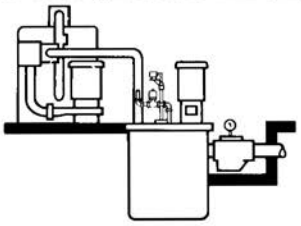
Domestic® Pump Series VCMD™ Combination Boiler Feed & Vacuum Units

Guide Specification Index



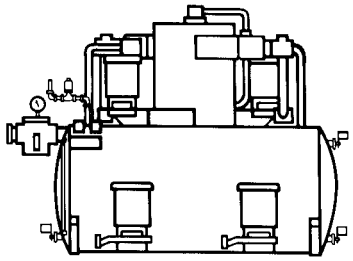






Series VCMD Combination Boiler Feed & Vacuum

Units consist of one of several styles of boiler feed units in combination with a vacuum unit. The boiler feed unit includes a water make-up assembly and boiler feed pumps with consolidated, automatic controls. The independent vacuum unit (mounted either on the boiler feed receiver or floor mounted) consists of a separation chamber and automatically controlled centrifugal pumps. Series VCMD units are engineered to simultaneously maintain optimum boiler levels and required system vacuum conditions. The broad selection of styles and arrangements illustrated and described below permits exacting specification for each particular application. For engineering design, operation, sizing and selection, refer to Catalog Bulletin S160.



Guide Specification

Domestic™ Series VCMD™ Style CMHD-A Combination Boiler Feed & Vacuum Unit

NOTE: Optional Accessories are Underlined

Furnish and install according to manufacturer's instruction, the quantity of combination boiler feed and vacuum unit shown on the drawings. Each unit shall consist of (1) boiler feed receiver, boiler feed pumps as scheduled, (1) separation chamber and air pump(s), (2) automatic make-up assemblies, float and vacuum controls, NEMA 2-U.L. listed control panels and all accessories as hereafter specified. Separate boiler feed and vacuum pumps must be provided to insure separate modes of operation and back-up capability.

The Boiler Feed receiver shall be of the designated style and capacity and shall be fabricated of welded steel. It shall have a net working capacity of no less than shown on the drawings and shall be equipped with an inlet cascade baffle. Receiver heads shall be convex (dished). Head and shell thickness shall be as indicated on the drawings and receiver accessories shall include: vacuum switch(es), water level gauge, dial thermometer, vacuum gauge, air suction check valve, (2) lifting eyes, companion flanges and low-water cut-off switch. Receiver shall be sized for 5 or 10 minutes net storage based upon the system return rate.

One inlet strainer with self-cleaning bronze screen and large dirt pocket shall be mounted on the receiver. The screen shall be vertically removable for cleaning, requiring no additional floor space for servicing.

A water make-up assembly shall be installed on the receiver of capacity equal to one (1) boiler feed pump. The assembly shall consist of a level control switch and solenoid electric valve. The valve shall be packless, piston, pilot-operated type and cushioned closing feature and epoxy-resin molded waterproof coil. The valve shall be equipped with a strainer and a manual bypass shall be provided around the valve.

The vacuum unit shall consist of multi-jet vacuum producer(s) and centrifugal pump and motor assembly(s) mounted on the separation chamber and shall deliver the scheduled capacity of saturated air at 5½" Hg vacuum and 160°F, rated and tested according to the latest ASHRAE Standard Code for "Return Line Low Vacuum Heating Pumps." Hurling or sealing water for the air pump shall be recirculated from an independent reservoir and shall not mix with condensate. The separation chamber shall be equipped with water level gauge, thermometer, suction swing check valve, air vent and overflow connections and automatic hurling water level controls. Vacuum pumps requiring mufflers or silencers to quiet noise shall not be accepted.

The Duplex vacuum unit shall be mounted on the boiler feed receiver, with rigid interconnecting piping to the boiler feed receiver.

For operating control of the Vacuum Unit, unit manufacturer shall furnish and mount on the receiver a completely wired NEMA 2 control cabinet with piano hinged door enclosing the following:

(1) Combination magnetic starter (with 3 overload relays) with fused disconnect and cover interlock for each air pump.

(1) Selector switch for each air pump — "Off-Lead-Lag-Continuous."

(1) Numbered terminal block.

(1) Fused control circuit transformer when the motor voltage exceed 230 volts.

(1) Power control switching relay when transformer and combination starters with disconnects are supplied.

All control cabinet components shall be U.L. listed or recognized components. The control panel assembly shall be listed by Underwriters' Laboratories, Inc.

All interconnecting wiring between the pumps, controls and control panel shall be enclosed in liquid tight flexible conduit installed at the factory.

Lead-Lag control on duplex air pumps shall provide for manual selection of the active or lead pump. The controls shall also provide simultaneous operation of both pumps under abnormal load conditions and operate the inactive pump should the active pump fail.

A float switch shall be installed in the boiler feed receiver for automatic overflow control. The float switch shall actuate the air pump(s) to pull excess condensate into the vacuum unit separation chamber from where it shall flow by gravity to a drain.

All pumps shall be flange mounted centrifugal type, designed for vertical operation. Each shall be bronze fitted and equipped with bronze impeller, renewable bronze case ring, stainless steel shaft and mechanical shaft seal. Water and air pump capacities, motor HP and rpm and electrical characteristics shall be as scheduled on the drawings. Boiler Feed Pumps — Each pump gpm shall be sized for 2 times the system return rate.

The unit shall be factory tested as a complete unit and the manufacturer shall furnish complete elementary and connection wiring and piping diagrams and installation and operation instruction. The unit shall be shipped completely assembled, except when oversize dimensions for shipping necessitate some disassembly.

Unit shall be a Domestic™ Series VCMD™ Style CMHD-A as manufactured by Bell & Gossett, ITT Fluid Technology Corporation, Morton Grove, IL.

INSERT HERE: BOILER FEED CONTROL SPECIFICATIONS from Catalog Section 190.

CAPACITY SCHEDULE (required to complete specifications)

Domestic™ Series VCMD™ Style CMHD-A Combination Boiler Feed and Vacuum Unit(s):

RECEIVER: Size _____ " dia. × _____" long
_____" thick shell and _____" thick heads.

BOILER FEED PUMPS: Qty. _____, each rated @ _____ gpm @ _____ psig, from _____" Hg vacuum.

MOTORS: _____ HP @ _____ rpm.

AIR PUMPS: Qty. _____ , each rated @ _____ cfm @ _____" Hg vacuum.

MOTORS: _____ HP @ _____ rpm.

ELECTRICAL: _____ phase, 60 Hertz, _____ volts.

Domestic™ Series VCMD™ Style CMHD-A Combination Boiler Feed & Vacuum Unit

STANDARD UNIT FEATURES:

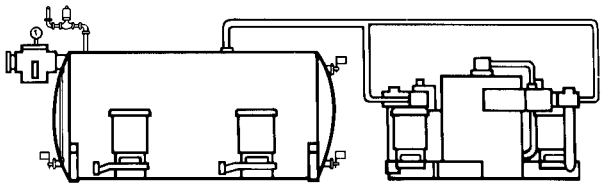
- Steel boiler feed receiver, minimum 3/16" thickness with dished heads and inlet cascade baffle
- Heightless supports
- Low-water cut-off float switch on the boiler feed receiver
- Overflow control in boiler feed receiver
- Float switch, 3/4" or 1" solenoid valve and "Y" strainer water make-up assembly
- Factory mounted vacuum unit
- Cast iron or fabricated steel vacuum hurling chamber
- NEMA 2-U.L. listed control panels mounted and wired with liquid tight flexible conduit
- Vacuum switches, diaphram type, double pole
- Automatic hurling water level controls
- Quiet multi-jet vacuum producers and suction check valves
- Separate Centriflo® centrifugal boiler feed and vacuum pumps with open dripproof motors
- Water level gauge and dial thermometers for the boiler feed and vacuum receivers
- Inlet basket strainer

OPTIONAL EQUIPMENT AS SPECIFIED:

- TEFC or Explosion Proof motors and controls
- Manual bypass assembly around the solenoid water make-up valve
- Discharge pressure gauge for the boiler feed pumps
- Hot dip galvanizing for the boiler feed receiver
- Temperature limit switch for high temperature conditions
- High or low water alarms and required controls
- Electric alternation for the vacuum pumps

10 SOLID REASONS TO CHOOSE DOMESTIC™:

- Fabricated steel boiler feed receiver
- Cast iron or steel vacuum unit receivers
- Bronze fitted centrifugal pumps
- Stainless steel pump shafts
- Renewable bronze pump wearing rings
- Mechanical seal pump construction
- Factory wired and tested before shipment
- Packaged construction for compact installation
- Engineered reliability
- Quiet vacuum producers without the need for mufflers or silencers



Guide Specification

Domestic™ Series VCMD™ Style CMHD-B Combination Boiler Feed & Vacuum Unit

NOTE: Optional Accessories are Underlined

Furnish and install according to manufacturer's instruction, the quantity of combination boiler feed and vacuum units shown on the drawings. Each unit shall consist of (1) boiler feed receiver, boiler feed pumps as scheduled, (1) separation chamber and air pump(s), (2) automatic make-up assemblies, float and vacuum controls, NEMA 2-U.L. listed control panels and all accessories as hereafter specified.

The Boiler Feed receiver shall be of the designated style and capacity and shall be fabricated of welded steel. It shall have a net working capacity of no less than shown on the drawings and shall be equipped with an inlet cascade baffle. Receiver heads shall be convex (dished). Head and shell thickness shall be as indicated on the drawings and receiver accessories shall include: vacuum switch(es), water level gauge, dial thermometer, vacuum gauge, air suction check valve, (2) lifting eyes, companion flanges and low-water cut-off switch. Receiver shall be sized for 5 or 10 minutes net storage based upon the system return rate.

One inlet strainer with self-cleaning bronze screen and large dirt pocket shall be mounted on the receiver. The screen shall be vertically removable for cleaning, requiring no additional floor space for servicing.

A water make-up assembly shall be installed on the receiver of capacity equal to one (1) boiler feed pump. The assembly shall consist of a level control switch and solenoid electric valve. The valve shall be packless, piston, pilot-operated type and cushioned closing feature and epoxy-resin molded waterproof coil. The valve shall be equipped with a strainer and a manual bypass shall be provided around the valve.

The vacuum unit shall consist of multi-jet vacuum producer(s) and centrifugal pump and motor assembly(s) mounted on the separation chamber and shall deliver the scheduled capacity of saturated air at 5½" Hg vacuum and 160°F, rated and tested according to the latest ASHRAE Standard Code for "Return Line Low Vacuum Heating Pumps." Hurling or sealing water for the air pump shall be recirculated from an independent reservoir and shall not mix with condensate. The separation chamber shall be equipped with water level gauge, thermometer, suction swing check valve, air vent and overflow connections and automatic hurling water level controls. Vacuum pumps requiring mufflers or silencers to quiet noise shall not be accepted.

The vacuum unit shall be furnished separately from the boiler feed unit. Interconnecting piping and wiring shall be completed in the field and will be the responsibility of the installing contractor.

For operating control of the Vacuum Unit, unit manufacturer shall furnish and mount on the receiver a completely wired NEMA 2 control cabinet with piano hinged door enclosing the following:

(1) Combination magnetic starter (with 3 overload relays) with fused disconnect and cover interlock for each air pump.

(1) Selector switch for each air pump — "Off-Lead-Lag-Continuous."

(1) Numbered terminal block.

(1) Fused control circuit transformer when the motor voltage exceed 230 volts.

(1) Power control switching relay when transformer and combination starters with disconnects are supplied.

All control cabinet components shall be U.L. listed or recognized components. The control panel assembly shall be listed by Underwriters' Laboratories, Inc.

Lead-Lag control on duplex air pumps shall provide for manual selection of the active or lead pump. The controls shall also provide simultaneous operation of both pumps under abnormal load conditions and operate the inactive pump should the active pump fail.

A float switch shall be installed in the boiler feed receiver for automatic overflow control. The float switch shall actuate the air pump(s) to pull excess condensate into the vacuum unit separation chamber from where it shall flow by gravity to a drain.

All pumps shall be flange mounted centrifugal type, designed for vertical operation. Each shall be bronze fitted and equipped with bronze impeller, renewable bronze case ring, stainless steel shaft and mechanical shaft seal. Water and air pump capacities, motor HP and rpm and electrical characteristics shall be as scheduled on the drawings. Boiler Feed Pumps — Each pump gpm shall be sized for 2 times the system return rate.

The unit shall be factory tested and the manufacturer shall furnish complete elementary and connection wiring and piping diagrams and installation and operation instructions. Both the boiler feed and vacuum units shall be shipped completely assembled. The interconnecting piping shall be the responsibility of others.

Unit shall be a Domestic™ Series VCMD™ Style CMHD-B as manufactured by Bell & Gossett, ITT Fluid Technology Corporation, Morton Grove, IL.

INSERT HERE: BOILER FEED CONTROL SPECIFICATIONS See Catalog Section 190.

CAPACITY SCHEDULE (required to complete specifications)

Domestic™ Series VCMD™ Style CMHD-B Combination Boiler Feed and Vacuum Unit(s):

RECEIVER: Size _____ " dia. × _____" long
_____" thick shell and _____" thick heads.

BOILER FEED PUMPS: Qty. _____, each rated @ _____ gpm @ _____ psig, from _____" Hg vacuum.

MOTORS: _____ HP @ _____ rpm.

MAKE-UP SUPPLY PRESSURE: Maximum _____ psig.

AIR PUMPS: Qty. _____, each rated @ _____ cfm @ _____" Hg vacuum.

MOTORS: _____ HP @ _____ rpm.

ELECTRICAL: _____ phase, 60 Hertz, _____ volts.

Domestic™ Series VCMD™ Style CMHD-B Combination Boiler Feed & Vacuum Unit

STANDARD UNIT FEATURES:

- Steel boiler feed receiver, minimum 3⁄16″ thickness with dished heads and inlet cascade baffle
- Heightless supports
- Low-water cut-off float switch on the boiler feed receiver
- Float switch, 3⁄4″ or 1″ solenoid valve and "Y" strainer water make-up assembly
- Cast iron or fabricated steel vacuum hurling chamber
- NEMA 2-U.L. listed control panels
- Vacuum switches, diaphram type, double pole
- Automatic hurling water level controls
- Quiet multi-jet vacuum producers and suction check valves
- Separate Centriflo® centrifugal boiler feed and Vacuum pumps with open dripproof motors
- Water level gauge and dial thermometers for the boiler feed and vacuum receivers
- Inlet basket strainer
- Overflow control in boiler feed receiver

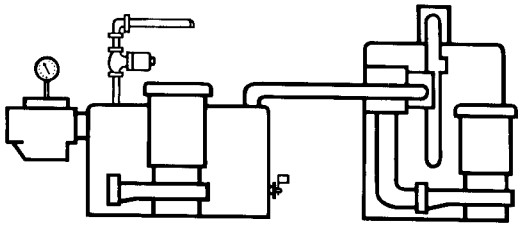
OPTIONAL EQUIPMENT AS SPECIFIED:

- TEFC or Explosion Proof motors and controls
- Manual bypass assembly around the solenoid water make-up valve
- Discharge pressure gauge for the boiler feed pumps
- Hot dip galvanizing for the boiler feed receiver
- Temperature limit switch for high temperature conditions
- High or low water alarms and required controls
- Electric alternation for the vacuum pumps

10 SOLID REASONS TO CHOOSE DOMESTIC™:

- Fabricated steel boiler feed receiver
- Cast iron or steel vacuum unit
- Bronze fitted centrifugal pumps
- Stainless steel pump shafts
- Renewable bronze pump wearing rings
- Mechanical seal pump construction
- Factory wired and tested before shipment
- Packaged construction for compact installation
- Engineered reliability
- Quiet vacuum producers without the need for mufflers or silencers

Guide Specification



Domestic™ Series VCMD™ Style CVM Combination Boiler Feed & Vacuum Unit

NOTE: Optional Accessories are Underlined

Furnish and install according to manufacturer's instruction, the quantity of combination boiler feed and vacuum units shown on the drawings. Each complete unit shall consist of (1) boiler feed receiver, boiler feed pumps as scheduled, (1) inlet strainer, (1) separation chamber with air pump(s), automatic make-up assembly, float and vacuum controls, NEMA 2-U.L. listed control panels and all accessories as hereafter specified.

The Boiler Feed receiver shall be style CVM, floor-mounted, close grained cast iron (warranted for 20 years from date of shipment against failure due to corrosion) and shall have a net working capacity of no less than shown on the drawings. Accessories shall include: water level gauge, dial thermometer, vacuum gauge, air suction check valve, (2) lifting eyes, and companion flanges. Receiver shall be sized for 5 or 10 minutes net storage based upon the system return rate.

One inlet strainer with self-cleaning bronze screen and large dirt pocket shall be mounted on the receiver. The screen shall be vertically removable for cleaning, requiring no additional floor space for servicing.

A water make-up assembly shall be installed on the receiver of capacity equal to one (1) boiler feed pump. The assembly shall consist of a level control switch and solenoid electric valve. The valve shall be packless, piston, pilot-operated type and cushioned closing feature and epoxy-resin molded waterproof coil. The valve shall be equipped with a strainer and a manual bypass shall be provided around the valve.

The vacuum unit shall consist of multi-jet vacuum producer(s) and centrifugal pump and motor assembly(s) mounted on the separation chamber and shall deliver the scheduled capacity of saturated air at 5½" Hg vacuum and 160°F, rated and tested according to the latest ASHRAE Standard Code for "Return Line Low Vacuum Heating Pumps." Hurling or sealing water for the air pump shall be recirculated from an independent reservoir and shall not mix with condensate. The separation chamber shall be equipped with water level gauge, thermometer, suction swing check valve, air vent and overflow connections and automatic hurling water level controls. Vacuum pumps requiring mufflers or silencers to quiet noise shall not be accepted.

The vacuum unit shall be furnished separately from the boiler feed unit with interconnecting piping and wiring to be completed by the installing contractor.

For operating control of the Duplex Vacuum Unit, unit manufacturer shall furnish and mount on the receiver a completely wired NEMA 2 control cabinet with piano hinged door enclosing the following:

(1) Combination magnetic starter (with 3 overload relays) with fused disconnect and cover interlock for each air pump.

(1) Selector switch for each air pump — "Off-Lead-Lag-Continuous."

(1) Numbered terminal block.

(1) Fused control circuit transformer when the motor voltage exceeds 230 volts.

(1) Power control switching relay when transformer and combination starters with disconnects are supplied.

All control cabinet components shall be U.L. listed or recognized components. The control panel assembly shall be listed by Underwriters' Laboratories, Inc.

Lead-Lag control on duplex air pumps shall provide for manual selection of the active or lead pump. The controls shall also provide simultaneous operation of both pumps under abnormal load conditions and operate the inactive pump should the active pump fail.

A float switch shall be installed in the boiler feed receiver for automatic overflow control. The float switch shall actuate the air pump(s) to pull excess condensate into the vacuum unit separation chamber from where it shall flow by gravity to a drain.

All pumps shall be flanged mounted centrifugal type, designed for vertical operation. Each shall be bronze fitted and equipped with bronze impeller, renewable bronze case ring, stainless steel shaft and mechanical shaft seal. Water and air pump capacities, motor HP and rpm and electrical characteristics shall be as scheduled on the drawings. Boiler Feed Pumps — Each pump gpm shall be sized for 2 times the system return rate.

The unit shall be factory tested as a complete unit and the manufacturer shall furnish complete elementary and connection wiring and piping diagrams and installation and operation instruction. The unit shall be shipped completely assembled, except when oversize dimensions for shipping necessitate some disassembly.

Unit shall be a Domestic™ Series VCMD™ Style CVM as manufactured by Bell & Gossett, ITT Fluid Technology Corporation, Morton Grove, IL.

INSERT HERE: BOILER FEED CONTROL SPECIFICATIONS See Catalog Section 190.

CAPACITY SCHEDULE (required to complete specifications)

Domestic™ Series VCMD™ Style CVM Combination Boiler Feed and Vacuum Unit(s):

RECEIVER: Style CM, floor mounted, cast iron, rated @ _____ gallons net storage capacity.

BOILER FEED PUMPS: Qty. _____ (1 or 2), each rated @ _____ gpm, @ _____ psig, from _____" Hg vacuum.

MOTORS: _____ HP @ _____ rpm.

MAKE-UP SUPPLY PRESSURE: Maximum _____ psig.

AIR PUMPS: Qty. _____, each rated @ _____ cfm @ _____" Hg vacuum.

ELECTRICAL: _____ phase, 60 Hertz, _____ volts.

Domestic™ Series VCMD™ Style CVM Combination Boiler Feed & Vacuum Unit

STANDARD UNIT FEATURES:

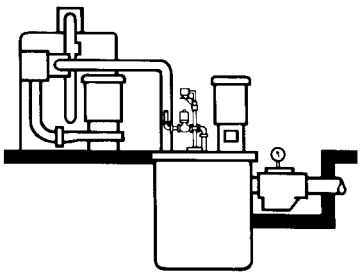
- Cast iron boiler feed receiver for years of dependable service
- Cast iron receiver warranted for 20 years from date of shipment against failure due to corrosion
- Float switch, solenoid valve and "Y" strainer water make-up assembly
- Cast iron or fabricated steel vacuum hurling chamber
- Vacuum switches, diaphram type, double pole
- Automatic hurling water level controls
- Quiet multi-jet vacuum producers and suction check valves
- Water level gauge on vacuum unit
- Dial thermometer on vacuum unit
- Separate Centriflo® centrifugal boiler feed and vacuum pumps with open dripproof motors
- NEMA 2-U.L. listed control panels for vacuum and boiler feed units.

OPTIONAL EQUIPMENT AS SPECIFIED:

- Inlet basket strainer
- NEMA 2-U.L. listed control cabinet for boiler feed unit
- TEFC or Explosion Proof motors and controls
- Manual bypass assembly around the boiler feed water make-up valve
- Discharge pressure gauge for the boiler feed pumps
- Low-water cut-off on the boiler feed receiver
- Temperature limit switch for high temperature conditions
- Water level gauge for boiler feed unit
- Dial thermometer for boiler feed unit
- Electric alternation for the vacuum pumps

10 SOLID REASONS TO CHOOSE DOMESTIC™:

- Corrosion resistant cast iron receivers
- Bronze fitted centrifugal pumps
- Quiet ball-bearing motors
- Stainless steel pump shafts
- Renewable bronze pump wearing ring
- Mechanical seal pump construction
- Factory wired and tested before shipment
- Packaged construction for compact installation
- Engineered reliability
- Quiet vacuum producers without the need for mufflers or silencers



Guide Specification

Domestic™ Series VCMD™ Style CMVU Combination Boiler Feed & Vacuum Unit

NOTE: Optional Accessories are Underlined

Furnish and install according to manufacturer's instruction, the quantity of combination boiler feed and vacuum units shown on the drawings. Each complete unit shall consist of (1) boiler feed receiver, boiler feed pumps as scheduled, (1) inlet strainer, (1) separation chamber and air pump(s), automatic make-up assembly, float and vacuum controls, NEMA 2-U.L. listed control panels and all accessories as hereafter specified.

The Boiler Feed receiver shall be an underground style, close grained, cast iron (warranted for 20 years from date of shipment against failure due to corrosion) and shall have a net working capacity of not les than shown on the drawings. Accessories shall include: vacuum gauge, air suction check valve, and all necessary openings. Receiver shall be sized or 10 minutes net storage based upon the system return rate. Receiver shall have an inlet located 9″ to centerline below grade.

One inlet strainer with self-cleaning bronze screen and large dirt pocket shall be mounted on the receiver. The screen shall be vertically removable for cleaning, requiring no additional floor space for servicing.

A water make-up assembly shall be installed on the receiver of capacity equal to one (1) boiler feed pump. The assembly shall consist of a level control switch and solenoid electric valve. The valve shall be packless, piston, pilot-operated type and cushioned closing feature and epoxy-resin molded waterproof coil. The valve shall be equipped with a strainer and a manual bypass shall be provided around the valve.

The vacuum unit shall consist of multi-jet vacuum producer(s) and centrifugal pump and motor assembly(s) mounted on the separation chamber and shall deliver the scheduled capacity of saturated air at 5½″ Hg vacuum and 160°F, rated and tested according to the latest ASHRAE Standard Code for "Return Line Low Vacuum Heating Pumps." Hurling or sealing water for the air pump shall be recirculated from an independent reservoir and shall not mix with condensate. The separation chamber shall be equipped with water level gauge, thermometer, suction swing check valve, air vent and overflow connections and automatic hurling water level controls. Vacuum pumps requiring mufflers or silencers to quiet noise shall not be accepted.

The vacuum unit shall be furnished separately with interconnecting piping and wiring to be completed by the installing contractor.

For operating control of the Duplex Vacuum Unit, unit manufacturer shall furnish and mount on the receiver a completely wired NEMA 2 control cabinet with piano hinged door enclosing the following:

(1) Combination magnetic starter (with 3 overload relays) with fused disconnect and cover interlock for each air pump.

(1) Selector switch for each air pump — "Off-Lead-Lag-Continuous."

(1) Numbered terminal block.

(1) Fused control circuit transformer when the motor voltage exceeds 230 volts.

(1) Power control switching relay when transformer and combination starters with disconnects are supplied.

All control cabinet components shall be U.L. listed or recognized components. The control panel assembly shall be listed by Underwriters' Laboratories, Inc.

Lead-Lag control on duplex air pumps shall provide for manual selection of the active or lead pump. The controls shall also provide simultaneous operation of both pumps under abnormal load conditions and operate the inactive pump should the active pump fail.

A float switch shall be installed in the boiler feed receiver for automatic overflow control. The float switch shall actuate the air pump(s) to pull excess condensate into the vacuum unit separation chamber from where it shall flow by gravity to a drain.

All pumps shall be centrifugal type, designed for vertical operation. Each shall be bronze fitted and equipped with bronze impeller, renewable bronze case ring, stainless steel shaft and mechanical shaft seal. Water and air pump capacities, motor HP and rpm and electrical characteristics shall be as scheduled on the drawings. Boiler Feed Pumps — Each pump gpm shall be sized for 2 times the system return rate.

The unit shall be factory tested and the manufacturer shall furnish complete elementary and connection wiring and piping diagrams and installation and operation instructions. Both boiler feed and vacuum units shall be shipped completely assembled. Interconnecting piping shall be the responsibility of the installing contractor.

Unit shall be a Domestic™ Series VCMD™ Style CMVU as manufactured by Bell & Gossett, ITT Fluid Technology Corporation, Morton Grove, IL.

INSERT HERE: BOILER FEED CONTROL SPECIFICATIONS See Catalog Section 190. (Control Panel for wall mounting.)

CAPACITY SCHEDULE (required to complete specifications)

Domestic™ Series VCMD™ Style CMVU Combination Boiler Feed and Vacuum Unit(s):

RECEIVER: Style CMU, underground cast iron, rated @ _____ gallons net storage capacity.

BOILER FEED PUMPS: Qty. _____ (1 or 2), each rated @ _____ gpm, @ _____ psig, from _____″ Hg vacuum.

MOTORS: _____ HP @ _____ rpm.

MAKE-UP SUPPLY PRESSURE: Maximum _____ psig.

AIR PUMPS: Qty. _____, each rated @ _____ cfm @ _____″ Hg vacuum.

ELECTRICAL: _____ phase, 60 Hertz, _____ volts.

Domestic™ Series VCMD™ Style CMVU Combination Boiler Feed & Vacuum Unit

STANDARD UNIT FEATURES:

- Cast iron boiler feed receiver for years of dependable service
- Cast iron receiver warranted for 20 years from date of shipment against failure due to corrosion
- Float switch, solenoid valve and "Y" strainer water make-up assembly
- Cast iron or fabricated steel vacuum hurling chamber
- Vacuum switches, diaphram type, double pole
- Automatic hurling water level controls
- Quiet multi-jet vacuum producers and suction check valves
- Water level gauge on vacuum unit
- Dial thermometer on vacuum unit
- Separate Centriflo® centrifugal boiler feed and vacuum pumps with open dripproof motors
- NEMA 2-U.L. listed control panels for vacuum and boiler feed unit

OPTIONAL EQUIPMENT AS SPECIFIED:

- Inlet basket strainer
- NEMA 2-U.L. listed control cabinet for boiler feed unit (wall mounted or vacuum unit mounted)
- TEFC or Explosion Proof motors and controls
- Manual bypass assembly around the boiler feed water make-up valve
- Discharge pressure gauge for the boiler feed pumps
- Low-water cut-off on the boiler feed receiver
- Temperature limit switch for high temperature conditions
- Electric alternation for the vacuum pumps

10 SOLID REASONS TO CHOOSE DOMESTIC™:

- Corrosion resistant cast iron receivers
- Bronze fitted centrifugal pumps
- Quiet ball-bearing motors
- Stainless steel pump shafts
- Renewable bronze pump wearing ring
- Mechanical seal pump construction
- Factory wired and tested before shipment
- Packaged construction for compact installation
- Engineered reliability
- Quiet vacuum producers without the need for mufflers or silencers

Description of Standard and Optional Equipment and Controls Domestic™ Series VCMD™ Units

Control Panel Location

One consolidated control cabinet, incorporating controls for boiler feed and vacuum units is furnished when vacuum units are unit mounted. When floor mounted vacuum units are furnished, two control cabinets are supplied. One of these includes the boiler feed pump starters and controls and is mounted on the Boiler Feed receiver. The second cabinet includes air pump starters and controls and is mounted on the vacuum unit. EXCEPTION: With CMVU underground units, the control cabinet is mounted on the vacuum unit or can be furnished for wall mounting.

Horizontal Steel Receiver Head & Shell Thickness

Styles CMHD-A & CMHD-B

Receiver	24×36	24×60	30×48	30×72	36×72	42×84	48×96
Thickness"	3/16	3/16	3/16	3/16	3/16	1/4	1/4

Optional Equipment

CORROSION-RESISTANT RECEIVER LININGS

Steel condensate receivers can be furnished with galvanizing after fabrication for additional corrosion resistance.

ADDITIONAL BOILER FEED PUMPS — STYLE CMVU & CVM

Cast iron receivers are ordinarily fitted with either one or two boiler feed pumps. Depending upon the size of the receiver, some sizes can be equipped with three or more pumps. Consult your Bell & Gossett Representative for specific applications.

COMBINATION MAGNETIC STARTERS

Available with fusible disconnect switches or circuit breakers. Safety cover interlocking switches are furnished with combination starters. Enclosures can be supplied to comply with the various NEMA or JIC specifications. NEMA 2-U.L. Listed control panels are a standard offering.

MOTORS

Vertical mounted, dripproof, ball bearing type motors are furnished with standard voltages: Three phase — 208-230/460 V, Single phase — 115/230 V. Other special voltages are available, as are totally enclosed, explosion-proof or other special motors. Consult factory for availability.

ELECTRIC ALTERNATOR

If desired, an Electric Alternator can be furnished in place of "Lead-Lag" manual sequence control on the vacuum unit.

Special Conditions & Equipment

TEMPERATURE LIMIT SWITCH

At the usual cut-out point of 8" Hg vacuum, condensate will re-evaporate at 197°F. Therefore, condensate temperatures of 197°F or higher will cause the air pump(s) to operate continuously. A reverse acting temperature limit switch can be installed on the inlet strainer to prevent the air pump(s) from operating when a high temperature condition exists.

RETURN LINES TOO LOW

When the condensate receiver cannot be located so that the inlet is below the lowest return, one of the following devices may be used:

(a) **Mechanical Lift** — Available for any lift height and any flow rate required. See Catalog Section 390.

(b) **Accumulator Tanks** — Practical limit: 5 ft. lift and any flow rate required.
There is a definite relationship between the size of the system and accumulator tank size. Accumulator tanks based on .75 gallon net storage capacity per 1,000 Sq. Ft. EDR are more than adequate. Caution: Accumulator tanks should not be sized according to the size of the receiver. See Catalog Section 390 for sizes and dimensions of cast iron rectangular and underground accumulator tanks. Refer to the appropriate Installation/Operation manual for piping details.

(c) **Lift Fittings** — Practical limit: 5 ft. lift and small flow rates only.

Vacuum Unit Separation Chambers

Models 20C, 50C, and 100C feature cast iron construction. Separation chamber 160S is furnished in steel construction.

*When air pumps are furnished separately, refer to Bulletin S-340 Page 4 for sizes of air suction pipes between air pump and condensate receiver.

Cast Iron Receiver Warranty — The cast iron receiver is warranted for 20 years from date of shipment against failure due to corrosion. In the event of receiver failure due to corrosion, the receiver will be replaced free of charge with transportation charges prepaid to any location within the continental U.S.A. Labor charges for replacement are not allowed nor shall Bell & Gossett, a unit of Xylem Inc. be liable for any special indirect or consequential damages. All implied warranties of merchantability and fitness for a particular purpose are hereby disclaimed.

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