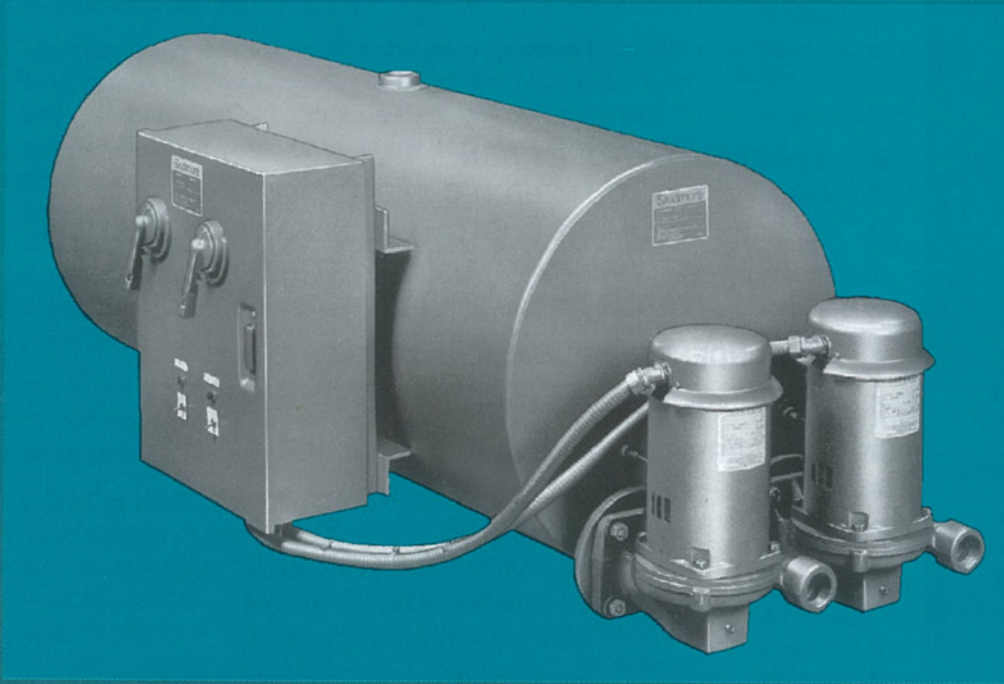


Skidmore®

Bulletin 10 D
October, 2002

V SERIES CONDENSATE, BOILER FEED AND MAKEUP PUMPS



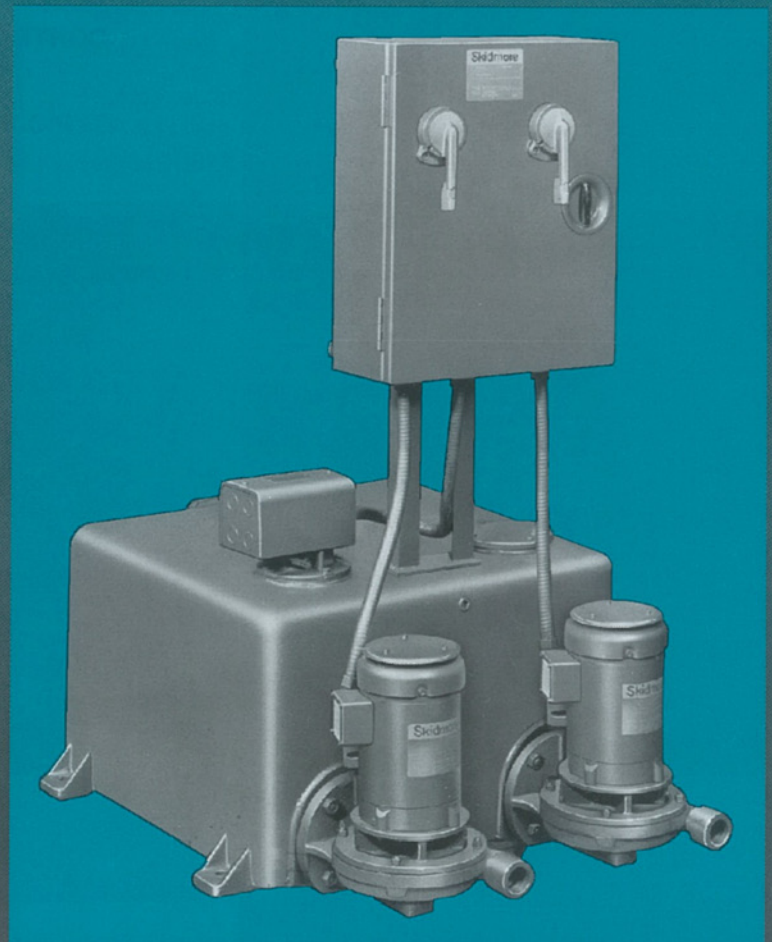
Simplex, duplex, triplex and quadruplex units

Cast iron and steel receivers

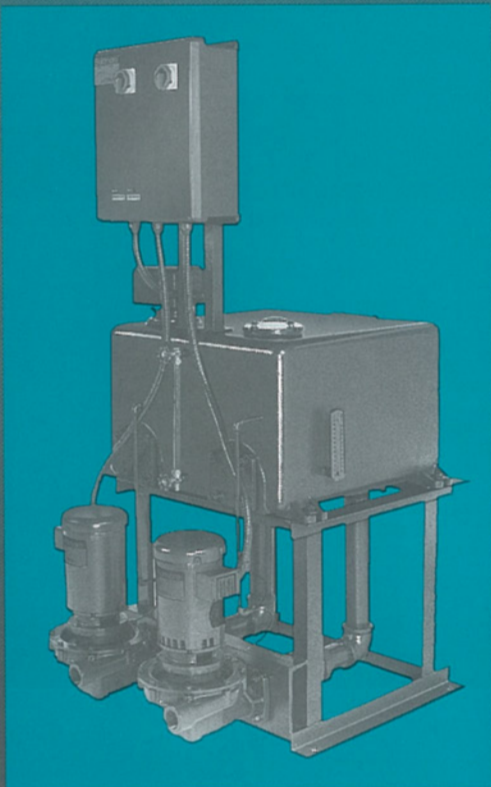
Capacities from 1,000 to 100,000 sq. ft. EDR

Discharge pressures:
10-40 psi with 1750 rpm units
20-75 psi with 3500 rpm units

True 2 ft. net positive suction head pumps available



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GENERAL INFORMATION

The Skidmore® pumping systems described in this brochure are packaged units, completely assembled, wired and tested at the manufacturing plant. They are designed to provide maximum efficiency, reliability and easy maintenance in compact, space saving configurations.

Manufacturing is done in clean modern facilities by people who take pride in producing dependable products. Each unit is individually factory tested before shipment to assure that the product is ready for service when it is received. Testing includes verification of flow rate, pressure, amperage draw and cut-in and cut-out points of all components. You can specify Skidmore products with confidence knowing that you will receive the benefits that made the Skidmore name synonymous with quality and pride since 1921.

We invite you to compare the features and specifications of our condensate, boiler-feed and makeup pumps with other units. We're sure Skidmore will be your choice.

DO YOU NEED TECHNICAL ASSISTANCE?

Your Skidmore representative has the expertise to assist you in selecting the pumping system most suitable for your application. They are backed by a team of engineers and application specialists who can develop the most efficient, energy saving pumping system for your specific requirements.

SKIDMORE CUSTOM ENGINEERING

If your installation poses special problems, Skidmore's custom engineering and building capabilities are available without charge as part of our total service.

TECHNICAL MANUALS

Several technical manuals are available free-of-charge from your Skidmore representative, or they may be obtained by writing directly to the Skidmore sales headquarters in Benton Harbor, Michigan.

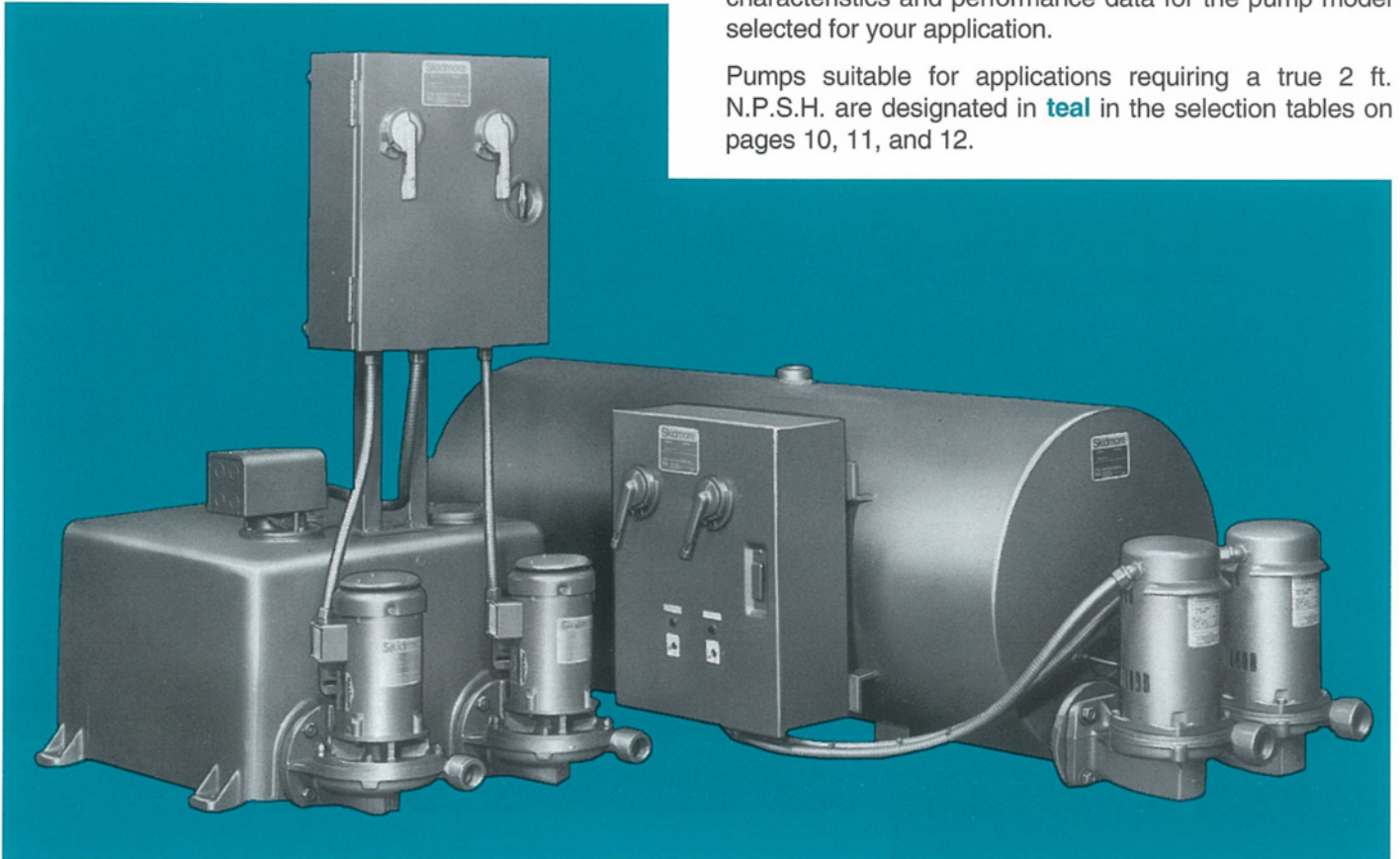
Bulletin 23T-1 contains piping and wiring diagrams, tables, formulas, and terminology.

Bulletin 23T-3 is a selection guide for boiler feed and condensate pumps. It contains the basic information required to understand, select and specify pump systems. Numerous diagrams show a variety of typical installations and piping arrangements.

DOES YOUR APPLICATION REQUIRE A TRUE 2 FT. N.P.S.H. PUMP?

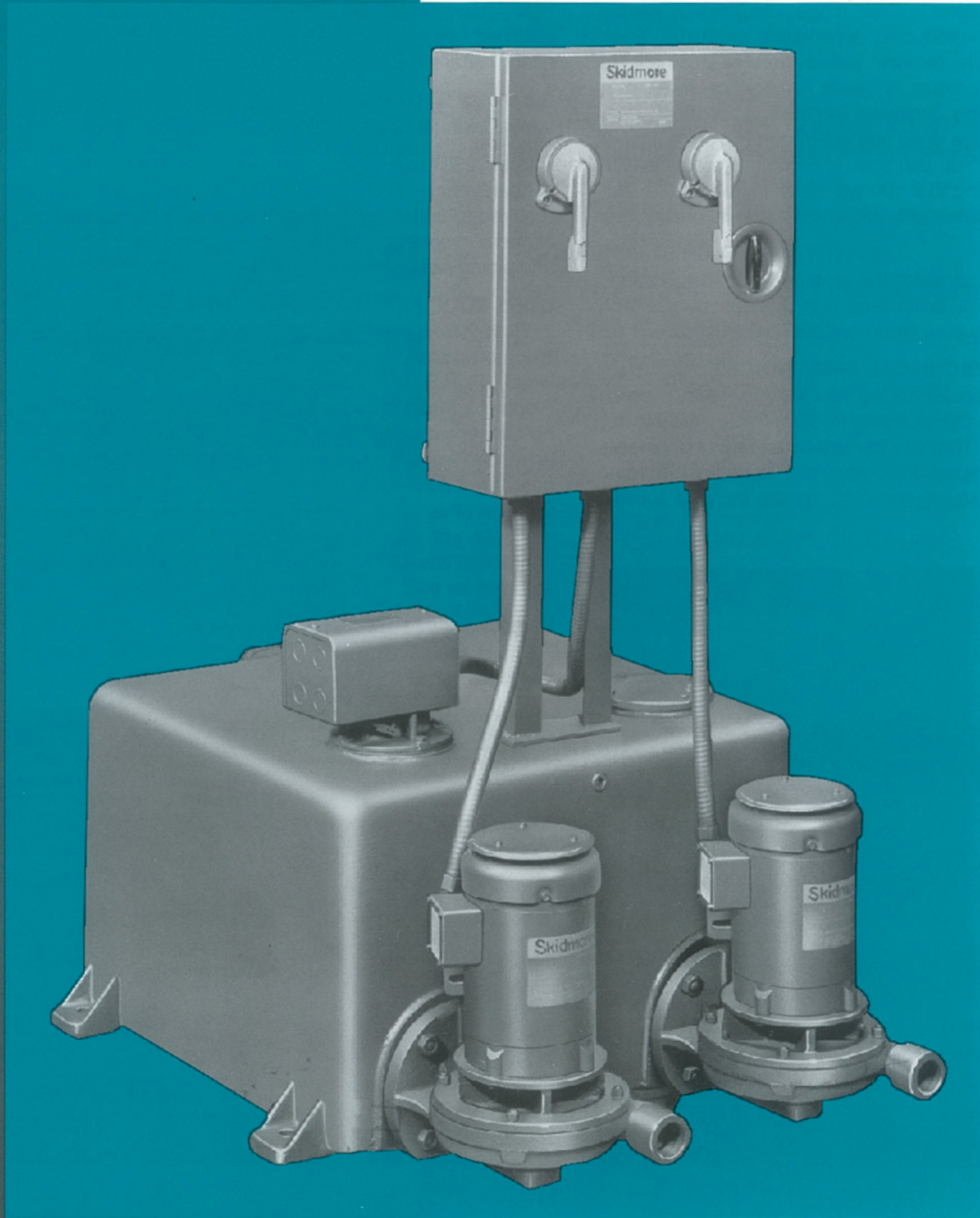
Skidmore offers a choice of 2 ft. Net Positive Suction Head (N.P.S.H.) pumps designed and built in the Skidmore tradition of simplicity and reliability. They are no-nonsense, no-gimmick true 2 ft. N.P.S.H. units with an advanced impeller and volute design that eliminates the need for additional flow inducers and unnecessary parts found in other units. Your Skidmore representative will be glad to provide test curves showing N.P.S.H.R. characteristics and performance data for the pump model selected for your application.

Pumps suitable for applications requiring a true 2 ft. N.P.S.H. are designated in **teal** in the selection tables on pages 10, 11, and 12.



CONDENSATE PUMPS

Condensate pumps are used in low pressure heating systems to collect and quickly return condensate to the boiler feed unit. Their pumping action is controlled by the water level in the receiver. Simplex units consist of an electric motor close-coupled to a centrifugal pump mounted on a cast iron or welded steel storage receiver with a float operated pump control. Multiple pump units are used when greater pumping capacity or back-up pump protection is required. Note: Condensate pumps do not supply boiler system makeup water.



Boiler feed pumps are used to pump and precisely control the condensate and makeup water required by the boiler(s) in low pressure steam applications. Pumping action is controlled by the fluid level in the boiler. They consist of a cast iron or welded steel storage receiver equipped with a makeup valve and one or more centrifugal pumps which are close-coupled to an electric motor.

BOILER FEED OR MAKEUP PUMPS



V SERIES PUMPING SYSTEMS

Skidmore V Series pumping systems are available in simplex, duplex, triplex or quadruplex configurations from 1,000 to 100,000 sq. ft. EDR capacities. Discharge pressures from 10-40 psi are available on units equipped with 1750 rpm motors; 20-75 psi on 3500 rpm units.

RECEIVERS

Cast iron, rectangular receivers are available with 15 to 110 gallon capacities.

Heavy-duty, welded, rust resistant, copper bearing steel receivers are available in rectangular or cylindrical configurations with capacities ranging from 21 to 1,000 gallons. Consult your local representative for custom engineered receivers and rust resistant linings.

SKIDMORE CENTRIFUGAL PUMPS

Five centrifugal models are available in a large selection of sizes to meet your specific application requirements: VC, VJ, VE, VN and VA.

The pumps are bolted directly to the receiver to provide a compact, efficient design. Their close-coupled, centrifugal design with bronze enclosed type impeller assures smooth, efficient water passage. A mechanical seal, rated to a maximum temperature of 250°F, is vented to the receiver to assure adequate lubrication at all times.

An advanced impeller and volute design make many of the pumps excellent for applications requiring less than a true 2 ft. Net Positive Suction Head (N.P.S.H.). These units are printed in teal in the selection tables on pages 10, 11 and 12. The simple, reliable single stage construction eliminates the need for additional impellers and parts used in other low N.P.S.H. pumps.

Designed for long-life, low maintenance and reliable service, the pumps are easily serviceable if necessary. Parts subject to normal wear are readily accessible. Impeller and seal can be serviced without disturbing piping or electrical connections.

All pumps are close-coupled to heavy duty, ball bearing electric motors. Fractional horsepower single phase motors have built-in thermal overload protection.

To help you determine the appropriate pump type for your application, specifications for each of the five types are described in the next paragraphs. Refer to selection tables for additional pumping system performance data.

VC PUMPS

1/3 thru 15 hp – various 2' N.P.S.H.

1725 rpm – discharge pressures are 10, 15 or 20 psi

3500 rpm – discharge pressures are 30 to 75 psi

Standard motor types available:

- Open drip proof (ODP)
- Totally enclosed fan cooled (TEFC)
- Explosion proof
- Single phase, 115/230 V, 60 Hz
- Three phase, 208 or 230/460 V, 60 Hz

VJ PUMPS

1/2 thru 2 hp

3500 rpm – discharge pressures are 10 to 50 psi

Standard motor types available:

- Open drip proof (ODP) only
- Totally enclosed fan cooled (TEFC)
- Single phase, 115/230 V, 60 Hz
- Three phase, 208 or 230/460 V, 60 Hz

VE PUMPS

3/4 thru 2 hp – 2' N.P.S.H.

1700 rpm – discharge pressures are 15 to 30 psi

Standard motor types available:

- Open drip proof (ODP)
- Totally enclosed fan cooled (TEFC)
- Explosion proof
- Single phase, 115/230 V, 60 Hz
- Three phase, 200 V, 60 Hz
- Three phase, 230/460 V, 60 Hz

VN PUMPS

1/2 thru 7½ hp – 2' N.P.S.H.

3450 rpm – discharge pressures are 20 to 60 psi

Standard motor types available:

- Open drip proof (ODP)
- Explosion proof
- Totally enclosed fan cooled (TEFC)
- Single phase, 115/230 V, 60 Hz
- Three phase, 208 or 230/460 V, 60 Hz

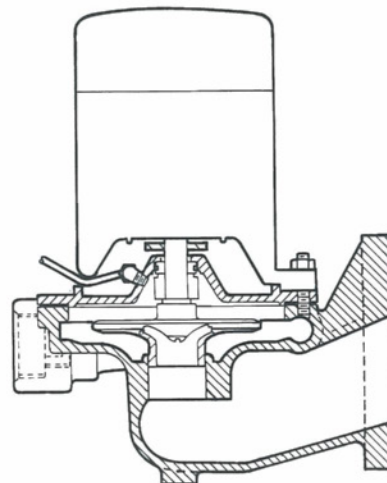
VA PUMPS

3, 5 or 7½ hp

1750 rpm – discharge pressures are 30 or 40 psi

Standard motor types available:

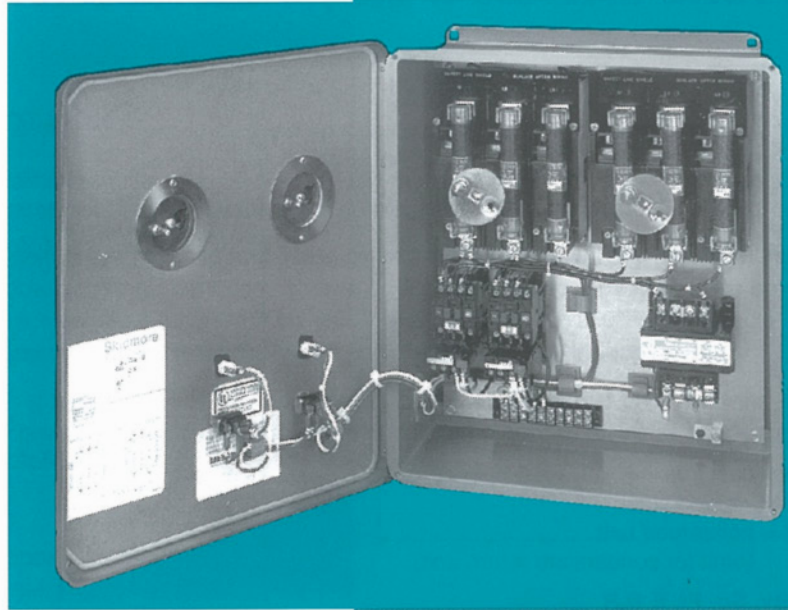
- Open drip proof (ODP)
- Totally enclosed fan cooled (TEFC)
- Explosion proof
- Three phase, 200 V, 60 Hz
- Three phase, 230/460 V, 60 Hz



Typical Pump Cross-Section

CONTROL PANELS

Skidmore will provide optional control panels tailored to your specific application requirements. Please refer to Bulletin ACC-700 for additional information, or consult with your local Skidmore representative who will be pleased to assist with your control panel selection. UL approved and labeled panels are available by request on 700 Series control panels.



Accessories and Optional Equipment

Condensate Pumps – Standard Equipment

- Simplex units have opening blanked-off for addition of a second pump at a later date
- One float switch (simplex units)
- Mechanical alternator (duplex units – equalizes running time between the two pumps and provides emergency back-up in case of excessive condensate return or a pump failure)
- Gauge glass and thermometer tapings

Condensate Pumps – Optional Equipment

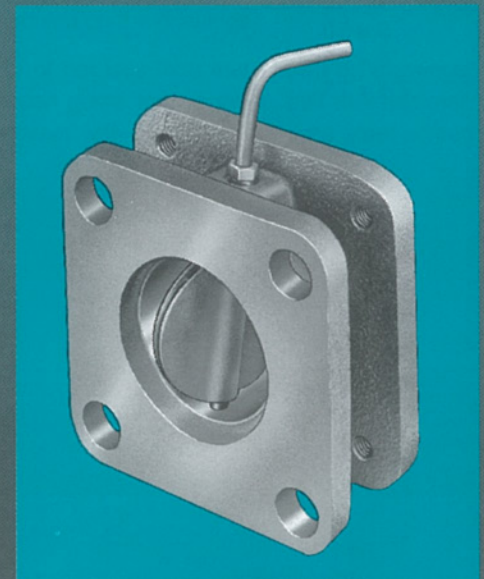
- Control Panel
- Thermometer
- Two float switches (duplex units)
- Electric alternator – mounted on unit and factory wired
- Magnetic starters – mounted on unit and factory wired
- Suction isolation valves – butterfly type
- Inlet strainers – "Y" or basket type
- Gauge glass
- Magnesium corrosion inhibitor
- Corrosion resistant receiver linings
- Discharge pressure gauges
- Discharge check valves
- Discharge gate valves

Boiler Feed or Makeup Pumps – Standard Equipment

- Float operated makeup valve
- Gauge glass and thermometer tapings

Boiler Feed or Makeup Pumps – Optional Equipment

- Control Panel
- Thermometer
- Makeup feeders – external type, or reverse acting float switch and solenoid valve type
- Magnesium corrosion inhibitor
- Suction isolation valves – butterfly type
- Inlet strainers – "Y" or basket type
- Gauge glass
- Three valve bypass and inlet strainer assembly
- Feedwater preheaters
- Discharge pressure gauges
- Discharge check valves
- Discharge gate valves



Optional Suction Isolation Valve - Butterfly Type

TYPICAL CATALOG CODE DESIGNATION

VE SS M I 7½

Series and Pump Type

VC
VJ
VE
VA
VN

Receiver Type

S = cast iron
SS = welded steel
M = boiler feed unit
(omit for condensate return unit)

Capacity, Sq. Ft. E.D.R.

1 = 1,000
2 = 2,000
4 = 4,000
6 = 6,000
8 = 8,000
10 = 10,000
15 = 15,000
20 = 20,000
25 = 25,000
30 = 30,000
40 = 40,000
50 = 50,000
65 = 65,000
80 = 80,000
100 = 100,000

Discharge Pressure, PSIG

1 = 10
1½ = 15
2 = 20
2½ = 25
3 = 30
4 = 40
5 = 50
6 = 60
7½ = 75

HOW TO ORDER

The following information is required for both Condensate and Boiler Feed Units:

Motor

Standard voltage 200, 115/230, 230/460
Phase
Operating voltage
Horsepower
RPM
Enclosure ODP, TEFC, Explosion proof

Motor controls

(three phase units with starters require a control circuit transformer)

Accessories and options

Unit list price

If starters are required, all three phase applications require a control circuit transformer.

Condensate Pumps

Specify the following information:

Model name and number (catalog number)

Pump capacities

GPM

Pressure (psi)

Receiver

Size

Material

Simplex, duplex, triplex or quadruplex

Boiler Feed or Makeup Pumps

Specify the following information:

Model name and number (catalog number)

Boiler requirements

GPM required to maintain boiler, or boiler H.P.

Pressure (psi) for maintaining boiler, or boiler operating pressure

Receiver

Size, or boiler H.P.

Material

Simplex, duplex, triplex or quadruplex

Operating control – float operated makeup valve or electric solenoid with reverse acting float switch (air gap fitting optional)

If special motorized valves are required:

Relay must be added

Specify type of boiler control being used

(M&M150, etc.)

TYPICAL ENGINEERING SPECIFICATIONS

Simplex Condensate Pump with Steel Receiver

Furnish and install according to plans and manufacturer's instructions the quantity of condensate pump units as shown on the drawings. Each unit shall consist of one (1) condensate receiver, condensate pump, inlet strainer, float switch.

The condensate pump shall be centrifugal design, permanently aligned and driven by vertical close coupled drip proof motors with drip covers. The motor and rotating parts shall be removable without disturbing suction or discharge piping. Pump shall be bronze fitted with enclosed bronze centrifugal impeller, stainless steel shaft, dripless mechanical seals suitable for 250°F, mechanical seal face flushing line with vent to receiver. Capacities and electrical characteristics shall be as scheduled on the drawings.

The receiver shall be manufactured of rust resisting steel and shall have a capacity of not less than that shown on the drawings. Receiver shall be equipped with water level gauge glass, one (1) float switch, inlet strainer with bronze or stainless steel screen easily removable for cleaning.

Add Control Specification

Capacity Schedule

Skidmore Model No. _____

_____ gpm @ _____ psig _____ HP _____ RPM

_____ volts _____ PH _____ Hz _____ gal. receiver

Duplex Boiler Feed Pump with Cast Iron Receiver

Furnish and install according to plans and manufacturer's instructions the quantity of boiler feed units as shown on the drawings. Each unit shall consist of one (1) cast iron boiler feed receiver, two (2) boiler feed pumps, one (1) inlet strainer, one (1) water make-up assembly, electrical controls and accessories.

The boiler feed pumps shall be centrifugal design, permanently aligned and driven by vertical close coupled drip proof motor with drip cover. The motor and rotating parts shall be removable without disturbing suction or discharge piping. Pump shall be bronze fitted with enclosed bronze centrifugal impeller, stainless steel shaft, dripless mechanical seals suitable for 250° F, mechanical seal face flushing line with vent to receiver. Capacities and electrical characteristics shall be as scheduled on the drawings.

The receiver shall be manufactured of close grained cast iron and shall have a capacity of not less than that shown on drawings. Receiver shall be equipped with water level gauge glass, two (2) isolation valves between pump and receiver, dial thermometer, Skidmore make-up water valve with capacity equal to one (1) boiler feed pump, inlet strainer with bronze or stainless steel screen easily removable for cleaning.

Add Control Specification

Capacity Schedule

Skidmore Model No. _____

_____ gpm @ _____ psig _____ HP _____ RPM

_____ volts _____ PH _____ Hz _____ gal. receiver

Make-up water supply pressure _____ psig

SELECTION TABLES

CAP. SQ. FT. EDR	CAP. GPM	DISH. PRESS. PSIG	1750 RPM UNITS			3500 RPM UNITS			RECEIVER SIZE			
			CATALOG NO.	MOTOR HP	DISH. SIZE	CATALOG NO.	MOTOR HP	DISH. SIZE	CAST IRON		STEEL	
									CAPACITY	RETURN SIZE	CAPACITY	RETURN SIZE
1,000	1½	10	*VCS-11	1/3	1¼"				15 or 21	2"	21	2½"
		15	*VCS-11-1/2	1/3	1¼"	VJS-11-1/2	1/2	1¼"				
		20	*VCS-12	1/3	1¼"	VJS-12	1/2	1¼"				
		30			*VCS-13	3/4	1¼"					
					VJS-13	1/2	1¼"					
		40			*VCS-14	1	1¼"					
					VJS-14	3/4	1¼"					
		50			*VCS-15	1½	1¼"					
			*VJS-15	1	1½"							
			*VCS-16	2	1¼"							
			*VCS-17½	3	1¼"							
2,000	3	10	*VCS-21	1/3	1¼"				15 or 21	2"	21	2½"
		15	*VCS-21-1/2	1/3	1¼"	VJS-21-1/2	1/2	1¼"				
		20	*VCS-22	1/3	1¼"	VJS-22	1/2	1¼"				
		30			*VCS-23	3/4	1¼"					
					VJS-23	1/2	1¼"					
		40			*VCS-24	1	1¼"					
					VJS-24	3/4	1¼"					
		50			*VCS-25	1½	1¼"					
			VJS-25	1	1½"							
			*VCS-26	2	1¼"							
			*VCS-27-1/2	3	1¼"							
4,000	6	10	*VCS-41	1/3	1¼"				15 or 21	2"	21	2½"
		15	*VCS-41-1/2	1/3	1¼"	VJS-41-1/2	1/2	1¼"				
		20	*VCS-42	1/2	1¼"	VJS-42	1/2	1¼"				
		30			*VCS-43	3/4	1¼"					
					VJS-43	1/2	1¼"					
		40			*VCS-44	1	1¼"					
					VJS-44	3/4	1¼"					
		50			*VCS-45	1½	1¼"					
			VJS-45	1½	1½"							
			*VCS-46	2	1¼"							
			VCS-47-1/2	3	1¼"							
6,000	9	10	*VCS-61	1/3	1¼"				21	2"	21	2½"
		15	*VCS-61-1/2	1/3	1¼"	VJS-61-1/2	1/2	1¼"	21	2"	21	2½"
		20	*VCS-62	1/2	1¼"	VJS-62/VNS-62*	1/2	1¼"	21	2"	21	2½"
		25	*VES-62-1/2	3/4	1½"				21	2"	21	2½"
		30	*VES-63	1	1½"	*VCS-63/VNS-63*	3/4	1¼"	21	2"	21	2½"
					VJS-63	1/2	1¼"	21	2"	21	2½"	
		40	VAS-64	3	2"				45	2½"	21	2½"
					VCS-64/VNS-64	1 / 1½	1¼"	21	2"	21	2½"	
					VJS-64	3/4	1¼"	21	2"	21	2½"	
					*VCS-65	1½	1¼"	21	2"	21	2½"	
			VJS-65	1½	1½"	21	2"	21	2½"			
			*VCS-66	2	1¼"	21	2"	21	2½"			
			VCS-67-1/2	3	1¼"	21	2"	21	2½"			
8,000	12	10	*VCS-81	1/3	1¼"				21	2"	21	2½"
		15	*VCS-81-1/2	1/3	1¼"	VJS-81-1/2	1/2	1¼"	21	2"	21	2½"
		20	*VCS-82	1/2	1¼"	VJS-82	1/2	1¼"	21	2"	21	2½"
		25	*VES-82-1/2	3/4	1½"				21	2"	21	2½"
		30	*VES-83	1	1½"	VCS-83	3/4	1¼"	21	2"	21	2½"
					VJS-83	1/2	1¼"	21	2"	21	2½"	
		40	VAS-84	3	2"				45	2½"	21	2½"
					VCS-84	1	1¼"	21	2"	21	2½"	
					VJS-84	1	1¼"	21	2"	21	2½"	
					*VCS-85	1½	1¼"	21	2"	21	2½"	
			VJS-85	1½	1½"	21	2"	21	2½"			
			*VCS-86	2	1¼"	21	2"	21	2½"			
			VCS-87-1/2	3	1¼"	21	2"	21	2½"			

STANDARD VJS PUMP UNITS AVAILABLE IN 1 PHASE 115/230 O.D.P. AND 3 PHASE 230/460 OR 208 O.D.P. 3500 R.P.M. MOTORS ONLY.

*UNITS PRINTED IN TEAL ARE 2" N.P.S.H. SELECTIONS.

SELECTION TABLES

CAP. SQ. FT. EDR	CAP. GPM	DISH. PRESS. PSIG	1750 RPM UNITS			3500 RPM UNITS			RECEIVER SIZE					
			CATALOG NO.	MOTOR HP	DISH. SIZE	CATALOG NO.	MOTOR HP	DISH. SIZE	CAST IRON		STEEL			
									CAPACITY	RETURN SIZE	CAPACITY	RETURN SIZE		
10,000	15	10	*VCS-101	1/3	1 1/4"				21	2"	21	2 1/2"		
		15	*VCS-101-1/2	1/2	1 1/4"	VJS-101-1/2	1/2	1 1/4"	21	2"	21	2 1/2"		
		20	*VCS-102	1/2	1 1/4"	VJS-102/VNS-102*	1/2	1 1/4"	21	2"	21	2 1/2"		
		25	*VES-102-1/2	3/4	1 1/2"				21	2"	21	2 1/2"		
		30	*VES-103	1 1/2	1 1/2"	VCS-103/VNS-103*	3/4	1 1/4"	21	2"	21	2 1/2"		
						VJS-103	3/4	1 1/4"	21	2"	21	2 1/2"		
		40	VAS-104	3	2"				45	2 1/2"	21	2 1/2"		
						VCS-104/VNS-104*	1 / 1 1/2	1 1/4"	21	2"	21	2 1/2"		
						VJS-104	1	1 1/4"	21	2"	21	2 1/2"		
		50				*VCS-105	1 1/2	1 1/4"	21	2"	21	2 1/2"		
						VJS-105	1 1/2	1 1/2"	21	2"	21	2 1/2"		
		60				*VCS-106	2	1 1/4"	21	2"	21	2 1/2"		
		75				VCS-107-1/2	3	1 1/4"	21	2"	21	2 1/2"		
		15,000	22 1/2	10	*VCS-151	1/3	1 1/2"				21	2"	21	2 1/2"
15	VCS-151-1/2			1/2	1 1/4"	VJS-151-1/2	1/2	1 1/4"	21	2"	21	2 1/2"		
20	*VES-152			3/4	1 1/2"	VJS-152/VNS-152*	1/2	1 1/4"	21	2"	21	2 1/2"		
25	*VES-152-1/2			1	1 1/2"				21	2"	21	2 1/2"		
30	*VES-153			1 1/2	1 1/2"	VCS-153/VNS-153*	1	1 1/4"	21	2"	21	2 1/2"		
						VJS-153	3/4	1 1/4"	21	2"	21	2 1/2"		
40	VAS-154			3	2"				45	2 1/2"	21	2 1/2"		
						VCS-154/VNS-154*	1 1/2	1 1/4"	21	2"	21	2 1/2"		
						VJS-154	1	1 1/4"	21	2"	21	2 1/2"		
50						VCS-155	2	1 1/4"	21	2"	21	2 1/2"		
						VJS-155	1 1/2	1 1/2"	21	2"	21	2 1/2"		
60						VCS-156	3	1 1/4"	21	2"	21	2 1/2"		
75						VCS-157-1/2	3	1 1/4"	21	2"	21	2 1/2"		
20,000	30			10	VCS-201	1/3	1 1/2"							
		15	VCS-201-1/2	1/2	1 1/4"	VJS-201-1/2	1/2	1 1/4"						
		20	*VES-202	3/4	1 1/2"	VJS-202/VNS-202*	3/4	1 1/4"						
		25	*VES-202-1/2	1	1 1/2"									
		30	*VES-203	1 1/2	1 1/2"	VCS-203/VNS-203*	1 1/2 / 1	1 1/4"						
						VJS-203	1	1 1/4"	45	2 1/2"	45	3"		
		40	VAS-204	3	2"	VCS-204/VNS-204*	1 1/2 / 2	1 1/4"						
						VJS-204	1 1/2	1 1/2"						
		50				VCS-205	2	1 1/4"						
						VJS-205	1 1/2	1 1/2"						
		60				VCS-206	3	1 1/4"						
		75				VCS-207-1/2	5	1 1/4"						
		25,000	37 1/2	10	*VCS-251	1/2	1 1/2"							
				15	*VCS-251-1/2	3/4	1 1/2"	VJS-251-1/2	3/4	1 1/4"				
20	*VES-252			3/4	1 1/2"	VJS-252	3/4	1 1/4"						
25	*VES-252-1/2			1 1/2	1 1/2"									
30	*VES-253			1 1/2	1 1/2"	VCS-253	1 1/2	1 1/4"						
						VJS-253	1	1 1/4"	45	2 1/2"	45	3"		
40	VAS-254			3	2"	VCS-254	2	1 1/4"						
						VJS-254	1 1/2	1 1/2"						
50						VCS-255	3	1 1/2"						
60						VCS-256	3	1 1/4"						
75						VCS-257-1/2	5	1 1/4"						
30,000	45			10	VCS-301	1/2	1 1/2"							
				15	*VCS-301-1/2	3/4	1 1/2"	VJS-301-1/2	1	1 1/4"				
				20	*VES-302	1	1 1/2"	VJS-302/VNS-302*	1	1 1/4"				
		25	*VES-302-1/2	1 1/2	1 1/2"									
		30	*VES-303	1 1/2	1 1/2"	VCS-303/VNS-303*	1 1/2	1 1/4"						
						VJS-303	1 1/2	1 1/2"	45	2 1/2"	45	3"		
		40	VAS-304	3	2"	VCS-304/VNS-304*	2 / 3	1 1/4" / 2"						
						VJS-304	2	1 1/2"						
		50				VCS-305/VNS-305*	3 / 5	1 1/2" / 2"						
		60				VCS-306/VNS-306*	3 / 5	1 1/4" / 2"						
		75				VCS-307-1/2	7 1/2	1 1/2"						

STANDARD VJS PUMP UNITS AVAILABLE IN 1 PHASE 115/230 O.D.P. AND 3 PHASE 230/460 OR 208 O.D.P. 3500 R.P.M. MOTORS ONLY.

*UNITS PRINTED IN TEAL ARE 2' N.P.S.H. SELECTIONS.

SELECTION TABLES

CAP. SQ. FT. EDR	CAP. GPM	DISH. PRESS. PSIG	1750 RPM UNITS			3500 RPM UNITS			RECEIVER SIZE					
			CATALOG NO.	MOTOR HP	DISH. SIZE	CATALOG NO.	MOTOR HP	DISH. SIZE	CAST IRON		STEEL			
									CAPACITY	RETURN SIZE	CAPACITY	RETURN SIZE		
40,000	60	10	VCS-401	3/4	1½"				65	3"	65	3"		
		15	VCS-401-1/2	1	1½"	VJS-401-1/2	1½	1½"	65	3"	65	3"		
		20	* VES-402	1½	1½"	VJS-402/VNS-402*	1½	1½" / 2"	65	3"	65	3"		
		25	* VES-402-1/2	1½	1½"				65	3"	65	3"		
		30	* VES-403	2	1½"	VCS-403/VNS-403*	2 / 3	1½" / 2"	65	3"	65	3"		
					VJS-403	1½	1½"	65	3"	65	3"			
		40	VAS-404	5	2"				65	3"	65	3"		
					VCS-404/VNS-404*	3	1½" / 2"	65	3"	65	3"			
									65	3"	65	3"		
					VCS-405/VNS-405*	5	1½" / 2"	65	3"	65	3"			
			VCS-406/VNS-406*	5	1½" / 2"	65	3"	65	3"					
			VCS-407-1/2	7½	1½"	65	3"	65	3"					
50,000	75	10	VCS-501	1	2"				65	3"	65	3"		
		15	VCS-501-1/2	1½	2"	VJS-501-1/2	1½	1½"	65	3"	65	3"		
		20	* VES-502	1½	1½"	VJS-502/VNS-502*	1½ / 2	1½" / 2"	65	3"	65	3"		
		25	* VES-502-1/2	2	1½"				65	3"	65	3"		
		30	VAS-503	3	2"	VCS-503/VNS-503*	3	1½" / 2"	65	3"	65	3"		
					VJS-503	2	1½"	65	3"	65	3"			
		40	VAS-504	5	2"				65	3"	65	3"		
					VCS-504/VNS-504*	3	1½" / 2"	65	3"	65	3"			
					VCS-505/VNS-505*	5	1½" / 2"	65	3"	65	3"			
					VCS-506/VNS-506*	5 / 7½	1½" / 2"	65	3"	65	3"			
			VCS-507 -1/2	7½	1½"	65	3"	65	3"					
60,000	90	20				* VNS-602	2	2"						
		30				* VNS-603	3	2"	110	5"	110	4"		
		40				* VNS-604	5	2"						
		50				VNS-605	7½	2"						
65,000	97½	10	VCS-651	1½	2"									
		15	VCS-651-1/2	1½	2"	VJS-651-1/2	2	1½"						
		20	VES-652	2	1½"	VJS-652	2	1½"						
		30	VAS-653	3	2"	VCS-653	3	2"	110	5"	110	4"		
		40	VAS-654	5	2"	VCS-654	5	2"						
		50				VCS-655	5	1½"						
60				VCS-656	7½	2"								
80,000	120	10	VCS-801	1½	2"									
		15	VCS-801-1/2	2	2"									
		20				VCS-802	3	1½"						
		30	VAS-803	5	2"	VCS-803	5	2"	110	5"	110	4"		
		40	VAS-804	5	2"	VCS-804	5	2"						
		50				VCS-805	7½	2"						
60				VCS-806	7½	2"								
100,000	150	10	VCS-1001	1½	2"									
		15				VCS-1001½	2	2"						
		20				VCS-1002	5	1½"						
		30	VAS-1003	5	3"	VCS-1003	5	2"	110	5"	110	4"		
		40	VAS-1004	5	3"	VCS-1004	5	2"						
		50				VCS-1005	7½	2"						
60				VCS-1006	10	2"								

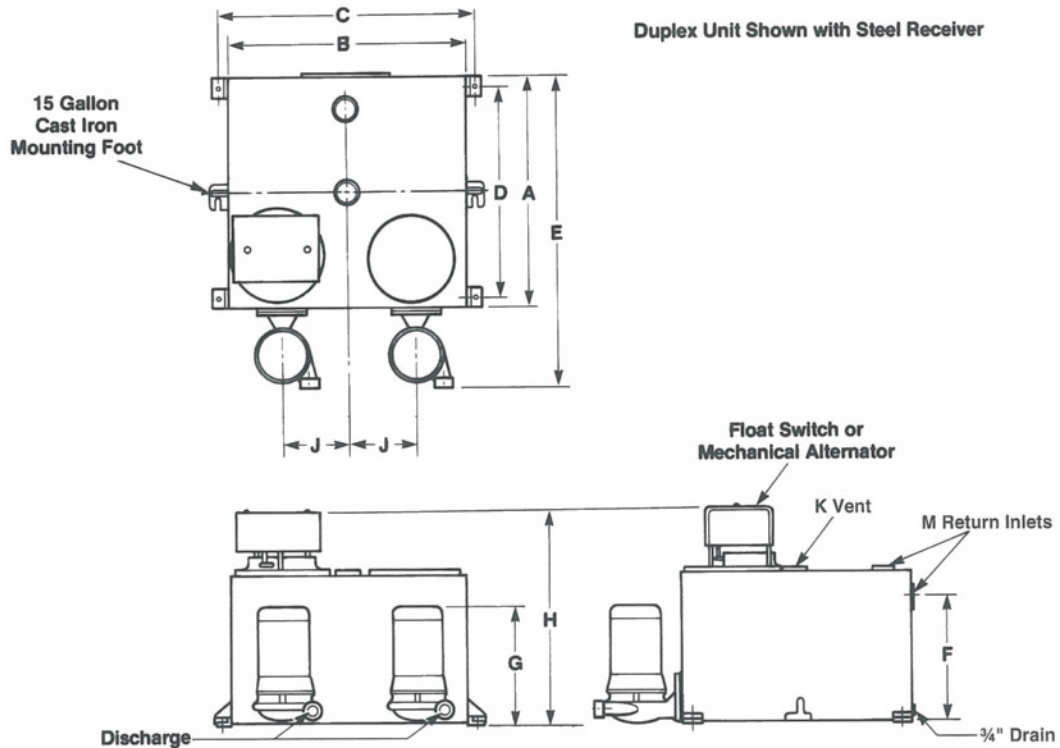
STANDARD VJS PUMP UNITS AVAILABLE IN 1 PHASE 115/230 O.D.P. AND 3 PHASE 230/460 OR 208 O.D.P. 3500 R.P.M. MOTORS ONLY.

*UNITS PRINTED IN TEAL ARE 2" N.P.S.H. SELECTIONS.

DIMENSION DATA

VC, VJ, VN and VE PUMPS WITH CAST IRON OR STEEL RECTANGULAR RECEIVERS

Simplex or Duplex Condensate or Boiler Feed Units



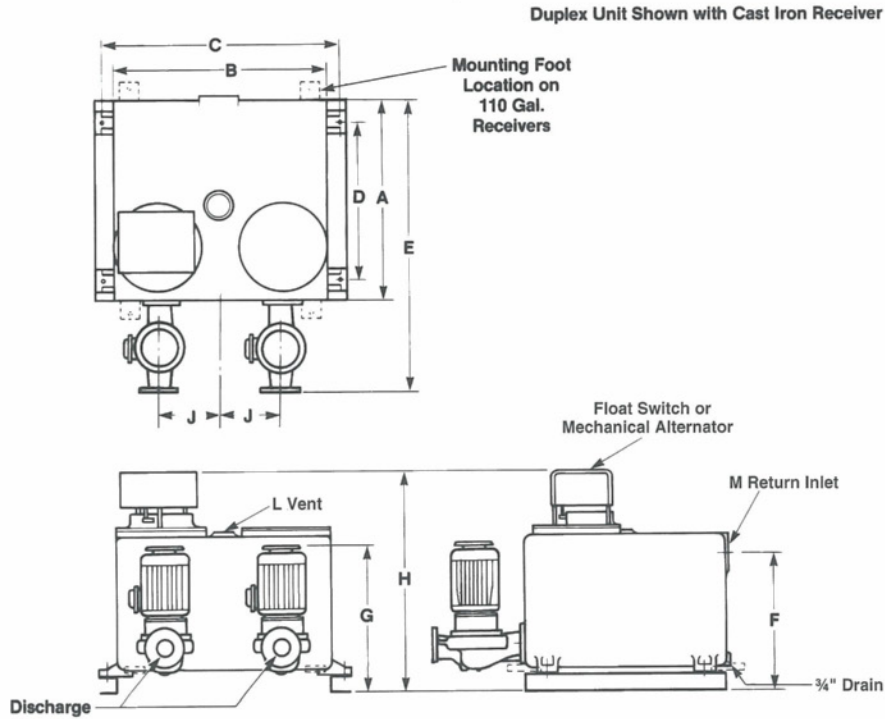
APPROXIMATE DIMENSIONS

CAP. SQ. FT. EDR	RECEIVER CAPACITY (GALS.)	A	B	C	D	E MAX.	F	G	H MAX.	J	K	M
CAST IRON RECEIVER MODELS VCS, VJS, VNS, VES, VCSSM, VJSSM, VNSSM, VESSM												
1,000 to 4,000	15	15½	17¼	19⅝	NA	29½	12¾	16 to 19	21⅜	5⅝	1	2
1,000 to 15,000	21	20¾	22¾	25½	147⅝	34¾	9¼ or Top	16 to 21	18	6¾	1¼	2
20,000 to 30,000	45	25¾	26¾	28¾	20	39¾	14½	16 to 21	23¼	7½	1½	2½
40,000 to 50,000	65	28½	28½	30½	22¾	42½	18⅝	16 to 21	28⅝	7½	2	3
65,000 to 100,000	110	30	42	36¼	32	44	19½	18 to 28	28⅝	7½	2	5
STEEL RECEIVER MODELS VCSS, VJSS, VNSS, VESS, VCSSM, VJSSM, VNSSM, VESSM												
1,000 to 15,000	21	18⅜	24⅜	26⅜	16⅝	32⅜	9¼ or Top	16 to 19	18⅝	6	1¼	2½
20,000 to 30,000	45	24⅜	24⅜	26⅜	22⅝	38⅜	15⅛ or Top	16 to 21	24⅛	6	1½	3
40,000 to 50,000	65	24⅜	24⅜	26⅜	22⅝	38⅜	21⅛ or Top	16 to 21	30⅛	6	2	3
65,000 to 100,000	110	30½	43	45	25	44½	16⅞ or Top	18 to 28	26¼	11	2	4

DIMENSION DATA

VA PUMPS WITH CAST IRON OR STEEL RECTANGULAR RECEIVERS

Simplex or Duplex Condensate or Boiler Feed Units



APPROXIMATE DIMENSIONS

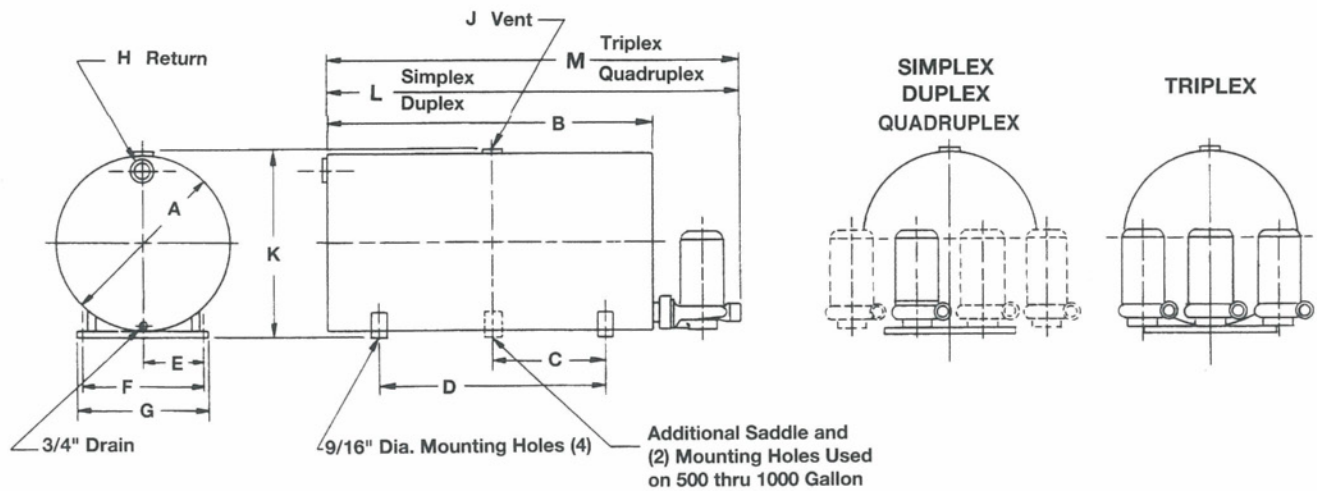
CAP. SQ. FT. EDR	RECEIVER CAPACITY (GALS.)	A	B	C	D	E MAX.	F	G	H MAX.	J	L	M
CAST IRON RECEIVER MODELS VCS, VJS, VNS, VES, VCSSM, VJSSM, VNSSM, VESSM												
1,000 to 30,000	45	25 $\frac{3}{4}$	26 $\frac{3}{4}$	28 $\frac{3}{4}$	20	45 $\frac{3}{4}$	17 $\frac{1}{2}$	27 $\frac{1}{2}$	26 $\frac{3}{4}$	7 $\frac{1}{2}$	1 $\frac{1}{2}$	2 $\frac{1}{2}$
40,000 to 50,000	65	28 $\frac{1}{2}$	28 $\frac{1}{2}$	30 $\frac{1}{2}$	22 $\frac{3}{4}$	48 $\frac{1}{2}$	22 $\frac{1}{2}$	27 $\frac{3}{4}$	31 $\frac{1}{8}$	7 $\frac{1}{2}$	2	4
65,000 to 100,000	110	30	42	36 $\frac{1}{4}$	32	50	22 $\frac{1}{2}$	27 $\frac{1}{2}$	31 $\frac{3}{8}$	7 $\frac{1}{2}$	2	5
STEEL RECEIVER MODELS VCSS, VJSS, VNSS, VESS, VCSSM, VJSSM, VNSSM, VESSM												
*1,000 to 15,000	21	18 $\frac{5}{8}$	24 $\frac{5}{8}$	26 $\frac{3}{8}$	16 $\frac{1}{8}$	38 $\frac{3}{8}$	12 $\frac{5}{8}$ or Top	27 $\frac{1}{2}$	21 $\frac{1}{8}$	7 $\frac{1}{2}$	1 $\frac{1}{4}$	2 $\frac{1}{2}$
20,000 to 30,000	45	24 $\frac{3}{8}$	24 $\frac{3}{8}$	26 $\frac{3}{8}$	22 $\frac{1}{8}$	44 $\frac{3}{8}$	18 $\frac{1}{2}$ or Top	27 $\frac{1}{2}$	27 $\frac{1}{8}$	7 $\frac{1}{2}$	1 $\frac{1}{2}$	3
40,000 to 50,000	65	24 $\frac{3}{8}$	24 $\frac{3}{8}$	26 $\frac{3}{8}$	22 $\frac{1}{8}$	44 $\frac{3}{8}$	24 $\frac{11}{16}$ or Top	27 $\frac{1}{2}$	33 $\frac{1}{8}$	7 $\frac{1}{2}$	2	3
65,000 to 100,000	110	30 $\frac{1}{2}$	43	45	25	50 $\frac{1}{2}$	19 $\frac{9}{16}$ or Top	27 $\frac{1}{2}$	29 $\frac{1}{4}$	11	2	4

*SIMPLEX MODELS ONLY. DUPLEX NOT AVAILABLE.

DIMENSION DATA

VC, VJ, VN and VE PUMPS WITH CYLINDRICAL STEEL RECEIVERS

Simplex, Duplex, Triplex or Quadruplex Condensate or Boiler Feed Units



APPROXIMATE DIMENSIONS

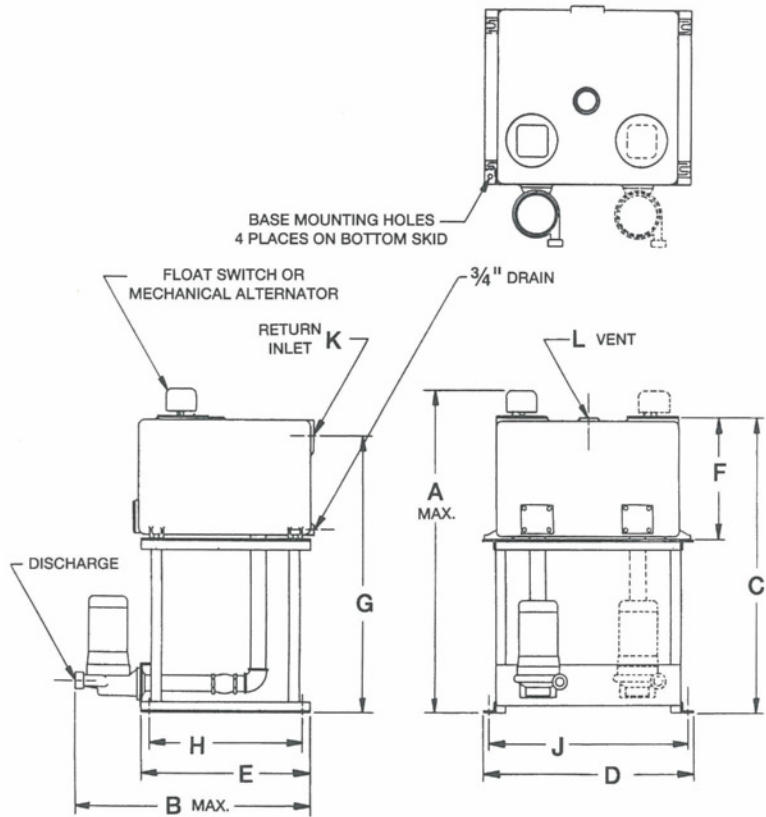
MAX. CAP. SQ. FT. EDR	RECEIVER SIZE (GAL.)	APPROXIMATE DIMENSIONS												
		A	B	C	D	E	F	G	H	J	K	L MAX.	M MAX.	
25,000	49	22	30	10½	21	7½	15	17	2½	1¼	23	49	53	
40,000	71	24	36	10½	21	7½	15	17	3	1½	25¼	55	59	
65,000	117	24	60	15	30	7½	15	17	4	2	25¼	79	83	
165,000	209	32	60	24	48	14	28	30	5	2	34½	79	83	
	260	36	60	24	48	14	28	30	5	2	38½	79	83	
295,000	370	36	84	28	56	14	28	30	5	2	38½	103	107	
400,000	500	42	84	28	56	14	28	30	5	2	44¾	103	107	
500,000	650	42	108	28	56	14	28	30	5	2	44¾	127	131	
600,000	750	48	96	28	56	19	38	40	5	2	50¾	115	119	
800,000	1,000	48	132	48	96	19	38	40	5	2	50¾	151	155	

"VN" Series Notes:

1. Discharge is located on vertical pump centerline.
2. For dimensions "L" or "M" deduct 3" for 1¼" discharge pumps and deduct 1" for 2" discharge pumps.

DIMENSION DATA

VC, VJ, VN, and VE PUMPS WITH ELEVATED RECEIVERS



* NOTE VNS PUMPS ARE \varnothing DISCHARGE

DIMENSIONS

RECEIVER GALLONS	RECEIVER TYPE	APPROXIMATE DIMENSIONS IN INCHES										
		A	B	C	D	E	F	G	H	J	K	L
21	CAST IRON	42½	34	35⅞	28	20	11⅞	34¼	16	26	2	1¼
45		47¼	40	41¼	31¼	26	17¼	38½	22	29¼	2½	1½
65		52¼	42½	45⅞	33½	28½	21⅞	43	24½	31½	3	2
110		52½	47½	45⅞	38¼	33½	22⅞	43½	29½	36¼	5	2
21	STEEL	42⅞	34	36⅞	28	20	12⅞	33⅞	16	26	1½	1¼
45		48⅞	40	42⅞	28	26	18⅞	39⅞	22	26	3	1½
65		54⅞	40	48⅞	28	26	24⅞	45⅞	22	26	3	2
110		50¼	44½	44½	46½	30½	20½	40⅞	26½	44½	4	2

Skidmore®

1875 DEWEY AVENUE

P.O. BOX 8583

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