

SHIPCO[®]
PUMPS

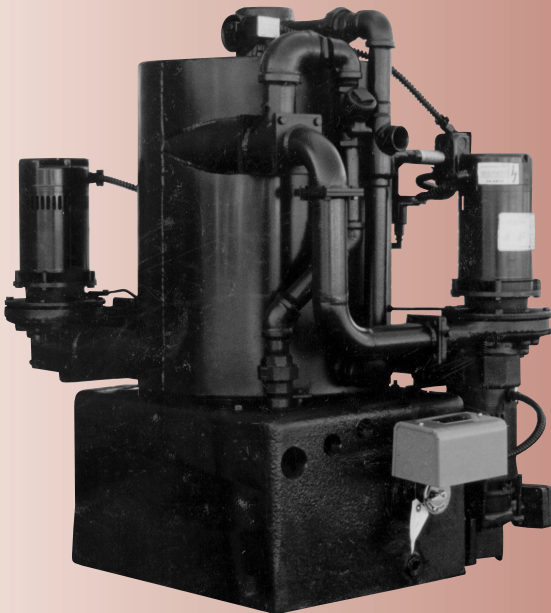
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PRIDE

QUALITY

CRAFTSMANSHIP

BULLETIN 110A
Revised 3/11



TYPE BVC

**Vacuum
and
Condensate
Pumps with Cast Iron
Condensate Receivers**

Capacities from 1,000 sq. ft. EDR to
150,000 sq. ft. EDR

SHIPCO[®]
PUMPS are equipped with Mechanical Seals rated for
temperatures up to 250°F as standard.
Higher temperature seals and special faces available upon request.

SIZING VACUUM PUMPS

Vacuum pumps are normally sized based on a systems rating in sq. ft. EDR; for systems up to a nominal size of 10,000 sq. ft. EDR the vacuum design is normally .5 CFM per 1,000 sq. ft. EDR.

EXAMPLE: A 5,000 sq. ft. system would require what size vacuum pump?
 .5 CFM/1000 sq. ft. EDR x 5000 sq. ft. EDR
 = .5 CFM x 5 = 2.5 CFM

For systems larger than 10,000 sq. ft. EDR the vacuum design is normally .3 CFM per 1,000 sq. ft. EDR.

EXAMPLE: A 20,000 sq. ft. system would require what size vacuum pump?
 .3 CFM/1000 sq. ft. EDR x 20,000 sq. ft. EDR
 = .3 CFM x 20 = 6 CFM

The sizing recommended above should be used for well-maintained systems that are in good operating condition.

In systems where some leaks may be found or steam vacuum pumps are being replaced we recommend sizing the vacuum pumps at 1 CFM/1000 sq. ft. EDR and installing a full duplex system for double capacity.

NOTE: Where excessive leaks are prevalent and traps are not repaired it may be impossible to produce a vacuum until the system is repaired and tightened up.

Operating Range:

The normal operating range for the vacuum pumps is a range from 3" Hg to 8" Hg. SHIPCO®'s rating for its pumps is at 5½" Hg 160°F.

Our quick selection guide is designed for our recommended capacities at various EDR requirements. The pump performance ratings are based on ASHRAE standards for testing vacuum heating pumps.

QUICK SELECTION TABLE FOR USUAL SYSTEM CONDITIONS – BASED ON EDR

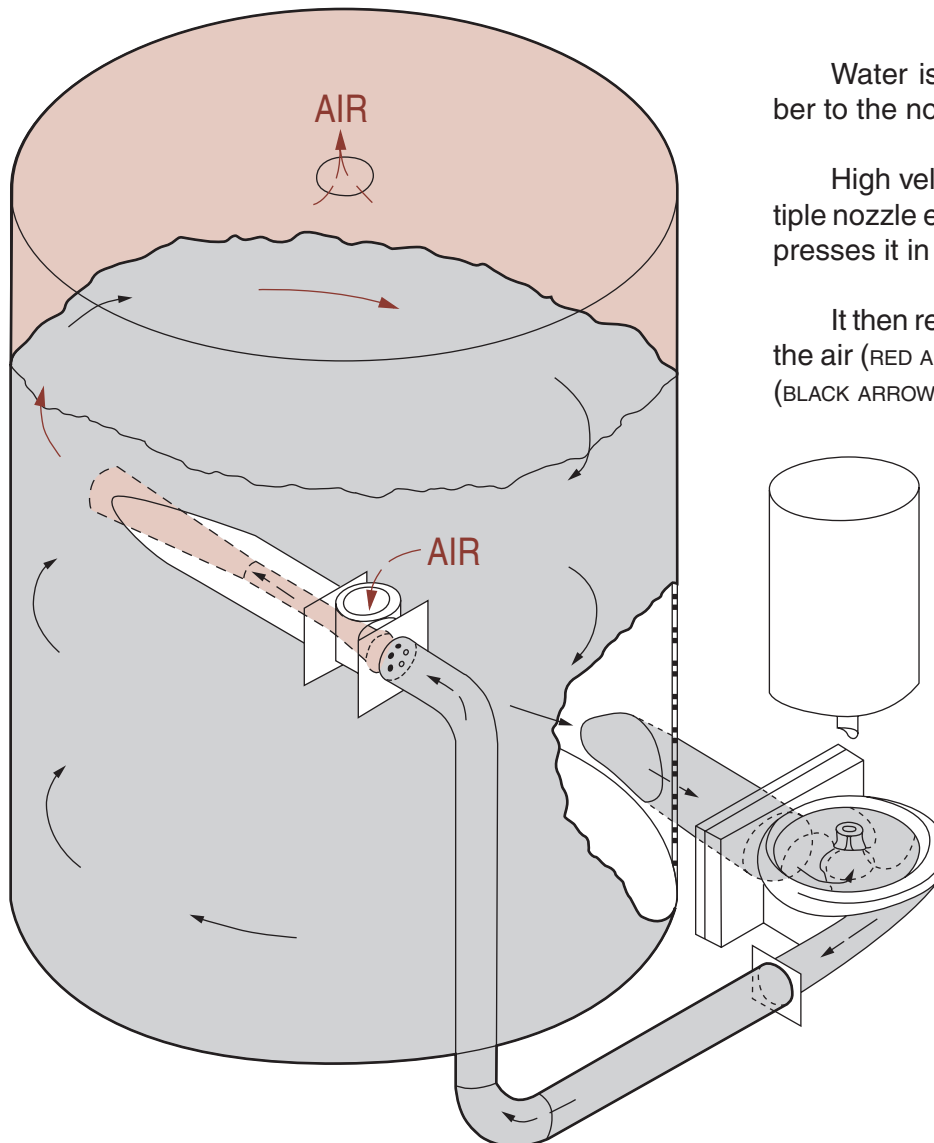
SYSTEM CAPACITY SQ. FT. EDR	PUMP PERFORMANCE			AIR PUMP HORSEPOWER		WATER PUMP– HP AT PRESSURE INDICATED FROM 10" HG PUMP CAPACITY SAME AS SHOWN IN COL. 4				INLET SIZE INCHES	MAX. DISCH. SIZE INCHES
	RE-CEIVER NO.	RATING AT 5½ Hg At 160°F		RPM		15 PSI	20 PSI	25 PSI	30 PSI		
		CFM	GPM	3500	1750	3500	3500	3500	3500		
10,000	25	5.8	10	¾	*	⅓	½	¾	1	2	1½
15,000	25	8	15	1	*	⅓	½	¾	1	2	1½
20,000	25	8	20	1	*	½	¾	1	1½	2	1½
25,000	25	12	25	1½	*	¾	¾	1	1½	2	1½
30,000	25	12	30	1½	*	¾	¾	1½	1½	2	1½
40,000	37	18	40	2	2	1	1½	1½	2	3	1½
50,000	57	18	50	2	2	1½	2	2	3	3	1½
65,000	80	26	60	3	3	2	2	3	3	4	1½
80,000	80	26	70	3	3	3	3	3	3	4	2
100,000	125	52	85	5	5	3	3	3	5	4	2
125,000	125	52	100	5	5	3	3	3	5	4	2
150,000	125	52	120	5	5	3	3	3	5	4	2

SHIPCO® PUMPS

Type BVC Vacuum Condensate Pumps are efficient, quiet, and dependable. Our Multi-Jet Design has proven to be an effective and reliable means of removing air and lifting condensate in your return system. The Centrifugal SHIPCO® Pumps are cast iron bronze fitted and virtually maintenance free when compared to close tolerance vacuum producers.

Our illustration shows the integral parts and design configuration of the BVC units. The vacuum chamber requires a cold water connection to the automatic makeup valve. This assures a constant level of water in vacuum producer for optimum performance.

BVC units are available completely packaged, including electrical controls when specified. Electrical controls are available for most NEMA and J.I.C. specifications.



Water is pumped from the circular chamber to the nozzle by the centrifugal pump.

High velocity water going through the multiple nozzle entrains air at the vacuum and compresses it in the ejector.

It then re-enters the circular chamber where the air (RED ARROWS) is separated from the water (BLACK ARROWS) which recirculates to the pump.

CHART A

QUICK SELECTION TABLE – VACUUM PUMP
Air capacity for single units rated in CFM

	HG. 5-1/2" @ 160°F	HG. 10" @ 70°F	HG. 15" @ 70°F	MOTOR HP	MOTOR RPM
C	6	5.8	3.5	3/4	3500
	6	5.8	3.5	3/4	3500
F	8.5	8.5	5.5	1	3500
	8.5	8.5	5.5	1	3500
M	12	12	9	1-1/2	3500
	18	18	16	2	3500
Cubic Feet Per Min	18	18	16	2	1750
	26	26	20	3	3500
	26	26	23	3	1750
	52	52	42	5	3500
	52	52	42	5	1750
	72	72	62	7-1/2	1750
	100	100	83	10	1750

CHART B

RECOMMENDED RECEIVER SELECTION
based on GPM of each water pump

GPM	RECEIVER SIZE GALLONS
0 - 22 ¹ / ₂	25
23 - 45	37
46 - 75	57
76 - 98	80
99 - 150	125
151 - 180	160
191 - 280	260

CHART C

WATER PUMP CAPACITIES

NOTE: Table below shows capacities from up to 10" Hg Model D Pumps

FT. TDH	PSIG	MAXIMUM CAPACITIES AT MOTOR HP (3500 RPM) and APPLICABLE DISCHARGE PRESSURE								
103.95	45					15 127	30 127	45 127	112-1/2 114	GPM Pump Type
80.85	35					15 116	30 116	45 127	60 114	112-1/2 GPM Pump Type
69.3	30					18 116	30 116	45 127	75 114	112-1/2 GPM Pump Type
57.75	25			22-1/2 116		30 116	45 116		112-1/2 114	GPM Pump Type
46.2	20		18 110	30 116	37-1/2 116	45 116	60 113	112-1/2 114		GPM Pump Type
34.65	15	18 110	22-1/2 110	30 110	37-1/2 116	45 116	60 113	112-1/2 114		GPM Pump Type
23.1	10	22-1/2 110	30 110		45 116		112-1/2 114			GPM Pump Type
MOTOR HP		¹ / ₃	¹ / ₂	³ / ₄	1	1 ¹ / ₂	2	3	5	