

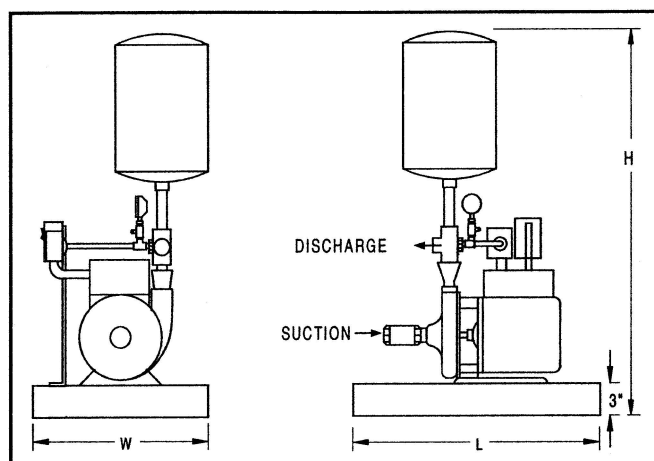


DOMESTIC WATER BOOSTER SYSTEM - VFD SIMPLEX BASIC

Simplex Booster System - Type BVFDSB

APPLICATION

The MEPCO Type BVFDSB simplex domestic water booster systems are complete compact assemblies for water transfer or pressure boosting applications which do not require multiple pumps. This simple configuration is targeted for residential (single or multi-family dwelling), apartment, condominium, smaller office, warehouse, restaurant, or theatre installations either to overcome insufficient or varying suction pressures or to produce stable discharge pressures under varying demands. The BVFDSB is pre-piped & wired and factory tested.



CONSTRUCTION FEATURES

CENTRIFUGAL PUMPS - The centrifugal pumps are MEPCO design and manufacture, bronze fitted close-coupled type with mechanical seals suitable for temperatures to 250 degrees F and 175 PSIG. The pumps are specially configured for low NPSH applications.

PUMP AND MOTOR ASSEMBLIES - Name brand motors are used for the centrifugal pumps. Motors are 208-230-460, three (3) phase, 3450 RPM, TEFC NEMA-JM frame with a NEMA I pulse-width modulated variable frequency drive (VFD) mounted directly to the motor.

ACCESSORIES AND CONTROLS - The BPVFDB utilizes as standard, a 5 gallon capacity surge tank with orifice check-valve, non-slam suction check valve, thermal purge valve, mechanical over-pressure relief valve, liquid filled discharge and suction pressure gauges with shut-off cocks, manually adjustable (concealed adjustment) discharge pressure switch and a control box with on-off switches, circuit breaker protection and conduit knock-outs. 34 gallon ASME or 44 gallon non-ASME tanks may be ordered as options for skid mounting to larger common bases. The package comes with UL listed electrical components. Lowest operating costs are achieved through VFD pump speed, integral surge tank and automatic no-flow shutdown of the pump.

SPECIFICATIONS

Length (standard)	- 32 in
Height	- 48 in
Width (standard)	- 20 in
Weight (5 gal. tank)	- less than 200 lb.
Base dims. (5 gal. tank)	- 24 in. L x 15 in. W
Optional 34 gallon ASME tank	- 40" x 18" base - add 125 lb.
Opt. 44 gallon non-ASME tank	- 48" x 24" base - add 130 lb.
Flow range (see back)	- 50-200 GPM
Boost Range (see back)	- 10-98 PSI
Pump Range	- 2-10 HP
Connection Sizes	- 1.5" - 2.5" NPT
Electrical requirements	- 208-460V (1 or 3 PH) - 1/2" KO at on-off sw.
> Impeller trimming not necessary due to the VFD speed limiting capability (preset at factory testing)	
> VFD incorporates soft-start and ramping functions with input short circuit, under and over voltage protection	
> Surge tank, pressure switch and VFD combination provides automatic, non-short cycling, no-flow shut-down (pump stops with when no flow is required)	
> Simple adjustment of the concealed discharge pressure switch is the only field tuning necessary	
> Mechanical thermal and overpressure reliefs	
> Single or three phase power input (1 PH max. 3 HP)	

BVFDSB SIZING/SELECTION TABLE

PUMP		PIPING Dia. (in)	MAX FLOW IN USGPM							BVFDSB	
HP	MODEL		50	75	100	125	150	175	200	MODEL	
2	RC06-15	2.0	28	22	16					MAX BOOST IN P S I	6-15-2-20
3	RC07-12	1.5	48	39							7-12-3-15
	RC06-15	2.0	34	31	26	21					6-15-3-20
5	RC07-12	1.5	60	53	42	23					7-12-5-15
	RC06-15	2.0	49	48	45	39	32				6-15-5-20
	RC06-20	2.5	41	41	38	35	32	27			6-20-5-25
7.5	RC07-12	1.5	85	78	68	52				I N P S I	7-12-75-15
	RC06-15	2.0	66	65	62	58	54				6-15-75-20
	RC06-20	2.5	53	53	52	51	47	42	36		6-20-75-25
10	RC07-12	1.5	98	94	84	72				P S I	7-12-10-15
	RC07-15	2.0	77	74	71	67	61	54	44		7-15-10-20
	RC06-20	2.5	65	64	64	61	59	55	51		6-20-10-25

Example Application: A small office building requires 120 USGPM capacity with 80 PSI at the booster system discharge. The present domestic water supply pressure at the inlet to the booster system never falls below 30 PSI. The customer needs to connect to existing 2-1/2" NPT piping and desires a simplex BVFDSB configuration with 2-1/2" piping.

Solution: The required boost is 50 PSI (80 PSI outlet - 30 PSI inlet) at 120 USGPM. Enter the "Sizing/Selection Table" at the 125 USGPM column (lowest charted GPM exceeding the 120 USGPM requirement). Proceed down the column showing "Maximum Boost" values until exceeding the 50 PSI boost requirement. With a 2-1/2" piping requirement, the correct selection is a BVFDSB Model 6-20-75-25, rather than either the 7-12-75-15 (1-1/2" piping) or the 6-15-75-20 (2" piping). Specify input voltage and phases when ordering.

TYPICAL SPECIFICATION

The contractor shall furnish and install as specified in the plans in accordance with the manufacturer's instructions, a simplex configuration MEPCO type BVFDSB pre-piped and pre-wired water booster system utilizing a UL listed pulse width modulated (PWM) variable frequency drive (VFD) integrally mounted to the pump motor. The system shall have a capacity of _____ USGPM and maintain a discharge pressure of _____ PSI when supplied with a minimum suction pressure of _____ PSI. The complete system shall be tested at job conditions prior to shipment. The manufacturer shall warrant the system against defects in material and workmanship for a period of 12 months after documented start-up.

The pump shall be rated to 175 PSI WP and shall be a horizontal end suction cast iron/bronze fitted centrifugal type with mechanical seals suitable for temperatures to 250 degrees F at 175 PSIG. The pump shall have a full trim impeller and be close-coupled to a non-overloading _____ HP NEMA design high efficiency ISR wound TEFC motor.

The system shall include a non-slam suction check valve, thermal purge valve, mechanical over-pressure relief valve, liquid filled suction and discharge pressure gauges with shut-off cocks and a concealed, manually adjustable discharge pressure switch, ☐ 5 gal non-ASME, ☐ 44 gal non-ASME, ☐ 34 gal 125# ASME tank, orifice check slow fill valve and liquid filled suction and discharge gauges, all mounted on a common steel base.

The control scheme shall include soft-start and ramping of the VFD as well as no-flow shutdown of the system when flow or boost is not required. Provide electrical control box with on-off switch and circuit breaker protection. Protection shall be incorporated for overvoltage, undervoltage and input short circuits. The system shall be able to accept 1 phase or 3 phase power sources.

