FEDERAL PUMP CORP
1144 UTICA AVENUE, BROOKLYN, NY 11203

FEDERAL PUMP CORPORATION
Est. 1927

SERIES

B

SUBMERSIBLE SUMP/UTILITY PUMP

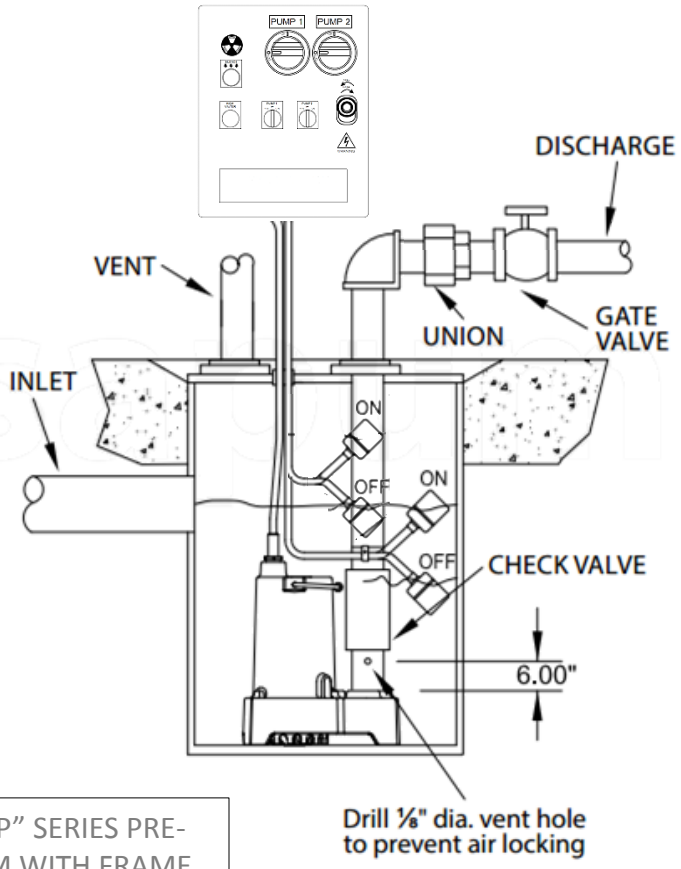
PUMP WITH DISCHARGES SIZE 1½ & 2"
CAPACITIES TO 80 GPM, HEADS TO 58 FEET
IN 3500 RPM OPERATION

STAINLESS STEEL HARDWARE.
BUILT-IN CONFIGURATION WITH AUTOMATIC
FLOAT SWITCH OPERATION OPTION

HIGH LIGHT

- Motors are fully submersible
- Pumps can handle up to ½" spherical solids
- Indoor and outdoor installation
- Easy installation and removal
- Built-in automatic float switch option
- For sump and rain water
- Control system available
- Fiberglass and steel basin available

INTRODUCTION



SHOWN AS "BOSP" SERIES PRE-PACKAGED SYSTEM WITH FRAME, COVER AND BASIN

Sump pumps provide for the lifting and disposal of fluids from retaining basins or concrete pits and are pumped to city water disposal lines where these fluids cannot drain under gravity conditions alone. Typically located below grade, sump pumps provide building owners the ability to design and locate floor drains or other facilities below ground that are serviced by these lift stations.

Compatible with Federal Pump's OS, FSS, SBS, TCS, and NPC simplex, and duplex control system, the B series can support 24/7 automatic operation for standard sump pump service in residential and small commercial buildings.

Available in stand-alone or automatic(built-in switch) configuration, the "B" product offering is also conveniently packaged in the "BOSP" system that provides the end user with trouble and maintenance free operation when designed, installed, and maintained properly.

PRODUCT DETAILS

B-1½R.A MODEL SHOWN WITH AUTOMATIC FLOAT SWITCH OPTION

DISCHARGE
1½" NPT, female vertical

LIQUID TEMPERATURE
104˚F (40˚C) continuous

PUMP BODY
Cast iron ASTM A-48 class 30

IMPELLER
10 vane cast iron ASTM A-48 class 30 vortex impeller, with vanes on back side, balanced.

SHAFT
416 series stainless steel

O-RING
Buna-N

HARDWARE
300 series stainless steel

SEAL
Single mechanical seals with carbon/ceramic/Buna-N faces for extended seal life with stainless steel hardware

CORD ENTRY
10ft(⅓HP) or 20ft(½HP) of neoprene cord SJOW 18/3, sealed against moisture

BEARINGS
upper row ball bearing for radial load, and lower row ball bearing for radial and thrust load.

MOTOR
NEMA L, single phase, permanent split capacitor, 115 volts, 60 Hz, 2-pole, oil filled, with overload protection in motor

DISCHARGE
2" NPT, female vertical

LIQUID TEMPERATURE
104˚F (40˚C) continuous

PUMP BODY
Cast iron FC-200 & Aluminum Alloy ADC12

IMPELLER
8 vane thermoplastic elastomer, semi-vortex impeller, balanced

SHAFT
410 series stainless steel

O-RING
Nitrile rubber (NBR)

HARDWARE
304 series stainless steel

SEAL
Double mechanical seals with oil filled chamber and carbon-ceramic/silicone carbide faces for extended seal life with stainless steel hardware

CORD ENTRY
15ft of neoprene cord SJOW 16/3, sealed against moisture

BEARINGS
Single row permanently oil lubricated ball bearing for 60,000 hours of operation designed for radial and axial load

MOTOR
NEMA L, single phase, permanent split capacitor, 115 volts, 60 Hz, 2-pole, oil filled, with overload protection in motor

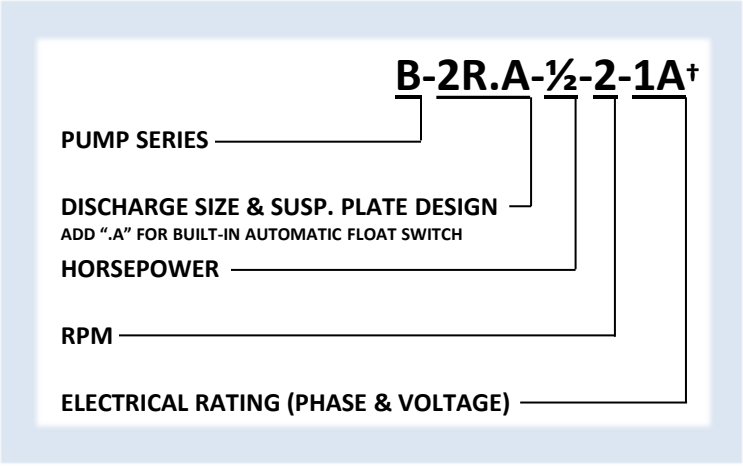
STRAINER
Polyvinyl-chloride suction strainer

B-2R.A & B-2B.A MODEL SHOWN WITH AUTOMATIC FLOAT SWITCH OPTION

SELECTION TABLE*

SYSTEM DESIGN COMPONENTS

The B series sump pump is available in free standing and automatic operation option and should be reviewed in detail prior to order. Dimensions may vary based upon option requested and custom specification requirements. Every option will include a submersible pump and motor with mechanical seal rated to 104˚F. Pump to close coupled to motor. **Add ".A" to the "DISCHARGE SIZE & SUSP. PLATE DESIGN" for available models to add built-in automatic float switch to the pump.**



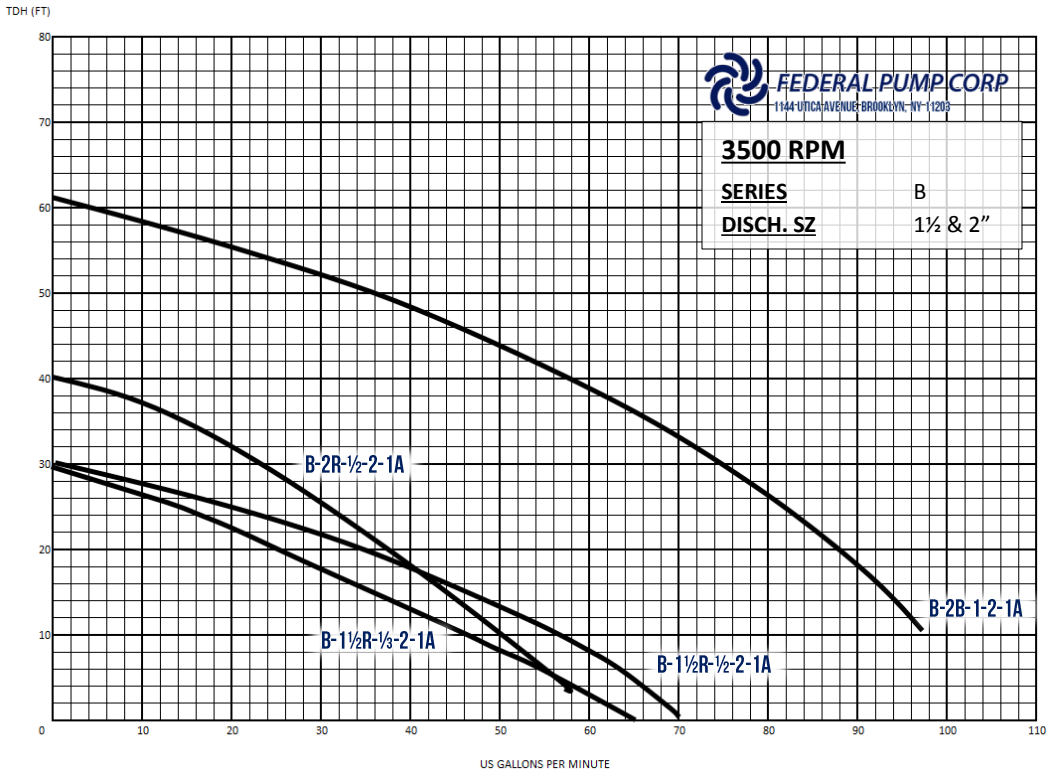
† 1 = 1PH A = 115V

MODEL NO	G.P.M.	DISCH. HEAD [FEET]	MOTOR H.P.	DISCH. SIZE [INCHES]
B-1½R-⅓-2-1A	10	26	⅓	1½
B-1½R-½-2-1A		27½	½	1½
B-2R-½-2-1A		37	½	2
B-2B-1-2-1A		58	1	2
B-1½R-⅓-2-1A	15	24½	⅓	1½
B-1½R-½-2-1A		26	½	1½
B-2R-½-2-1A		35	½	2
B-2B-1-2-1A		57	1	2
B-1½R-⅓-2-1A	20	22½	⅓	1½
B-1½R-½-2-1A		25	½	1½
B-2R-½-2-1A		32½	½	2
B-2B-1-2-1A		55	1	2
B-1½R-⅓-2-1A	25	20	⅓	1½
B-1½R-½-2-1A		23½	½	1½
B-2R-½-2-1A		31	½	2
B-2B-1-2-1A		53	1	2
B-1½R-⅓-2-1A	30	17½	⅓	1½
B-1½R-½-2-1A		21½	½	1½
B-2R-½-2-1A		22	½	2
B-2B-1-2-1A		47½	1	2

MODEL NO	G.P.M.	DISCH. HEAD [FEET]	MOTOR H.P.	DISCH. SIZE [INCHES]
B-1½R-⅓-2-1A	40	13	⅓	1½
B-1½R-½-2-1A		17½	½	1½
B-2R-½-2-1A		17½	½	2
B-2B-1-2-1A		48	1	2
B-1½R-⅓-2-1A	50	8	⅓	1½
B-1½R-½-2-1A		13	½	1½
B-2B-1-2-1A		43	1	2
B-1½R-½-2-1A	60	8	½	1½
B-2B-1-2-1A		38	1	2
B-2B-1-2-1A	70	32½	1	2
B-2B-1-2-1A	80	27	1	2

***Table is used for quick sizing only. Refer to pump performance curve for exact pump operation over its range.**
***Refer to page 9 for amp draw on the each pump and all possible model selection**
All models in the B series sump pump line are available with automatic float switch option.
Add 2 pounds to equipment weight for automatic float switch options.

SERIES PERFORMANCE RANGE



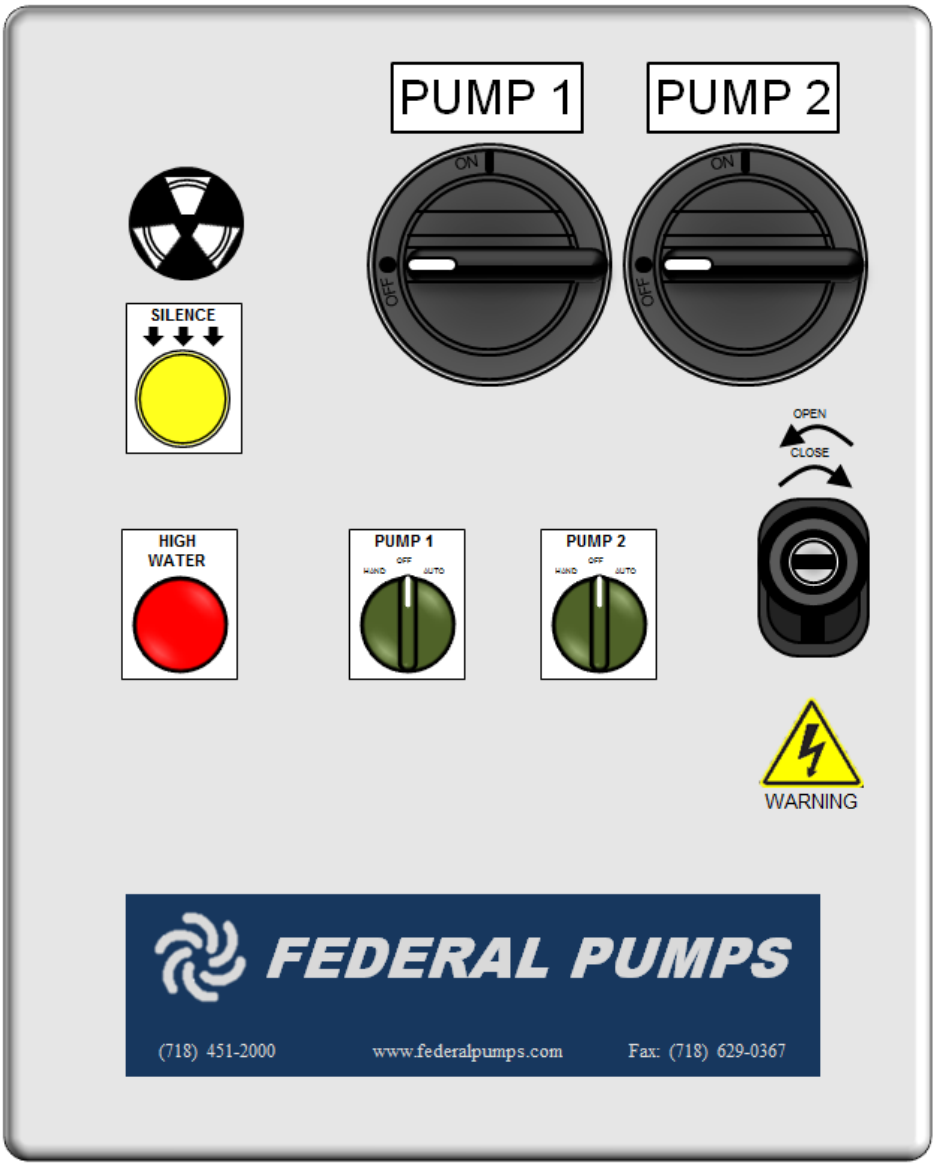
MODEL	MOTOR HP	DISCH. SIZE [INCHES]	RPM	IMPELLER	WEIGHT [lb.]
B-1½R-⅓-2-1A	⅓	1½	3500	BP001	23
B-1½R-½-2-1A	½	1½	3500	BP005	23
B-2R-½-2-1A	½	2	3500	BP101	32
B-2B-1-2-1A	1	2	3500	BP103	34

Add 2 pounds to equipment weight for automatic float switch options

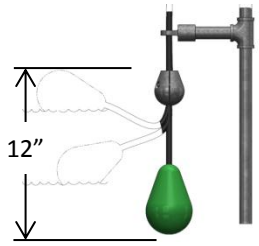
RECOMMENDED MINIMUM PIT & BASIN SIZES					
Pump Series	Pump Model	Round		Square	
		Simplex	Duplex	Simplex	Duplex
B	B-1½R-⅓-2-1A	18" dia.	30" dia.	18" X 18"	30" X 30"
	B-1½R-½-2-1A	18" dia.	30" dia.	18" X 18"	30" X 30"
	B-2R-½-2-1A	24" dia.	36" dia.	24" X 24"	36" X 36"
	B-2B-1-2-1A	24" dia.	36" dia.	24" X 24"	36" X 36"

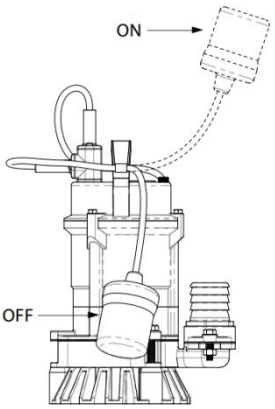
Automatic float switch models will also fit into the same minimum pit & basin sizes shown above

SUGGESTED CONTROLS – DUPLEX



FLOAT DETAIL





OS Control Panel & Floats(Standard Items)

- NEMA Type 1,4 & 12
- Disconnect Switch
- Across-the-line Magnetic Starter
- H-O-A Switch with integral Pilot Light
- Control Circuit Transformer (24V)
- HWA Light & Adjustable Buzzer
- HWA Silencing Push Button
- Pump Auxiliary Float Switches
- Dedicated HWA Float Switch

SUGGESTED SPECIFICATIONS – SIMPLEX (PLUG-IN)

General Product Overview: Furnish and install where shown in the plans a Federal Pump Series B simplex submersible sump pump with each pump rated as shown in the pump schedule. Each pump shall include submersible motor, cast iron casing, standard fitted construction with stainless steel shaft and water proof power cable and automatic float switch. Motor shall be NEMA L, single phase, permanent split capacitor, 115 volts, 60Hz, 3500RPM, oil filled and have overload protection.
Sequence of Operation: Plug the factory provided control plug into a GFI receptacle, then plug the pump into the piggy-back plug. In the event of liquid level reaching above the set point, the pump float switch will signal the pump to turn "ON". Upon lowering the liquid level to meet the "OFF" set point, the pump will terminate operation and standby for the next cycle.
Warranty: The pump manufacturer will provide a (1) year limited warranty for material and workmanship and take unit responsibility of the system components.

SUGGESTED SPECIFICATIONS – SIMPLEX (CONTROL PANEL)

General Product Overview: Furnish and install where shown in the plans a Federal Pump Series BOSP simplex submersible sump pump with each pump rated as shown in the pump schedule. Each pump shall include submersible motor, cast iron casing, standard fitted construction with stainless steel shaft and water proof power cable and automatic float switch. Motor shall be NEMA L, single phase, permanent split capacitor, 115 volts, 60Hz, 3500RPM, oil filled and have overload protection.
Controls: Pump manufacturer shall provide a Federal Pump series OS simplex level control system including simplex Control Panel (for wall mounting) and accessory alarms as detailed in this specification. simplex Pump Controller shall include: disconnect switch with thru-the-door handles, across-the-line type magnetic starters, high water alarm light and horn with silencing push button, programmable logic controller, oil detection relay, numbered terminal strip, and Form-C circuits for BMS. The controls shall be provided in a NEMA 1 enclosure built to UL-580A standard. The BOSP package will include a float switch for ON/OFF & high water alarm conditions.
Sequence of Operation: In the event of liquid level reaching above the set point, the pump float switch will signal the pump to turn "ON". In the event of where the pump is not non-functional or cannot keep up with system demand, the liquid level would continue to rise and signal the High Water Alarm. Upon lowering the liquid level to meet the "OFF" set point, the pump will terminate operation and standby for the next cycle. In the event of presence of oil, the oil sensing element will terminate pump operation and sound the alarm horn and light alerting the presence of oil in the sump.
Warranty: The pump manufacturer will provide a (1) year limited warranty for material and workmanship and take unit responsibility of the system components.

SUGGESTED SPECIFICATIONS – DUPLEX (CONTROL PANEL)

General Product Overview: Furnish and install where shown in the plans a Federal Pump Series BOSP duplex submersible sump pump with each pump rated as shown in the pump schedule. Each pump shall include submersible motor, cast iron casing, standard fitted construction with stainless steel shaft and water proof power cable and automatic float switch. Motor shall be NEMA L, single phase, permanent split capacitor, 115 volts, 60Hz, 3500RPM, oil filled and have overload protection.
Controls: Pump manufacturer shall provide a Federal Pump series OS duplex level control system including Duplex Control Panel (for wall mounting) and accessory alarms as detailed in this specification. Duplex Pump Controller shall include: individual disconnect switches with thru-the-door handles, single-feed power input terminal block, across-the-line type magnetic starters, H-O-A selector switches with integral pilot run lights, control circuit transformer with fused secondary power, high water alarm light and horn with silencing push button, programmable logic controller, power relays, oil detection relay, numbered terminal strip, and Form-C circuits for BMS. The controls shall be provided in a NEMA 1 enclosure built to UL-580A standard. The BOSP package will include a float switch for high water alarm conditions. Each of the (2) pumps have dedicated built-in automatic float switch.
Sequence of Operation: In the event of liquid level reaching above the set point, the pump float switch will signal the lead pump to turn "ON". If the liquid level rise above a certain rate where the lead pump along cannot satisfy demand, the lag pump will start at a predetermined set point and work in parallel with the lead pump to satisfy system conditions. Upon lowering the liquid level to meet the "OFF" set point, the lag pump will terminate operation first, then the lead pump, and the two would standby for the next cycle. The system will automatically alternate lead and lag pumps – the pump's level set point will dictate the lead and lag orientation. In the event of where the pumps are not non-functional or cannot keep up with system demand, the liquid level would continue to rise and signal the High Water Alarm. In the event of presence of oil, the oil sensing element will terminate pump operation and sound the alarm horn and light alerting the presence of oil in the sump.
Warranty: The pump manufacturer will provide a (1) year limited warranty for material and workmanship and take unit responsibility of the system components.

SYSTEM SCHEMATIC

Fully automatic sump pump system designed for ease in installation and future pump maintenance

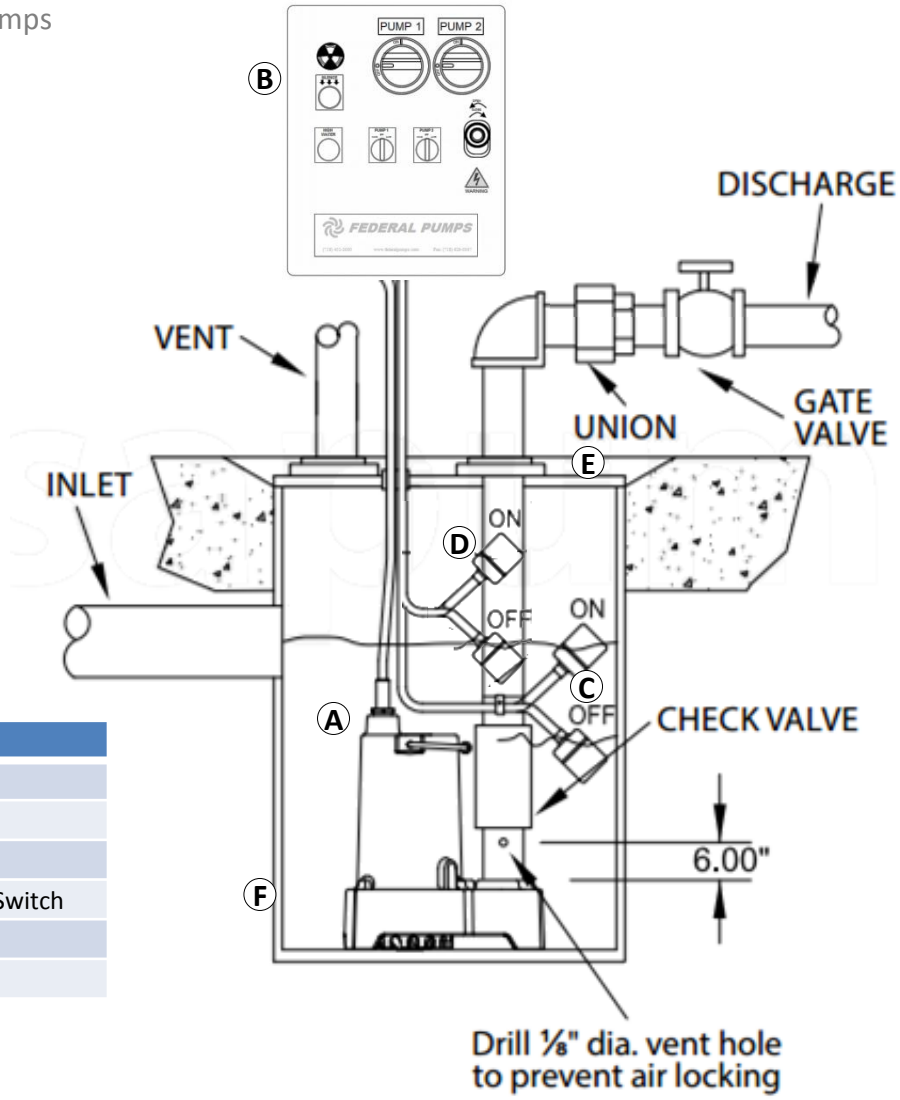
Available to shipped loose for field assembly with fiberglass basins and “gas-tight” covers. The B series sump pump provides a formidable sump system by combining the ease of installation with a small form factor

Complete set of “BOSP” packaged system includes:

- Submersible “B” series sump sumps
- Duplex control panel
- Automatic float switch
- High Water Alarm float switch

Accessories that be modified:

- Frame & Cover
- Basin



	ITEM
A	Submersible Pump
B	Duplex Panel
C	Float Switches
D	High Water Alarm Float Switch
E	Frame & Cover
F	Basin

PERFORMANCE DATA

ITEM	DESCRIPTION	
DISCHARGE SIZE	1½" & 2"	
HORSEPOWER RANGE	⅓ ~ 1 hp	
PERFORMANCE RANGE	10 ~ 80 GPM	
MAX. WATER TEMPERATURE	104°F	
CASING	B-1½R...	ASTM A48 CLASS 30 CAST IRON
	B-2R... & B-2B...	FC-200 CAST IRON
IMPELLER	B-1½R...	10 VANE ASTM A48 CAST IRON CLASS 30 VORTEX IMPELLER, WITH VANES ON BACK SIDE, BALANCED
	B-2R... & B-2B...	8 VANE THERMOPLASTIC ELASTOMER, SEMI-VORTEX IMPELLER, BALANCED
SHAFT	B-1½R...	416 SERIES STAINLESS STEEL
	B-2R... & B-2B...	410 SERIES STAINLESS STEEL
MOTOR HOUSING	B-1½R...	ASTM A48 CLASS 35 CAST IRON
	B-2R... & B-2B...	ADC12 ALUMINUM ALLOY
CORD ENTRY	B-1½R...	10FT(⅓HP) OR 20FT(½HP) NEOPRENE
	B-2R... & B-2B...	15FT NEOPRENE
FASTENERS	B-1½R...	300 SERIES STAINLESS STEEL
	B-2R... & B-2B...	304 SERIES STAINLESS STEEL
MECHANICAL SEALS	B-1½R...	SINGLE MECHANICAL SEALS WITH CARBON/CERAMIC/BUNA-N FACES WITH STAINLESS STEEL HARDWARE
	B-2R... & B-2B...	DOUBLE MECHANICAL SEALS WITH OIL FILLED CHAMBER AND CARBON-CERAMIC/SILICONE CARBIDE FACES WITH STAINLESS STEEL HARDWARE
BEARINGS	B-1½R...	**UPPER**: BALL, SINGLE ROW, OIL LUBRICATED, FOR RADIAL LOAD **LOWER**: BALL, SINGLE ROW, OIL LUBRICATED FOR RADIAL AND THRUST LOAD
	B-2R... & B-2B...	BALL, SINGLE ROW, PERMANENTLY OIL LUBRICATED FOR RADIAL AND THRUST LOAD
MOTOR TYPE	OIL FILLED NEMA-L PERMANENT SPLIT CAPACITOR WITH OVERLOAD PROTECTION	

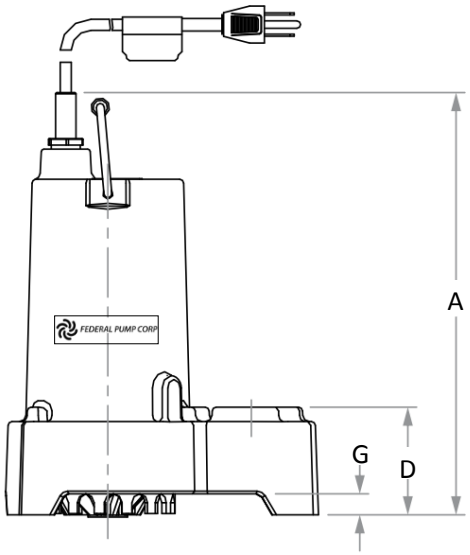
MOTOR OPERATING PERFORMANCE [AMPS AVG.]

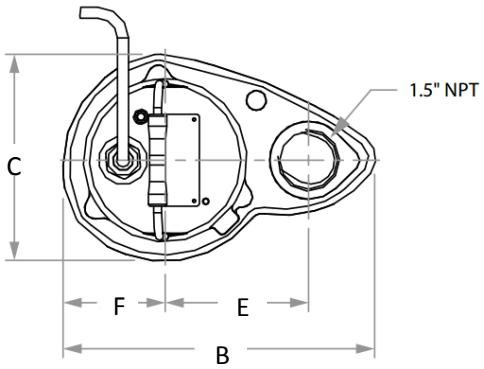
MODEL	HP	1PH/115V
B-1½R-⅓-2-1A	⅓	7.5
B-1½R.A-⅓-2-1A	⅓	7.5
B-1½R-½-2-1A	½	8.0
B-1½R.A-½-2-1A	½	8.0
B-2R-½-2-1A	½	6.0
B-2R.A-½-2-1A	½	6.0
B-2B-1-2-1A	1	12.0
B-2B.A-1-2-1A	1	12.0

NOTES:

1. Motors are designed for 20 starts per hour. Level devices and pit depths should be designed to maintain 10~12 starts per hours at maximum 104°F for typical sump pump applications
2. Float devices require 8~12" of water level differential from low float(OFF) to high float(ON) position. Basins should be designed to accommodate float level differential
3. High water alarm float(ON level) should be designed to activate at 6" below the bottom of invert to prevent any fluids backing into the supply lines. Float switch tilt travel of 12" should be considered
4. Most fiberglass basins limit temperature to less than 120°F. For temperature in excess of 120°F where fiberglass basins are required, contact the factory for special assistance

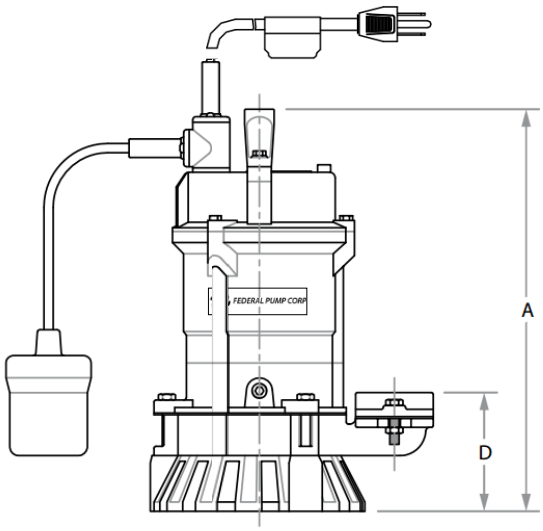
DIMENSIONAL DATA

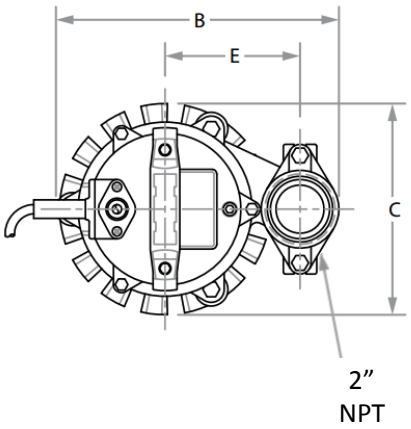




Disch.	Model	HP	RPM	A	B	C	D	E	F	G	Lb.
1½	B-1½R-⅓-2-1A	⅓	3500	12.65	9.35	6.20	3.23	4.30	3.10	0.63	23
1½	B-1½R-½-2-1A	½	3500	12.65	9.35	6.20	3.23	4.30	3.10	0.63	23

Dimensions in inches. Add 2lb. when automatic float switch used





Disch.	Model	HP	RPM	A	B	C	D	E	Lb.
2	B-2R-½-2-1A	½	3500	13.86	9.57	7.00	4.25	4.61	32
2	B-2B-1-2-1A	1	3500	14.84	10.98	7.00	4.75	5.24	34

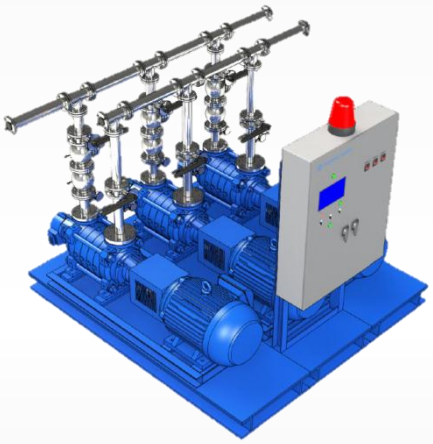
Dimensions in inches. Add 2lb. when automatic float switch used

NOTES

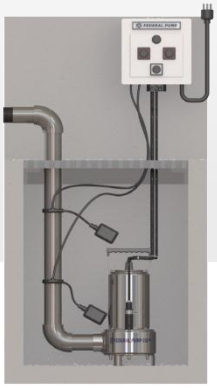
FEDERAL PUMP CORP
1144 UTICA AVENUE, BROOKLYN, NY 11203

FEDERAL PUMP CORPORATION
Est. 1927

Variable Speed Booster
Model VSPV(up to 300 PSI)



Variable Speed Booster
Model VSPM(up to 600 PSI)



Oil Shield Elevator Sump System
Model SOSP(up to 125GPM)

Since 1927 Federal Pump has been a leading provider of reliable and innovative fluid handling solutions for supply water management and dewatering pump services.

Its recent introduction of the VSPV & VSPM variable speed domestic water supply system combines innovative technological advancements in premium efficient motors and variable speed drive support programs that reduce energy demand, lower operating costs, and provide more finely tuned supply controls.

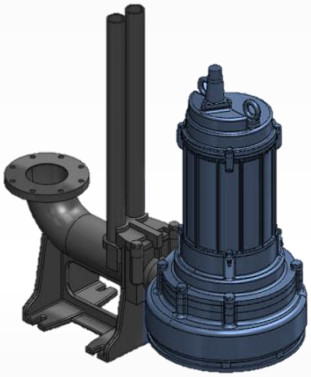
Its VSA/VSP vertical pump rated to 210F provides solutions in dewatering applications where condensate or boiler feed water are collected and then cooled and pumped to city sewer connections providing continuous service where submersible pumps do not provide a sustainable solution.

The SOSP Oil Shield sump pumps alerting building management to potential oil leaks in the elevator areas provide additional building support.

High rise roof fill applications, water make-up systems for mechanical equipment utilizing rain water systems and energy efficient condensate, boiler feed, and vacuum condensate units continue in the focus of energy efficiency and building support.

In the tradition of leadership through product innovation, quality designs, and reliable customer service, Federal Pump continues to be a supplier to those water management and dewatering markets where it first started that tradition of leadership in Brooklyn, N.Y.

Vertical Sewage/Sump Pump
Model VSA/VSP(up to 1400GPM)



Submersible Sewage/Sump Pump
Model MSC-QD/J(up to 500GPM)

MANUFACTURED IN NEW YORK
FEDERAL PUMP CORPORATION

1144 Utica Avenue
Brooklyn, N.Y. 11203
Tel: 718-451-2000
www.Federalpumps.com

TYPE
B