

FILE: SIMPANEL

SCOPE: The pump manufacturer shall supply a completely self-contained simplex motor control panel. The control panel shall provide short circuit and overload protection for the pump.

ENCLOSURE: The simplex motor controls shall be housed in a NEMA 3R enclosure. The enclosure shall be formed of 14 gauge, G-90 galvanized steel, with all surfaces phosphatized, then finished inside and out with ANSI 61 gray polyester powder finish. A full width drip shield is formed into the top cap to prevent standing water from dripping into the interior when the door is opened. The door is mounted to the enclosure by means of a stainless steel continuous piano hinge with a stainless steel hinge pin. Removal of the door can be accomplished by removing the hinge pin. Captivated stainless steel screws hold the door in the closed position, and a hasp and staple are provided for padlocking. Weld nuts support the removable aluminum component mounting panel. The removable aluminum panel is to be drilled and tapped for component mounting. The enclosure shall have external mounting tabs for wall mounting. The enclosure conforms to the National Electrical Manufacturers' Association (NEMA) standard for type NEMA 3R (Raintight and Sleet/Ice Resistant) enclosures, and listed by Underwriters Laboratories and Canadian Standards Association.

INTERNAL COMPONENTS AND WIRING: A thermal magnetic circuit breaker shall be provided to protect the motor from short circuits and to serve as a motor branch circuit disconnect as required by the NATIONAL ELECTRICAL CODE (NEC).

A magnetic starter shall be provided for the pump motor. The starter shall be equipped with a three (3) pole bimetallic overload relay with ambient compensation and Class 10, quick trip heaters. Heaters must be properly sized for motor load. The overload relay shall provide the terminals for connection of the pump motor cable.

A control transformer shall be provided to supply 115 volts for the control circuit. The transformer shall be a continuous duty, machine tool type, sized to meet the load requirements of the control circuit. The transformer primary shall be connected to the load side of the circuit breaker. One side of the secondary winding shall be grounded to the component mounting panel.

A two (2) pole, 600 VAC, 30 ampere rated fuse block shall be provided for transformer primary winding; a one (1) pole, 250 VAC, 30 ampere fuse block will be provided for the secondary winding. Fuses shall be sized to protect the transformer in accordance with requirements of the NEC.

A terminal block shall be provided for connection of level controls and other control wiring as required for proper pump installation.

The control shall be equipped with a Hand-Off-Auto selector switch and an amber run light, mounted on an aluminum plate under cover of the enclosure door. The selector switch shall be a toggle type with screw terminals rated 250 VAC, three (3) amperes. The run light shall be 1/3 watt 115 volt neon type.

The control shall be wired in accordance with all applicable requirements of the NATIONAL ELECTRICAL CODE. Control wiring shall be sixteen (16) AWG red for control circuits and white for neutral grounded conductors. Power wiring shall be a minimum of 14 AWG black. Each conductor shall be numbered. The ends of all wires shall be tinned with 60/40 lead tin alloy solder. All wiring shall be performed in a neat and orderly manner.

Specifications

Duplex Versatrol Control Panel For Submersible Sewage & Effluent Pumps

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Control Panels & Accessories

FILE: DUPPANEL

SCOPE: The pump manufacturer shall supply a completely self-contained duplex motor control panel. The control panel shall provide short circuit and overload protection for the pumps. An alternator shall be provided to alternate the lead pump duty between the two pumps on successive cycles.

ENCLOSURE: The duplex motor controls shall be housed in a NEMA 3R enclosure. The enclosure shall be formed of 14 gauge, G-90 galvanized steel, with all surfaces phosphatized, then finished inside and out with ANSI 61 gray polyester powder finish. A full width drip shield is formed into the top cap to prevent standing water from dripping into the interior when the door is opened. The door is mounted to the enclosure by means of a stainless steel continuous piano hinge with a stainless steel hinge pin. Removal of the door can be accomplished by removing the hinge pin. Captivated stainless steel screws hold the door in the closed position, and a hasp and staple are provided for padlocking. Weld nuts support the removable aluminum component mounting panel. The removable aluminum panel is to be drilled and tapped for component mounting. The enclosure shall have external mounting tabs for wall mounting. The enclosure conforms to the National Electrical Manufacturers' Association (NEMA) standard for type NEMA 3R (Raintight and Sleet/Ice Resistant) enclosures, and listed by Underwriters Laboratories and Canadian Standards Association.

INTERNAL COMPONENTS AND WIRING: A thermal magnetic circuit breaker shall be provided to protect the motor from short circuits and to serve as a motor branch circuit disconnect as required by the NATIONAL ELECTRICAL CODE (NEC).

A magnetic starter shall be provided for the pump motor. The starter shall be equipped with a three (3) pole bimetallic overload relay with ambient compensation and Class 10, quick trip heaters. Heaters must be properly sized for motor load. The overload relay shall provide the terminals for connection of the pump motor cable.

A control transformer shall be provided to supply 115 volts for the control circuit. The transformer shall be a continuous duty, machine tool type, sized to meet the load requirements of the control circuit. The transformer primary shall be connected to the load side of the circuit breaker. One side of the secondary winding shall be grounded to the component mounting panel.

A two (2) pole, 600 VAC, 30 ampere rated fuse block shall be provided for transformer primary winding; a one (1) pole, 250 VAC, 30 ampere fuse block will be provided for the secondary winding. Fuses shall be sized to protect the transformer in accordance with requirements of the NEC.

An electromechanical automatic alternator shall be provided which will alternate the lead and lag pumps at the shut-off of each pumping cycle. The alternator circuitry shall provide means to start the lag pump in event the lead pump capacity is less than the inflow or the lead pump fails.

A terminal block shall be provided for connection of level controls and other control wiring as required for proper pump installation.

The control shall be equipped with a Hand-Off-Auto selector switch and an amber run light, mounted on an aluminum plate under cover of the enclosure door. The selector switch shall be a toggle type with screw terminals rated 250 VAC, three (3) amperes. The run light shall be 1/3 watt 115 volt neon type.

The control shall be wired in accordance with all applicable requirements of the NATIONAL ELECTRICAL CODE. Control wiring shall be sixteen (16) AWG red for control circuits and white for neutral grounded conductors. Power wiring shall be a minimum of 14 AWG black. Each conductor shall be numbered. The ends of all wires shall be tinned with 60/40 lead tin alloy solder. All wiring shall be performed in a neat and orderly manner.

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Control Panels & Accessories

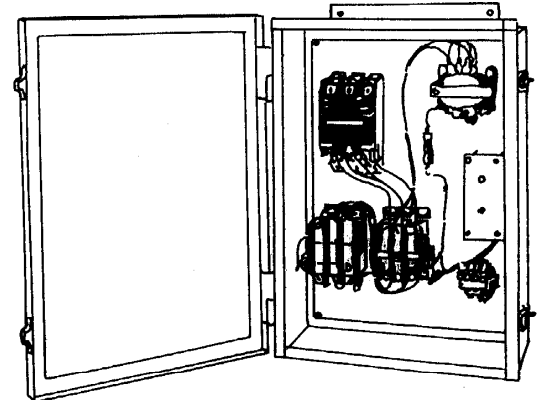
Specifications:

ENCLOSURE	NEMA 3R Raintight, Outdoor Mounting G-90 Galvanized Steel, Gray Polyester Powder Finish, Padlock Hasp/Staple with Captive Stainless Screws for Door Closure. Continuous Stainless Piano Hinge with Stainless Removable Pin. Aluminum Panel Drilled and Tapped, Machine Screw Mounted Components.
CIRCUIT BREAKER	For Short Circuit Protection
STARTER	Electromechanical
OVERLOAD RELAY	Bimetal Type, Ambient Compensated
HEATER ELEMENT	Class 10 Quick Trip, One Heater for Each Motor Phase.
SWITCH	Hand-Off-Automatic, 1/2 Inch NEMA 1
LIGHT	Pump Motor Run, 1/2 Inch NEMA 1
SUB PLATE	Switch and Light Mounting
TRANSFORMER	For 115 Volt Control on 3 Phase
FUSE	Control Transformer Primary When Used. Meet Requirements of NEC.
FUSE	Control Circuit, Meet Requirements of NEC.
TERMINAL STRIP	Box Lugs for Customer Wiring
WIRING	Color Coded to NEC Requirements; Black Power Wiring Red Numbered Control Wiring White Numbered Neutral Wiring Green Ground Wiring
ALTERNATOR	For Duplex ONLY, Automatic. Available in Sizes for .5 HP to 15 HP, 115 and 230 Volt AC, 1- Phase,.5HP to 200HP, 200, 230, 460 and 575 Volt AC, 3- Phase.All 230 volt panels are stamped "200/230 volts" and may be used throughout this voltage range. All components are "UL" Listed.

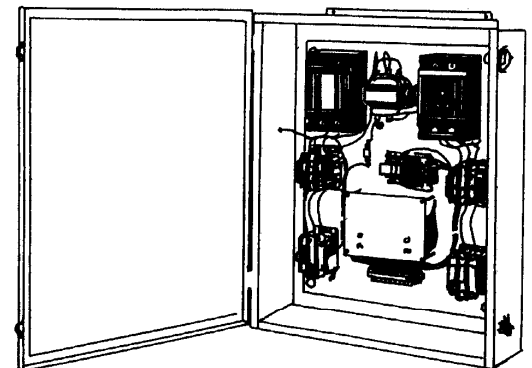
NOTES: 4.5 and 7.5 horsepower single phase panels are designed for use with Barnes Pumps special single phase models, 4SE4526L, 4SE4526HL, 4SE4524L, 4SE7524L & 4SE7524HL.

Optional Equipment Available See Pages 13 thru 16. UL 508 Label on Request.

SIMPLEX



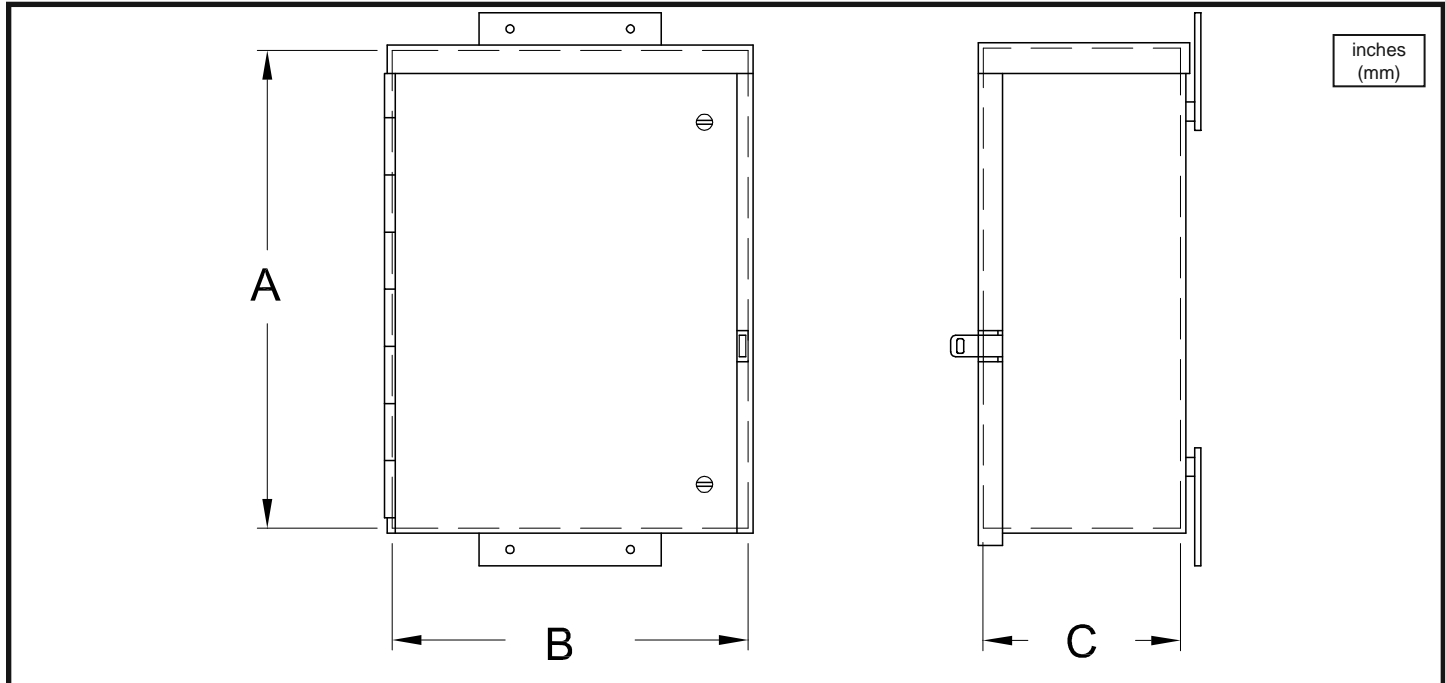
DUPLEX



Series: Simplex & Duplex

Single Phase: .5HP - 15HP
Three Phase: .5HP - 200HP

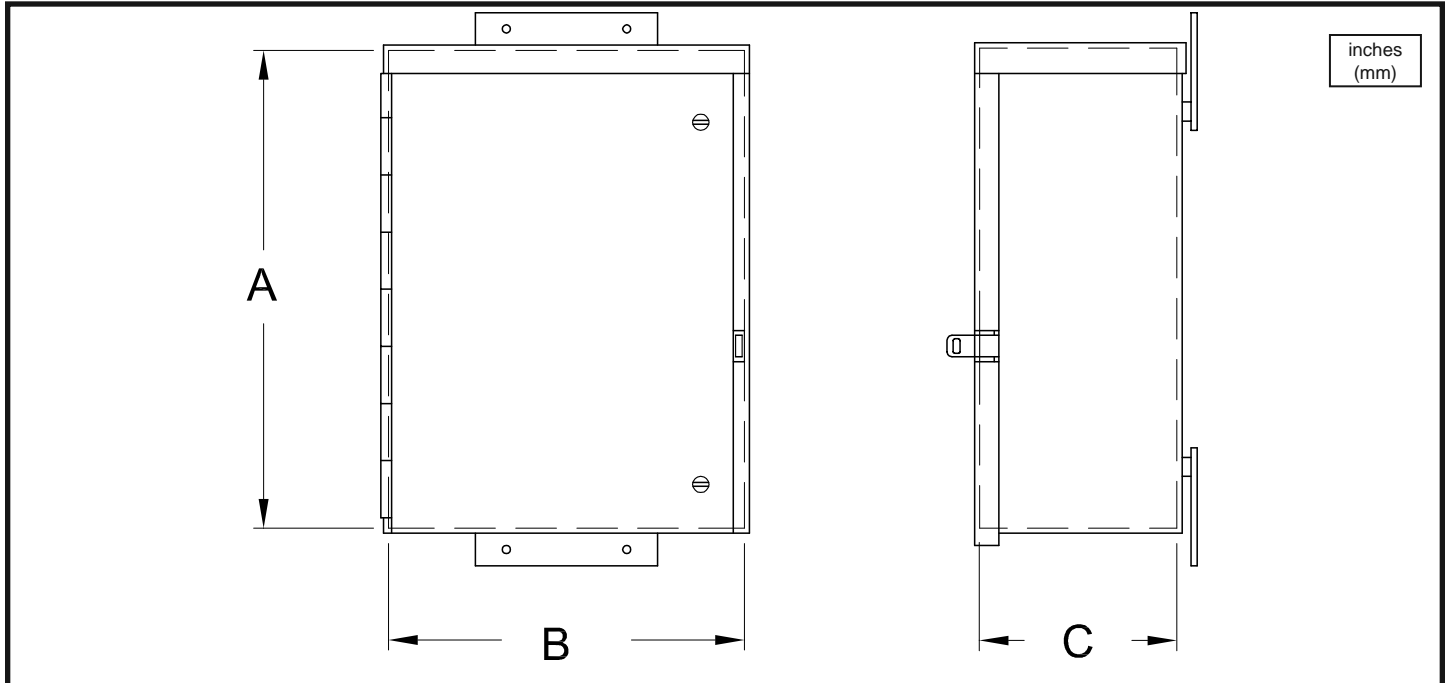
Control Panels & Accessories



HP	PH	VOLTS	SIMPLEX					DUPLEX				
			PART No.	WT. lbs	ENCLOSURE SIZE			PART No.	WT. lbs	ENCLOSURE SIZE		
					A	B	C			A	B	C
.5	1	115	065400	15	16 (406)	16 (406)	6 (152)	065600	68	20 (508)	16 (406)	6 (152)
.5, .75	1	230	065401	15	16 (406)	16 (406)	6 (152)	065601	68	20 (508)	16 (406)	6 (152)
1.0, 1.5	1	230	065402	20	16 (406)	16 (406)	6 (152)	065602	68	20 (508)	16 (406)	6 (152)
1.9, 2, 2.8, 3, 3.7	1	230	065403	30	16 (406)	16 (406)	6 (152)	065603	68	20 (508)	16 (406)	6 (152)
4.5	1	230	065404	40	20 (508)	16 (406)	6 (152)	065604	68	24 (610)	20 (508)	8 (203)
7.5	1	230	065405	50	20 (508)	16 (406)	6 (152)	065605	68	24 (610)	20 (508)	8 (203)
.5	3	200-230	065407	28	16 (406)	12 (305)	6 (152)	065607	73	24 (610)	20 (508)	8 (203)
.75	3	200-230	065408	28	16 (406)	12 (305)	6 (152)	065608	73	24 (610)	20 (508)	8 (203)
1.0	3	200-230	065409	28	16 (406)	12 (305)	6 (152)	065609	73	24 (610)	20 (508)	8 (203)
1.5	3	200-230	065410	28	16 (406)	12 (305)	6 (152)	065610	73	24 (610)	20 (508)	8 (203)
2.0	3	200-230	065411	28	16 (406)	12 (305)	6 (152)	065611	73	24 (610)	20 (508)	8 (203)
3.0	3	200-230	065412	28	16 (406)	12 (305)	6 (152)	065612	73	24 (610)	20 (508)	8 (203)
5.0	3	200-230	065413	28	16 (406)	12 (305)	6 (152)	065613	73	24 (610)	20 (508)	8 (203)
7.5	3	200-230	065414	28	16 (406)	12 (305)	6 (152)	065614	73	24 (610)	20 (508)	8 (203)
10	3	200-230	065415	28	16 (406)	12 (305)	6 (152)	065615	73	24 (610)	20 (508)	8 (203)
15	3	200-230	068009	29	20 (508)	16 (406)	6 (152)	068019	57	24 (610)	20 (508)	8 (203)
20	3	200-230	068010	34	20 (508)	16 (406)	6 (152)	068020	60	24 (610)	20 (508)	8 (203)
25	3	200-230	068011	34	20 (508)	16 (406)	6 (152)	068021	60	24 (610)	20 (508)	8 (203)
30	3	200-230	068012	39	24 (610)	20 (508)	8 (203)	068022	85	30 (762)	24 (610)	8 (203)
40	3	200-230	068013	46	24 (610)	20 (508)	8 (203)	068023	90	30 (762)	24 (610)	8 (203)

1. Enclosure size is for standard control panel only. The number of options or NEMA type may change the size of the enclosure.

Control Panels & Accessories



HP	PH	VOLTS	SIMPLEX						DUPLEX					
			PART No.	WT. lbs	ENCLOSURE SIZE			PART No.	WT. lbs	ENCLOSURE SIZE				
					A	B	C			A	B	C		
.5	3	460	065422	28	16 (406)	12 (305)	6 (152)	065622	73	24 (610)	20 (508)	8 (203)		
.75	3	460	065423	28	16 (406)	12 (305)	6 (152)	065623	73	24 (610)	20 (508)	8 (203)		
1.0	3	460	065424	28	16 (406)	12 (305)	6 (152)	065624	73	24 (610)	20 (508)	8 (203)		
1.5	3	460	065425	28	16 (406)	12 (305)	6 (152)	065625	73	24 (610)	20 (508)	8 (203)		
2.0	3	460	065426	28	16 (406)	12 (305)	6 (152)	065626	73	24 (610)	20 (508)	8 (203)		
3.0	3	460	065427	28	16 (406)	12 (305)	6 (152)	065627	73	24 (610)	20 (508)	8 (203)		
5.0	3	460	065428	28	16 (406)	12 (305)	6 (152)	065628	73	24 (610)	20 (508)	8 (203)		
7.5	3	460	065429	28	16 (406)	12 (305)	6 (152)	065629	73	24 (610)	20 (508)	8 (203)		
10	3	460	065430	28	16 (406)	12 (305)	6 (152)	065630	73	24 (610)	20 (508)	8 (203)		
15	3	460	068014	29	20 (508)	16 (406)	6 (152)	068024	57	24 (610)	20 (508)	8 (203)		
20	3	460	068015	29	20 (508)	16 (406)	6 (152)	068025	57	24 (610)	20 (508)	8 (203)		
25	3	460	068016	34	20 (508)	16 (406)	6 (152)	068026	60	24 (610)	20 (508)	8 (203)		
30	3	460	068017	46	20 (508)	16 (406)	6 (152)	068027	85	24 (610)	20 (508)	8 (203)		
40	3	460	068018	46	24 (610)	20 (508)	8 (203)	068028	85	24 (610)	20 (508)	8 (203)		
50	3	460	073192	57	24 (610)	20 (508)	8 (203)	073193	105	30 (762)	24 (610)	8 (203)		
60	3	460	082703	78	24 (610)	20 (508)	8 (203)	082712	136	30 (762)	24 (610)	8 (203)		
75	3	460	082704	84	24 (610)	20 (508)	8 (203)	082713	147	30 (762)	24 (610)	8 (203)		
85	3	460	082705	102	24 (610)	20 (508)	8 (203)	082714	176	36 (914)	30 (762)	10 (254)		
100	3	460	082706	102	30 (762)	24 (610)	8 (203)	082715	176	36 (914)	30 (762)	10 (254)		
125	3	460	082707	121	36 (914)	30 (762)	10 (254)	082716	212	48 (1219)	36 (914)	12 (305)		
135	3	460	082708	121	36 (914)	30 (762)	10 (254)	082717	212	48 (1219)	36 (914)	12 (305)		
150	3	460	082709	145	42 (1067)	30 (762)	12 (305)							
165	3	460	082710	360	60 (1524)	36 (914)	12 (305)							
200	3	460	082711	382	60 (1524)	36 (914)	12 (305)							

1. Enclosure size is for standard control panel only. The number of options or NEMA type may change the size of the enclosure.

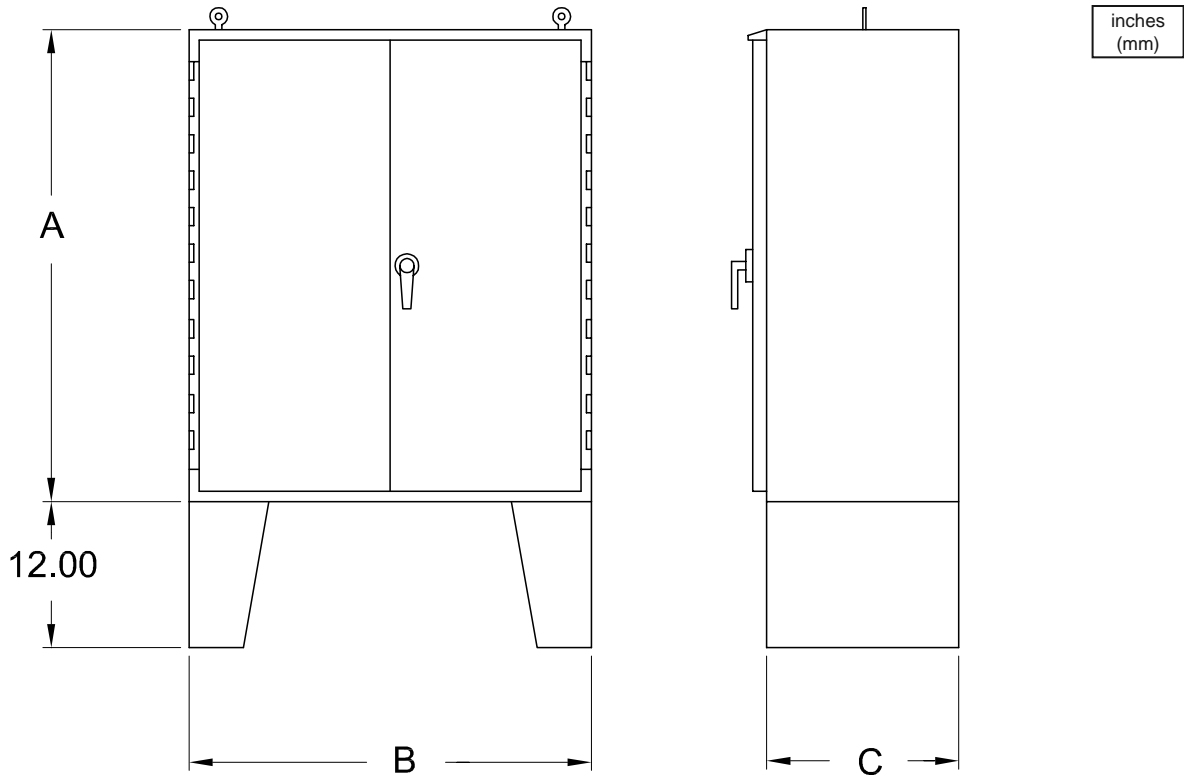
Versatrol Standard

NEMA 3R, Simplex & Duplex
For Submersible Sewage & Effluent Pumps

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Control Panels & Accessories



HP	PH	VOLTS	DUPLEX				
			PART No.	WT. lbs	ENCLOSURE SIZE		
					A	B	C
150	3	460	082718	456	60 (1524)	48 (1219)	12 (305)
165	3	460	082719	615	60 (1524)	60 (1524)	12 (305)
200	3	460	082720	843	72 (1829)	72 (1829)	12 (305)

1. Enclosure size is for standard control panel only. The number of options or NEMA type may change the size of the enclosure.

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Control Panels & Accessories

Specifications:

ENCLOSURE	NEMA 3R Raintight, Outdoor Mounting G-90 Galvanized Steel, Gray Polyester Powder Finish, Padlock Hasp/Staple with Captive Stainless Screws for Door Closure. Continuous Stainless Piano Hinge with Stainless Removable Pin. Aluminum Panel Drilled and Tapped, Machine Screw Mounted Componets.
CIRCUIT BREAKER	For Short Circuit Protection
STARTER	Electromechanical
OVERLOAD RELAY	Bimetal Type, Ambient Compensated
HEATER ELEMENT	Class 10 Quick Trip, One Heater for Each Motor Phase.
SWITCH	Hand-Off-Automatic, 1/2 Inch NEMA 1
LIGHT	Pump Motor Run, 1/2 Inch NEMA 1
SUB PLATE	Switch and Light Mounting
FUSE	Control Transformer Primary When Used. Meet Requirements of NEC.
FUSE	Control Circuit, Meet Requirements of NEC.
TERMINAL STRIP	Box Lugs for Customer Wiring
WIRING	Color Coded to NEC Requirements; Black Power Wiring Red Numbered Control Wiring White Numbered Neutral Wiring Green Ground Wiring
ALTERNATOR	For Duplex ONLY, Automatic.

Provisions are made to connect the on-winding thermal overload in series with the contactor coil.

MUST add the following Options for compliance with Class I, Group D, Division 1 requirements:

- One Moisture Sensor per pump.
- One Moisture Sensor Test Circuit per pump.
- One Intrinsically Safe Relay per pump for ON-OFF, Duplex requires an additional on for Lag Start. Additional relays must be added for Alarms.

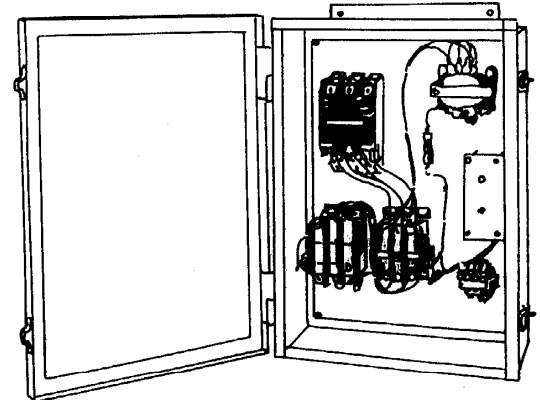
115 and 230 Volt AC, 1-Phase.

200, 230, 460 and 575 Volt AC, 3 - Phase.

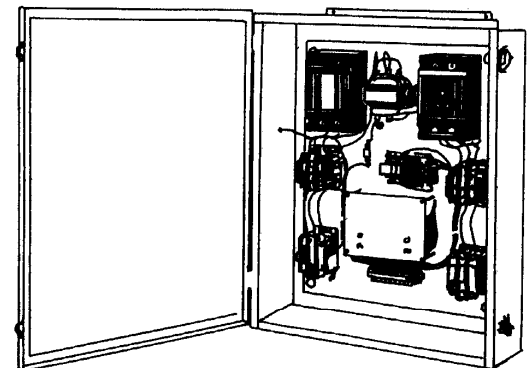
All 230 volt panels are stamped "200/230" volts" and may be used throughout this voltage range. All components are "UL" Listed.

Optional Equipment Available See Pages 13 thru 16.
UL 508 Label on Request.

SIMPLEX



DUPLEX



Series: Simplex & Duplex

Single Phase: 1.5HP - 5HP

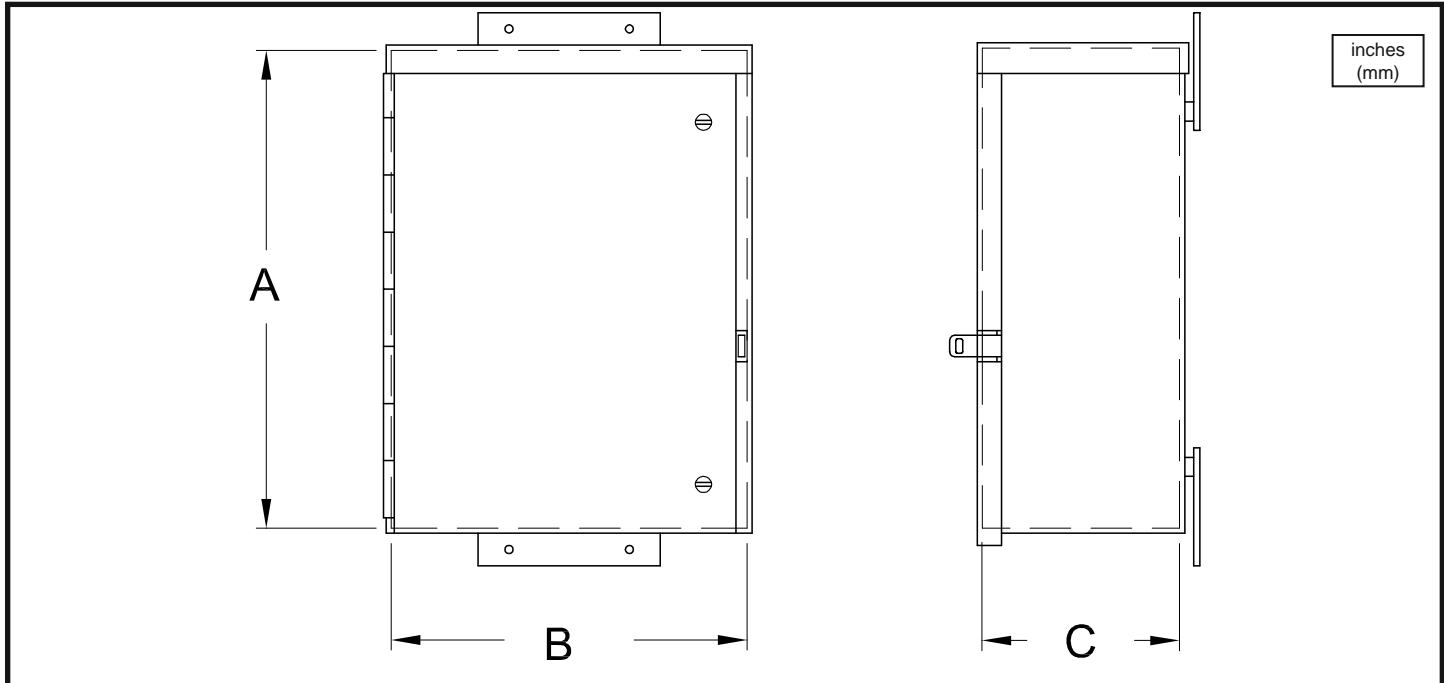
Versatrol Standard

NEMA 3R, 1 Phase, Simplex & Duplex
For Explosion Proof Submersible Sewage Pumps

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Control Panels & Accessories



HP	PH	VOLTS	SIMPLEX					DUPLEX				
			PART No.	WT. lbs	ENCLOSURE SIZE			PART No.	WT. lbs	ENCLOSURE SIZE		
					A	B	C			A	B	C
1.5	1	230	077883	37	20 (508)	16 (406)	6 (152)	077888	85	30 (762)	24 (610)	8 (203)
2.0	1	230	077884	37	20 (508)	16 (406)	6 (152)	077889	85	30 (762)	24 (610)	8 (203)
*3.0	1	230	*077885	37	20 (508)	16 (406)	6 (152)	*077890	85	30 (762)	24 (610)	8 (203)
3.0	1	230	077886	37	20 (508)	16 (406)	6 (152)	077891	85	30 (762)	24 (610)	8 (203)
5.0	1	230	077887	37	20 (508)	16 (406)	6 (152)	077892	85	30 (762)	24 (610)	8 (203)

1. These Part Numbers include the Moisture Sensor and Test Circuit as Standard.
2. * 1150 RPM pump only
3. For additional horsepower, voltages and phase, use part numbers on pages 4, 5 & 6 of this section.
4. Enclosure size is for standard control panel only. The number of options or NEMA type may change the size of the enclosure.
5. Specify pump model and/or full load amps when ordering.
6. Optional equipment available.

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Control Panels & Accessories

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Control Panels & Accessories

Enclosure Mounted 115V Alarm Options

Part No.	Description
064672	ALARM LIGHT in vapor-proof fixture with a 40-watt flashing red light (Shipped Loose).
064673	ALARM BELL is a weatherproof 4" vibrating bell which produces a 79db at 10 ft. with alarm silence switch and red high water indicator light that stays on until water goes down.
064674	ALARM HORN is a weatherproof 4" square vibrating horn which produces 96db at 10 ft. with alarm silence switch and red high water indicator light that stays on until water goes down.
073604	DRY CONTACTS FOR ALARM FUNCTION - is a D.P.D.T. relay rated at 10 amps, 250 volts. These contacts are not connected to a power source in the control panel, and are primarily used to operate telemetering and remote high water alarms.
075601	DIM GLOW ALARM may be used with alarm light. The light will glow dim during normal operation; during high water condition the alarm light will flash, and if so equipped, the audible alarm will sound. Note: Must be added to one of above alarm.

Enclosures

Standard enclosures will accept up to 4 PANEL MOUNTED options. For 5 to 8 PANEL MOUNTED options, use enclosures marked as OVERSIZE "A". For more than 12 PANEL MOUNTED options, consult factory.

064682	NEMA 4 ENCLOSURE for Simplex Versatrol Standard panels.
075608	NEMA 4 ENCLOSURE for Duplex Versatrol Standard panels.
075609	NEMA 4X, 3, & 12 SIMPLEX ENCLOSURE - Fiberglass
075610	NEMA 4X, 3, & 12 DUPLEX ENCLOSURE - Fiberglass.
075611	NEMA 4X SIMPLEX ENCLOSURE - Stainless Steel
075612	NEMA 4X DUPLEX ENCLOSURE - Stainless Steel
075613	NEMA 12 SIMPLEX ENCLOSURE - Steel.
075614	NEMA 12 DUPLEX ENCLOSURE - Steel.
075615	NEMA 3R OVERSIZED SIMPLEX ENCLOSURE - A.
075616	NEMA 3R OVERSIZED DUPLEX ENCLOSURE - A
075617	NEMA 4 OVERSIZED SIMPLEX ENCLOSURE - A
075618	NEMA 4 OVERSIZED DUPLEX ENCLOSURE - A.
075619	NEMA 4X, 3, 12 OVERSIZED SIMPLEX ENCLOSURE - A. Fiberglass
075620	NEMA 4X, 3, 12 OVERSIZED DUPLEX ENCLOSURE - A. Fiberglass
075621	NEMA 4X OVERSIZED SIMPLEX ENCLOSURE - A- Stainless Steel.
075622	NEMA 4X OVERSIZED DUPLEX ENCLOSURE - A- Stainless Steel.
075623	NEMA 12 OVERSIZED SIMPLEX ENCLOSURE - A - Steel
075624	NEMA 12 OVERSIZED DUPLEX ENCLOSURE - A- Steel.

Control Panels & Accessories

Enclosure Related Options

- 066361 **DEADFRONT DOOR** with inner door for Simplex Versatrol Standard panels.
- 066362 **DEADFRONT DOOR** with inner door for Duplex Versatrol Standard panels.
- 064690 **SERVICE LIGHT** - This option consists of a light socket controlled by a door switch, providing internal panel illumination during service work. The power for this light comes from the control circuit.
- 064678 **CONDENSATION PREVENTION HEATER** is a panel mounted 100 watt heater with thermostat and over-temperature control.

Service Entrance Options - Panel Mounted

All options listed as PANEL MOUNTED require additional enclosure volume and may require larger enclosure.

- 064683 **CONTROL CIRCUIT RECONNECT RELAY** 115 volt- The reconnect relay will transfer the control power from the pump 1 circuit breaker to the pump 2 circuit breaker in the event of the number one breaker tripping. This relay will hold the control voltage on the #2 circuit breaker until pump 1 breaker is reset.
- 064684 **CONTROL CIRCUIT RECONNECT RELAY**- same as above except 230 volt.
- 064685 **CONTROL CIRCUIT RECONNECT RELAY**- same as above except 460 volt.
- 036189 **LIGHTNING ARRESTOR** is connected to the incoming power lines and panel ground. This arrestor will reduce the chances of pump and control panel damage from voltage transient caused by lightning. This arrestor is for single phase.
- 058582 **LIGHTNING ARRESTOR** - same as above except for three phase.
- 064686 **UNDER VOLTAGE RELAY** - 115 volt, 1 phase
- 064687 **UNDER VOLTAGE RELAY** - 230 volt, 1 phase.
- 079847 **UNDER VOLTAGE RELAY** - 208 volt, 1 phase
- 064688 **PHASE FAILURE AND UNDER VOLTAGE RELAY**, 230 volt, 3 phase- This relay is connected to the primary power service to detect phase loss, improper phase rotation and under-voltage on one or all phases of the service. This relay will automatically turn off control under these conditions.
- 064689 **PHASE FAILURE AND UNDER VOLTAGE RELAY** - same as above except 460 volt 3 phase.

Master Circuit Breaker - Panel Mounted (No Operator)

Circuit Breakers count as one PANEL MOUNTED option, when added to control.

- 075605 **MASTER CIRCUIT BREAKER**- 115/230 volt Single phase.
- 075606 **MASTER CIRCUIT BREAKER**- 200/230 volt 3 phase.
- 075607 **MASTER CIRCUIT BREAKER**- 460 volt 3 phase.
- 082140 **CIRCUIT BREAKER ON TRANSFORMER PRIMARY** - 230 volt
- 082141 **CIRCUIT BREAKER ON TRANSFORMER PRIMARY**- 460 volt.

Control Panels & Accessories

Control Circuit Power Options

- 079841 **24 VOLT CONTROL CIRCUIT**- For use with controls containing control 115 VAC transformer. Where 24 VAC control is needed on PILOT DEVICE(S).
- 079842 **24 VOLT CONTROL ON FLOATS**- control equipment at 115 volt, requires an extra transformer @ 100VA.
- 082137 **24 VOLT CONTROL FOR 115 VOLT PANELS**- for 1/2 HP 115 volt. P/N 065400 & 065600

Circuit Breaker - Door Interlocks

NEMA 1 option, maybe self standing or used with sub door option.

- 075627 **DOOR INTERLOCK**- for 230 VAC circuit breaker, NEMA 1.
- 075628 **DOOR INTERLOCK**- for 460 VAC circuit breaker, NEMA 1.

Fused Disconnects with Door Mounted Operators

Options replacing existing circuit breakers require no additional enclosure space. Option chosen to be Master Fused Disconnect adds one option space to the enclosure.

- 079029 **FUSED DISCONNECT** is used to replace the motor circuit breaker sized for motor load and voltage with rotary disconnect handle, if required. 115/230 volt, 1 phase, 250 volt and 200/230 volt, 3 phase, 250 volt.
- 079030 **FUSED DISCONNECT** - same as above except for 460 volt, 3 phase, 600 volt.
- 075625 **DOOR INTERLOCK**- through inner door for fused disconnect.
- 075626 **DOOR INTERLOCK**- through outer door for fused disconnect.

Utility Transformers with Outlet - Panel Mounted

- 079027 **CONVENIENCE OUTLET** without power transformer. A 115 volt duplex outlet mounted on the inside of the panel enclosure for 15 amp max. utility use. NOTE: A 200 volt, 3 phase 4-wire service or 230 volt, 1 phase 3-wire service which produces 115 volts to neutral is required for this option. This option does not effect enclosure size.
- 064679 **CONVENIENCE OUTLET** With Transformer is a 115 volt duplex outlet mounted on the inside of the panel enclosure for 15 amp utility use, and has a 1.5 KVA power transformer connected to the primary line with fused secondary. (Requires Next Larger Oversize Enclosure).
- 075602 **CONVENIENCE OUTLET WITH TRANSFORMER**- same as above except with a 3.0 KVA power transformer. (Requires Next Larger Oversize Enclosure)
- 075603 **CONVENIENCE OUTLET WITH TRANSFORMER**- same as above except with a 5.0 KVA power transformer. (Requires Next Larger Oversize Enclosure)
- 064680 **GROUND FAULT SYSTEM** - a ground fault receptacle 115 and 230, NEMA 3R, with G.F.I.

Control Panels & Accessories

Panel Mounted Options

* Customer MUST define the function of this generic option.

- 064675 **MOISTURE SENSOR RELAY** with warning light. This relay is connected to two sensing probes in the pump seal chamber and will detect moisture in the pump and operate the warning light to indicate a failed seal. Use two of these for duplex panels.

- 085325 **MOISTURE SENSOR TEST CIRCUIT**, Light, Push-To-Test Seal Fail Relay, use with 064675

- 064676 **ELAPSED TIME METERS** indicate pump running time in hours and tenths of hours to a total of 99999.9 and is non-resettable. Use two for duplex, etc.

- 064681 **TEMPERATURE SENSOR RELAY** with warning light. Each control panel is equipped as standard equipment with terminals for temperature sensors. These thermostats are wired in line with the pump motor starter coil and will turn the motor off with temperature rise. Use two for duplex, etc.

- 064677 **PUMP SEQUENCE SELECTOR SWITCH** is provided to override the automatic alternator. This option is useful if it becomes necessary to remove one pump from the duplex system.

- 064403 **INTRINSICALLY SAFE RELAY**- This relay is a reduced voltage power supply that produces a low voltage and current to the float switches in the wet well. This relay has an internal reed relay to which is slaved a 10 amp power relay that operates the motor starters and high water alarm. (for Explosion Proof Applications). One required for simplex, two for duplex plus one for any alarm function.

- 075629 **SELECTOR SWITCH**- 2 position, oil tight. *

- 075630 **SELECTOR SWITCH**- 3 or 4 position, oil tight. *

- 075631 **TIMER**- Electronic (general purpose). *

- 075632 **TIMER**- 24 hour (general purpose).*

- 075633 **TIMER**- 7 day (general purpose).*

- 075634 **TIMER**- Motor driven, 5/10 hrs. to 60 hrs. *

- 075635 **AUXILIARY CONTACTS**- on motor control. *

- 075636 **AUXILIARY CONTACTS**- relay DPDT.*

- 075637 **PUSH BUTTON**- Nema 4 (user defined).*

- 075638 **NEMA 4 LIGHT**- (user defined).*

- 075639 **AMMETER**- Single phase with Current Transformer.

- 075640 **AMMETER**- Three phase with Current Transformer and phase selector switch.

- 625-01044 **INDUCTION RELAY** - 120/220