Notice to installing contractor: Instructions must remain with installation.

"Quality Pumps Since 1939"

SECTION: 6.10.001
FM0447
0803
Supersedes
0503

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

MAIL TO: P.O. BOX 16347 • Louisville, KY 40256-0347
SHIP TO: 3649 Cane Run Road • Louisville, KY 40211-1961
(502) 778-2731 • 1 (800) 928-PUMP • FAX (502) 774-3624

visit our web site: http://www.zoeller.com

NOTICE: VENT HOLE FOR CHECK VALVE SEE #3 IN CAUTION SECTION BELOW AND #6 ON PAGE 3

INSTALLATION INSTRUCTIONS
RECOMMENDED MODELS

DATE INSTALLED:
MODEL NUMBER:

SEWAGE	EFFLUENT*	DEWATERING
211 Series 264 Series 266, 267, 268, 270, 4270 Series 282, 284, 4282, 4284 Series 292, 293, 294, 295, 4292, 4293, 4294, 4295 Series	53, 55, 57, 59 Series 72, 76 Series 98 Series 137, 139, 140, 4140, Series 151, 152, 153 Series 161, 163, 165, 4161, 4163, 4165 Series 185, 186, 188, 189, 191, 4185, 4186, 4189 Series	All Models

*Effluent systems should specify that pumps should not handle solids exceeding three fourths inch (¾") in order to prevent large solids from entering leeching fields, mound systems and etc. (70 Series have 3/8", 50/90 Series have ½", 130 Series have 5/8", 150 Series have ¾" solids capability, 160/4160/180/4180 Series have ¾" solids capability.) Where codes permit, sewage pumps can be used for effluent systems. Nonautomatic pump(s) with external level control recommended for septic tank effluent applications.

PREINSTALLATION CHECKLIST - ALL INSTALLATIONS

P/N 006355

1. **Inspect your pump.** Occasionally, products are damaged during shipment. If the unit is damaged, contact your dealer before using. **DO NOT** remove the test plugs in the cover nor the motor housing.
2. **Carefully read the literature** provided to familiarize yourself with specific details regarding installation and use. These materials should be retained for future reference.

⚠ WARNING

SEE BELOW FOR LIST OF WARNINGS

1. **Make sure there is a properly grounded receptacle available.** All pumps are furnished with provisions for proper grounding to protect you against the possibility of electrical shock. **(SEE WARNING BELOW)**
2. Make certain that the receptacle is within the reach of the pump's power supply cord. DO NOT USE AN EXTENSION CORD. Extension cords that are too long or too light do not deliver sufficient voltage to the pump motor. But, more important, they could present a safety hazard if the insulation were to become damaged or the connection end were to fall into the sump.
3. **Make sure the pump electrical supply circuit is equipped with fuses or circuit breakers of proper capacity.** A separate branch circuit is recommended, sized according to the "National Electrical Code" for the current shown on the pump nameplate.
4. **Testing for ground.** As a safety measure, each electrical outlet should be checked for ground using an Underwriters Laboratory Listed circuit analyzer which will indicate if the power, neutral and ground wires are correctly connected to your outlet. If they are not, call a qualified licensed electrician.
5. **For Added Safety.** Pumping and other equipment with a 3-prong grounded plug must be connected to a 3-prong grounded receptacle. For added safety the receptacle may be protected with a ground-fault circuit interrupter. When a pump needs to be connected in a watertight junction box, the plug can be removed and spliced to the supply cable with proper grounding. For added safety this circuit may be protected by a ground-fault circuit interrupter. The complete installation must comply with the National Electrical Code and all applicable local codes and ordinances.
6. **FOR YOUR PROTECTION, ALWAYS DISCONNECT PUMP FROM ITS POWER SOURCE BEFORE HANDLING**. Single phase pumps are supplied with a 3-prong grounded plug to help protect you against the possibility of electrical shock. **DO NOT UNDER ANY CIRCUMSTANCES REMOVE THE GROUND PIN.** The 3-prong plug **must** be inserted into a mating 3-prong grounded receptacle. **If** the installation does not have such a receptacle, it must be changed to the proper type, wired and grounded in accordance with the National Electrical Code and all applicable local codes and ordinances. Three phase pumps require motor starting devices with motor overload protection. See FM0514 for simplex installations or FM0486 for duplex installations. Pumps **must** be installed in accordance with the National Electrical Code and all applicable local codes and ordinances. Pumps are not to be installed in locations classified as hazardous in accordance with National Electrical Code, ANSI/NFPA 70.
7. **"Risk of electrical shock"** Do not remove power supply cord and strain relief or connect conduit directly to the pump.
8. Installation and servicing of electrical circuits and hardware should be performed by a qualified licensed electrician.
9. Pump installation and servicing should be performed by a qualified person.
10. Risk of electric shock - These pumps have not been investigated for use in swimming pool areas.
11. According to the state of California (Prop 65), this product contains chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.

⚠ CAUTION

SEE BELOW FOR LIST OF CAUTIONS

1. Check to be sure your power source is capable of handling the voltage requirements of the motor, as indicated on the pump name plate.
2. The installation of automatic pumps with variable level float switches or nonautomatic pumps using auxiliary variable level float switches is the responsibility of the installing party and care should be taken that the tethered float switch will not hang up on the pump apparatus or pit peculiarities and is secured so that the pump will shut off. It is recommended to use rigid piping and fittings and the pit be 18" or larger in diameter.
3. **Information - vent hole purpose.** It is necessary that all submersible sump, effluent, and sewage pumps capable of handling various sizes of solid waste be of the bottom intake design to reduce clogging and seal failures. If a check valve is incorporated in the installation, a vent hole (approx. 3/16") must be drilled in the discharge pipe below the check valve and pit cover to purge the unit of trapped air. Trapped air is caused by agitation and/or a dry basin. Vent hole should be checked periodically for clogging. The 50 or 90 Series pumps have a vent located in the pump housing opposite the float, adjacent to a housing lug, but an additional vent hole is recommended. The vent hole on a High Head application may cause too much turbulence. You may not want to drill one. If you choose not to drill a vent hole, be sure the pump case and impeller is covered with liquid before connecting the pipe to the check valve and no inlet carries air to the pump intake. NOTE: THE HOLE MUST ALSO BE BELOW THE BASIN COVER AND CLEANED PERIODICALLY. Water stream will be visible from this hole during pump run periods.
4. Pump should be checked frequently for debris and/or build up which may interfere with the float "on" or "off" position. Repair and service should be performed by Zoeller Pump Company Authorized Service Station only.
5. Dewatering and effluent sump pumps are not designed for use in pits handling raw sewage.
6. Maximum operating temperature for standard model pumps must not exceed 130°F (54°C). Except for 70 and 211 Series. The 70 and 211 Series max. temperature must not exceed 110ºF (43ºC).
7. Pump models 188/4188, 189/4189, and 295/4295 nonautomatic pump must run totally submerged and CSA certified pumps must be operated submerged with "off - on" level controls.
8. Pump models 266, 267, 268, 137 and 139 must be operated in an upright position. Do not attempt to start pump when tilted or laying on its side.
9. Do not operate a pump in an application where the Total Dynamic Head is less than the minimum Total Dynamic Head listed on the Pump Performance Curves.

NOTE: Pumps with the "UL" mark and pumps with the "US" mark are tested to UL Standard UL778. CSA Certified pumps are certified to CSA Standard C22.2 No. 108.

REFER TO WARRANTY ON PAGE 2.

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Limited Warranty

Zoeller Pump Company warrants, to the purchaser and subsequent owner during the warranty period, every new Zoeller Pump Company product to be free from defects in material and workmanship under normal use and service, when properly installed, used and maintained, for 1) Standard Warranty - a period of one year from date of installation or 18 months from date of manufacturer, whichever comes first OR 2) Optional Three (3) Year Warranty - a period of three (3) years from date of installation or 42 months from date of manufacturer whichever comes first. Parts that fail, (within standard or three (3) year optional warranty) that inspections determine to be defective in material or workmanship, will be repaired, replaced or remanufactured at Zoeller Pump Company's option, provided however, that by so doing we will not be obligated to replace an entire assembly, the entire mechanism or the complete unit. No allowance will be made for shipping charges, damages, labor or other charges that may occur due to product failure, repair or replacement.

This warranty does not apply to any material that has been disassembled without prior approval of Zoeller Pump Company, subjected to misuse, misapplication, neglect, alteration, accident or act of God; that has not been installed, operated or maintained in accordance with Zoeller Pump Company installation instructions; that has been exposed to but not limited to the following: sand, gravel, cement, mud, tar, hydrocarbons or hydrocarbon derivatives (oil, gasoline, solvents, etc), wash towels or feminine sanitary products, etc. or other abrasive or corrosive substances. This warranty is in lieu of all other warranties expressed or implied; and we do not authorize any representative or other person to assume for us any other liability in connection with our products.

Contact Zoeller Pump Company, 3649 Cane Run Road, Louisville, Kentucky 40211-1961, Attention: Customer Service Department to obtain any needed repair or replacement of part(s) or additional information pertaining to our warranty.

ZOELLER PUMP COMPANY EXPRESSLY DISCLAIMS LIABILITY FOR SPECIAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES OR BREACH OF EXPRESSED OR IMPLIED WARRANTY; AND ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND OF MERCHANTABILITY SHALL BE LIMITED TO THE DURATION OF THE EXPRESSED WARRANTY.

Some states do not allow limitations on the duration of an implied warranty, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

EASY DO'S & DON'T'S FOR INSTALLING A SUMP PUMP

1. **DO** read thoroughly all installation material provided with the pump.
2. **DO** inspect pump for any visible damage caused by shipping. Contact dealer if pump appears to be damaged.
3. **DO** clean all debris from the sump. Be sure that the pump will have a hard, flat surface beneath it. **DO NOT** install on sand, gravel or dirt.
4. **DO** be sure that the sump is large enough to allow proper clearance for the level control switch(es) to operate properly.
5. **DO Always Disconnect Pump From Power Source Before Handling**.
   DO always connect to a separately protected and properly grounded circuit.
   DO NOT ever cut, splice, or damage power cord (Only splice in a watertight junction box).
   DO NOT carry or lift pump by its power cord.
   DO NOT use an extension cord with a sump pump.
6. **DO** install a check valve and a union in the discharge line.
   DO NOT use a discharge pipe smaller than the pump discharge.
7. **DO NOT** use a sump pump as a trench or excavation pump, or for pumping sewage, gasoline, or other hazardous liquids.
8. **DO** test pump immediately after installation to be sure that the system is working properly.
9. **DO** cover sump with an adequate sump cover.
10. **DO** review all applicable local and national codes and verify that the installation conforms to each of them.
11. **DO** consult manufacturer for clarifications or questions.
12. **DO** consider a Two Pump System with an alarm (Page 5) where an installation may become overloaded or primary pump failure would result in property damages.
13. **DO** consider a D.C. Backup System (See the Basement Sentry page 5) where a sump or dewatering pump is necessary for the prevention of property damages from flooding due to A.C. Power disruptions, mechanical or electrical problems or system overloading.

SSPMA MEMBER
SUMP AND SEWAGE PUMP MFRS. ASSN.
YOUR ASSURANCE OF QUALITY

Service Checklist

⚠ WARNING **ELECTRICAL PRECAUTIONS-** Before servicing a pump, always shut off the main power breaker and then unplug the pump - making sure you are not standing in water and wearing insulated protective sole shoes. Under flooded conditions, contact your local electric company or a qualified licensed electrician for disconnecting electrical service prior to pump removal.

⚠ WARNING Submersible pumps contain oils which becomes pressurized and hot under operating conditions - **allow 2½ hours after disconnecting before attempting service.**

CONDITION	COMMON CAUSES
A. Pump will not start or run.	Check fuse, low voltage, overload open, open or incorrect wiring, open switch, impeller or seal bound mechanically, defective capacitor or relay when used, motor or wiring shorted. Float assembly held down. Switch defective, damaged, or out of adjustment.
B. Motor overheats and trips overload or blows fuse.	Incorrect voltage, negative head (discharge open lower than normal) impeller or seal bound mechanically, defective capacitor or relay, motor shorted.
C. Pump starts and stops too often.	Float tight on rod, check valve stuck or none installed in long distance line, overload open, level switch(s) defective, sump pit too small.
D. Pump will not shut off.	Debris under float assembly, float or float rod bound by pit sides or other, switch defective, damaged or out of adjustment.
E. Pump operates but delivers little or no water.	Check strainer housing, discharge pipe, or if check valve is used vent hole must be clear. Discharge head exceeds pump capacity. Low or incorrect voltage. Incorrect motor rotation. Capacitor defective. Incoming water containing air or causing air to enter pumping chamber.
F. Drop in head and/or capacity after a period of use.	Increased pipe friction, clogged line or check valve. Abrasive material and adverse chemicals could possibly deteriorate impeller and pump housing. Check line. Remove base and inspect.

If the above checklist does not uncover the problem, consult the factory - Do not attempt to service or otherwise disassemble pump. Service must be by Zoeller Authorized Service Stations.

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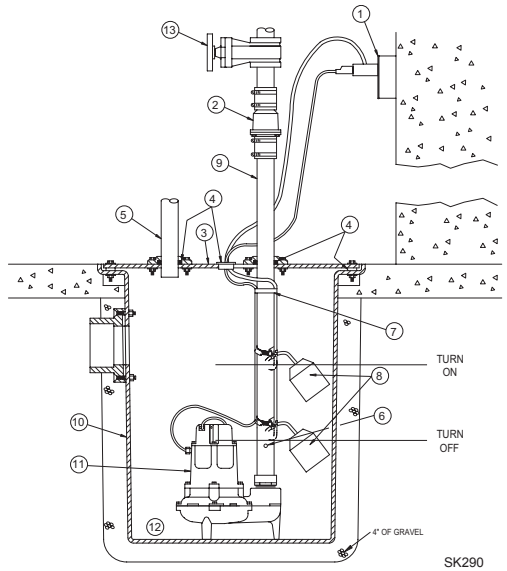
TYPICAL SEWAGE INSTALLATION-RECOMMENDED INSTALLATION

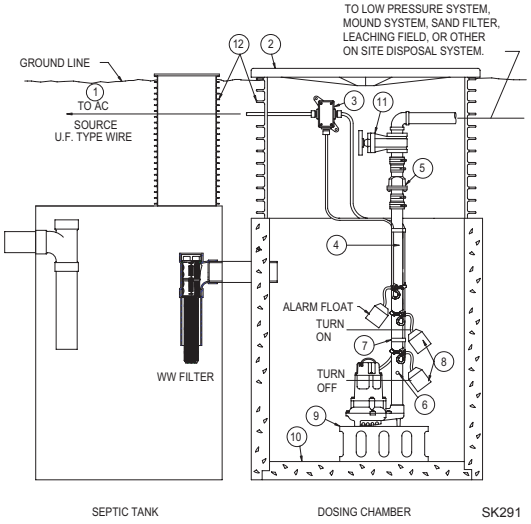


SK290

(1) Electrical wiring and protection must be in accordance with National Electrical Code and any other applicable state and local electrical requirements.
(2) Install proper Zoeller unicheck (combination union and check valve), preferably just above the basin to allow easy removal of the pump for cleaning or repair. On sewage, effluent or dewatering, if high head or below cover installation is required use 30-0152 on 1½" and 2" pipe and 30-0160 on 3" pipe. See (6) below.
(3) All installations require a basin cover to prevent debris from falling into the basin and to prevent accidental injury.
(4) Gas tight seals are required in all sewage installations to contain gases and odors.
(5) Vent gases and odors to the atmosphere through vent pipe.
(6) When a Unicheck is installed, drill a 3/16" dia. hole in the discharge pipe even with the top of the pump. NOTE: THE HOLE MUST ALSO BE BELOW THE BASIN COVER AND CLEANED PERIODICALLY (High Head unit see #3 under "Caution" on front page). Water stream will be visible from this hole during pump run periods.
(7) Securely tape or clamp power cord to discharge pipe.
(8) Locate float switches as shown in sketch to left. The best place for the "off" point is above the motor housing and positioned 180° from the inlet. Never put "off" point below discharge on pump. NOTE: FOR AUTOMATIC PUMPS, USE DEWATERING INSTALLATION SKETCH BELOW.
(9) Use full-size discharge pipe.
(10) Basin must be in accordance with applicable codes and specifications.
(11) Pump must be level and float mechanism clear of sides of basin before starting pump.
(12) Basin must be clean and free of debris after installation.
(13) Gate Valve or Ball Valve to be supplied by installer and installed according to any and all codes.

NOTE: Always refer to Zoeller FM0551 and/or SSPMA Recommended Sewage Pump Installation and Maintenance.

TYPICAL EFFLUENT INSTALLATION-RECOMMENDED INSTALLATION

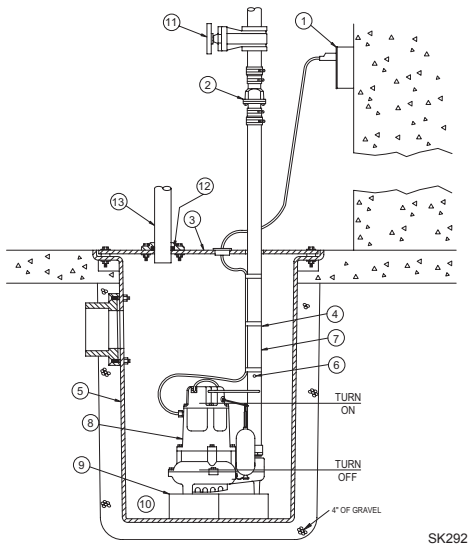


SK291

(1) Electrical wiring and protection must be in accordance with National Electrical Code and any other applicable state and local electrical requirements.
(2) All installations require a basin cover to prevent debris from falling into the basin, and to minimize accidental injury.
(3) Wire pump to power through a Zoeller watertight junction box or watertight splice. NOTE: Watertight enclosure is a must in damp areas. See FM0732. See No. 8 on front page.
(4) Use full-sized discharge pipe.
(5) Install proper Zoeller unicheck (combination union and check valve), preferably just above the basin to allow easy removal of the pump for cleaning or repair. On sewage, effluent or dewatering, if high head or below cover installation is required use 30-0152 on 1-1/2" and 2" pipe and 30-0160 on 3" pipe. See (6) below.
(6) When a Unicheck is installed, drill a 3/16" dia. hole in the discharge pipe even with the top of the pump. The 50 and 90 Series pumps have a built in vent hole. NOTE: THE HOLE MUST ALSO BE BELOW THE BASIN COVER AND CLEANED PERIODICALLY (High Head unit see #3 under "Caution" on front page). Water stream will be visible from this hole during pump run periods.
(7) Securely tape or clamp power cord to discharge pipe.
(8) Refer to SSPMA Effluent Sizing Manual for determining "on" - "off" switches.
(9) Install blocks or bricks under pump to provide a settling basin.
(10) Basin must be clean and free of debris after installation.
(11) Gate Valve or Ball Valve to be supplied by installer and installed according to any and all codes.
(12) Septic tank risers must be used for easy pump and filter access.

NOTE: See FM0531, FM0732 & FM1420 for Alarms, Controls & Junction Boxes.

TYPICAL DEWATERING INSTALLATION-RECOMMENDED INSTALLATION



SK292

(1) Electrical wiring and protection must be in accordance with National Electrical Code and any other applicable state and local electrical requirements.
(2) Install proper Zoeller unicheck (combination union and check valve), preferably just above the basin to allow easy removal of the pump for cleaning or repair. On sewage, effluent or dewatering, if high head or below cover installation is required use 30-0152 on 1-1/2" and 2" pipe and 30-0160 on 3" pipe. See (6) below.
(3) All installations require a basin cover to prevent debris from falling into the basin, and to prevent accidental injury.
(4) Securely tape or clamp power cord to discharge pipe clear of the float mechanism.
(5) Minimum 18" dia. x 24" deep basin. Larger depths may be required.
(6) When a Unicheck is installed, drill a 3/16" dia. hole in the discharge pipe even with the top of the pump. The 50 and 90 series pumps have a built in vent hole. NOTE: THE HOLE MUST ALSO BE BELOW THE BASIN COVER AND CLEANED PERIODICALLY (High Head unit see #3 under "Caution" on front page). Water stream will be visible from this hole during pump run periods.
(7) Use a full-size discharge pipe.
(8) Pump must be level and float mechanism clear of sides of basin before starting pump.
(9) Install blocks or bricks under pump to provide a settling basin.
(10) Basin must be clean and free of debris after installation.
(11) Gate Valve or Ball Valve to be supplied by installer and installed according to any and all codes.
(12) Gas tight seals are required in all sewage installations to contain gases and odors.
(13) Vent gases and odors to the atmosphere through vent pipe.

NOTE: See FM0531, FM0732 & FM1420 for Alarms, Controls & Junction Boxes.

All installations must comply with all applicable electrical and plumbing codes, including, but not limited to, National Electrical Code, local, regional, and/or state plumbing codes, etc. Not intended for use in hazardous locations.

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DOUBLE SEAL PUMPS (4000 SERIES ONLY)

(1) Double seal pumps offer extra protection from damage caused by seal failure.
(2) Pumps should be serviced on a periodic preventative maintenance schedule.
(3) Oil in the motor housing and lower seal cavity must be changed when pump is serviced. If oil from the motor housing contains water or other contamination, both seals should be replaced during maintenance. Always replace with new factory recommended oil and service parts. All repairs must be made by Zoeller Authorized Service Stations.

Single Phase Wiring Instructions

⚠ WARNING **FOR YOUR PROTECTION, ALWAYS DISCONNECT PUMP FROM ITS POWER SOURCE BEFORE HANDLING**. Single phase pumps are supplied with a 3-prong grounded plug to help protect you against the possibility of electrical shock. **DO NOT UNDER ANY CIRCUMSTANCES REMOVE THE GROUND PIN.** The 3-prong plug **must** be inserted into a mating 3-prong grounded receptacle. **If** the installation does not have such a receptacle, it must be changed to the proper type, wired and grounded in accordance with the National Electrical Code and all applicable local codes and ordinances.

⚠ WARNING **"Risk of electrical shock"** Do not remove power supply cord and strain relief or connect conduit directly to the pump.
⚠ WARNING Installation and checking of electrical circuits and hardware should be performed by a qualified licensed electrician.

Three Phase Wiring Instructions

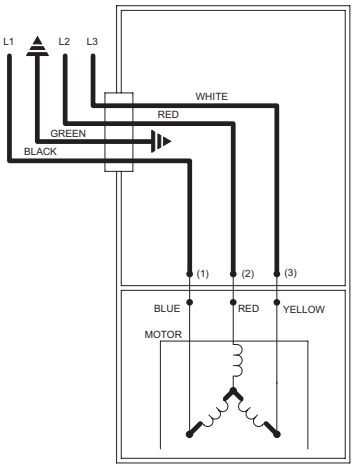
⚠ WARNING **FOR YOUR PROTECTION, ALWAYS DISCONNECT PUMP FROM ITS POWER SOURCE BEFORE HANDLING**.

To automatically operate a nonautomatic three phase pump, a control panel is required. Follow the instructions provided with the panel to wire the system. For automatic three phase pumps see automatic 3 phase wiring diagram located to the far right.

Before installing a pump, check the pump rotation to insure that wiring has been connected properly to power source, and that the green lead of power cord (See wiring diagram), is connected to a valid ground, Momentarily energize the pump, observing the directions of kick back due to starting torque. Rotation is correct if kick back is in the opposite direction of rotation arrow on the pump casing. If rotation is not correct, switching of any two power leads other than ground, should provide the proper rotation.

All three phase pumps require motor starting devices with motor overload protection. See FM0514 for simplex installations or FM0486 for duplex installations. Pumps **must** be installed in accordance with the National Electrical Code and all applicable local codes and ordinances. Pumps are not to be installed in locations classified as hazardous in accordance with National Electrical Code, ANSI/NFPA 70.

NONAUTOMATIC 3 PHASE



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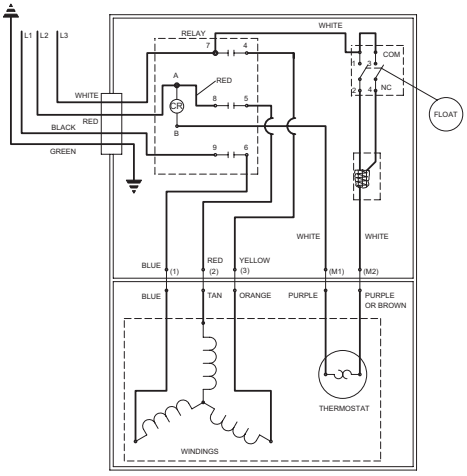
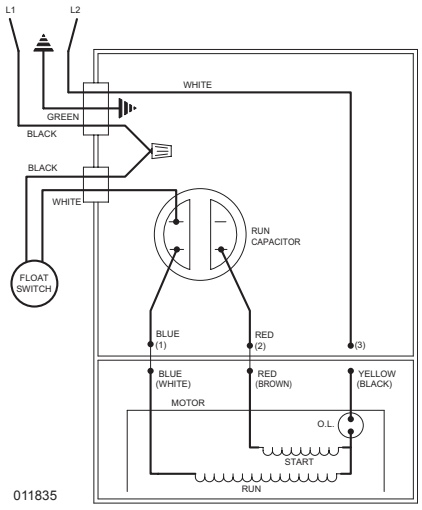
AUTOMATIC 3 PHASE



013071

WD & WH Model Installation



011835

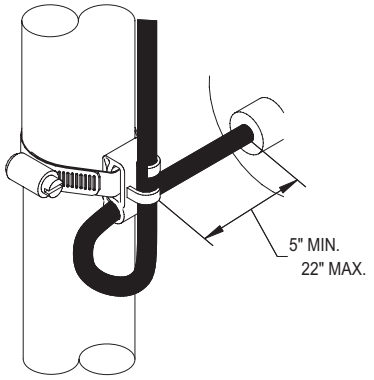
WIRING DIAGRAM FOR MODELS
WD - 230V, 1 PH, 60 Hz
WH - 200/208V, 1 PH, 60 Hz

Determining Pumping Range in Inches (1 inch - 2.5 cm)

Tether Length	5 min.	10	15	20	22 max.
Pumping Range	9	13.5	18	22	24

Use only as a guide. Due to weight of cable, pumping range above horizontal is not equal to pumping range below horizontal. Ranges are based on testing in nonturbulent conditions. Range may vary due to water temperature and cord shape. As tether length increases, so does the variance of the pumping range.

Models WD & WH are fully automatic. A float switch is included and factory wired in the pump circuit to provide automatic operation once the float switch is secured properly to the outlet pipe. Use the diagram above to secure the float switch properly and obtain the proper tether to customize the on-off cycle to each application.



20 AMP SWITCH (WD & WH MODELS) SK305

Note: Failure to keep within proper tether limits may prevent reliable switch operation.

Note: Cable must be mounted in horizontal position.

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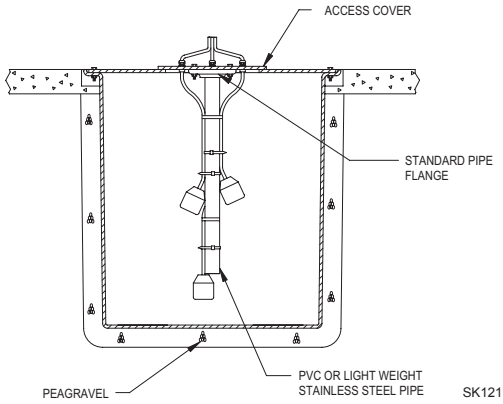
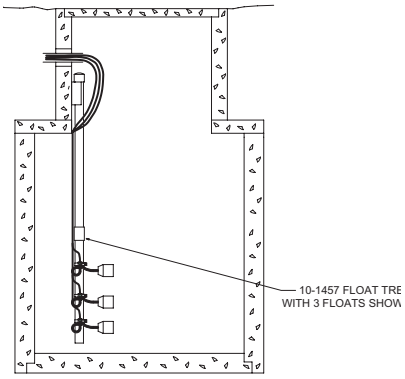
SUGGESTED METHODS OF FLOAT INSTALLATION

On some installations it may be desirable to install an independent hanger for the level control switches to avoid possible hang ups on the pumps, piping, valves, etc. Float hangers are available from Zoeller Company on Catalog Sheet FM0526 or can be fabricated from standard pipe and fittings.



TYPICAL FLOAT HANGER ON STEEL COVER PITS



TYPICAL FLOAT HANGER ON CONCRETE PITS OR SEPTIC TANK RISERS

"EXTRA PROTECTION SYSTEMS"

TWO PUMP SYSTEM

The "Extra Protection" Two Pump system is an economical solution to the costly duplex alternating pump system and it's easy to install.

The "Extra Protection" Two Pump Systems consists of:

a. The two nonautomatic pumps with VLFS of your choice
b. One Alarm System
c. Two Unicheck Valves as required

ADVANTAGES

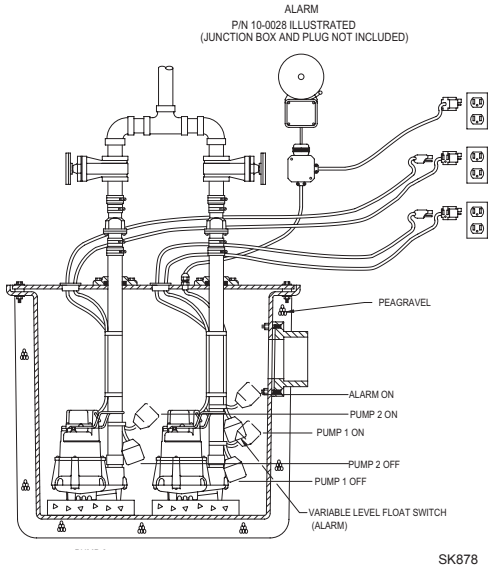
(1) The Two pump systems offers high pump performance without the high price. It is a system that fits your needs and your budget.

(2) Delivers more dependability than a single pump system and greatly reduces the chance of costly and time consuming problems associated with wear out or damages and the resulting system failures.

(3) Affords greater satisfaction and peace of mind to all concerned by providing state of the art protection for costly and expensive surroundings.

(4) Ability to change lead and lag positions by changing pump plug connection.

(5) Easy and economical to install.



*MINIMUM DISTANCE 2" BETWEEN PUMPS

THE BASEMENT SENTRY

12 Volt backup sump pump system model 507 & model 510

Application - For **Clear Water**, emergency backup usage when power is off or primary pump fails.

Extra Protection - When the primary AC pump fails due to power outages or system problems.
- Storms
- Brownouts
- Wiring or electrical problems

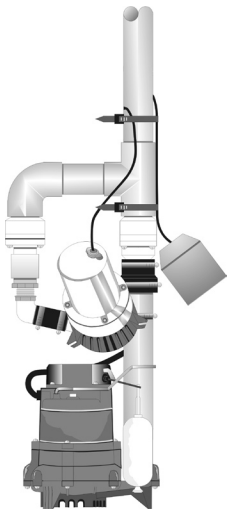
Extra Protection - When the primary pump fails to keep up with excessive water due to rain or overloading.

Includes:
- Pump and control
- Charger
- Fittings
- Battery Case

(Battery Not Included)

MODEL 507	
TDH (ft)	**Flow (GPM)**
5	23.2
10	12.5
14	Shut-off Head

MODEL 510	
TDH (ft)	**Flow (GPM)**
5	33.8
10	21.6
15	10.6
19.9	Shut-off Head



For submersible or pedestal installations.
See FM1311 (507) or FM1139 (510) for information. Suitably sized basin required.

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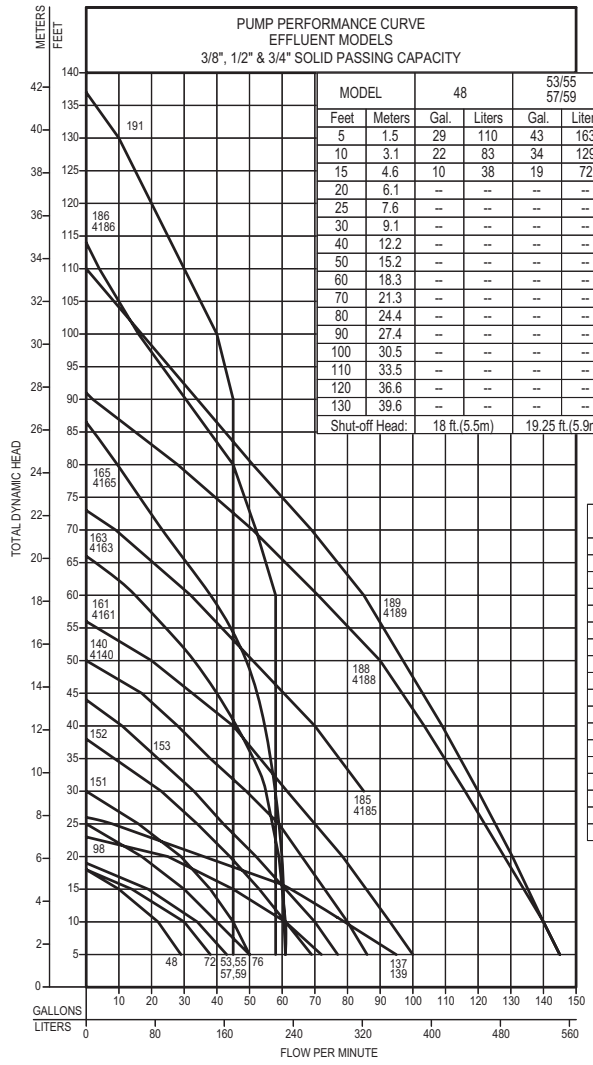
PUMP PERFORMANCE CURVE



PUMP PERFORMANCE CURVE SUMP / EFFLUENT MODELS
3/8", 1/2" & 3/4" SOLIDS PASSING CAPACITY

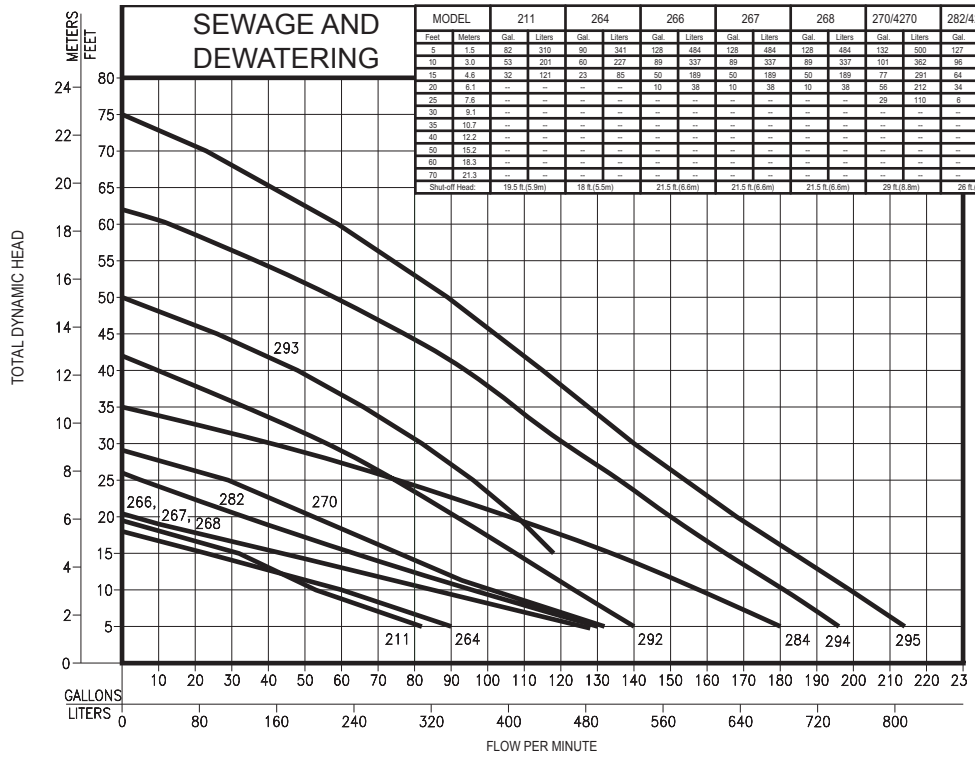
MODEL		48		53/55 57/59		72		76		98		137/139		140/4140		151		152		153	
Feet	Meters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters
5	1.5	29	110	43	163	38	144	50	189	72	273	93	352	86	326	50	189	69	261	77	291
10	3.1	22	83	34	129	30	114	40	151	61	231	79	299	80	303	45	170	61	231	70	265
15	4.6	10	38	19	72	14	53	30	114	45	170	64	242	73	276	38	144	53	201	61	231
20	6.1	--	--	--	--	--	--	17	64	25	95	36	136	66	250	29	110	44	167	52	197
25	7.6	--	--	--	--	--	--	--	--	--	--	8	30	59	223	16	61	34	129	42	159
30	9.1	--	--	--	--	--	--	--	--	--	--	--	--	49	185	--	--	23	87	33	125
40	12.2	--	--	--	--	--	--	--	--	--	--	--	--	28	106	--	--	--	--	11	42
50	15.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
60	18.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
70	21.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
80	24.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
90	27.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
100	30.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
110	33.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
120	36.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
130	39.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Shut-off Head:		18 ft.(5.5m)		19.25 ft.(5.9m)		18 ft.(5.5m)		25 ft.(7.6m)		23 ft.(7.0m)		26 ft.(7.9m)		50 ft.(15.2m)		30 ft.(9.1m)		38 ft.(11.6m)		44 ft.(13.4m)	

161/4161		163/4163		165/4165		185/4185		186/4186		188/4188		189/4189		191	
Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters
100	379	61	231	61	231	--	--	58	220	145	549	145	549	45	170
93	352	61	231	61	231	--	--	58	220	140	530	140	530	45	170
85	322	60	227	61	231	--	--	58	220	134	507	135	511	45	170
79	299	59	223	60	227	--	--	58	220	128	484	131	496	45	170
70	265	57	216	59	223	--	--	58	220	122	462	125	473	45	170
62	235	55	206	58	220	85	322	58	220	116	439	120	454	45	170
45	170	46	172	55	206	70	285	58	220	104	394	109	413	45	170
20	76	33	125	50	189	51	193	58	220	90	341	97	367	45	170
--	--	15	57	39	148	32	121	58	220	71	269	85	322	45	170
--	--	--	--	23	87	9	34	52	197	51	193	69	261	45	170
--	--	--	--	10	38	--	--	45	170	26	106	51	193	45	170
--	--	--	--	--	--	--	--	31	117	2	8	34	129	45	170
--	--	--	--	--	--	--	--	16	80	--	--	17	64	40	151
--	--	--	--	--	--	--	--	4	15	--	--	--	--	30	114
--	--	--	--	--	--	--	--	--	--	--	--	--	--	20	76
--	--	--	--	--	--	--	--	--	--	--	--	--	---	10	38
56 ft.(17.1m)		66 ft.(20.1m)		89 ft.(26.4m)		73 ft.(22.3m)		114 ft.(34.7m)		91 ft.(27.7m)		110 ft.(33.5m)		137 ft.(41.8m)	

009922

⚠ CAUTION Model 185/4185 should not be subjected to less than 30 feet TDH.

NOTE: For Pump Performance on Model 112, Industrial column explosion proof pump, see FM0219.



MODEL		211		264		266		267		268		270/4270		282/4282		284/4284		292/4292		293/4293		294/4294		295/4295	
Feet	Meters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters	Gal.	Liters
5	1.5	82	310	90	341	128	484	128	484	128	484	132	500	127	481	179	678	140	530	--	--	196	742	214	810
10	3.0	53	201	60	227	89	337	89	337	89	337	101	362	96	363	157	594	124	469	--	--	181	685	199	753
15	4.6	32	121	23	85	50	189	50	189	50	189	77	291	64	242	133	503	108	409	118	447	165	625	184	696
20	6.1	--	--	--	--	10	38	10	38	10	38	56	212	34	129	106	401	91	344	108	409	150	568	168	636
25	7.6	--	--	--	--	--	--	--	--	--	--	29	110	6	23	73	276	75	284	96	363	138	515	154	583
30	9.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	42	159	56	212	82	310	121	458	140	530
35	10.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	33	125	65	246	108	409	128	483
40	12.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10	38	48	182	94	356	115	435
50	15.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	58	220	89	337
60	18.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13	49	59	223
70	21.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	23	87
Shut-off Head:		19.5 ft.(5.9m)		18 ft.(5.5m)		21.5 ft.(6.6m)		21.5 ft.(6.6m)		21.5 ft.(6.6m)		29 ft.(8.8m)		26 ft.(7.9m)		35 ft.(10.7m)		42 ft.(12.8m)		50 ft.(15.2m)		62 ft.(16.9m)		75 ft.(22.9m)	

009904

PUMP PERFORMANCE CURVE
SEWAGE MODELS
2" SOLIDS PASSING CAPACITY

⚠ CAUTION Model 293/4293 should not be subjected to less than 15 feet TDH.

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