

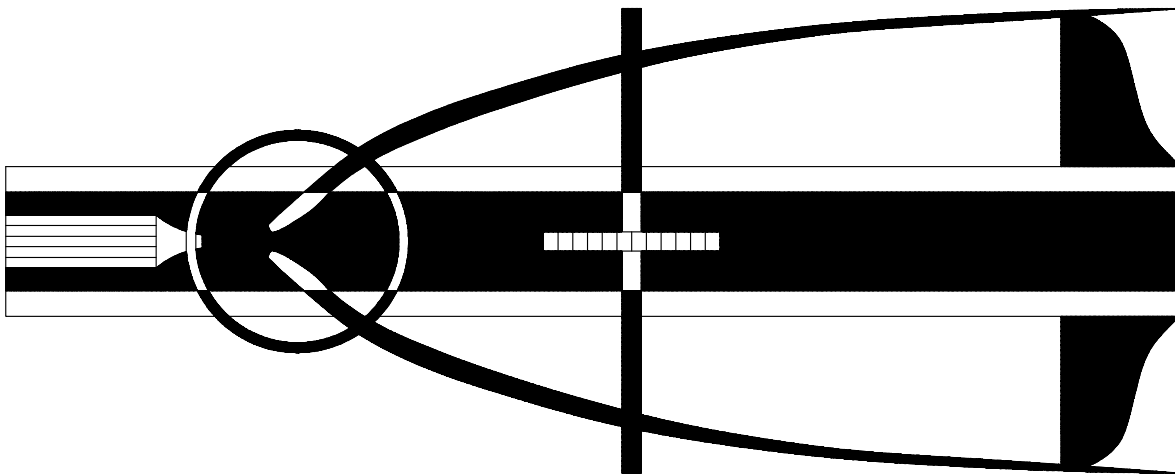
norweco[®]

SIMPLEX MODEL

DOMESTIC PUMPING STATION

GENERAL SPECIFICATIONS

The contractor shall furnish and install one complete simplex model domestic pumping station, including all applicable equipment, as described in the following specifications. The simplex pumping station shall collect wastewater or stormwater and transfer it to downstream processes or locations via a submersible pump controlled by an electro-mechanical float switch. The simplex pumping station shall be engineered to be readily serviceable from grade and shipped to the jobsite as a unitized, factory-built assembly to simplify installation. Principal items of equipment supplied shall include a simplex pump basin, lockable access cover, compression clamp, safety/service guard, inlet and outlet pipe sealing grommets, one (1) submersible centrifugal pump, electro-mechanical float switch, waterproof junction box, prefabricated discharge piping assembly, pump disconnect fitting, throttling valve, pump lifting cable and all other necessary internal piping and fittings.



OPERATING CONDITIONS

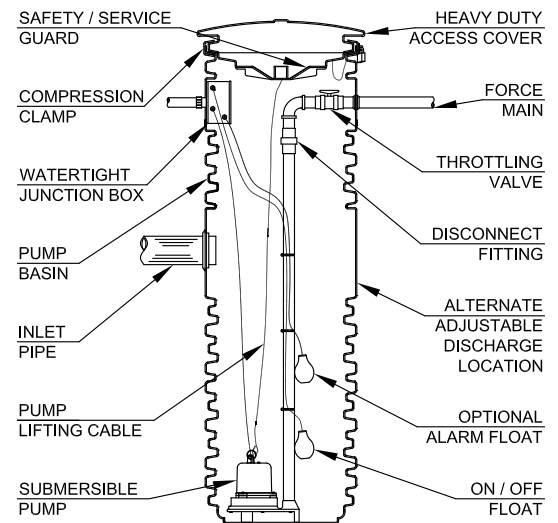
The simplex model domestic pumping station shall be an integral part of the overall wastewater or stormwater treatment and disposal system. The pumping station shall accumulate and temporarily retain flow in the pump basin until sufficient volume is collected to actuate the submersible pump, as determined by the elevation of the "on/off" float switch. Design of the pump basin shall allow the discharge piping to be installed at the standard elevation, or below the frost line when required. The specific pump model furnished shall be selected to have sufficient delivery characteristics at the total dynamic head and solids handling capability required by the specific application. During operation, the submersible pump shall be capable of delivering _____ gallons per minute (GPM) against a total dynamic head (TDH) of _____ feet with a solids passage size of _____ inches. Use of the simplex domestic pumping station, when installed by an authorized agent, shall be approved by the local governing regulatory agency.

SPECIFICATIONS

SIMPLEX MODEL

SIMPLEX PUMP BASIN

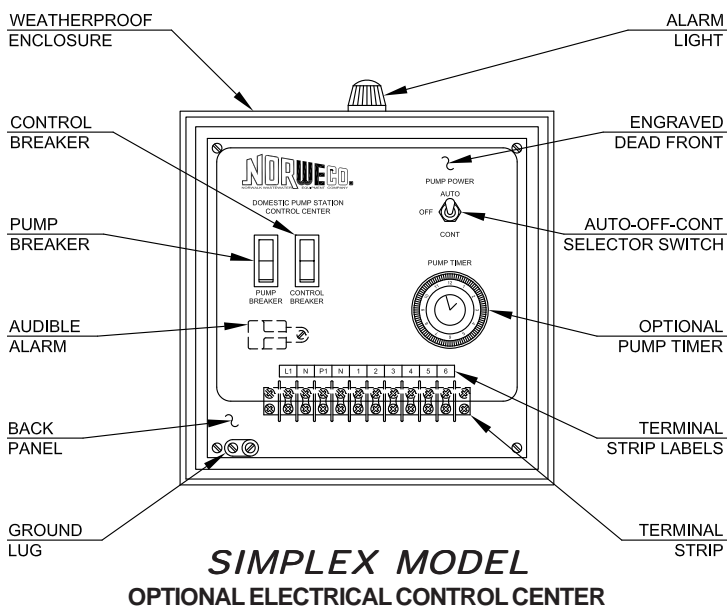
The simplex pumping station shall be enclosed within a specifically designed and engineered basin to secure the pump, piping and internal electrical equipment. The pump basin shall be an integrally molded, heavy duty, one-piece unit, constructed of corrosion resistant, UV stabilized polyethylene for maximum strength and durability. The basin shall be designed and manufactured to be watertight at burial depths up to 12 feet. For discharge below the frost line, the pump basin shall be constructed with an alternate adjustable discharge location. A molded, one-piece, heavy duty, removable access cover with moisture drip lip shall secure the basin and internal components during normal operation. The cover shall be installed with the moisture drip lip 3" above finished grade and secured to the pump basin by a compression clamp with lock tab to prevent unauthorized access. The basin shall be equipped with a safety/service guard installed below the access cover to prevent accidental entry into the pump basin. The safety/service guard shall rest on the upper most internal rib of the pump basin and shall be securely connected to the basin by a stainless steel retainer cable to prevent loss or theft. Optional extension risers shall extend the access cover to grade for deeper installations. Optional ring sections, installed below the basin inlet, shall increase the liquid storage capacity of the pumping station for applications where additional capacity is required. The entire pump basin shall also be available in segmented sections for shipment via parcel delivery service. Field assembly of the individual sections shall allow use of the simplex pumping station in a variety of installations, including remote locations. Each joint within the segmented pump basin, as well as those joints created by the use of extension risers or ring sections, shall be sealed watertight with a polyisoprene gasket and compression clamp secured with bolted lock tab.



**SIMPLEX MODEL
DOMESTIC PUMPING STATION**

SIMPLEX ELECTRICAL CONTROLS

The standard electrical controls shall be located within the pump basin and shall provide for automatic operation of the submersible pump in proportion to the hydraulic flow. Rising liquid level in the basin shall cause the "on/off" float switch to initiate a pump cycle. Lowering of the liquid level by the submersible pump shall cause the float switch to end the pump cycle. An optional second float switch may be provided to activate a high water alarm if the liquid level in the basin rises to within 6" of the basin inlet invert. When required, an optional electrical control center shall include greater draw-down volume adjustment, a programmable timer for pump operation and/or audible and visual alarms. The electrical control center shall be provided in a grounded NEMA 4 enclosure for mounting in the vicinity of the pumping station to allow ready access during service. The control center shall include a clearly labeled terminal strip with individual connections for all field wiring. All simplex electrical control centers shall be manufactured entirely from UL Listed or Recognized components. When the simplex pumping station is installed in conjunction with a Singulair Bio-Kinetic wastewater treatment system, pumping station electrical controls shall be combined with the aerator controls of the Singulair system. The use of Integrated System Controls shall provide simplified and consolidated wiring of all electrical controls into a single enclosure.



**SIMPLEX MODEL
OPTIONAL ELECTRICAL CONTROL CENTER**

SPECIFICATIONS

SIMPLEX SUBMERSIBLE PUMPS (Reference Data Chart Below)

☐ SUMP AND EFFLUENT PUMP One Norweco Model _____ pump wired for 115 volt, single phase, 60 cycle operation shall be installed in the simplex domestic pumping station. The pump motor shall be _____ horsepower, operating at _____ RPM. All openings in the flow path of the submersible pump shall be of sufficient size to permit the passage of a _____ diameter sphere. The motor of the submersible pump shall contain moisture resistant windings and shall be securely mounted inside an oil-filled, watertight housing for maximum pump life. The pump shall be designed to be non-overloading throughout the entire pump curve. The stator housing casing and oil housing casing shall be of high grade cast iron or thermoplastic construction. The impeller shall be a non-clog, recessed or enclosed type of cast iron, bronze or thermoplastic construction and all external fasteners shall be stainless steel. The pump shall be provided with a rotating mechanical shaft seal, consisting of one stationary and one rotating ring held in contact by a spring.

☐ HIGH HEAD EFFLUENT PUMP One Norweco Model _____ pump wired for 115 volt, single phase, 60 cycle operation shall be installed in the simplex domestic pumping station. The pump motor shall be _____ horsepower, operating at _____ RPM. All openings in the flow path of the submersible pump shall be of sufficient size to permit the passage of a _____ diameter sphere. The pump cord shall be ten feet long and carry a SJOW designation, as recognized by UL and CSA for use in wastewater applications. The pump motor shall contain built-in overload and electrical surge protection with waterproof epoxy potted windings and shall be in compliance with IP58 (protected against dust and continuous submerging) of the IEC34 Standard. When operating between the rated horsepower and service factor horsepower, the motor speed shall be not less than the rated synchronous speed. The high head effluent pump shall be capable of operating continuously in a total submerged condition at the rated load. The motor assembly shall have corrosion resistant, stainless steel exterior construction.

☐ HIGH HEAD GRINDER PUMP One Norweco Model _____ pump wired for 230 volt, single phase, 60 cycle operation shall be installed in the simplex domestic pumping station. The pump motor shall be _____ horsepower, operating at _____ RPM. The submersible grinder pump shall be designed to reduce all materials found in normal domestic and light industrial sewage into a finely ground slurry. The submersible pump motor shall contain moisture resistant windings and shall be mounted in an oil-filled, watertight housing. The pump shall be designed to be non-overloading throughout the entire pump curve. The stator housing casing and oil housing casing shall be of high grade cast iron construction. The pump impeller shall have recessed construction for increased bearing life. The grinder impeller and shredding ring of the pump shall be constructed of hardened 440 stainless steel for maximum durability. The grinder pump shall be provided with double tandem mechanical shaft seals in an oil-filled seal chamber for continuous lubrication. An optional seal leak probe shall detect water in the seal chamber and activate a seal failure indicator in the electrical control center.

DATA CHART (Reference Individual Specifications)

PUMP TYPE	PUMP MODEL	VOLTAGE	HP	RPM	SOLIDS PASSAGE SIZE	DISCHARGE SIZE (NPT)	MAXIMUM DELIVERY (GPM)	MAXIMUM TDH (FT)
Sump and Effluent	SC103	115	1/3	1550	3/4"	1 1/2"	66	32
Sump and Effluent	SC104	115	4/10	1600	3/4"	1 1/2"	80	32
High Head Effluent	HB105	115	1/2	3450	1/16"	1 1/4"	28	125
Sump and Effluent	SC105	115	1/2	3450	3/4"	1 1/2"	57	80
High Head Grinder	GB320	230	2	3450	Not Applicable	1 1/4"	40	105

DISCHARGE PIPING AND REMOTE REMOVAL SYSTEM

The pump discharge piping shall be constructed of solvent welded schedule 80 PVC pipe and fittings. A threaded disconnect fitting shall be provided downstream of the pump discharge. Downstream of the disconnect fitting, a schedule 80 PVC throttling valve shall be installed to throttle the pump discharge rate or isolate the downstream piping in the event the pump must be removed for service. The disconnect fitting and throttling valve shall be installed in the discharge line near the top of the pump basin for easy access and service, eliminating the need for entry into the wet well. An EPDM sealing grommet shall be utilized to seal the openings in the pump basin for both the discharge and inlet piping.

EXTENSION RISERS AND RING SECTIONS

For installations where the inlet invert of the pump basin is more than 34" below finished grade, optional extension risers shall be installed. When a riser is used, the internal safety/service guard shall be mounted in the uppermost rib of the riser, directly below the access cover. If additional basin capacity is required, ring sections shall be available for installation below the inlet invert. Risers and rings shall be available in 6" increments from 6" to 72" height. Extension risers and ring sections shall be constructed of corrosion resistant, UV stabilized polyethylene and shall be of the same design and structural characteristics as the pump basin. To form a watertight connection, all extension risers and ring sections shall be connected to the pump basin and sealed with a polyisoprene gasket and injection molded compression clamp secured with bolted lock tab.

ONE YEAR LIMITED WARRANTY

The manufacturer shall provide a limited warranty against defects in material and workmanship under normal use and service for a period of one year. The limited warranty shall cover all components of the pumping station purchased from the manufacturer, including pump basin, safety/service guard, access cover, compression clamp, optional extension risers, optional ring sections, submersible pumps and electrical controls. A detailed copy of the warranty shall be provided to the regulatory agency, contractor or customer as required.

EQUIPMENT MANUFACTURER

The equipment specified herein shall be the product of a manufacturer having a minimum of seven years experience in the construction of prefabricated wastewater treatment equipment and systems. Bids shall be prepared on the basis of the equipment and material specified herein for purposes of determining the low bid. This is not done, however, to eliminate other products of equal quality and efficiency. If equipment is to be substituted, approval of such substitution must be made prior to the execution of any order. It is assumed that substitution shall result in a reduction of cost to the contractor and that if accepted, these savings shall be passed along by a reduction in the base bid.

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