

HPE SERIES MODELS HPE 1141, 1142, 1143, & 1144 Severe Duty Direct Drive Models

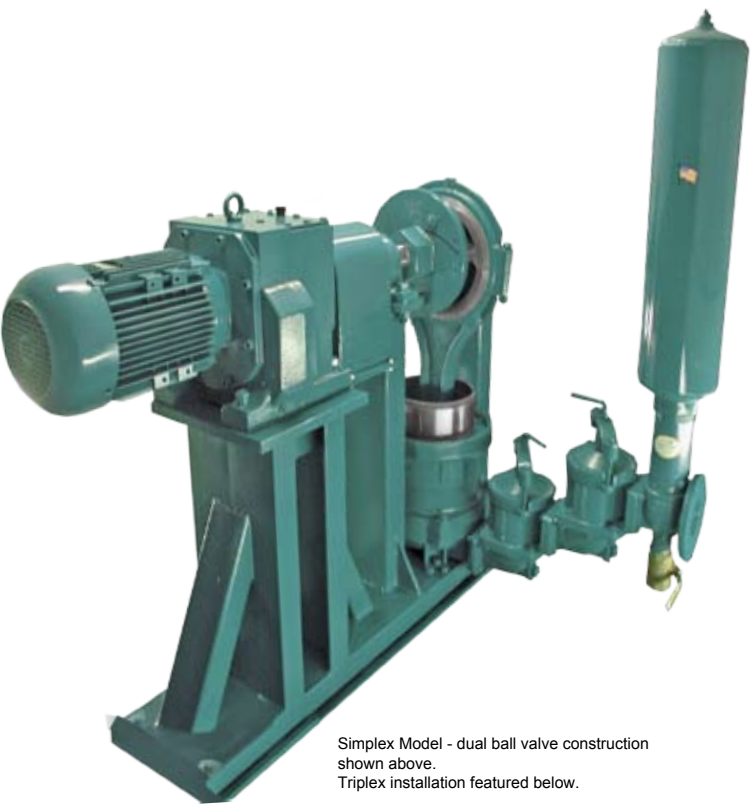
Wastecorp Pumps 11" Diameter Plunger Pumps

Severe Duty Sludge Pumps

Wastecorp. Pumps 11" - HPE Series plunger pumps are available in simplex through quadruplex styles. These plunger pumps are designed to handle capacities up to 600 GPM against head levels up to 170 feet on a continuous duty basis and are driven through a direct drive gear reducer. Variation in capacity can be accomplished by adjusting the stroke length, or varying the speed by means of speed drives (electrical or mechanical). Complete construction details are given in Recommended Specifications,

Protect Your Pumps

Be sure to spec gauges with your plunger pumps. Our gauges monitor operating pressure and feature a built in shut off switch. Ask your Wastecorp representative for more information.



Simplex Model - dual ball valve construction shown above. Triplex installation featured below.



GENERAL SPECIFICATIONS	Simplex HPE-1141	Duplex HPE-1142	Triplex HPE-1143	Quadruplex HPE-1144
Number of Plungers	1	2	3	4
Air Chambers	Two 9"x30"			
Connections	4" 125# Flanged		6" 125# Flanged	
Driver Speed, RPM	1800			
Maximum Strokes per minute	50			
Maximum Stroke Length, Inches	7.25			
Maximum Recommended Suction Lift, Feet	20			
Maximum Total Head, Feet	170			
Maximum Capacity, GPM	142	280	418	600
Eccentric Diameter, Inches	12			
Eccentric Shaft Tensile Strength, PSI	160,000			

NOTES:

1. Pumps are assembled right hand unless specified left hand.
2. Duplex pumps are supplied only with suction and discharge at right angles to the base. (Connections can be made to either end of a specially made suction & discharge manifold upon request.)
3. Connections to Triplex and Quadruplex pumps can be made to either or both ends of the suction and discharge manifolds.



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WASTECORP PUMPS HPE-SERIES
Models HPE 941, 942, 943, 944 and HPE 1141, 1142, 1143, 1144 (Direct Drive)

PART A - GENERAL

The contractor shall provide labor, materials, equipment and appurtenances to furnish, install and ready to operate, plunger type pumps as specified herein and shown on the drawings. A quantity of _____ (9 or 11) inch diameter plunger pump(s) with 4 inch suction and discharge connections (6 inch on triplex and quadruplex) having a maximum displacement capacity of _____ GPM at not more than _____ strokes per minute when pumping against a maximum total discharge head of _____ feet.

Each pump shall be of heavy cast iron construction, designed to handle its maximum rated capacity and head on a continuous duty basis and shall be hydrostatically tested to one and one-half times the maximum head for which the pump is rated. Each pump shall be of the _____ (Simplex, Duplex, Triplex or Quadruplex) type, Wastecorp Plunger Pump Model _____ as manufactured by Wastecorp Pumps.

PART B – PUMP CONSTRUCTION

PUMP shall have sectionalized construction such that the stuffing box, pump body, valve bodies and air chamber adapters are all separate castings and independently removable. It shall permit removal of stuffing box, plunger and connecting rod without disturbing the pump body, valve chambers, manifolds, piping or eccentric shaft.

PUMP MAIN SHAFT shall be not less than 2-15/16-inch diameter with a minimum tensile strength of 160,000 psi and a minimum yield strength of 130,000 psi. Main shaft and countershaft shall be ground and polished, high strength alloy bar stock.

ECCENTRIC shall be supported on each side by a pillow block bearing mounted on a heavy-duty fabricated steel pedestal, which shall be welded to the pump base. Main shaft bearings shall be self-aligning, grease lubricated, pillow block mounted ball bearings or roller bearings.

THE ECCENTRIC shall be cast iron, not less than 12 inches diameter and 3 inches in width, supported on each face with heavy flanges with hubs not less than 4½ inches in length so that plunger thrust shall be distributed over approximately 1½ inches of the main shaft. The eccentric shall be provided with index pin overload release, adjustable to at least 11 positions for varying stroke length, each position shall be fitted with a hardened steel bushing.

ALTERNATE ECCENTRIC (FIXED STROKE):

The eccentric shall be cast iron, not less than 12 inches diameter and shall be supported on each face with heavy flanges with hubs not less than 4½ inches in length so that plunger thrust shall be distributed over approximately 1½ inches of the main shaft. The eccentric shall be provided with a fixed stroke length and variation of pump delivery shall be obtained by speed adjustment.

THE CONNECTING ROD shall be cast iron complete with a **REPLACEABLE ECCENTRIC BEARING LINER** of zinc/aluminum alloy machined with an independent lubricating pathway. Connecting rod shall be provided with an oil-lite bronze bushing press fit to accept the high strength alloy wrist pin.

LUBRICATION of the eccentric bearing insert shall be by means _____ (*options:* manual sight feed oiler, automatic ball type oiler, mechanical force feed lubricator or electric solenoid oiler). The maximum eccentric bearing load shall not exceed 2 psi for a 9-inch diameter plunger or 3 psi for an 11-inch plunger for each 1 psi of working pressure. The maximum wrist pin bearing load shall not exceed 10 psi for a 9-inch diameter plunger or 14 psi for an 11-inch plunger for each 1 psi of working pressure.

VALVES shall be of the _____ (*options:* single or dual) ball type at least 5½ inch diameter of urethane rubber with centralized iron cores. Valve chambers shall be cast iron provided with ball guide ribs beveled top and bottom to prevent clogging. Valve chambers shall have quick-opening cast iron valve covers for easy accessibility. Valve seats shall be independent, fully machined plates of _____ (*options:* urethane, cast iron, bronze or 316 stainless steel) construction, capable of being replaced without disturbing valve bodies or piping.

PLUNGERS shall be no less than _____ (9 or 11) inch diameter, ground and polished of cast iron construction (*optional coatings available:* hard chrome, aluminum oxide, chrome oxide, tungsten carbide, stainless steel, etc.) with a plugged drain hole in bottom, which shall be accessible through the top of the plunger.

STUFFING BOX shall be of heavy cast iron construction independent of the pump body casting, provided with circular drain-lip and a 1 inch threaded drain connection. The stuffing box shall have a taper from beneath the packing area to the pump body to eliminate the trapping of solids between the plunger and the stuffing box.

WASTECORP PUMPS HPE-SERIES
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PACKING: The stuffing box shall contain not less than four rings of ½ inch square graphite impregnated braided flax packing or graphite braided packing. The optional Wastecorp "leak-preventative" Plunger Pac has been designed to incorporate superior packing and sealing products industry proven and consisting of a heavy duty urethane cup seal, rings of chevron (V) type polymer composites and a Teflon® braided packing ring. This configuration provides maximum sealing capability and thereby contains seepage within the stuffing box and without additional required hardware to the gland or the stuffing box.

PACKING GLAND shall be cast iron, adjustable and recessed into the circular drain-lip of the stuffing box to eliminate any weak stress areas, stabilize and provide further alignment of the plunger. Some plunger pump designs opt for a raised packing gland; however, we have found that this design has a tendency to crack at the bolt holes and shall not be acceptable.

AIR CHAMBERS shall be steel pipe, of adequate capacity shall be provided on the suction and discharge side of the pump to insure quieter, smoother operation. The air chambers shall have a capacity of at least 1,800 cubic inches and the area at the entrance shall be at least 12½ square inches. Air chambers are provided with a ¼" brass petcock for quick pressure relief on suction and discharge. The petcock shall be situated on the side of each air chamber.

DISCHARGE side of the pump shall be provided with a bronze 2-inch 'quick opening' (¼ turn) sampling valve.

MOTOR: Each pump shall be driven by means of at least a _____ HP; ball bearing, squirrel cage, induction motor having a maximum speed of 1800 RPM for operation on 3 Phase, 60 Hertz, 230-460 volts. Motor shall be of TEFC enclosure designed for continuous operation under full load, 40°C ambient, with Class F insulation. Motor shall be premium efficient to meet EPACK standards and cast iron construction.

DIRECT DRIVE: Power transmission shall be by means of constant speed helical gear motor directly coupled to pump shaft by grid or disc type coupling. Gear reducer shall be of monobloc design with inspection cover, helical gear unit, with concentric (in-line) shafts. Gears shall be drop-forged alloy steel, case hardened to a hardness of Rc 58-62, and ground to AGMA Class 12 quality level. The

gear reducer shall be equipped with double lip oil seals on both input and output shafts. Minimum bearing life of 80,000 hrs based on continuous operation at full torque load.

CONTACT WASTECORP., FOR ALTERNATE POWER TRANSMISSION ARRANGEMENTS

PAINT: All ferrous metal surfaces shall be shop cleaned and degreased. Entire pump and drive assembly shall be shop primed with our superior rust inhibiting, low VOC, alkyd resin primer designed for use over iron and steel substrates. The primer as a universal metal primer is used with high performance top coats and is also suitable as a barrier coat, which would normally be attached by strong solvents and corrosive environments in high performance coatings. The entire pump and drive assembly shall be shop painted with our superior alkyd enamel with a durable color pigment system, designed for steel construction in interior and exterior use. The top coat characteristics are: chip and flake resistant, dirt resistant and high gloss finish, suitable for use in USDA inspection facilities. Finish to 3.0-4.0 mils DFT per coat.

BASE: Each pump base is designed and fabricated for the specific model and motor/drive specifications. All bases are fabricated for heavy duty and severe duty operational use. The base is fabricated of high strength steel; arc welded with a drain gutter and one inch threaded drain outlets on each side. The base is fabricated with a heavy gauge steel tube pedestal sub-assembly and a machined 'cold roll' steel top plate. The A500C steel tube specification is a minimum tensile strength yield of 50,000 psi. The drive system including the shaft and flange assembly with pillow block bearings are mounted on the common design machined 'cold roll' steel top plate and aligned by laser. The special Wastecorp pedestal design and top plates provide for superior torsional resistance (load deflection), excellent compressive strength and radial and axial load deflection.

CONTACT WASTECORP., FOR OPTIONAL ACCESSORIES, MODIFICATIONS, ETC, SUCH AS:

- Guided Plunger Assembly
- Six Figure Revolution Counter
- Pressure/Compound Gauges with Diaphragm Seals
- Pressure Switch
- Variable Frequency Drives

PERFORMANCE CURVES

The performance curves shown in this manual and other published literature were taken from actual tests of standard production pumps, and reflect an average performance of the pumps indicated. Increased capacity, head and horsepower available for direct drive units. Consult factory.

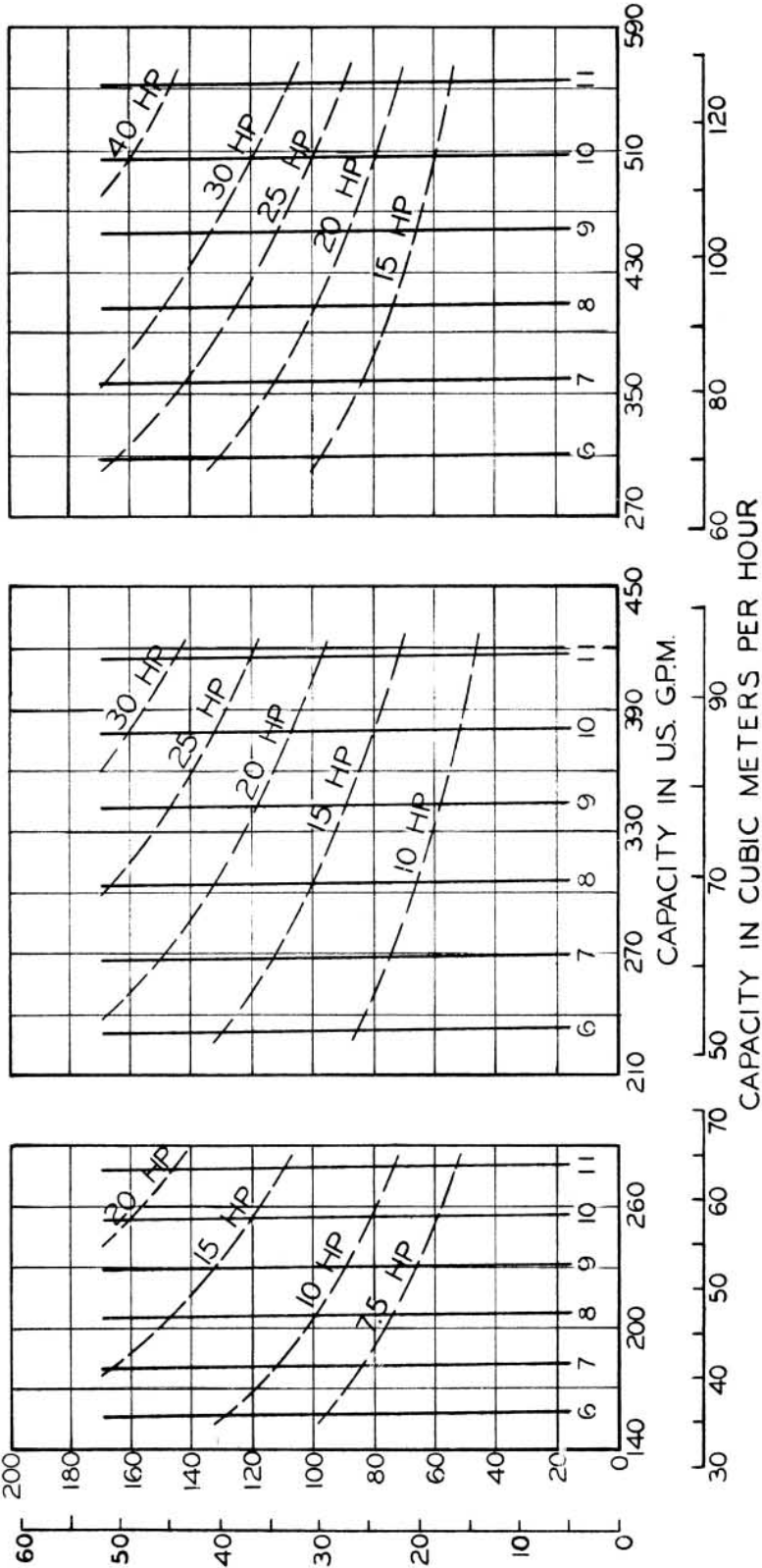
HPE-SERIES PLUNGER PUMPS

ENGINEERED BY WASTECORP. PUMPS
 Series: HPE-4 Liquid: SP,GR,1.0
 Plunger Dia: 1.1" (27.9cm) S.P.M: 50
 Lift: 10' (3M)

Date: January, 2007

PIN POS.	STROKE LENGTH	
	INCHES	CM
6	4.125	10.5
7	4.750	12.1
8	5.375	13.7
9	6.000	15.2
10	6.625	16.8
11	7.250	18.4

TOTAL HEAD IN METERS
 FEET



HPE-1142

HPE-1143

HPE-1144

WASTECORP. PUMPS LLC RESERVES THE RIGHT TO MAKE CHANGES IN DESIGN, MATERIALS, AND PRICES WITHOUT NOTICE.

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