

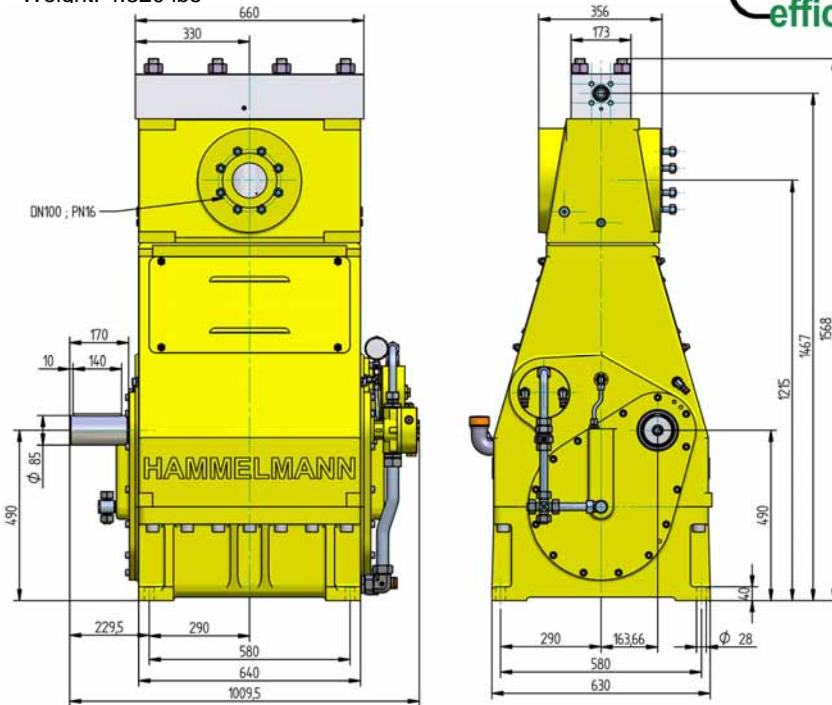
High Pressure Pump Series HDP 500

Design criteria

Hammelmann high pressure pumps are built to operate at the continuous maximum duty stated in the performance parameters. Just compare the crankshaft speed, average plunger speed, plunger diameter and power rating.

High pressure pump

Weight: 4.320 lbs

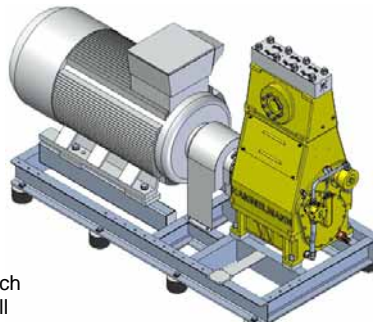


Features

- Power ratings up to 670 HP
- Vertical 3 cylinder design
- Wide variety of complementary ancillaries

Stationary unit with electric motor

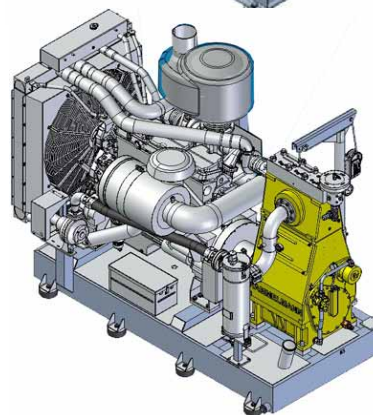
Length: 114 inch
Width: 52 inch
Height: 75 inch
Weight: approx. 12,348 lbs at 536 HP



Main dimensions without accessories such as suction line, pressure regulator etc. All shown as right side drive. Detailed dimensional drawings and weights available on request.

Stationary unit with diesel engine

Length: 120 inch
Width: 66 inch
Height: 94 inch
Weight: approx. 14,773 lbs at 700 HP with full fuel tank



Quality and reliability

- Stainless steel pump head free of alternating stress
- Cross head piston bellows seal
- Choice of 'application specific' seal assemblies
- Solid ceramic or tungsten carbide plungers
- Choice of bronze or stainless steel suction chamber
- Crank section calculation by 'Finite element method' ensures long working life under continuous load
- Crankshaft supported by 2 bearings and incorporating twin helical speed reducing gears
- Pressurised oil lubrication system with oil cooler/filter

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HDP 500 series, technical data

Performance parameters (Standard design)

Note: Actual flow rates for water as pumped medium (volumetric efficiency has already been taken into account).

HDP	Q [GPM]	Required power rating [HP]					D	r.p.m.				
		400	470	540	600	670		n 1	n 2			
		Operating pressure [psig]										
504	13.7* 16.6* 20.3*	43500*	43500*				28	1500	315			
		37000* 30500*	35500*	39900*	43500*			1500/1800 1800	380 465			
504	13.7 / 21.9* 26.9 / 26.4* 33.0 / 32.2*	26800 22500 18100	31900* 26100 21000	30500* 24700	31900* 27600	31900*	35	1500	315			
						1800		380 465				
*Ultra high pressure												
503	29.8 35.9 43.8	20700 17000 14200	24200 19900 16500	22800 18900	24200 21300	23600	40	1500	315			
								1500/1800 1800	380 465			
503	37.0 44.6 54.1	16400 13500 11200	19100 15700 13100	18000 14900	19100 16800	18700	45	1500	315			
								1500/1800 1800	380 465			
502	46.2 55.4 67.6	13300 10900 9000	15500 12800 10600	14500 12000	15500 13600	15100	50	1500	315			
								1500/1800 1800	380 465			
	502	56.5 67.8 82.6	11000 9000 7500	12800 10400 8700	12000 10000	12800 11200	12500	55	1500	315		
									1500/1800 1800	380 465		
		502	68.1 81.6 99.5	9300 7500 6200	10700 8800 7400	10000 8400	10700 9400	10400	60	1500	315	
										1500/1800 1800	380 465	
			502	80.8 96.9 118.0	7800 6400 5400	9100 7500 6200	8600 7100	9100 8000	9000	65	1500	315
											1500/1800 1800	380 465
502				93.5 112.2 136.8	6800 5500 4600	7800 6500 5400	7400 6100	7800 7000	7700	70	1500	315
											1500/1800 1800	380 465
	502			107.4 128.8 157.1	5900 4800 4100	6800 5700 4600	6400 5400	6800 6100	6700	75	1500	315
											1500/1800 1800	380 465
		502		118.6 142.0 173.2	5200 4200 3500	5900 4900 4100	5700 4600	5900 5400	5900	80	1500	315
											1500/1800 1800	380 465
			501 High flow	118.6 142.0 173.2	5200 4200 3500	5900 4900 4100	5700 4600	5900 5400	5900	80	1500	315
											1500/1800 1800	380 465
501 High flow				133.8 160.5 195.6	4600 3800 3200	5400 4500 3600	5100 4200	5400 4600	5200	85	1500	315
											1500/1800 1800	380 465
	501 High flow			151.5 181.9 221.5	4100 3300 2800	4800 3900 3200	4500 3800	4800 4200	4600	90	1500	315
											1500/1800 1800	380 465
		501 High flow		187.2 224.4 273.5	3300 2800 2200	3800 3200 2600	3600 3000	3800 3300	3800	100	1500	315
											1500/1800 1800	380 465
			501 High flow	231.0 277.2 337.9	2800 2200 1900	3200 2600 2200	2900 2500	3200 2800	3000	110	1500	315
											1500/1800 1800	380 465

- Rod force: 47,200 lbf
- Stroke: 3.94 inch
- Mean piston speed at n₂
- 315 r.p.m. = 3.5 feet/sec
- 380 r.p.m. = 4.2 feet/sec
- 465 r.p.m. = 5.1 feet/sec

Typical high pressure pump units



- Stationary unit with diesel motor



- Stationary unit with electric motor

Energy efficient →

Hammelman plunger pumps convert 93 to 98 % of the shaft power to hydraulic energy.

D = Piston/Plunger dia. [mm]
n1 = Motor/Engine r.p.m. [1/min]
n2 = Crankshaft r.p.m. [1/min]

Conversion table
Rating 1 hp = 0,746 kW
Op.pressure 1 psi = 0,069 bar
Flow rate 1 gpm = 0,227 m³/h

HDP	Seal**	Sealing system
504	Dynamic D 28	Tungsten carbide plunger & bushing
	Dynamic D 35	Tungsten carbide plunger / bronze bushing
503	Dynamic	Ceramic plunger / bronze bushing
	Packing	Ceramic plunger / packing
502	Dynamic D 50 -75	Ceramic plunger / bronze bushing
	Packing D 50 - 80	Ceramik plunger / packing
501	Packing	Ceramik plunger / packing

** The dynamic high pressure sealing extends the advantages of the labyrinth design with further increased efficiency.

HAMMELMANN®