

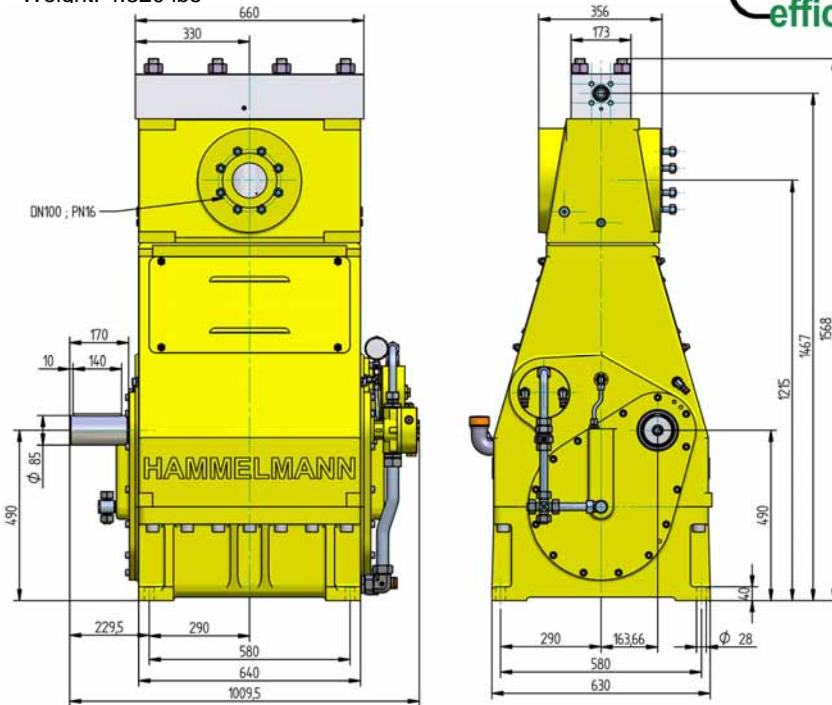
High Pressure Pump Series HDP 500

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

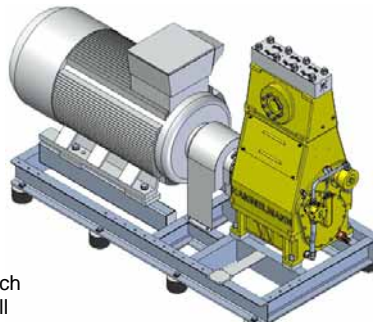


Features

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

Stationary unit with electric motor

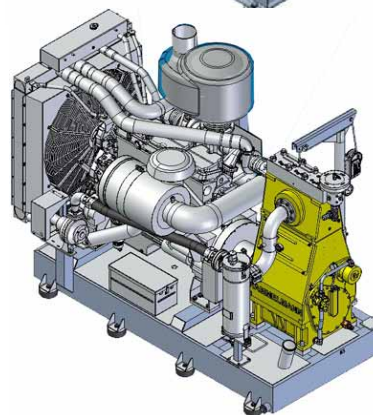
Length: 114 inch
Width: 52 inch
Height: 75 inch
Weight: approx. 12,348 lbs at 536 HP



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

Hammelmann 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.

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