

# High Pressure Pump Series HDP 500

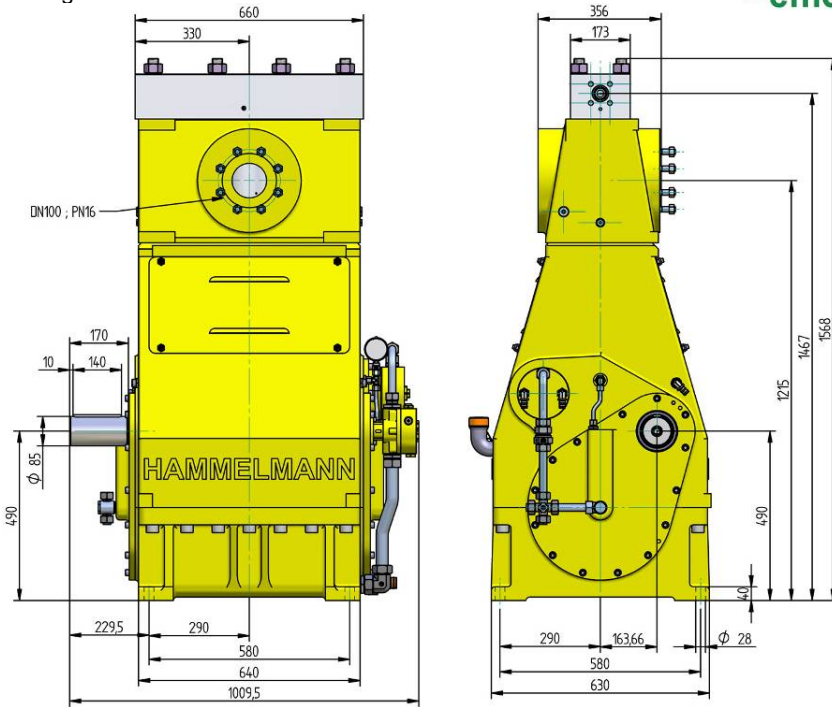
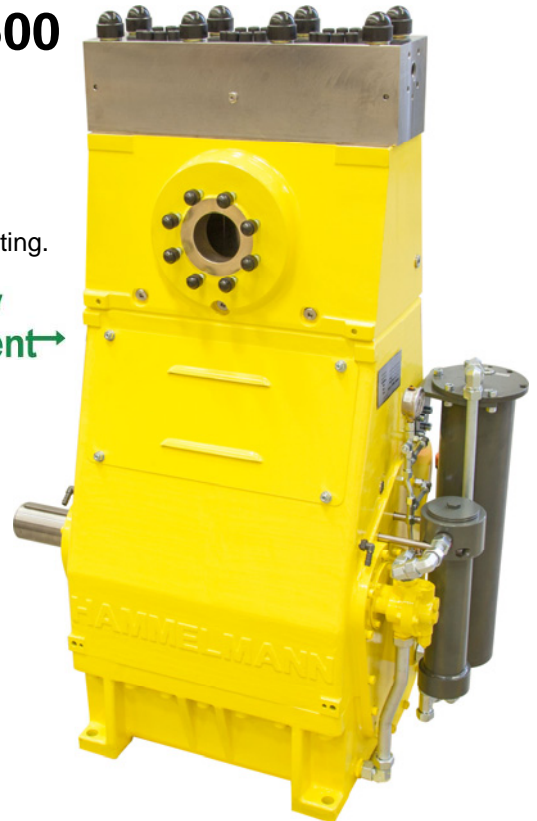
## Design criteria

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

Energy efficient →

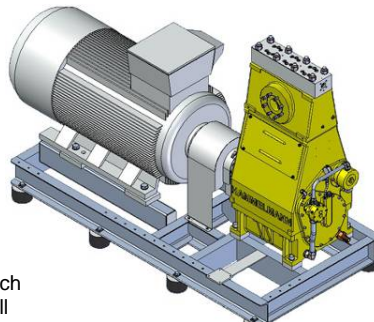


### Features

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

### Stationary unit with electric motor

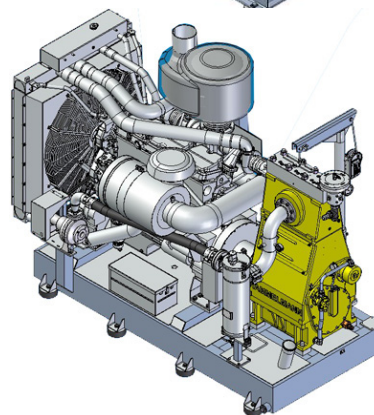
Length: 114 inch  
Width: 52 inch  
Height: 75 inch  
Weight: approx. 12,348 lbs at 536 HP



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	18*	32600*	37700*				32	1500	315			
	22.4/ 21.6*	27100	31600*	36300*	37700*	1500/1800		380				
	27.5 / 26.4*	22200	25800	29700*	33400*	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			
503	43.8	14200	16500	18900	21300	23600	45	1500	315			
	37.0	16400	19100					1500/1800	380			
503	44.6	13500	15700	18000	19100		45	1500	315			
	54.1	11200	13100	14900	16800	18700		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	15100		1800	465			
	56.5	11000	12800					55	1500	315		
	67.8	9000	10400	12000	12800				1500/1800	380		
	82.6	7500	8700	10000	11200	12500			1800	465		
	68.1	9300	10700						60	1500	315	
	81.6	7500	8800	10000	10700					1500/1800	380	
	99.5	6200	7400	8400	9400	10400				1800	465	
	80.8	7800	9100							65	1500	315
	96.9	6400	7500	8600	9100						1500/1800	380
	118.0	5400	6200	7100	8000	9000					1800	465
93.5	6800	7800				70	1500				315	
112.2	5500	6500	7400	7800			1500/1800				380	
136.8	4600	5400	6100	7000	7700		1800				465	
107.4	5900	6800					75	1500			315	
128.8	4800	5700	6400	6800				1500/1800			380	
157.1	4100	4600	5400	6100	6700			1800			465	
118.6	5200	5900						80	1500		315	
142.0	4200	4900	5700	5900					1500/1800		380	
173.2	3500	4100	4600	5400	5900				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				5900		1800	465
	133.8	4600	5400						85		1500	315
	160.5	3800	4500	5100	5400						1500/1800	380
	195.6	3200	3600	4200	4600	5200					1800	465
	151.5	4100	4800				90				1500	315
	181.9	3300	3900	4500	4800						1500/1800	380
	221.5	2800	3200	3800	4200	4600					1800	465
	187.2	3300	3800					100			1500	315
	224.4	2800	3200	3600	3800						1500/1800	380
	273.5	2200	2600	3000	3300	3800					1800	465
231.0	2800	3200				110				1500	315	
277.2	2200	2600	2900	3200						1500/1800	380	
337.9	1900	2200	2500	2800	3000					1800	465	

- Rod force: 47,200 lbf
  - Stroke: 3.94 inch
- Mean piston speed at n<sub>2</sub>  
 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]  
 n<sub>1</sub> = Motor/Engine r.p.m. [1/min]  
 n<sub>2</sub> = 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 m<sup>3</sup>/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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