

# High Pressure Pump Series HDP 500

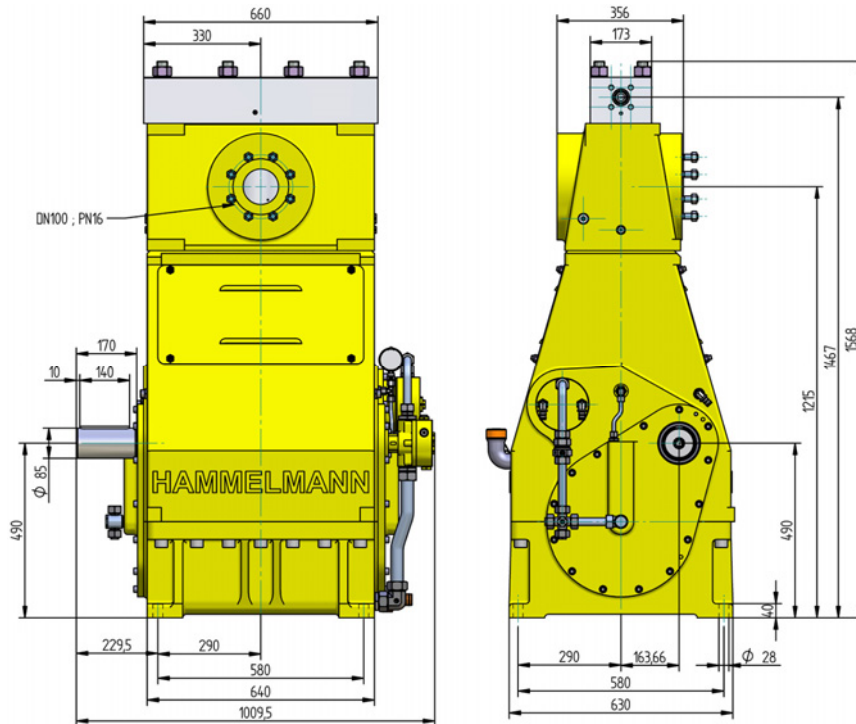
## Design criteria

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: 1960 kg

Energy efficient →

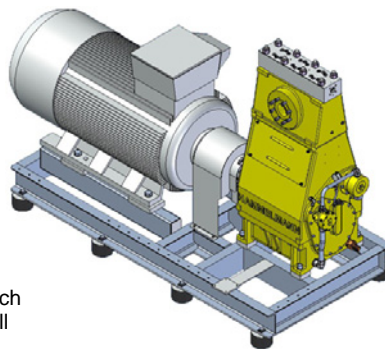


### Features

- Power ratings up to 500 kW
- Vertical 3 cylinder design
- Wide variety of complementary ancillaries

### Stationary unit with electric motor

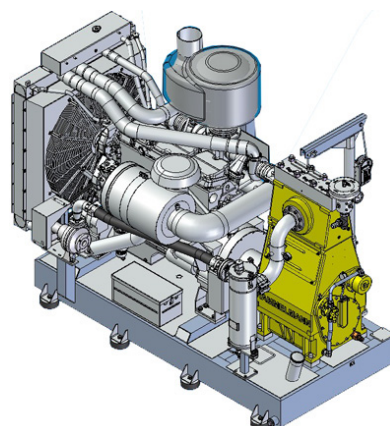
Length: 2896 mm  
 Width: 1330 mm  
 Height: 1910 mm  
 Weight: approx. 5600 kg at 400 kW



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: 3140 mm  
 Width: 1690 mm  
 Height: 2410 mm  
 Weight: approx. 6700 kg at 522 kW 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)

HDP	Q [l/min]	Required power rating [kW]					D	r. p. m.	
		300	350	400	450	500		n 1	n 2
Operating pressure [bar]									
504	52*	3000*					28	1500	315
	63*	2550*	3000*			1500/1800		380	
	77*	2100*	2450*	2750*	3000*	1800		465	
	68*	2250*	2600*			32	1500	315	
	85 / 82*	1870	2180*	2500*	2600*		1500/1800	380	
	104 / 100*	1530	1780	2050*	2300*		1800	465	
	85 / 83*	1850	2200*			35	1500	315	
	102 / 100*	1550	1800	2100*	2200*		1500/1800	380	
	125 / 122*	1250	1450	1700	1900		1800	465	
*Ultra high pressure									
503	113	1430	1670			40	1500	315	
	136	1170	1370	1570	1670		1500/1800	380	
	166	980	1140	1300	1470		1800	465	
503	143	1130	1320			45	1500	315	
	173	930	1080	1240	1320		1500/1800	380	
	212	770	900	1030	1160		1800	465	
502	178	920	1070			50	1500	315	
	214	750	880	1000	1070		1500/1800	380	
	262	620	730	830	940		1800	465	
	214	760	880			55	1500	315	
	257	620	720	830	880		1500/1800	380	
	313	520	600	690	770		1800	465	
	258	640	740			60	1500	315	
	309	520	610	690	740		1500/1800	380	
	377	430	510	580	650		1800	465	
	306	540	630			65	1500	315	
	367	440	520	590	630		1500/1800	380	
	447	370	430	490	550		1800	465	
	354	470	540			70	1500	315	
	425	380	450	510	540		1500/1800	380	
	518	320	370	420	480		1800	465	
407	410	470			75	1500	315		
488	330	390	440	470		1500/1800	380		
595	280	320	370	420		1800	465		
449	360	410			80	1500	315		
538	290	340	390	410		1500/1800	380		
656	240	280	320	370		1800	465		
501 High flow	449	360	410			80	1500	315	
	538	290	340	390	410		1500/1800	380	
	656	240	280	320	370		1800	465	
	507	320	370			85	1500	315	
	608	260	310	350	370		1500/1800	380	
	741	220	250	290	320		1800	465	
	574	280	330			90	1500	315	
	689	230	270	310	330		1500/1800	380	
	839	190	220	260	290		1800	465	
	709	230	260			100	1500	315	
850	190	220	250	260	1500/1800		380		
1036	150	180	210	230	1800		465		
875	190	220			110	1500	315		
1050	150	180	200	220		1500/1800	380		
1280	130	150	170	190		1800	465		

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

- Rod force: 210 kN
- Stroke: 100 mm
- Mean piston speed at n<sub>2</sub>  
315 r.p.m. = 1,06 m/sec  
380 r.p.m. = 1,27 m/sec  
465 r.p.m. = 1,54 m/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.

Conversion table

Rating	1 kW = 1.34 HP
Op. pressure	bar = 14.5 psi
Flow rate	1 l = 0.264 US gallon
	1 l = 0.22 Imp. gallon

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

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

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

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