

High Pressure Pump Series HDP 500

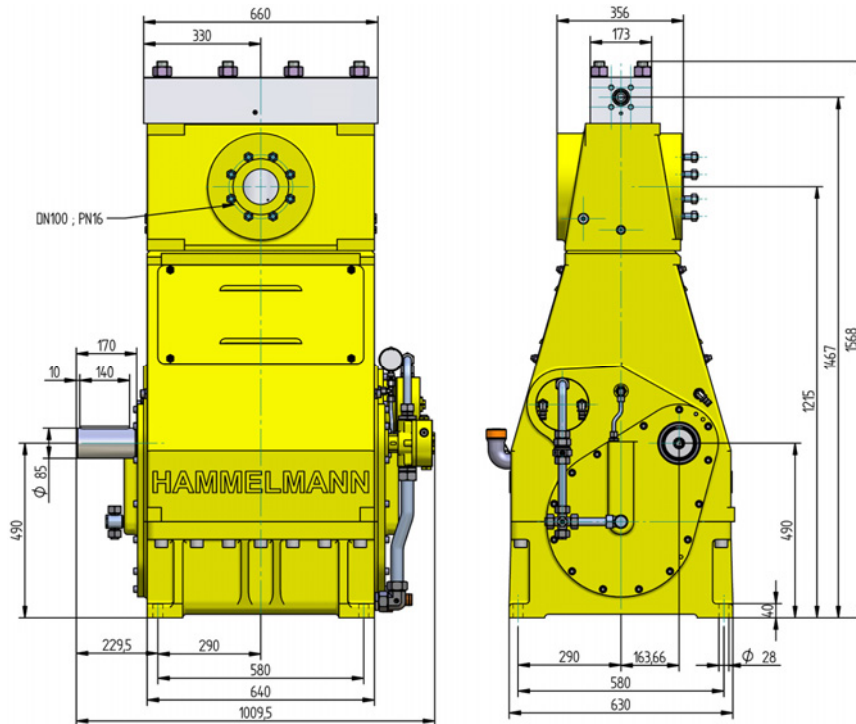
Design criteria

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 →

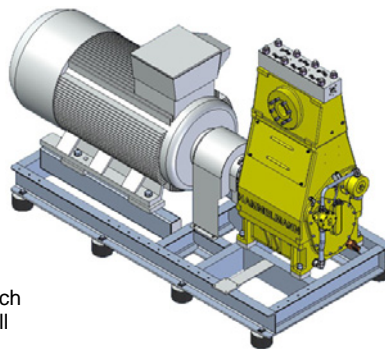


Features

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

Stationary unit with electric motor

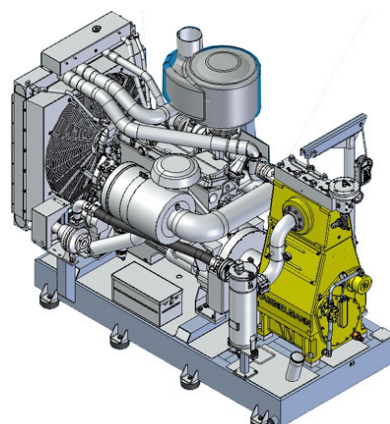
Length: 2896 mm
 Width: 1330 mm
 Height: 1910 mm
 Weight: approx. 5600 kg at 400 kW



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* 63* 77*	2900* 2400* 2000*	3000* 2800* 2300*	3000* 3000* 2700*	3000* 3000* 3000*	3000* 3000* 3000*	28	1500 1500/1800 1800	315 380 465	
	70 / 68* 84 / 82* 103 / 100*	2300* 1870 1520	2600* 2200* 1780	2500* 2500* 2000*	2600* 2600* 2300*	2500* 2500* 2500*		32	1500 1500/1800 1800	315 380 465
	85 / 83* 102 / 100* 125 / 122*	1880 1560 1270	2200* 1820 1500	2100* 2100* 1700	2200* 2200* 1910	2100* 2100* 2100*			35	1500 1500/1800 1800
503	113 136 167	1440 1200 980	1670 1400 1140	1600 1600 1300	1670 1670 1460	1630	40			1500 1500/1800 1800
	143 172 211	1140 940 770	1320 1100 900	1260 1260 1030	1320 1320 1160	1280		45		1500 1500/1800 1800
	502	178 215 263	920 760 620	1070 900 730	1020 1020 830	1070 1070 940			1040	50
213 257 315		760 630 520	880 740 600	840 840 700	880 880 770	860	55		1500 1500/1800 1800	
257 309 379		640 530 430	740 620 510	710 710 580	740 740 650	720		60	1500 1500/1800 1800	
304 367 449		550 450 370	630 530 430	600 600 500	630 630 550	620			65	1500 1500/1800 1800
353 426 521		470 400 320	550 450 370	520 520 420	550 550 480	530	70			1500 1500/1800 1800
405 489 598		410 340 280	480 400 320	450 450 370	480 480 420	460		75		1500 1500/1800 1800
447 539 659		360 300 240	420 350 280	400 400 330	420 420 370	410			80	1500 1500/1800 1800
501 High flow		447 539 659	360 300 240	420 350 280	400 400 330	420 420 370	410			80
	504 608 744	320 260 220	370 310 250	350 350 300	370 370 320	360	85	1500 1500/1800 1800		
	571 689 843	280 240 200	330 280 220	310 310 260	330 330 300	320		90	1500 1500/1800 1800	
	705 851 1041	230 200 160	270 220 180	250 250 210	270 270 230	260			100	1500 1500/1800 1800
	871 1051 1286	200 160 130	220 180 150	210 210 170	220 220 200	210	110			1500 1500/1800 1800

*Ultra high pressure

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 n₂
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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