

High Pressure Pump Series HDP 500

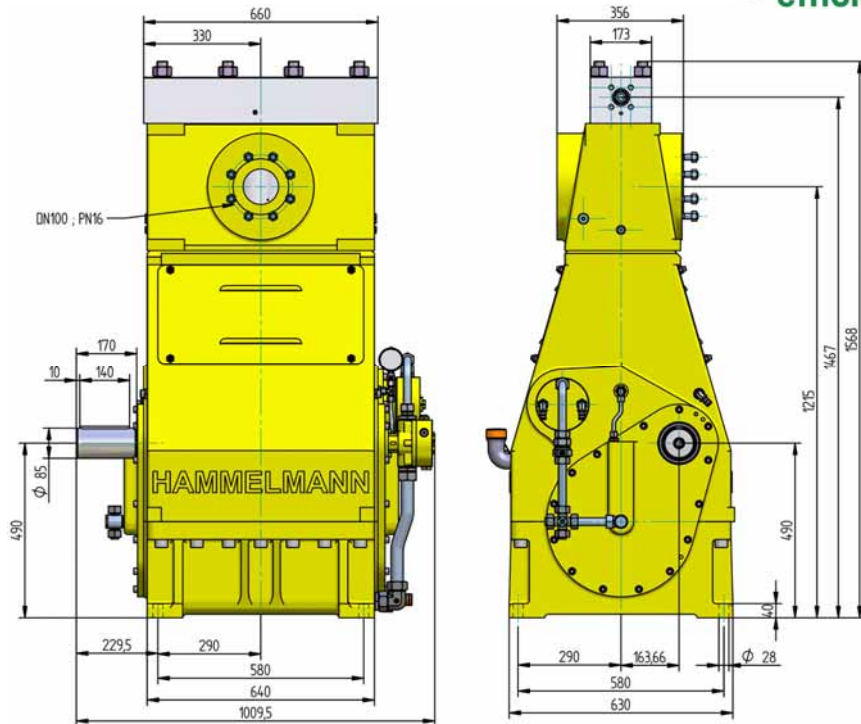
Design criteria

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

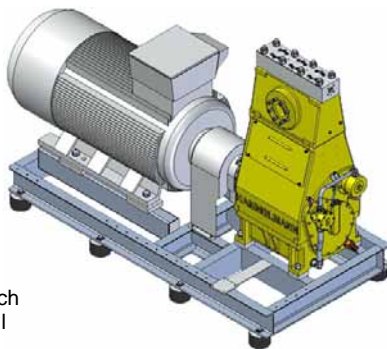
- Power ratings up to 500 kW
- Vertical 3 cylinder design
- Wide variety of complementary ancillaries

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

Stationary unit with electric motor

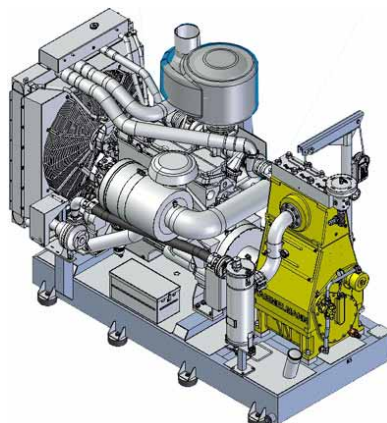
Length: 2896 mm
Width: 1330 mm
Height: 1910 mm
Weight: approx. 5600 kg at 400 kW



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



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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 [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*	3000* 2550* 2100*	3000*	2750*	3000*		28	1500 1500/1800 1800	315 380 465	
	85 / 83* 102 / 100* 125 / 122*	1850 1550 1250	2200* 1800 1450	2100* 1700	2200* 1900	2200*	35	1500 1500/1800 1800	315 380 465	
*Ultra high pressure										
503	113 136 166	1430 1170 980	1670 1370 1140	1570 1300	1670 1470	1630	40	1500 1500/1800 1800	315 380 465	
	143 173 212	1130 930 770	1320 1080 900	1240 1030	1320 1160	1290	45	1500 1500/1800 1800	315 380 465	
502	178 214 262	920 750 620	1070 880 730	1000 830	1070 940	1040	50	1500 1500/1800 1800	315 380 465	
	214 257 313	760 620 520	880 720 600	830 690	880 770	860	55	1500 1500/1800 1800	315 380 465	
	258 309 377	640 520 430	740 610 510	690 580	740 650	720	60	1500 1500/1800 1800	315 380 465	
	306 367 447	540 440 370	630 520 430	590 490	630 550	620	65	1500 1500/1800 1800	315 380 465	
	354 425 518	470 380 320	540 450 370	510 420	540 480	530	70	1500 1500/1800 1800	315 380 465	
	407 488 595	410 330 280	470 390 320	440 370	470 420	460	75	1500 1500/1800 1800	315 380 465	
	449 538 656	360 290 240	410 340 280	390 320	410 370	410	80	1500 1500/1800 1800	315 380 465	
	501 High flow	449 538 656	360 290 240	410 340 280	390 320	410 370	410	80	1500 1500/1800 1800	315 380 465
		507 608 741	320 260 220	370 310 250	350 290	370 320	360	85	1500 1500/1800 1800	315 380 465
		574 689 839	280 230 190	330 270 220	310 260	330 290	320	90	1500 1500/1800 1800	315 380 465
709 850 1036		230 190 150	260 220 180	250 210	260 230	260	100	1500 1500/1800 1800	315 380 465	
875 1050 1280		190 150 130	220 180 150	200 170	220 190	210	110	1500 1500/1800 1800	315 380 465	

- 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.

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

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

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

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