

HDP 400-2 High Pressure Pump series

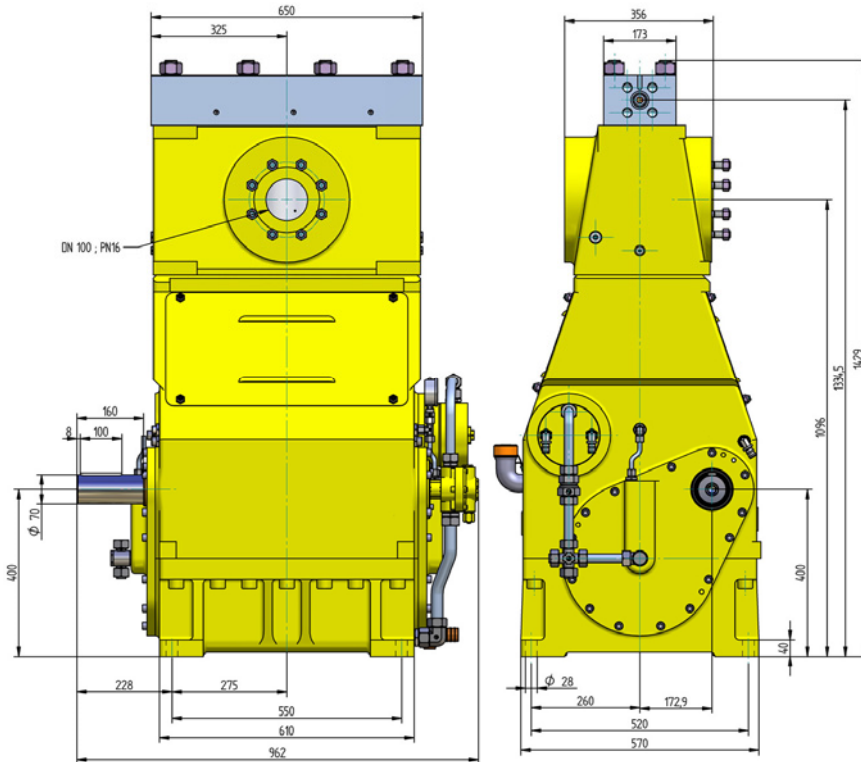
Design criteria

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: approx. 3748 lbs

Energy efficient →



Features

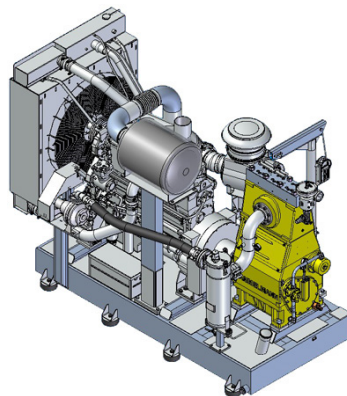
- Power ratings up to 540 HP
- Vertical 3 cylinder design
- Wide variety of complementary ancillaries

Quality and reliability

- Crank section calculation by 'Finite element method' ensures long working life under continuous load
- Stainless steel pump head free of alternating stress
- Integral speed reduction gear
- Pressurised oil lubrication system with oil cooler/filter
- Bellows form hermetic seal between the suction chamber and crank section
- Solid ceramic or tungsten carbide plungers
- Choice of application specific seal assemblies
- Choice of bronze (standard) or stainless steel suction chamber

Stationary unit with diesel engine

Length: 152.7 inch
 Width: 56.7 inch
 Height: 89.4 inch
 Weight: approx. 11795 lbs at 540 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.

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Technical data, series HDP 400-2

Performance parameters (Standard design)

HDP	Q [GPM]	Required power rating [HP]					D	r. p. m.			
		270	340	400	470	540		n 1	n 2		
		Operating pressure [psig]									
404	11.9* 14.5* 17.2*	34800* 29000* 23930	43500* 36250* 30450*	43500* 36250* 36250*	42050*	43500*	28	1500 1500/1800 1800	340 410 490		
	16.1 / 15.3* 19.3 / 18.5* 23.2 / 22.2*	26100 22480 22480	32630* 26830 22480	37700* 33350* 26830	37700*	37700*		32	1500 1500/1800 1800	340 410 490	
	19.3 / 18.7* 23.5 / 22.4* 28.2 / 27.2	21750 17400 14500	26830 21750 18850	31900* 26100 21750	31180*	29000*			35	1500 1500/1800 1800	340 410 490
403	25.1 30.4 36.2	16680 13780 11600	20300 16680 14500	24220 20300 17400	24220	23200	40			1500 1500/1800 1800	340 410 490
	33.0 39.6 47.5	12330 10150 8700	15230 13050 10880	18850 15230 13050	18130 15230	17400		45		1500 1500/1800 1800	340 410 490
	402	40.1 48.3 57.6	10440 8700 7250	12760 10880 8990	15520 12760 10880	15230 12760			14500	50	1500 1500/1800 1800
48.6 58.6 70.0		8560 7110 5800	10730 8850 7400	12760 10440 8850	12470 10440	12040	55		1500 1500/1800 1800		340 410 490
58.9 71.0 84.7		7110 5800 4790	8700 7250 6090	10730 8700 7250	10300 8560	9860		60	1500 1500/1800 1800		340 410 490
69.4 83.7 100.1		5950 4930 4060	7540 6240 5220	9140 7540 6240	8700 7250	8410			65	1500 1500/1800 1800	340 410 490
80.8 97.4 116.4		5080 4210 3480	6380 5370 4500	7830 6240 5370	7400 6240	7110	70			1500 1500/1800 1800	340 410 490
92.4 111.4 133.1		4350 3770 3050	5660 4640 3920	6820 5510 4640	6530 5510	6240		75		1500 1500/1800 1800	340 410 490
104.5 125.9 150.5		3920 3190 2760	4930 4060 3480	5950 4930 4060	5800 4890	5510			80	1500 1500/1800 1800	340 410 490
401 High flow		104.5 125.9 150.5	3920 3190 2760	4930 4060 3480	5950 4930 4060	5800 4790	5510			80	1500 1500/1800 1800
		115.6 139.4 166.6	3480 2900 2470	4500 3770 3050	5370 4500 3770	5220 4350	4930	85			1500 1500/1800 1800
		130.9 157.9 188.8	3190 2610 2180	3920 3190 2760	4790 3920 3190	4640 3770	4350		90		1500 1500/1800 1800
	162.9 196.4 234.7	2470 2030 1740	3190 2610 2180	3770 3190 2610	3630 3050	3480	100			1500 1500/1800 1800	340 410 490
	199.6 240.8 287.8	2030 1740 1450	2610 2175 1740	3190 2470 2180	3050 2470	2900		110		1500 1500/1800 1800	340 410 490
	238.4 284.6 340.3	1740 1450 1310	2180 1890 1600	2610 2180 1890	2610 2180	2470			120	1500 1500/1800 1800	340 410 490

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

- Rod force: 47,209 lbf
- Stroke: 3.15 inch
- Mean piston speed at n2
340 r.p.m. = 3.0 feet/sec
410 r.p.m. = 3.6 feet/sec
490 r.p.m. = 4.3 feet/sec

Typical high pressure pump units



- Diesel unit in container

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.
n2 = Crankshaft

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
404	Dynamic D 28	Tungsten carbide plunger & bushing
	Dynamic D 35	Tungsten carbide plunger / bronze bushing
403	Dynamic	Ceramic plunger / bronze bushing
	Packing	Ceramic plunger / packing
402	Dynamic D 50 -75	Ceramic plunger / bronze bushing
	Packing D 50 - 80	Ceramic plunger / packing
401	Packing	Ceramic plunger / packing

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

