

HDP 400-2 High Pressure Pump series

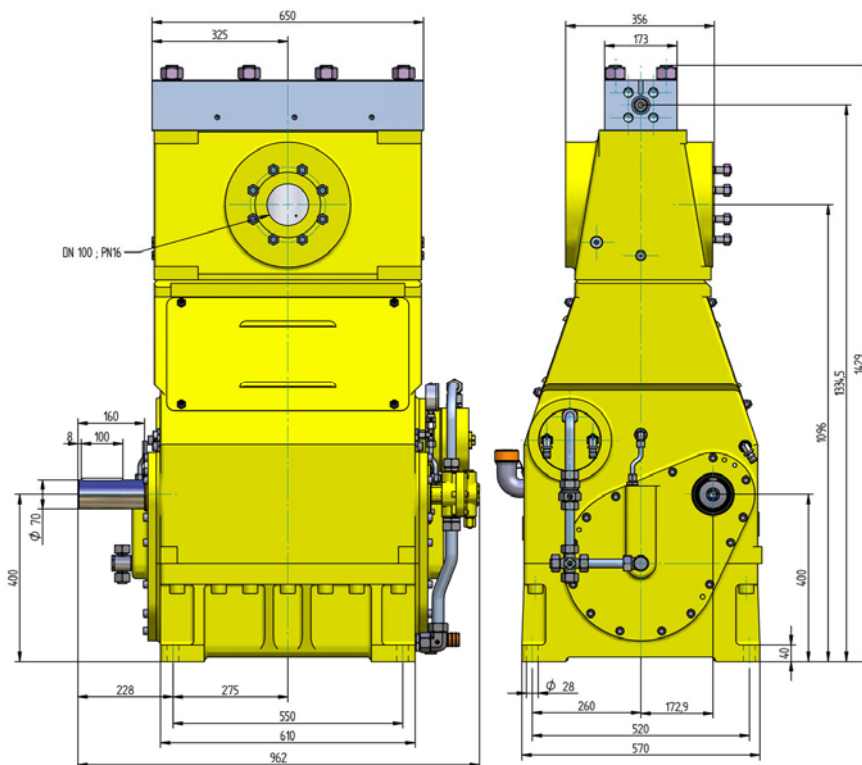
Design criteria

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 ratio

High pressure pump

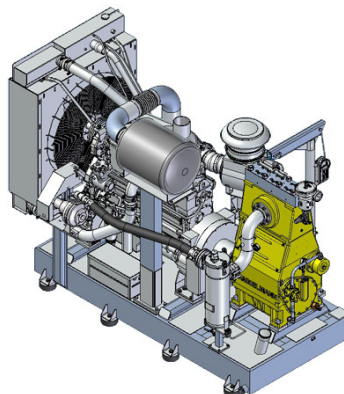
Weight: approx. 1700 kg

Energy
efficient →



Stationary unit with diesel engine

Length: 3879 mm
Width: 1439 mm
Height: 2271 mm
Weight: approx. 5350 kg
at 405 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.

Features

- Power ratings up to 400 kW
- 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

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Subject to modification.

Technical data, series HDP 400-2



Performance parameters (Standard design)

HDP	Q [l/min]	Required power rating [kW]					D	r. p. m.	
		200	250	300	350	400		n 1	n 2
		Operating pressure [bar]							
404	45*	2300*	2800*				28	1500	340
	55*	1880	2400*	3000*	3000*			1500/1800	410
	65*	1570	1970	2800*	2800*	3000*		1800	490
	61 / 58*	1740	2200*	2400*			32	1500	340
	74 / 70*	1440	1800	2600*	2500*	2600*		1500/1800	410
	88 / 84*	1210	1510	2200*	2100*	2400*		1800	490
	74 / 71*	1450	1820	1810			35	1500	340
	89 / 85*	1200	1510	2200*	2100*	2200*		1500/1800	410
106/102	3010*	1260	1810	1760	2000*	1800		490	
*Ultra high pressure									
403	95	1110	1400	1670			40	1500	340
	115	920	1150	1380	1610	1670		1500/1800	410
	137	770	960	1160	1350	1540		1800	490
	125	880	1100	1320			45	1500	340
150	730	910	1100	1270	1320	1500/1800		410	
180	610	760	910	1070	1220	1800		490	
402	152	710	900	1070			50	1500	340
	184	600	740	900	1030	1070		1500/1800	410
	219	500	620	740	860	1000		1800	490
	184	600	740	880			55	1500	340
	222	500	610	730	850	880		1500/1800	410
	265	410	510	610	710	820		1800	490
	224	500	620	740			60	1500	340
	270	410	510	610	720	740		1500/1800	410
	323	340	430	510	600	700		1800	490
	263	420	530	630			65	1500	340
	317	350	440	520	610	630		1500/1800	410
	379	300	370	440	510	580		1800	490
	305	360	450	540	550		70	1500	340
	367	300	380	450	530	550		1500/1800	410
439	250	310	380	440	500	1800		490	
350	320	400	470	480		75	1500	340	
422	260	330	400	460	480		1500/1800	410	
504	220	270	330	380	440		1800	490	
394	280	350	420			80	1500	340	
475	230	300	350	400	420		1500/1800	410	
567	200	240	300	340	400		1800	490	
401 High flow	394	270	340	410			80	1500	340
	475	220	280	340	400	420		1500/1800	410
	567	190	240	280	340	400		1800	490
	440	240	310	370			85	1500	340
	530	200	260	310	360	370		1500/1800	410
	634	170	210	260	300	340		1800	490
	498	220	270	330			90	1500	340
	601	180	220	270	320	330		1500/1800	410
	718	150	190	220	270	300		1800	490
	615	170	220	260			100	1500	340
	742	140	180	220	260	270		1500/1800	410
	887	120	150	180	220	250		1800	490
	752	140	180	220			110	1500	340
	907	120	150	170	210	220		1500/1800	410
1084	100	120	150	180	200	1800		490	
895	120	150	180			120	1500	340	
1079	100	130	150	180	200		1500/1800	410	
1290	90	110	130	150	170		1800	490	

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

- Rod force: 210 kN
- Stroke: 80 mm
- Mean piston speed at n₂
340 r.p.m. = 0,9 m/sec
410 r.p.m. = 1,1 m/sec
490 r.p.m. = 1,3 m/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 kW = 1,34 HP
Op. Pressure 1 bar = 14,5 psi
Flow rate 1 l = 0,264 US gallon
1 l = 0,22 Imp. gallon

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.

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