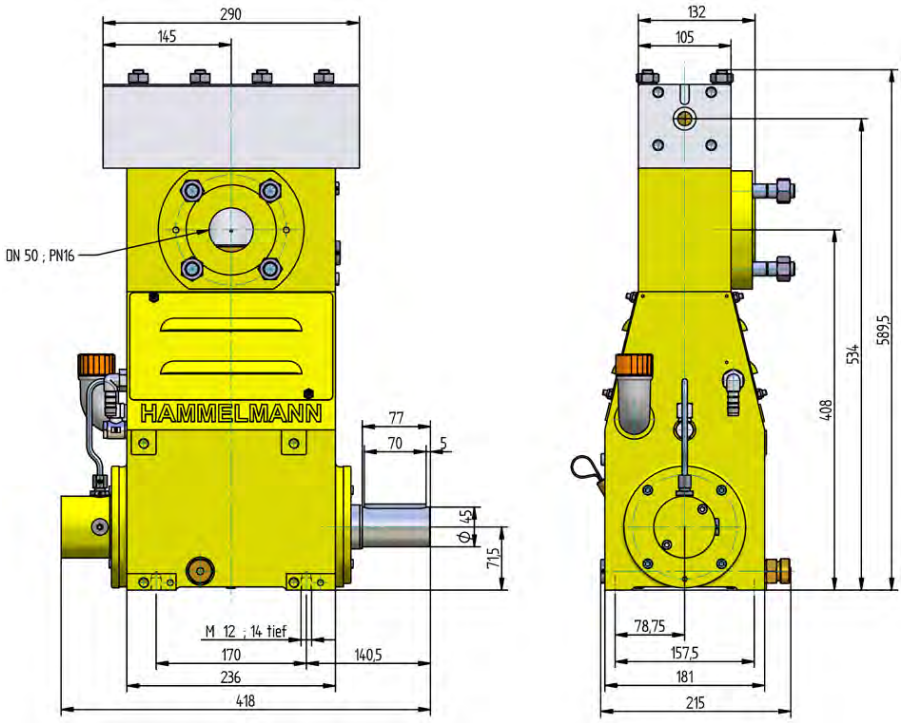
HDP 20 High Pressure Pump Series

Design criteria

Hammelmann high pressure pumps are built to operate at the continuous maximum duty stated in the performance parameters. Just compare the crank shaft speed, average plunger speed, plunger diameter and power rating.

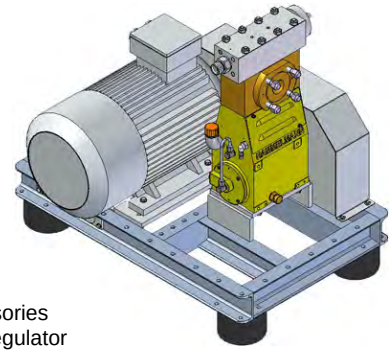
High Pressure Pump

Weight: 95 kg



Stationary unit with electric motor

Length: 1000 mm
Width: 752 mm
Height: 890 mm
Weight: approx. 450 kg at 22 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 18,5 kW
- Vertical 3 cylinder design
- Wide variety of complementary ancillaries

Quality and reliability

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

Recommendations and standards

Machine directive 2006/42/EC
ATEX 94/9/EC
API 674 (with exceptions)

HDP 20 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] / Operating pressure [bar] 11	15	18,5	D	r.p.m. n1	r.p.m. n2
24	2,2 2,7 3,2	2200 1850 1540	3000 2500 2100	3700* 3100 2600	8	1500/1800/2150	625 750 900
	3,7 4,4 5,3	1420 1180 1000	1940 1610 1340	2200 2000 1660	10		625 750 900
23	3,7 4,4 5,3	1420 1180 1000	1800 1610 1340	1800 1660	10	1500/1800/2150	625 750 900
	5,7 6,9 8,2	1000 820 680	1340 1120 930	1560 1380 1150	12		625 750 900
22	9 11	630 530	860 720	1000 880	15	1500/1800/2150	625 750
	12 15	460 400	630 530	730 650	17,5		625 750
	16 20	350 300	480 400	560 500	20		625 750
	25 30	230 200	310 260	360 320	25		625 750
	37 45	160 130	220 180	250 220	30		625 750
	51 62	120 100	160 130	180 160	35		625 750
	67 81	100 70	120 100	140 120	40		625 750
	85 102	70 60	100 80	110 100	45		625 750

* increased permissible rod force to 19.1 kN

- Rod force: 17,6 kN
- Stroke: 30 mm
- Mean piston speed at n_2

625 r.p.m. = 0,63 m/sec

750 r.p.m. = 0,75 m/sec

900 r.p.m. = 0,90 m/sec

Typical high pressure pump units

- Stationary unit with electric motor

- Stationary electric unit with sound damping cover

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

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

HDP	Seal**	Sealing system
24	Dynamic	Tungsten carbide plunger & bushing
	Packing	Special ceramic plunger*** / packing
23	Dynamic	Ceramic plunger / bronze bushing
	Packing	Ceramic plunger / packing
22	Dynamic	Ceramic plunger / bronze bushing
	Packing	Ceramik plunger / packing

Energy efficient

Hammelmann plunger pumps convert 93 to 98 % of the shaft power to hydraulic energy.

** The dynamic high pressure sealing extends the advantages of the labyrinth design with further increased efficiency.
*** Special ceramic plungers up to max. 2500 bar

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