HDP 140 High Pressure Pump Series

Design criteria

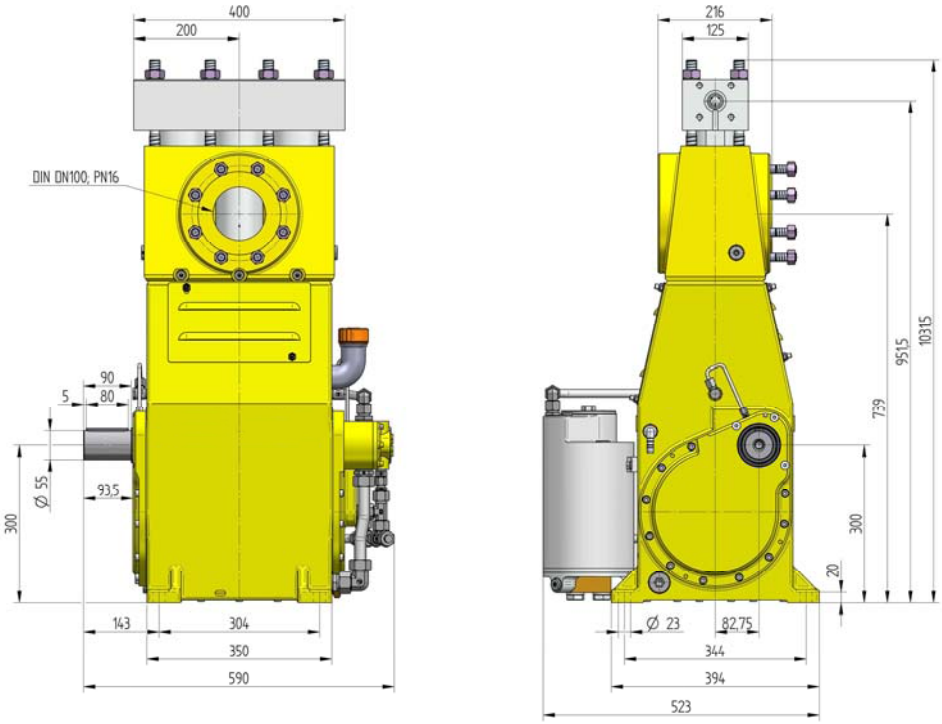
Calder high pressure pumps are built to operate at the continuous maximum duty stated in the performance parameters. Just compare the crankshaft speed, average plunger speed, plunger diameter and power rating.

High pressure pump

Weight: approx. 380 kg

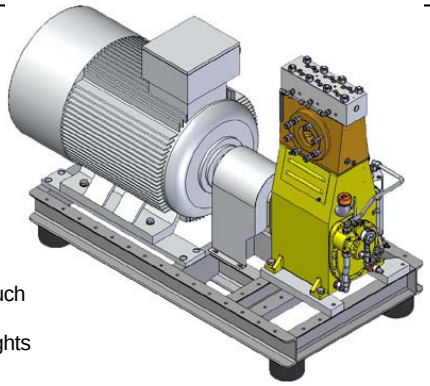
Energy efficient





Stationary unit with electric motor

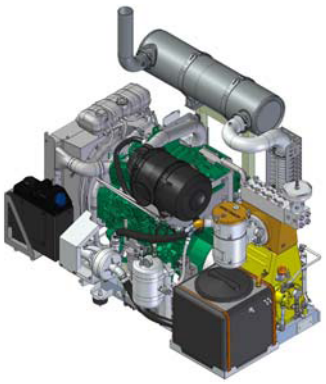
Length: 1950 mm
Width: 850 mm
Height: 1320 mm
Weight: approx. 1600 kg at 110 kW



Main dimensions without accessories such as suction line, pressure regulator etc. Detailed dimensional drawings and weights available on request.

Stationary unit with diesel motor

Length: 2100 mm
Width: 1300 mm
Height: 1600 mm
Weight: approx. 1665 kg at 160 kW without full fuel tank



Features

- Power ratings up to 140 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

HDP 140 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] 45	55	75	90	110	140	D	r.p.m. n 1	r.p.m. n 2
144	15/13*	1660	2030*	2750*	3200*			17,5	1500	390
	18/16*	1390	1700	2320*	2780*	3200*			1500/1800	467
	22/19*	1150	1410	1920	2310*	2820*	3200*		1800/2150	560
	19/18*	1270	1550	2110*	2540*	2800*		20	1500	390
	23/21*	1060	1300	1770	2130*	2600*			1500/1800	467
	27/25*	880	1080	1470	1770	2160*	2800*		1800/2150	560
143	30	810	990	1350	1620	1800		25	1500	390
	36	680	830	1140	1360	1660			1500/1800	467
	42	570	690	940	1130	1380	1800		1800/2150	560
	37	640	780	1060	1280	1430		28	1500	390
	45	530	650	880	1060	1300			1500/1800	467
	53	450	540	740	890	1090	1430		1800/2150	560
142	43	560	690	940	1130	1240		30	1500	390
	51	470	580	790	950	1160			1500/1800	467
	61	390	480	650	790	960	1240		1800/2150	560
	52	470	580	790	930	1030		33	1500	390
	63	390	480	650	780	950	1030		1500/1800	467
	75	330	400	550	650	800	960		1800/2150	560
	59	410	510	690	830	910		35	1500	390
	70	350	420	580	690	850			1500/1800	467
	84	290	350	480	580	710	910		1800/2150	560
	78	320	390	530	630	700		40	1500	390
	93	270	330	440	530	650	700		1500/1800	467
	111	220	270	370	440	540	680		1800/2150	560
	100	250	310	420	500	550		45	1500	390
	119	210	260	350	420	510	550		1500/1800	467
	142	170	210	290	350	430	530		1800/2150	560
	124	200	250	340	410	450		50	1500	390
	148	170	210	280	340	420	450		1500/1800	467
	177	140	170	240	280	350	430		1800/2150	560
	150	170	210	280	340	370		55	1500	390
	179	140	170	230	280	340	370		1500/1800	467
	214	120	140	190	230	290	350		1800/2150	560
	176	140	170	230	280	310		60	1500	390
	211	120	140	200	240	290	310		1500/1800	467
	252	100	120	160	200	240	300		1800/2150	560
	207	120	140	200	240	270		65	1500	390
	248	100	120	160	200	240	270		1500/1800	467
	296	80	100	140	160	200	250		1800/2150	560
	240	100	130	170	210	230		70	1500	390
	287	90	110	140	170	210	230		1500/1800	467
	343	70	90	120	140	180	220		1800/2150	560

*Ultra high pressure

- Rod force: 88 kN
- Stroke: 55 mm
- Mean piston speed at n_2
- 390 r.p.m. = 0,72 m/sec
- 467 r.p.m. = 0,86 m/sec
- 560 r.p.m. = 1,03 m/sec

Typical high pressure pump units



- Stationary unit with electric motor



- Road going or stationary trailer units with sound damping cover



- 10 or 20 foot sound damped container versions

HDP	Seal **	Sealing system
144	Dynamic	Tungsten carbide plunger & bushing
	Packing	Special ceramic plunger *** / packing
143	Dynamic	Ceramic plunger / bronze bushing
	Packing	Ceramic plunger / packing
142	Dynamic	Ceramic plunger / bronze bushing
	Packing	Ceramik plunger / packing

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

*** Special ceramic plungers up to max. 3200 bar

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

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

Energy efficient

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

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