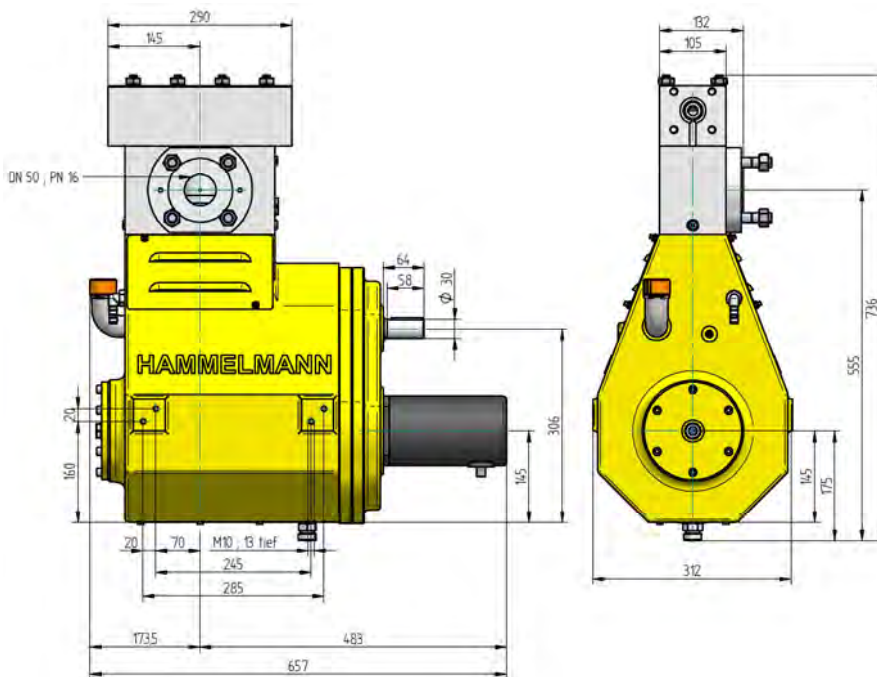# HDP 20 V high pressure pump

with smoothly adjustable stroke length

- Smooth, automatic adjustment of the flow rate
- Compact design with small footprint
- Highly energy efficient, Flow rate adjustment without energy loss also under partial load
- Possible to control the flow rate down to zero

Stroke adjustment operation

The stroke length is altered by turning the variator shaft. This can be achieved when the pump is not running as well as during operation. Once the adjustment has been made the variator shaft is held in position by the stepper motor. The system then runs with the newly adjusted stroke length providing the required flow rate.

Adjustment

- The stroke alters in relation to the middle position.
- Very precise adjustment possible - API 675 conform

Adjustment options

- Hand wheel
- Servomotor also available for hazardous and explosive areas:
  -> EX de II C T4
- Nominal power= up to 900 [W]
- Nominal supply voltage = 115/230 or 400/480 [V]
- Net frequency = 50/60Hz
- Communication interface:
  - Modbus
    - CANopen
    - CANmoiton
    - Maschinenbus
    - DeviceNet
    - EtherNet / IP
    - Profibus DP
    - Ether CAT

HDP 20 V, technical data

CALDER

Performance parameters

HDP	Q [l/min]*	Required power rating [kW] 11	15	18,5	D	r.p.m. n1	n2
		Operating pressure [bar]					
24 V	0 to 2,4	2000	2700	3300	8		675
	0 to 2,9	1660	2300	2800			810
	0 to 4,0	1270	1740	2100	10	1500/1800	675
	0 to 4,8	1060	1450	1780			810

* At pressures over 2000 bar there is 5% pressure loss due to the compressibility of mediums

HDP	Q [l/min]*	11	15	18,5	D	n1	n2
23 V	0 to 4,0	120	1740	1800	10		675
	0 to 4,8	1060	1450	1780			810
	0 to 6,2	880	1210	1500	12	1500/1800	675
	0 to 7,4	740	1000	1240			810

HDP	Q [l/min]*	11	15	18,5	D	n1	n2
22 V	0 to 9,8	570	770	950	15		675
	0 to 12,0	470	640	800			810
	0 to 13,0	420	570	700	17,5		675
	0 to 16,0	350	470	580			810
	0 to 18,0	320	430	540	20		675
	0 to 21,0	270	360	450			810
	0 to 28,0	200	280	340	25		675
	0 to 33,0	170	230	300			810
	0 to 40,0	140	200	240	30	1500/1800	675
	0 to 48,0	120	160	200			810
	0 to 56,0	100	140	170	35		675
	0 to 67,0	100	120	150			810
	0 to 73,0	80	110	130	40		675
	0 to 87,0	70	100	110			810
	0 to 92,0	60	100	110	45		675
	0 to 110,0	50	70	100			810

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.

- Rod force: 17,6 kN
- Stroke: 0 to 30 mm

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

Energy efficient

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

HDP	Seal*	Sealing system
24 V	Dynamic	Tungsten carbide plunger & bushing
	Packing	Special ceramic plunger** / packing
23 V	Dynamic	Ceramic plunger / bronze bushing
	Packing	Ceramic plunger / packing
22 V	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. 2500 bar