HYMATEC GMBH
HYDRAULIK MASCHINEN TECHNIK

PLATA 3000

Variable displacement axial piston pumps,

for open circuit.

DISPLACEMENTS

From	29 cm^3/rev
To	73 cm^3/rev

MAX. SPEED

3000 min^{-1}

PRESSURE

Max. continuous	280 bar
Max. intermittent	315 bar
Max. peak	350 bar

APPLICATION

Medium, high pressure

SECTOR

Mobil / Industrial

- Energy savings.
- Low noise emission.
- Operational flexibility.
- Short response time.
- Drive shaft bearing suitable for radial and axial loads.

PLATA pumps meet these requirements in every way. The variable displacement axial piston pump is the optimal solution for open circuit applications. PLATA pumps are available with a wide range of control options. The pump is designed for both radial and axial loads, and supports full torque transmission in multiple body configurations.

CASAPPA
FLUID POWER DESIGN

060-010

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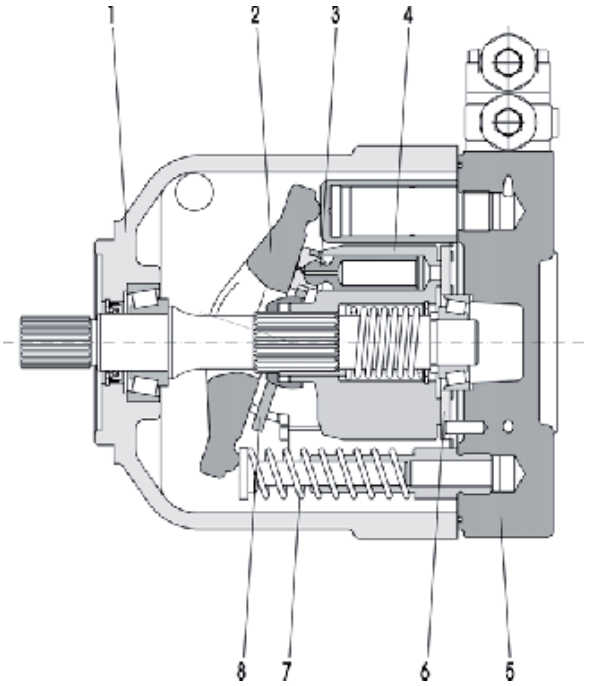
CASAPPA

GENERAL INFORMATIONS / INSTRUCTIONS



1 - Pump body
2 - Swash plate
3 - Piston
4 - Cylinders block
5 - Cover
6 - Retaining plate
7 - Counterbalancing spring
8 - Piston guide plate

INSTALLATION

Check that the maximum coupling eccentricity stays within 0,25 mm to reduce shaft loads due to misalignment. It is advised to use a flexible coupling suitable to absorb eventual water hammer. For applications with axial and radial loads exceeding published standards, consult our sales department. The direction of rotation of the pump must agree with the prime mover rotation. Before installation, the case of the pump must be filled with fluid. Before start-up and during the operation, check that the pump is full of hydraulic oil for at least 3/4 of the volume.

LINES

The lines must have a major diameter which is at least as large as the diameter of pump ports, and must be perfectly sealed. To keep the oil velocity low and increase atmospheric pressure at the pump inlet, the suction lines should be as short as possible. Sources of hydraulic resistance such as elbow, throttilng, gate valves, ect. should also be kept to a minimum. A length of flexible tubing is recommended to reduce the transmission of vibrations. Before connecting the lines, remove any plugs and make sure that the lines are perfectly clean. Check that the drain line is dimensioned in a way to guarantee a case pressure lower than 1,5 bar absolute. The drain line must be connected directly (no filter, no valves, no oil cooler) to the tank and must terminate below the oil level. Check that the dimensions of the suction line guarantees a pressure equal or superior to 0,8 bar. Inlet pressure inferior to 0,8 bar could cause an increase of noise emission, decreasing pum p performance and a reduction of its life expectancy.

MOUNTING POSITION

The pump can be mounted in a horizontal or vertical (shaft upwards) position, provided that the location of the drain port assures the required filling of the case. The pump can be located above the oil level if the absolute pressure at the inlet port stays within the stated limits. To reduce noise emission, we recommend that the pump be mounted below the oil level, and avoid suction lines with sharp restrictions.

STARTING UP

Check that all connections are secure and that the entire system is completely clean. Add oil to the tank always using a filter. Bleed the air from the circuit to help the filing. Turn on the system for a few moments at minimum speed, then bleed the circuit again and check the level of oil in the tank. Gradually increase the pressure and speed of rotation up to the pre-set operating levels, which must stay within the stated limits as specified in the catalogue.

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HYDRAULIK MASCHINEN TECHNIK

CASAPPA

TECHNICAL DATA

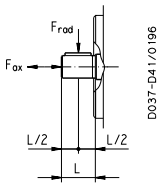
Technical data (with HL or HLP mineral oil based hydraulic fluid to DIN 51524)

Pump type			LVP 30	LVP 48	LVP 75
Max. displacement (theor.) V_{max}	[cm^3/rev]		29	46	73
Max. inlet pressure	[bar abs.]	min.	0,8		
		max.	25		
Max. outlet pressure	[bar]	cont.	280		
		int.	315		
		peak	350		
Max. drain line pressure	[bar abs.]		1,5		
Max. speed n_{max}	[min^{-1}]	@ V_{max} (1)	3000	2600	2200
Max. delivery (theor.)	[l/min]	@ n_{max}	87	119,6	160,6
		@ 1500 min^{-1}	43,5	69	109,5
Max. power (theor.) (Δp= 280 bar)	[kW]	@ n_{max}	39,8	54,7	73,5
		@ 1500 min^{-1}	19,9	31,6	50,1
Max. torque (theor.)	[Nm]	Δp = 280 bar	129,3	205,1	325,5
		Δp = 100 bar	46,2	73,2	116,2
Moment of inertia	[kgm^2]		0,0020	0,0030	0,0080
Max. permissible loading on drive shaft	[N]	F_{ax}	1000	1500	2000
		F_{rad}	1500	1500	3000
Fill capacity	[l]		0,7	0,9	1,5
Mass (without oil)	[kg]		18	24	33
Seals			N= Buna - V= Viton		
Operating temperature	[°C]	with Buna seals	-25 ÷ +90		
		with Viton seals	-10 ÷ +90		

cont. = continuous
int. = intermittent
(1) = with an inlet pressure of 1 bar abs.
For different working conditions, please consult our sales department.

F_{ax} = Axial force
F_{rad} = Radial force

External load position



Technical data restrictions (with fire resistant fluid)

Hydraulic fluid		Max. pressure [bar]			Max. speed [min^{-1}]			Operating temperature	Seals	Life bearing
Type	Fluid composition	cont.	int.	peak	LVP 30	LVP 48	LVP 75	[°C]		
HFC	Water - glycol (35 ÷ 55 % of water)	170	185	200	2100	2000	1700	0 ÷ +90	N - V	75 %
HFD	Phosphate ester	200	220	240	2100	2000	1700	-10 ÷ +50	V	90 %

DIRECTION OF ROTATION
Clockwise or anti-clockwise defined looking at the drive shaft.

Q	[l/min]	Delivery
M	[Nm]	Torque
P	[kW]	Power
V	[cm^3/rev]	Displacement
n	[min^{-1}]	Speed
Δ**p**	[bar]	Pressure
$\eta_v = \eta_v (V, \Delta p, n)$		Volumetric efficiency
$\eta_m = \eta_m (V, \Delta p, n)$		Mechanical efficiency
$\eta_t = \eta_v \cdot \eta_m$		Overall efficiency

FLUID VISCOSITY
The fluid viscosity range for optimal use of PLATA pump is between 15 and 35 mm^2/s (cSt). Limit functional conditions are:
1500 mm^2/s at start up at -25 °C
10mm^2/s at maximum temperature of 90 °C.

FILTERS
For a maximum pump life, we recommend the use of filtration systems suitable to contain the hydraulic fluid contamination in the class 16/13 conforming to ISO 4406. Satisfactory operation is obtained also with contamination class 19/15 conforming to ISO 4406 or with cleanliness grade 9 conforming to class NAS 1638.

$$\mathbf{Q} = V \cdot \eta_v \cdot n \cdot 10^{-3} \quad [l/min]$$

$$\mathbf{M} = \frac{\Delta p \cdot V}{62{,}83 \cdot \eta_m} \quad [Nm]$$

$$\mathbf{P} = \frac{\Delta p \cdot V \cdot n}{600 \cdot 1000 \cdot \eta_t} \quad [kW]$$

060-010

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CASAPPA

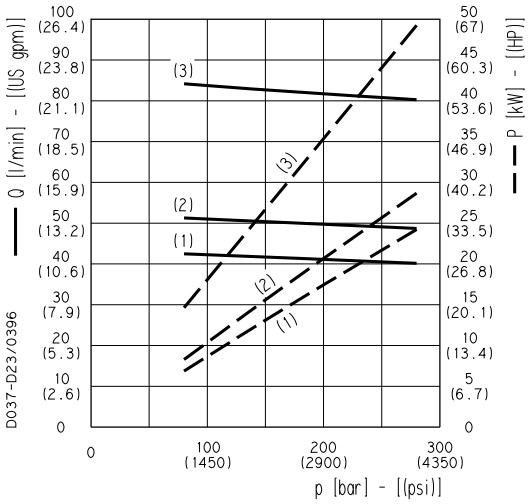
OPERATING CURVES / TECHNICAL DATA

Delivery / power (max. displacement)

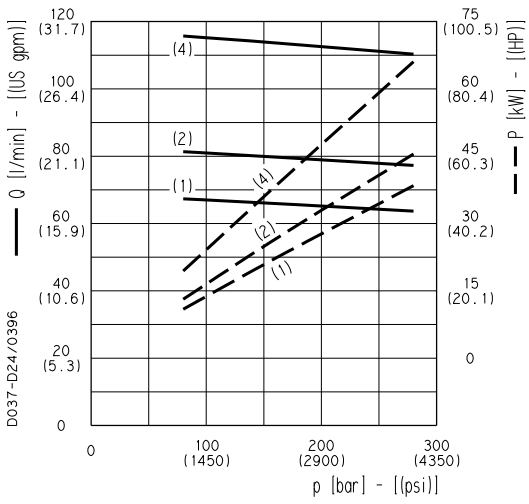
Each curve has been obtained at 50 °C, using oil with viscosity 36 mm^2/s at 40 °C and at these speed:

(1) a 1500 min^{-1} (3) a 3000 min^{-1} (5) a 2200 min^{-1}
(2) a 1800 min^{-1} (4) a 2600 min^{-1}

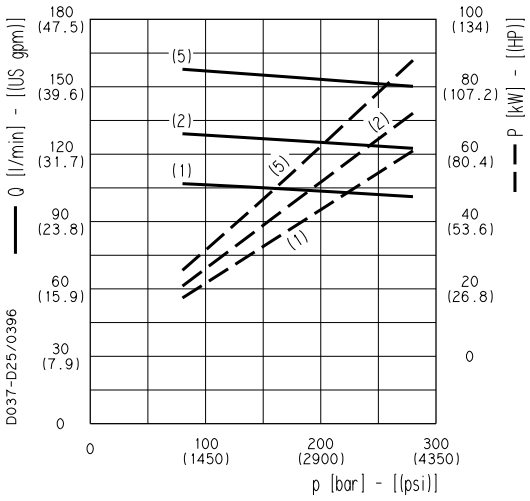
LVP 30



LVP 48



LVP 75



DETERMINATION OF INLET PRESSURE AND FLOW REDUCTION FOR SPEED INCREASING

Inlet pressure	Displacement %					
[bar abs.]	65	70	80	90	100	
0,8	120	115	105	97	90	Speed increasing %
0,9	120	120	110	103	95	
1,0	120	120	115	107	100	
1,2	120	120	120	113	106	
1,4	120	120	120	120	112	
1,6	120	120	120	120	117	
2,0	120	120	120	120	120	

Example 1
Speed increasing: 120 %
Inlet pressure: 1,4 bar abs.
Displacement: 80 %

Example 2
Speed increasing: 113 %
Inlet pressure: 1,2 bar abs.
Displacement: 90 %

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CASAPPA

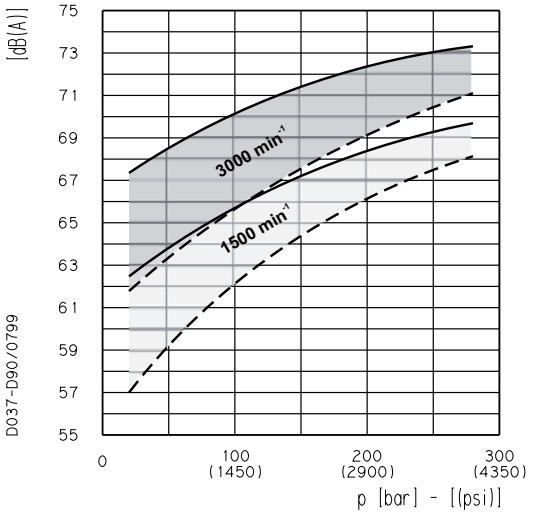
NOISE LEVEL CURVES

——— Q_{max}

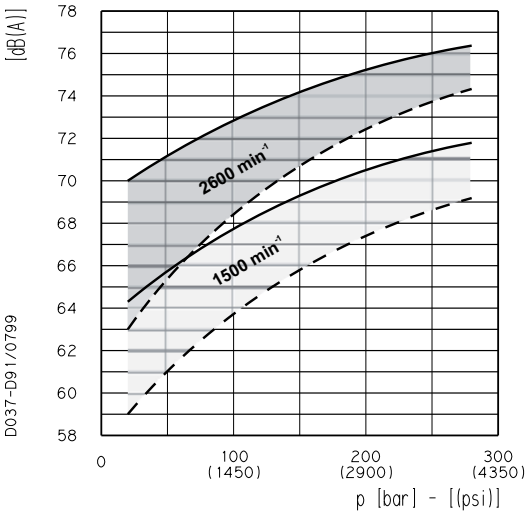
– – – – Q_{min}

For each curve the sound pressure has been measured in a semi-anechoic chamber at 50 °C, using oil with viscosity 46 mm^2/s at 40 °C.
Distance from microphone to pump = 1m
Measuring error = ± 2 dB (A)

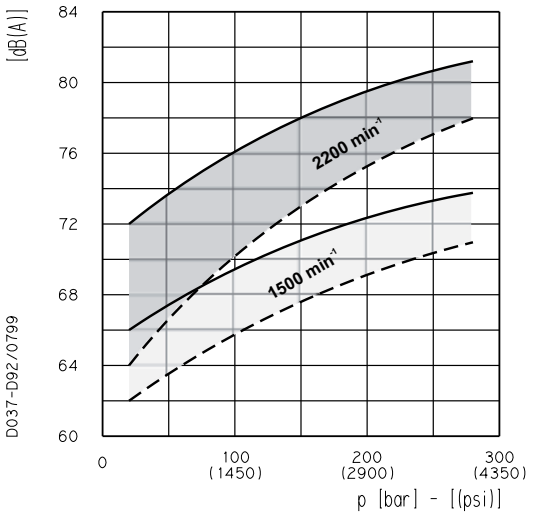
LVP 30



LVP 48



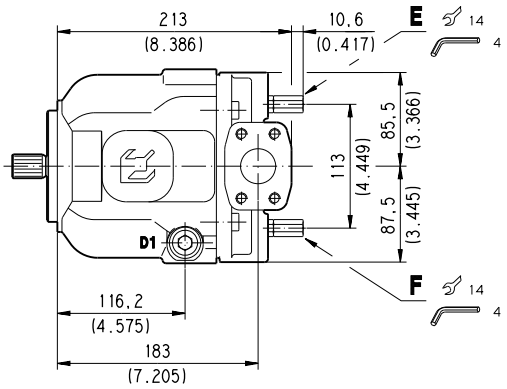
LVP 75

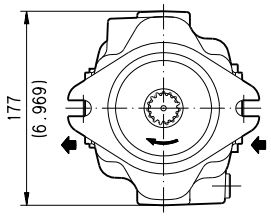


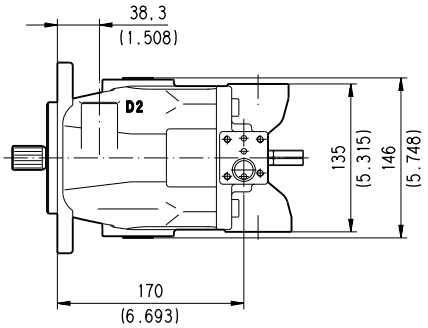
060-010

CASAPPA

VERSION WITH SIDE PORTS - DIMENSIONS — LVP 30







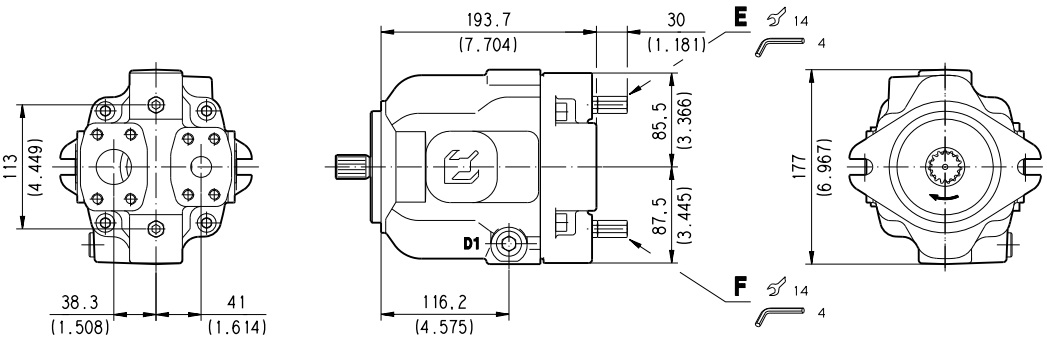
PORTS	
IN SAE 3000	**OUT** SAE 6000
Nominal size	
1" 1/4	**3/4"**

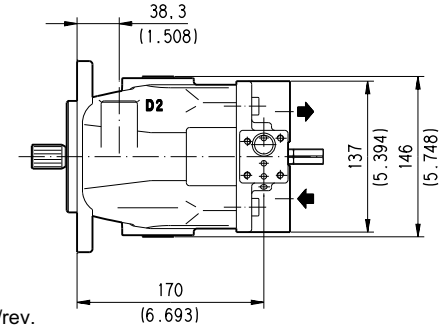
D1, D2: Drain port
Dimensions on page 12

Optional:
E: Max. displacement limiter (●)
F: Min. displacement limiter (●)
(●) One turn of screw change pump displacement of 1,5 cm^3/rev.

D037-D78/1099

VERSION WITH REAR PORTS - DIMENSIONS — LVP 30





PORTS	
IN SAE 3000	**OUT** SAE 6000
Nominal size	
1" 1/4	**3/4"**

D1, D2: Drain port
Dimensions on page 12

Optional:
E: Max. displacement limiter (●)
F: Min. displacement limiter (●)
(●) One turn of screw change pump displacement of 1,5 cm^3/rev.

D037-D79/1099

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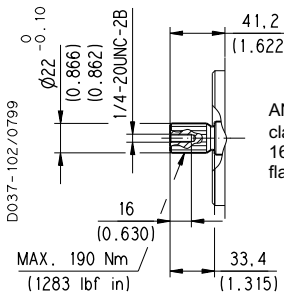
SHAFTS / MOUNTING FLANGES — LVP 30

SAE "B" SPLINE — 04

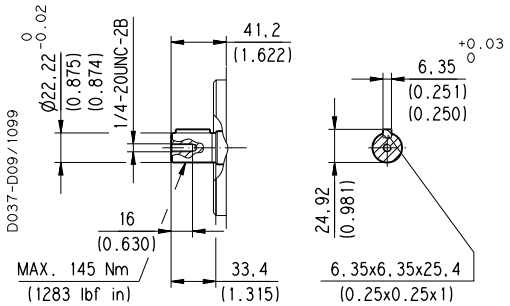
Available with flange code **S5**



ANSI B 92.1a-1976
class 5 - 13 teeth
16/32 D.P. - ang=30°
flaat root - side fit

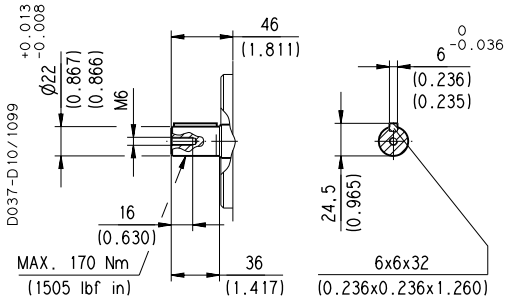
SAE "B" STRAIGHT — 32

Available with flange code **S5**



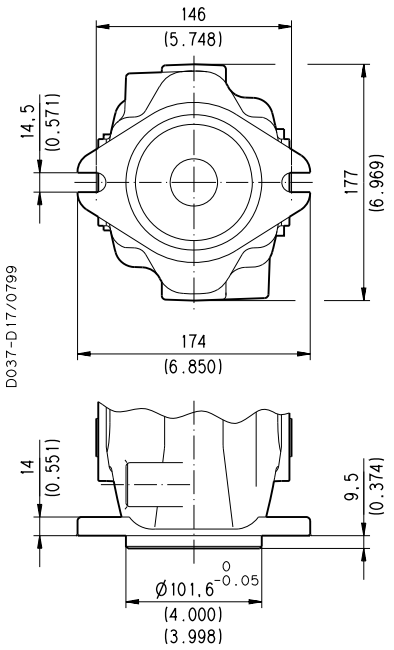
STRAIGHT Ø 22 — 68

Available with flange code **Z1**



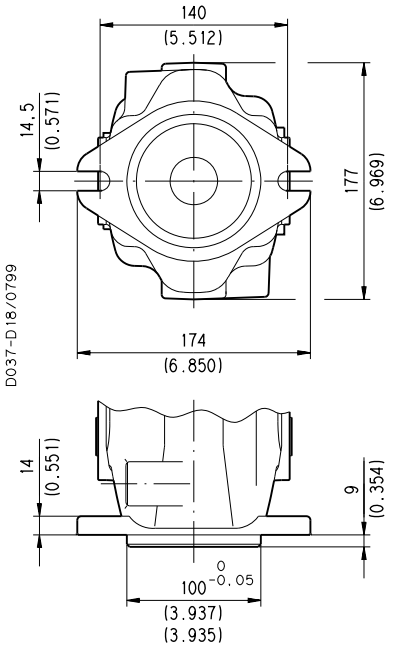
SAE "B" 2 HOLES — S5

SAE J744 Jul88



ISO Ø 100 — Z1

ISO 3019/2 Feb88



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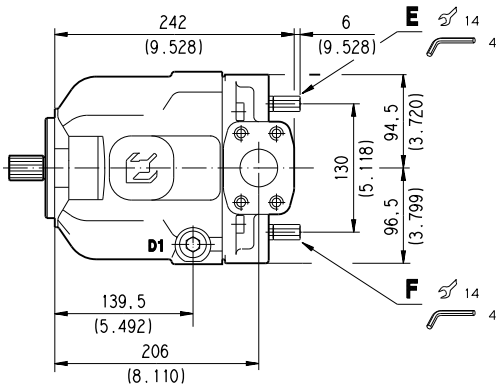
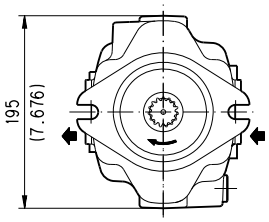
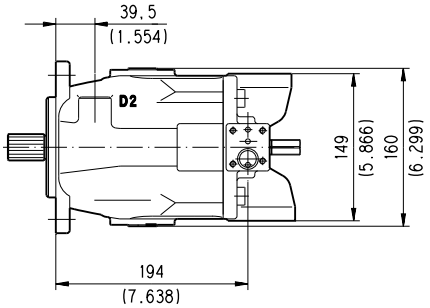
VERSION WITH SIDE PORTS - DIMENSIONS

LVP 48







PORTS	
IN	**OUT**
SAE 3000	SAE 6000
Nominal size	
1" 1/2	**1"**

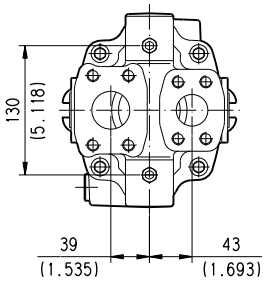
D1, D2: Drain port
Dimensions on page 12

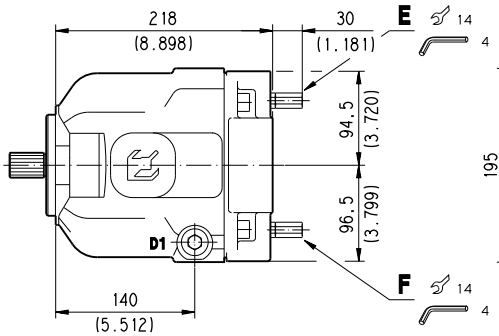
Optional:
E: Max. displacement limiter (●)
F: Min. displacement limiter (●)
(●) One turn of screw change pump displacement of 2,2 cm^3/rev.

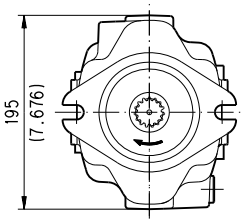
D037-D80/1099

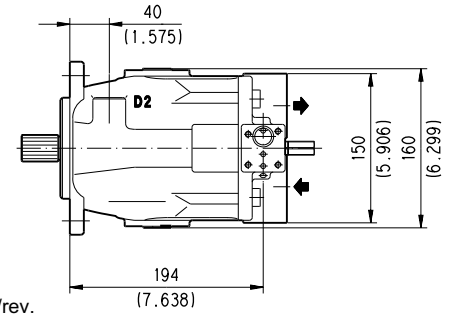
VERSION WITH REAR PORTS - DIMENSIONS

LVP 48









PORTS	
IN	**OUT**
SAE 3000	SAE 6000
Nominal size	
1" 1/2	**1"**

D1, D2: Drain port
Dimensions on page 12

Optional:
E: Max. displacement limiter (●)
F: Min. displacement limiter (●)
(●) One turn of screw change pump displacement of 2,2 cm^3/rev.

D037-D81/1099

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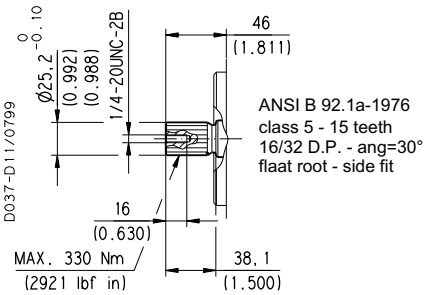
SHAFTS / MOUNTING FLANGES — LVP 48

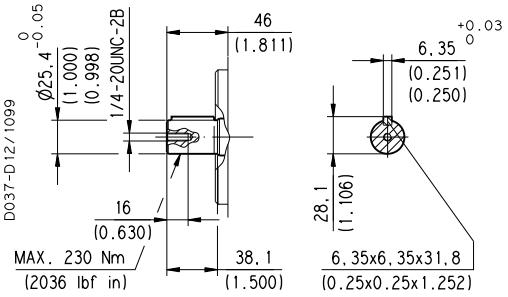
SAE "BB" SPLINE — 05

Available with flange code **S5**



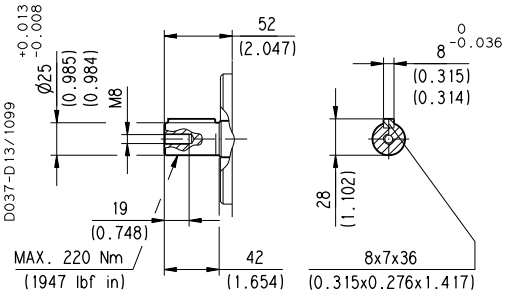
SAE "BB" STRAIGHT — 33

Available with flange code **S5**



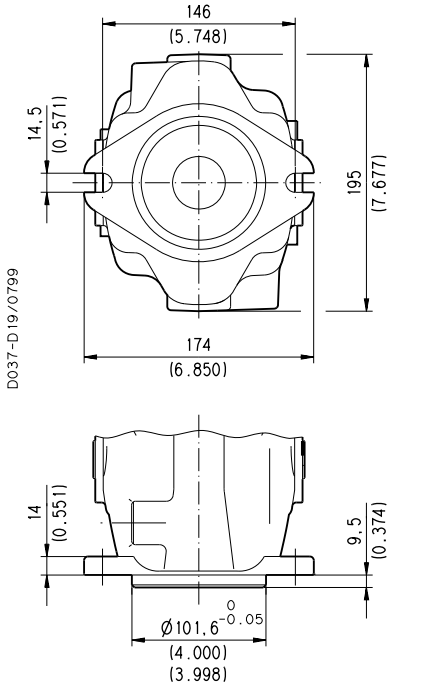
STRAIGHT Ø 25 — 69

Available with flange code **Z1**



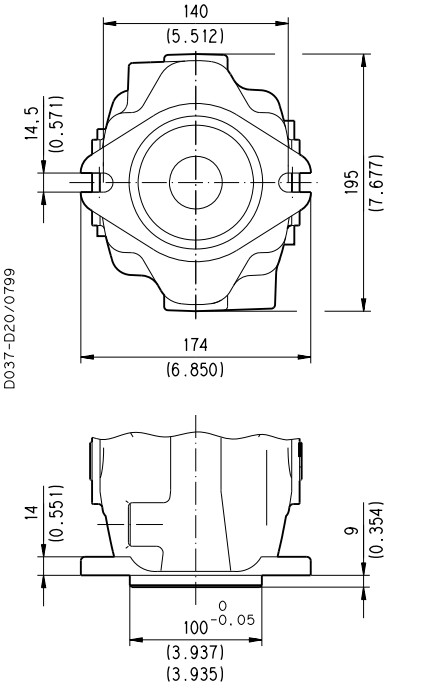
SAE "B" 2 HOLES — S5

SAE J744 Jul88



ISO Ø 100 — Z1

ISO 3019/2 Feb88



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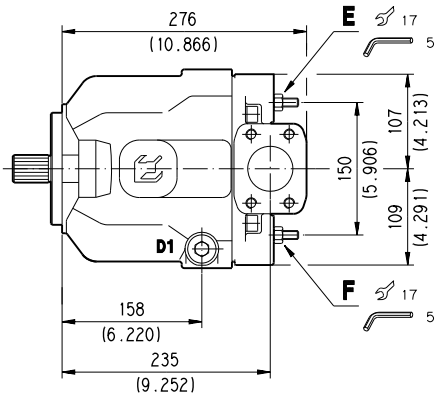
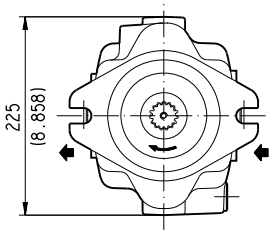
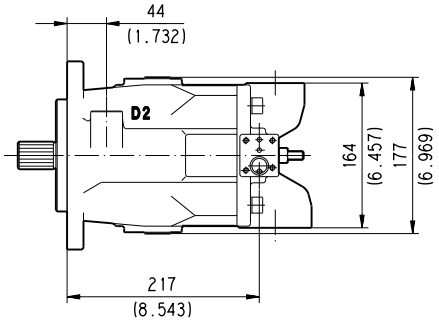
VERSION WITH SIDE PORTS - DIMENSIONS

LVP 75







PORTS	
IN	**OUT**
SAE 3000	SAE 6000
Nominal size	
2"	**1" 1/4**

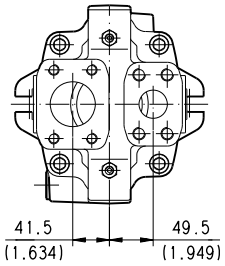
D1, D2: Drain port
Dimensions on page 12

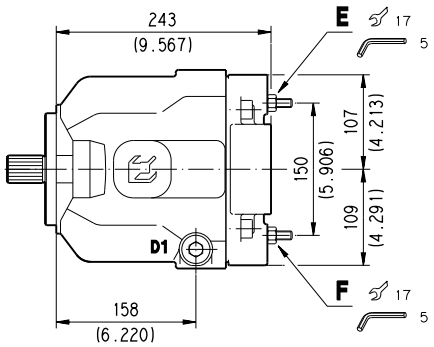
Optional:
E: Max. displacement limiter (●)
F: Min. displacement limiter (●)
(●) One turn of screw change pump displacement of 3,9 cm^3/rev.

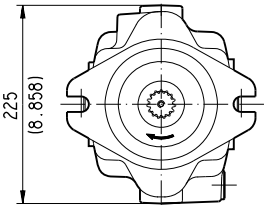
D037-D82/1099

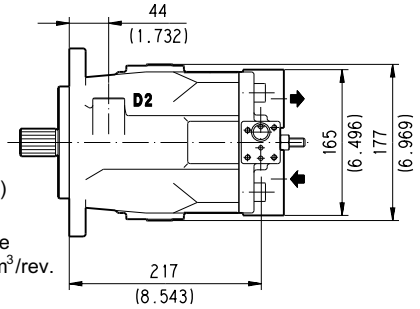
VERSION WITH REAR PORTS - DIMENSIONS

LVP 75









PORTS	
IN	**OUT**
SAE 3000	SAE 6000
Nominal size	
2"	**1" 1/4**

D1, D2: Drain port
Dimensions on page 12

Optional:
E: Max. displacement limiter (●)
F: Min. displacement limiter (●)
(●) One turn of screw change pump displacement of 3,9 cm^3/rev.

D037-D83/1099

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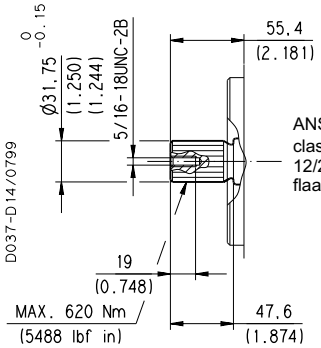
SHAFTS / MOUNTING FLANGES — LVP 75

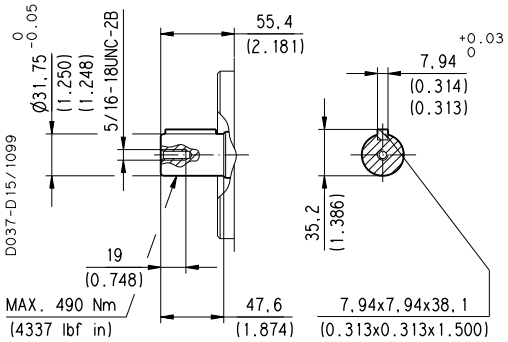
SAE "C" SPLINE — 06

Available with flange code **S7**



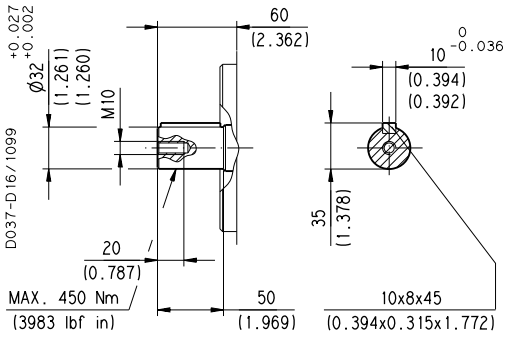
SAE "C" STRAIGHT — 34

Available with flange code **S7**



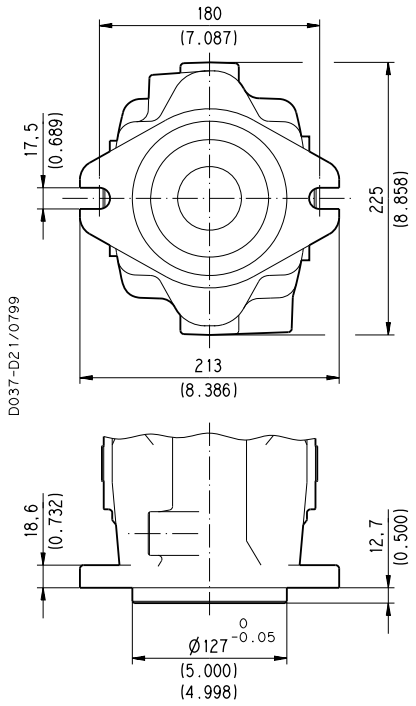
STRAIGHT Ø 32 — 70

Available with flange code **Z2**



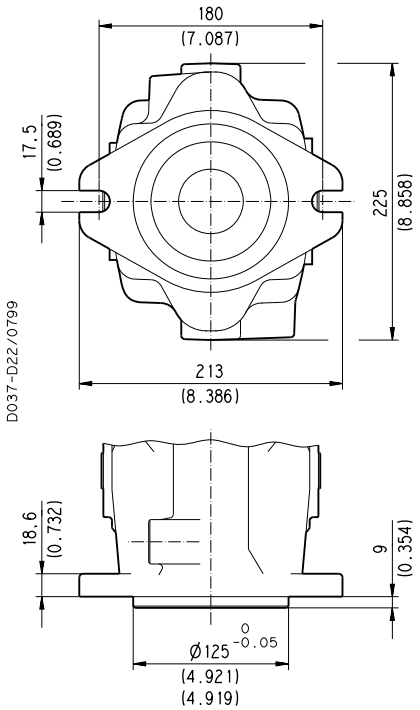
SAE "C" 2 HOLES — S7

SAE J744 Jul88



ISO Ø 125 — Z2

ISO 3019/2 Feb88



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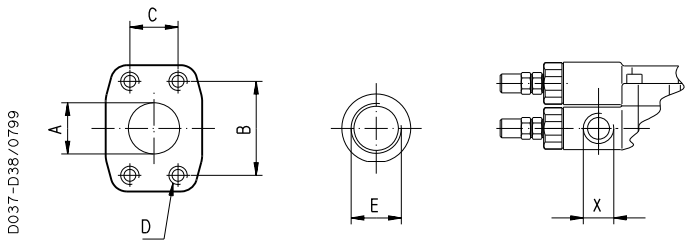
PORT DIMENSIONS



INLET PORT - IN (SAE 3000)						DRAIN PORT D1	LOAD SENSING PORT
SAE FLANGED PORTS METRIC THREAD (SSM)						BRITISH STANDARD BSPP	
CODE	Nominal size	A	B	C	D	E	X
		mm (in)	mm (in)	mm (in)	Thread Depth mm (in)	Thread	Thread
MD	1" 1/4	32 (1.260)	58,7 (2.311)	30,2 (1.189)	M 10 28 (1.102)	G 1/2	G 1/8
ME	1" 1/2	38,1 (1.500)	69,9 (2.752)	35,7 (1.406)	M 12 26 (1.024)		
MF	2"	50,8 (2.000)	77,8 (3.063)	42,9 (1.689)	M 12 25 (0.984)	G 3/4	
SAE FLANGED PORTS UNC THREAD (SSS)						SAE STRAIGHT THREAD (ODT)	
CODE	Nominal size	A	B	C	D	E	X
		mm (in)	mm (in)	mm (in)	Thread Depth mm (in)	Thread	Thread
SD	1" 1/4	32 (1.260)	58,7 (2.311)	30,2 (1.189)	7/16-14 UNC-2B 28 (1.102)	3/4-16 UNF-2B	7/16-20 UNF-2B
SE	1" 1/2	38,1 (1.500)	69,9 (2.752)	35,7 (1.406)	1/2-13 UNC-2B 26 (1.024)	7/8-14 UNF-2B	
SF	2"	50,8 (2.000)	77,8 (3.063)	42,9 (1.689)	1/2-13 UNC-2B 25 (0.984)		

OUTLET PORT - OUT (SAE 6000)						DRAIN PORT D2	LOAD SENSING PORT
SAE FLANGED PORTS METRIC THREAD (SSM)						BRITISH STANDARD BSPP	
CODE	Nominal size	A	B	C	D	E	X
		mm (in)	mm (in)	mm (in)	Thread Depth mm (in)	Thread	Thread
QB	3/4"	19 (0.748)	50,8 (2.000)	23,8 (0.937)	M 10 24 (0.945)	G 1/2	G 1/8
QC	1"	25,4 (1.000)	57,2 (2.252)	27,8 (1.094)	M 10 24 (0.945)		
QD	1" 1/4	32 (1.260)	66,7 (2.626)	31,8 (1.252)	M 14 23 (0.906)	G 3/4	
SAE FLANGED PORTS UNC THREAD (SSS)						SAE STRAIGHT THREAD (ODT)	
CODE	Nominal size	A	B	C	D	E	X
		mm (in)	mm (in)	mm (in)	Thread Depth mm (in)	Thread	Thread
VB	3/4"	19 (0.748)	50,8 (2.000)	23,8 (0.937)	3/8-16 UNC-2B 24 (0.945)	3/4-16 UNF-2B	7/16-20 UNF-2B
VC	1"	25,4 (1.000)	57,2 (2.252)	27,8 (1.094)	7/16-14 UNC-2B 20 (0.787)	7/8-14 UNF-2B	
VD	1" 1/4	32 (1.260)	66,7 (2.626)	31,8 (1.252)	1/2-13 UNC-2B 23 (0.906)		

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HOW TO ORDER SINGLE PUMPS

1	2		3	4		5	6		7		8		9	10
Pump type	Rotation	–	Drive shaft	Mounting flange	–	Ports position	Ports IN/OUT	–	Seals	–	Regulators	–	Additional options	Fluid
LVP 30	S	–	04	S5	–	L	MD/QB	–	N	–	RP0	–	E	...

1 Pump type (max displacement)		CODE
in^3/rev	cm^3/rev	
1.74	29	LVP 30
2.76	46	LVP 48
4.38	73	LVP 75

2 Rotation	CODE
Anti-clockwise	S
Clockwise	D

3 Drive shaft	CODE
SAE “B” spline (13 teeth)	04
SAE “B” straight	32
straight ∅ 22	68
SAE “BB” spline (15teeth)	05
SAE “BB” straight	33
Straight ∅ 25	69
SAE “C” spline (14 teeth)	06
SAE “C” straight	34
Straight ∅ 32	70

4 Mounting flange	CODE
SAE “B” 2 holes	S5
ISO ∅ 100	Z1
SAE “C” 2 holes	S7
ISO ∅ 125	Z2

5 Ports position	CODE
Side	L
Rear	P

6 Inlet/outlet ports			CODE
SAE FLANGED PORTS METRIC THREAD (SSM)			
Pump type	Nominal size Inlet IN SAE 3000	Outlet OUT SAE 6000	
LVP 30	1"1/4	3/4"	MD/QB
LVP 48	1"1/2	1"	ME/QC
LVP 75	2"	1"1/4	MF/QD
SAE FLANGED PORTS UNC THREAD (SSS)			
Pump type	Nominal size Inlet IN SAE 3000	Outlet OUT SAE 6000	
LVP 30	1"1/4	3/4"	SD/VB
LVP 48	1"1/2	1"	SE/VC
LVP 75	2"	1"1/4	SF/VD

CODE	7 Seals
N	Buna (standard)
V	Viton

CODE	8 Regulators
RP0	Pressure compensator setting range 20 - 350 bar (a)
LS0	Flow compensator (b)
LS2	Flow compensator for remote control (b)
LS3	Flow compensator for internal control (b)
RN0	Torque limiter - standard
RN1	Torque limiter - internal pilot
S	Proportional flow servocontrol (c)
SE	Proportional flow servocontrol with integral electronics (c)
SER	Proportional flow servocontrol with integral electronics and seq. module RES (c)

CODE	9 Additional options (d)
U..	Unloading valve (e)
E	Max. displacement limiter (f)
F	Min. displacement limiter (f)
G	Min. and max. displacement limiter (f)

CODE	10 Fluid
...	Mineral oil (no CODE)
H	HF fluid (please consult our sales department)

a) Standard setting 280 bar.
b) Differential pressure standard setting 14 bar (setting range 10 - 40 bar).
C) For more informations, please consult our sales department.
d) For additional options, please consult our sales department.
e) For voltages availability please see page 20.
f) Max. up to 50% of the displacement.

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ORDER EXAMPLE

SINGLE PUMPS

Standard pump	LVP 30 S-04 S5-L MD/QB-N-LS2
Pump with special features	LVP 30 S-04 S5-L MD/QB-N-LS2-E H

ASSEMBLED MULTIPLE PUMPS

Standard double pump	LVP 30-04 S5-L MD/QB-RP0-AS5 04 / 30-04 S5-L MD/QB-N-LS2 S
Double pump with special features	LVP 75-06 S7-L MF/QD-RP0-E H-AS5 04 / 30-04 S5-L MD/QB-N-LS2 S
Double Plata pump with different series pumps	LVP 30-04 S5-L MD/QB-RP0-E-AS1 03 / PLP20.4-03 S1-L EA/EA-N S

INDIVIDUAL SECTIONS

Front section	LVP 30 S-04 S5-L MD/QB-N-RP0-AS5 04
Rear section	LVP 30 S-04 S5-L MD/QB-N-LS2

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