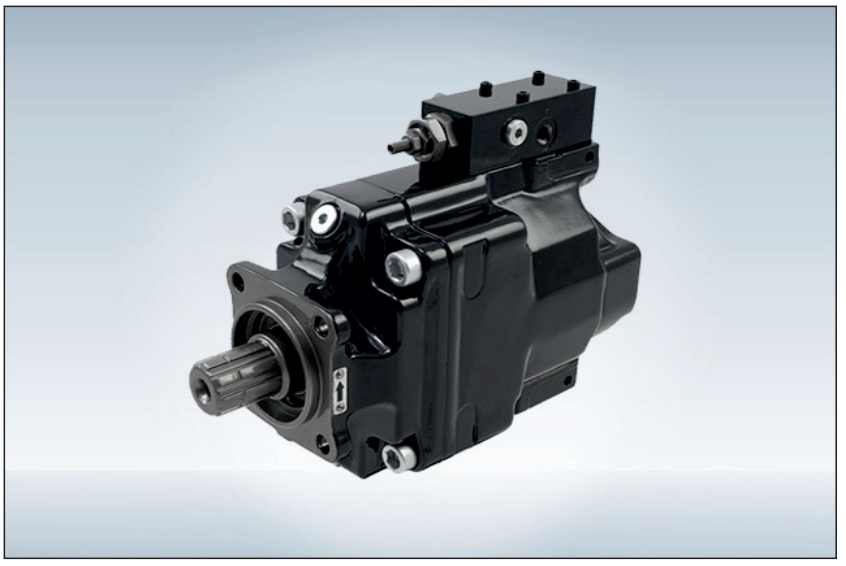
SAFA HYDRAULICS

PV

Variable Disp. Piston Pumps



DIN Mounting Flange, Flange, 4 Bolt, 40cc to 150cc

DIN Mounting Flange,
Variable Displacement Hydraulic Piston Pumps. CW and CCW Rotation Options.
Displacement Range starting at; 40cc, 60cc, 75cc, 92cc, 120cc, 130cc, 150cc
High Rotational Speed, High Pressure, Slim Design, High Efficiency.

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Pump reference	Direction of rotation	Maximum displac.(1) (cc/rev)	Max. operating pressure (bar)	Max. peak pressure (intermittent: 5%) (bar)	Torque at 300 bar(2) (N.m)	Max.speed at full displacement(3) rpm	Max.speed in stand-by rpm	Weight (kg)	Overhang torque(4) (N.m)
40 cc	CW CCW	40	400	420	225	3000	3000	26	34
60 cc	CW CCW	60	400	420	335	2600	3000	26	34
75 cc	CW CCW	75	400	420	420	2000	3000	26	34
92 cc	CW CCW	92	400	420	515	1900	3000	26	34
120 cc	CW CCW	120	380	400	675	2100	3000	26	34
130 cc	CW CCW	130	365	380	730	2100	3000	28,2	38,6
150 cc	CW CCW	150	310	330	840	2000	3000	28,2	38,6

► Calculation of power to be supplied to the shaft as a function of flow and pressure

$$P = \frac{\Delta P \times Q}{600 \times \eta_{global}}$$

Calculation of torque to determine PTO, as a function of the displacement and the pressure

$$C = \frac{Cyl \times \Delta P}{62.8 \times \eta_{méca}}$$

Avec :

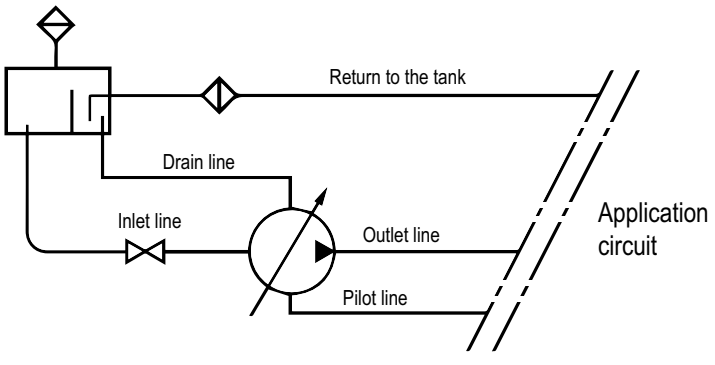
P	=	Hydraulic power in kW
ΔP	=	Differential pressure in bar
Q	=	Flow in l/min
C	=	Torque in N.m
Cyl	=	Displacement in cc/rev
$\eta_{méca}$	=	Mechanical efficiency
η_{global}	=	Mechanical efficiency + volumetric efficiency

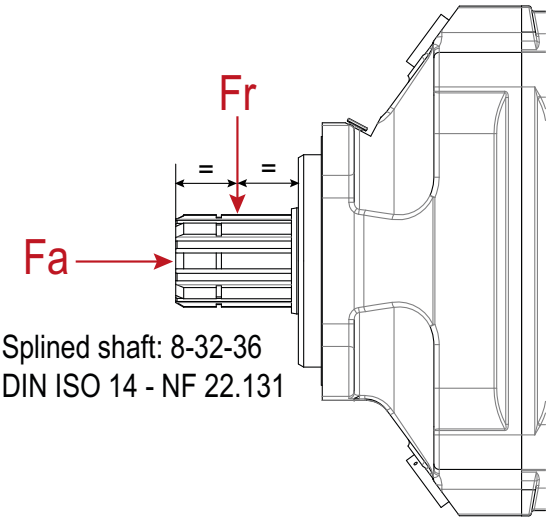
► Force on pump shaft

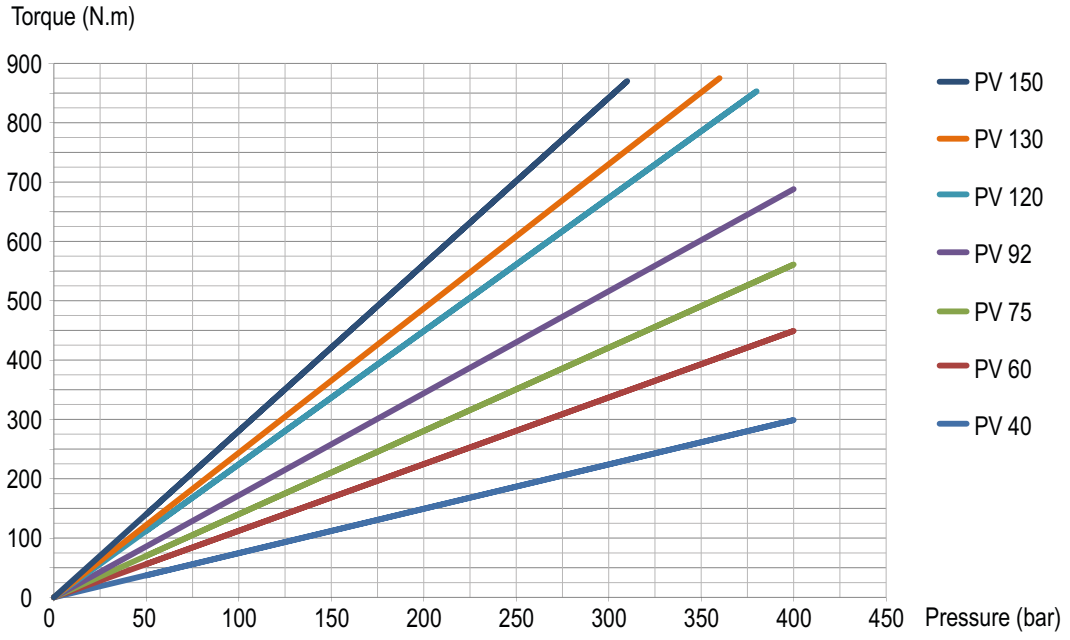
Fr : Acceptable max. radial force = 3000 N

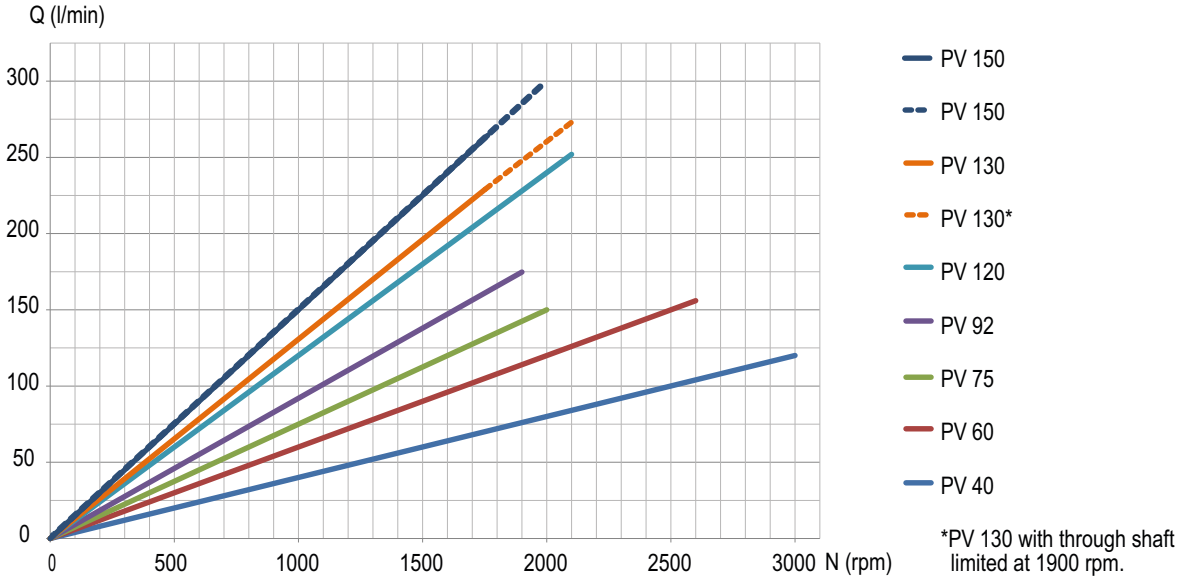
Fa : Acceptable axial force = 1600 N.

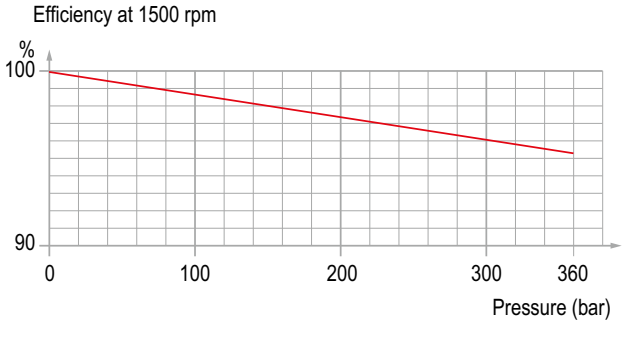
► Ideal installation



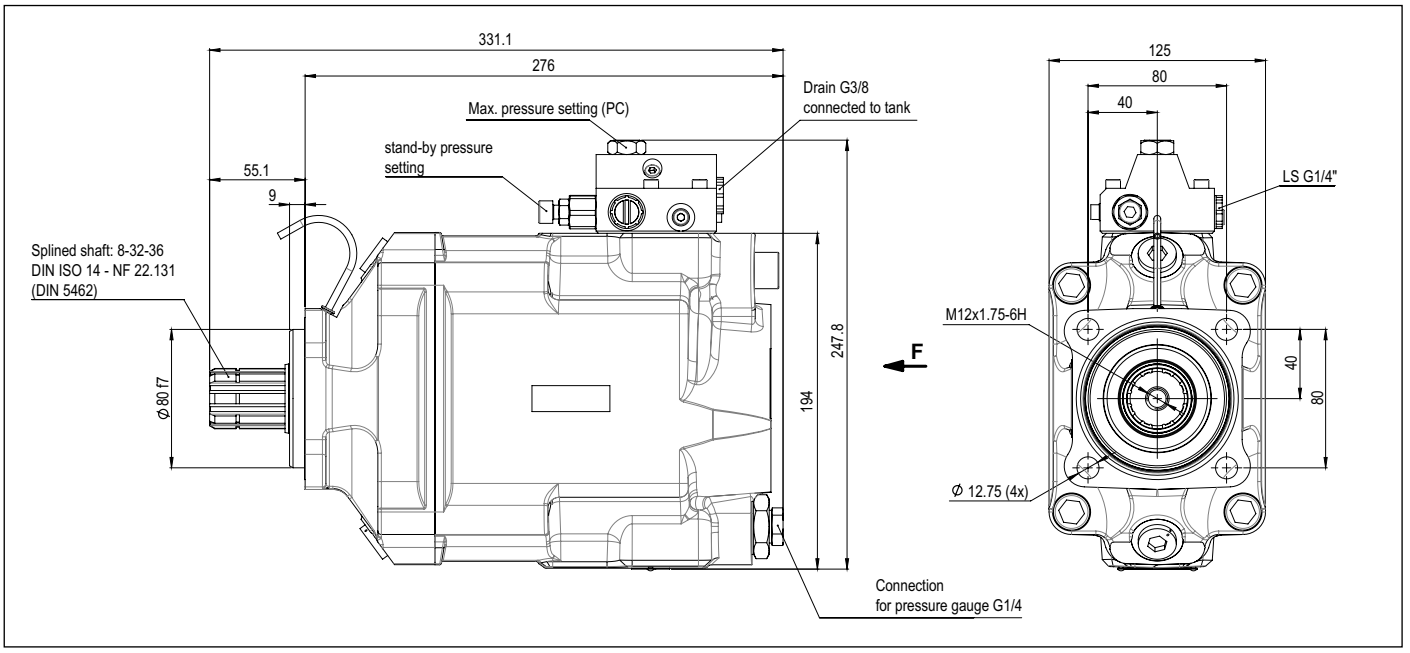



Torque (N.m)
900
800
700
600
500
400
300
200
100
0
0
50
100
150
200
250
300
350
400
450
Pressure (bar)
PV 150
PV 130
PV 120
PV 92
PV 75
PV 60
PV 40


Q (l/min)
300
250
200
150
100
50
0
0
500
1000
1500
2000
2500
3000
N (rpm)
PV 150
PV 150
PV 130
PV 130*
PV 120
PV 92
PV 75
PV 60
PV 40
*PV 130 with through shaft limited at 1900 rpm.


Efficiency at 1500 rpm
%
100
90
0
100
200
300
360
Pressure (bar)

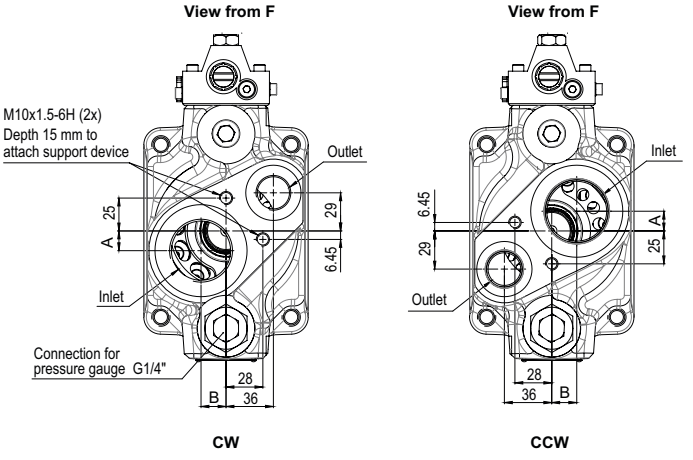
PV 40cc to 120cc



Dimensions in mm.

PV connections

Pump reference	Outlet (Ø)	Inlet (Ø)	A (mm)	B (mm)
PV 40 to 92	G 3/4"	G 1"1/2	15	19
PV 120	G 1"		6	23.57

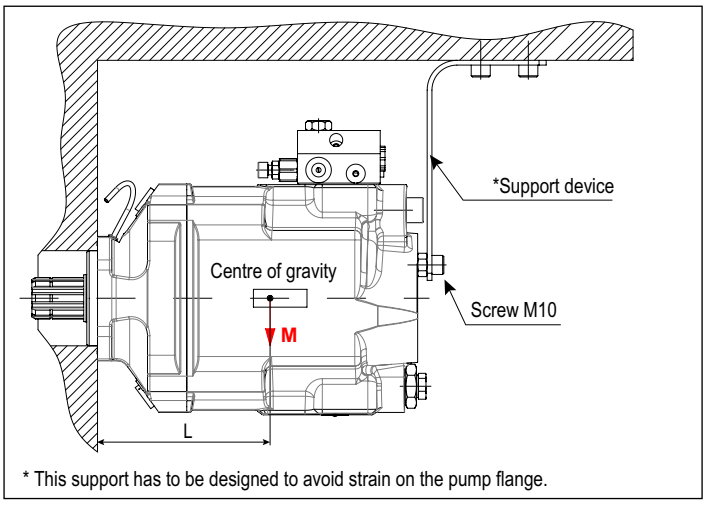


Support device

In cases where it is necessary to use a support device (overhang torque) for the pump, this must be fixed to the same part which the pump is mounted on.

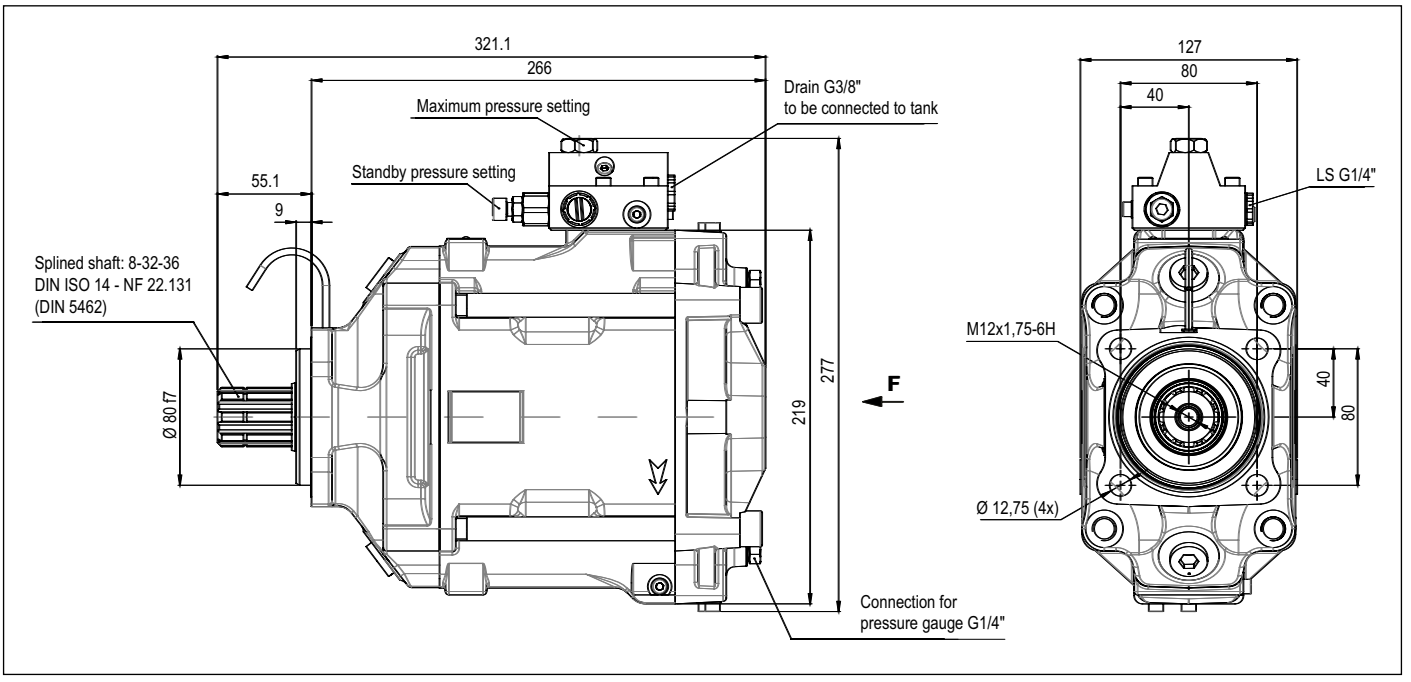
Mass and position of centre of gravity

Pump type	L (mm)	Weight (kg)	Overhang torque (N.m)
PV 40 - 92	130	26	34
PV 120	130	26	34
PV 130 - PV 150	128	28.2	38.6
PV 130 - PV 150	128	29.3	42
PV 130 with through shaft	152.6	31.1	47.4
PV 130 constant torque	143	28.3	40

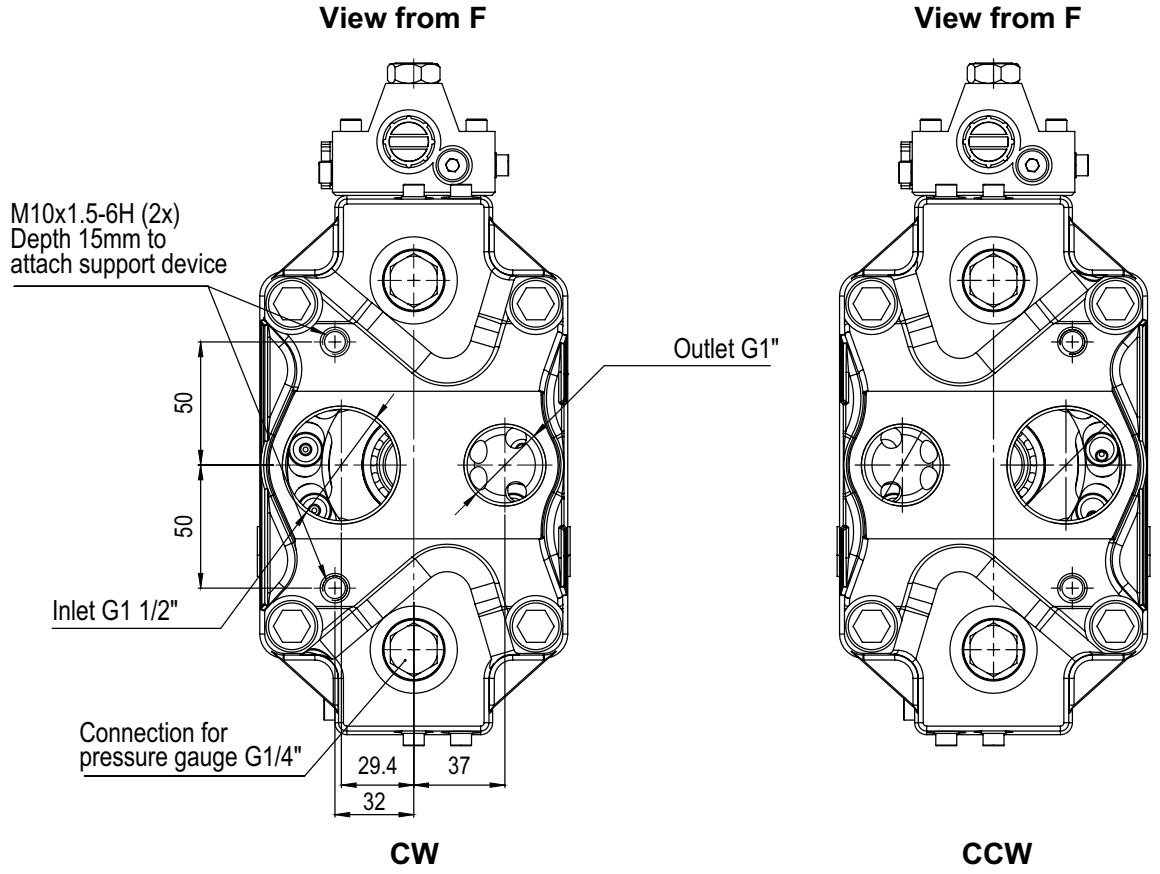


* This support has to be designed to avoid strain on the pump flange.

PV 150cc



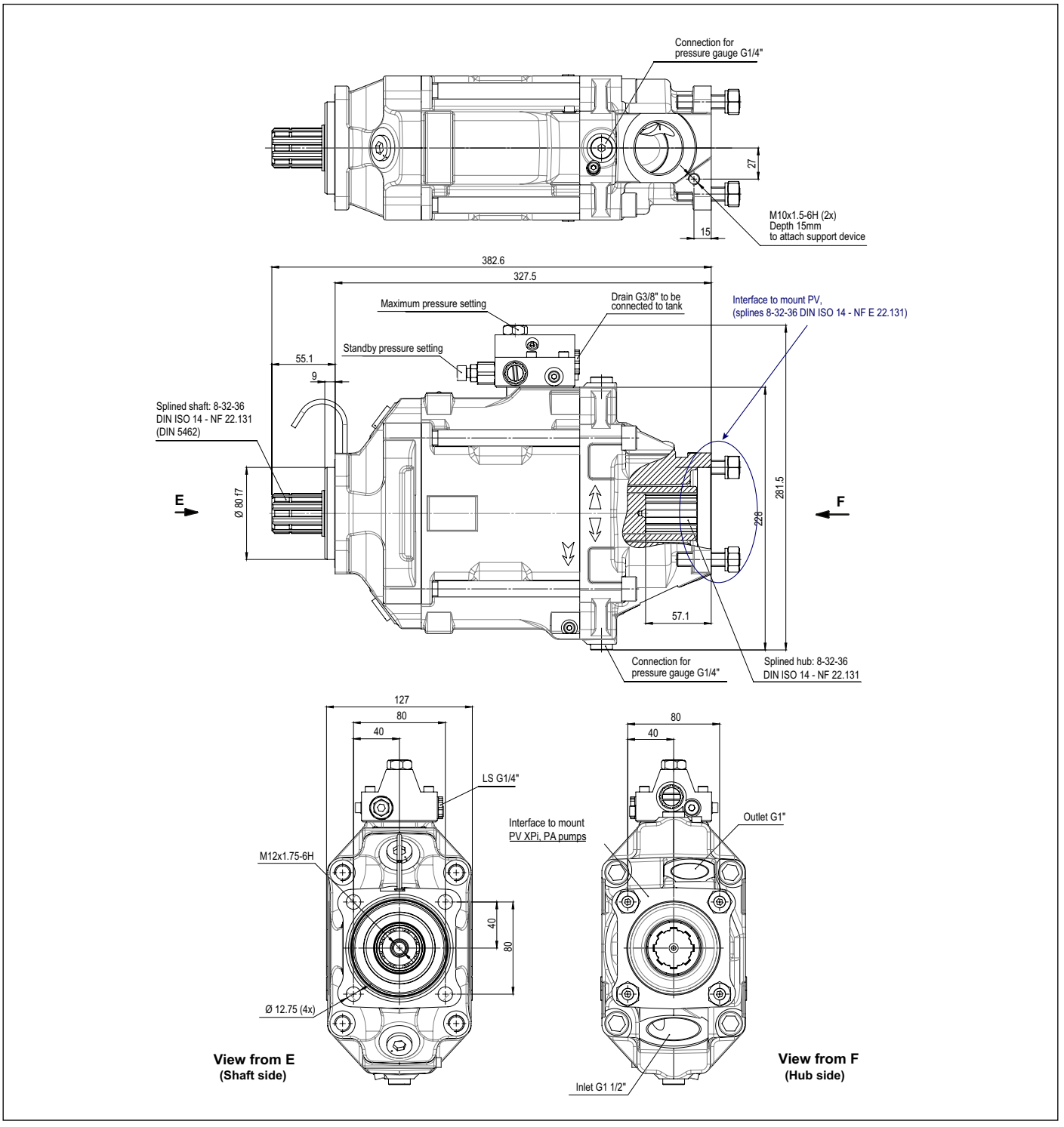
Dimensions in mm.



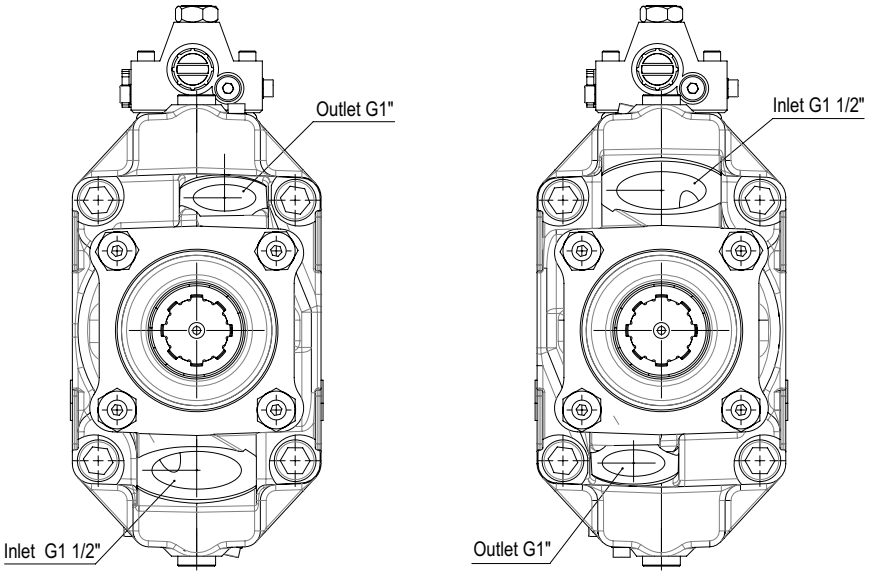
PV 130 THROUGH SHAFT PUMP

The PV 130 pump exists in a “through shaft” version.

With side porting for inlet and output, this “through shaft” PV 130 configuration means any PV pump, or fixed displacement pumps or axial piston pump pump, can be mounted on the back.
The maximum displacement of the “through shaft” PV 130 can be factory set, on request, between 60 and 130 cc/rev.
It is important to check that maximum torque to be transmitted by the shaft of the “through shaft” PV 130 does not exceed 900 N.m.



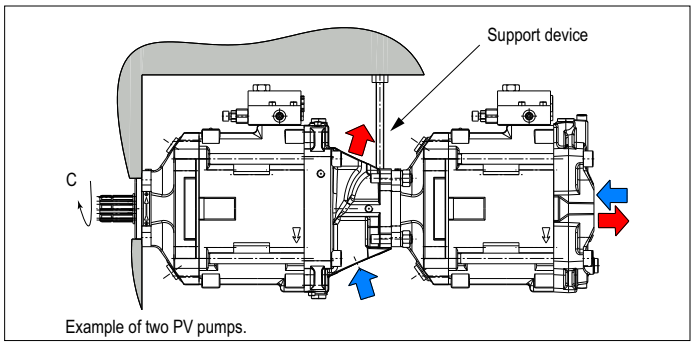
View from F



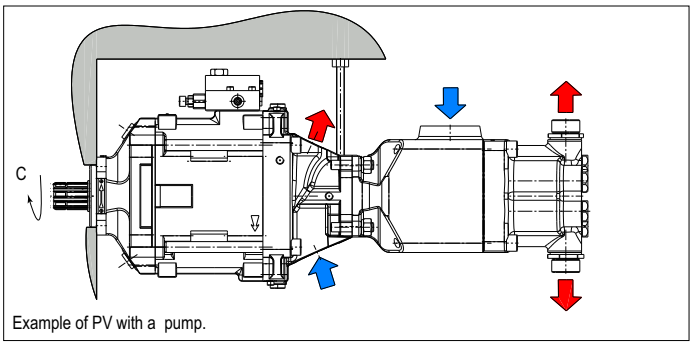
CW **CCW**

Support device

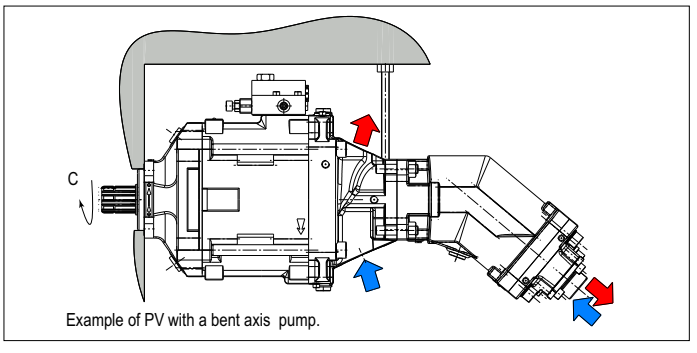
The support device for the pump must be fixed to the same part which the pump is mounted on (see diagram below) and has to be designed to avoid strain on the pump flange.



Example of two PV pumps.



Example of PV with a pump.



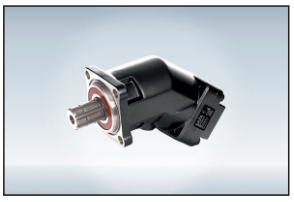
Example of PV with a bent axis pump.

Maximum torque transferable by the shaft of the pump driven by the PTO:

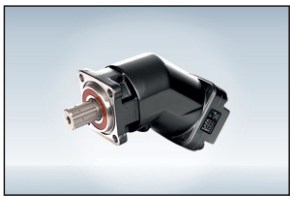
C = 900 N.m

That is, the sum of torque for both pumps must be < 900 N.m.

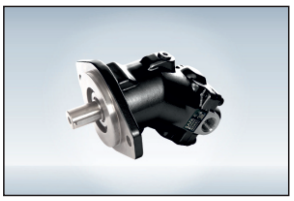
SAFA HYDRAULICS



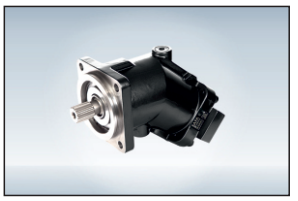
PD-DIN
Bent Axis Pumps



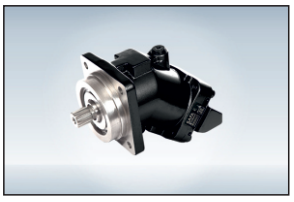
MD-DIN
Bent Axis Motor



PA-SAE
Bent Axis Pumps

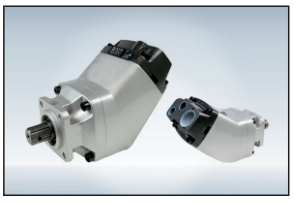


MA-SAE
Bent Axis Motor

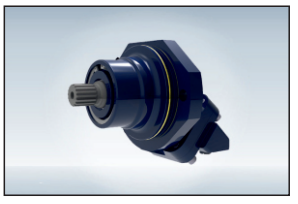


PS-ISO
Bent Axis Pumps

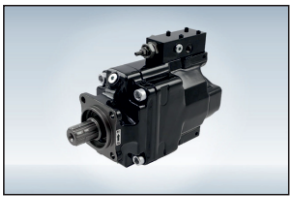
MS-ISO
Bent Axis Motor



PD Dual
Dual Flow Pumps



MF Fixed
Bent Axis Motor



PV
Variable Disp.
Piston Pumps

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