FORZA KIT
YOUR FLUID PARTNE

V Series

Variable Displacement Piston Pumps

2020

Displacement:

40 cc, 60 cc, 75 cc, 92 cc, 120 cc, 130 cc, 150 cc

The pumps are variable displacement with pressure-flow control -called Load Sensing.

Specifially designed for the needs of the truck hydraulics market, The pumps are particularly well adapted for applications in

- loader cranes,
- forestry cranes,
- refuse vehicles,
- salt spreaders, snow and ice equipment,
- construction equipment vehicles.

Extremely compact in size to allow direct flange-mounting on vehicle engine or gearbox PTOs.

The pumps are available in the models with maximum displacement from 40 to 150 cc/rev. Maximum pressure is up to 420 bar depending on the model.

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	V40R V40L	CW CCW	40	400	420	225	3000	3000	26	34
60 cc	V60R V60L	CW CCW	60	400	420	335	2600	3000	26	34
75 cc	V75R V75L	CW CCW	75	400	420	420	2000	3000	26	34
92 cc	V92R V92L	CW CCW	92	400	420	515	1900	3000	26	34
120 cc	V120R V120L	CW CCW	120	380	400	675	2100	3000	26	34
130 cc	V130R V130L	CW CCW	130	365	380	730	2100	3000	28,2	38,6
150 cc	V150R V150R	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

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

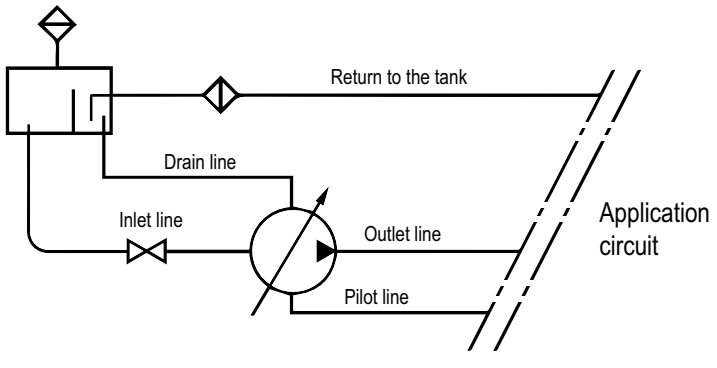
Avec :

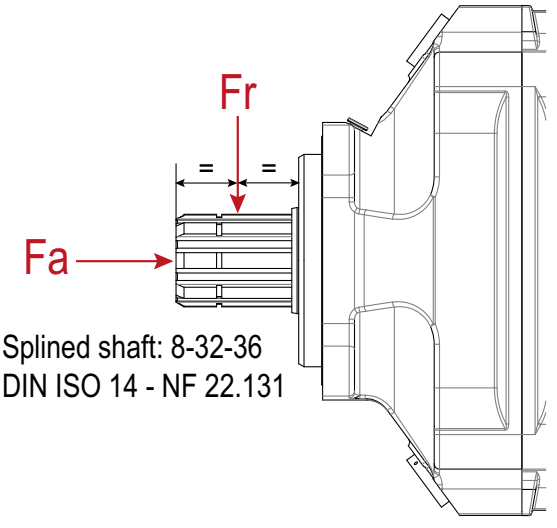
P	=	Hydraulic power in kW
ΔP	=	Differential pressure in bar
Q	=	Flow in l/min
C	=	Torque in N.m
Cyl	=	Displacement in cc/rev
$\eta_{méca}$	=	Mechanical efficiency
η_{global}	=	Mechanical efficiency + volumetric efficiency

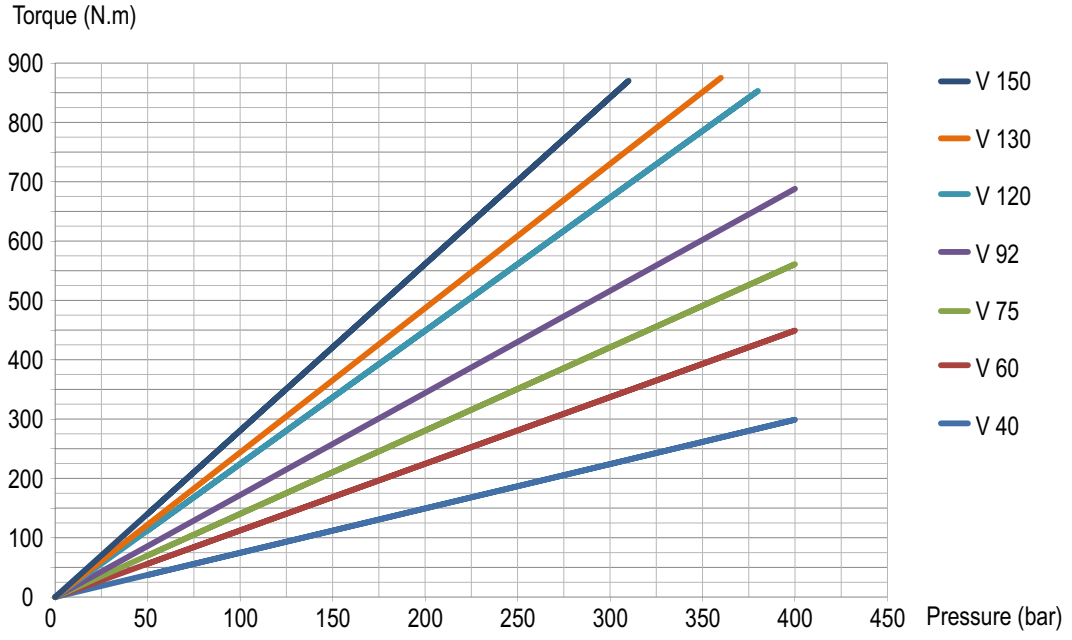
► Force on pump shaft

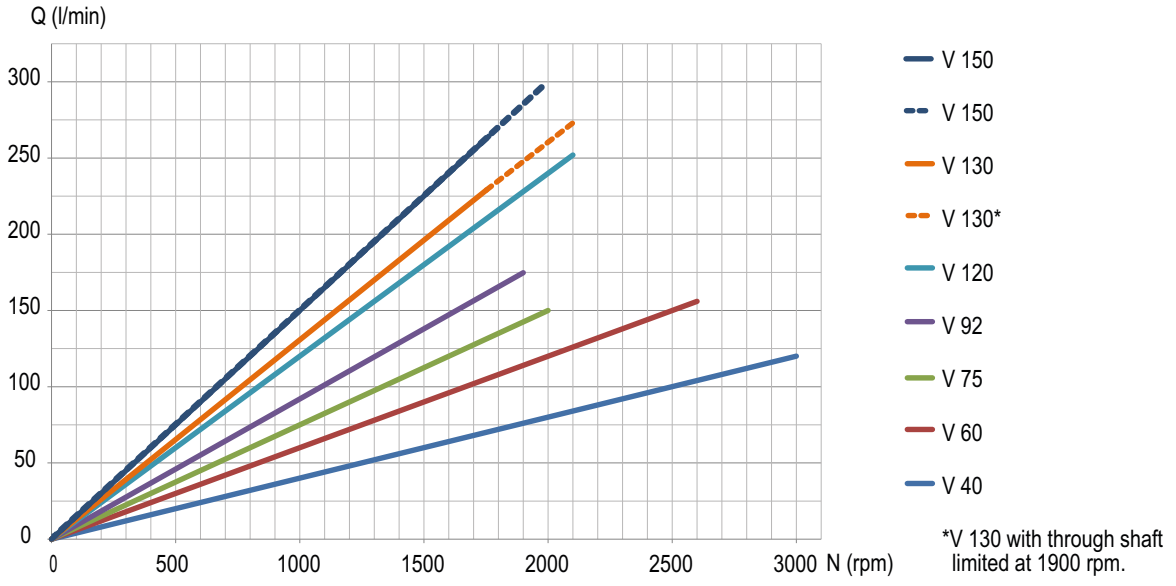
Fr : Acceptable max. radial force = 3000 N
Fa : Acceptable axial force = 1600 N.

► Ideal installation

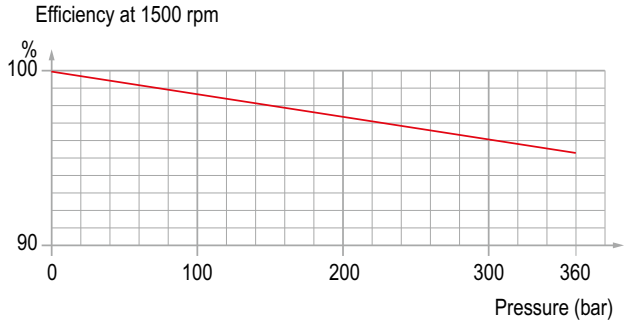








*V 130 with through shaft limited at 1900 rpm.



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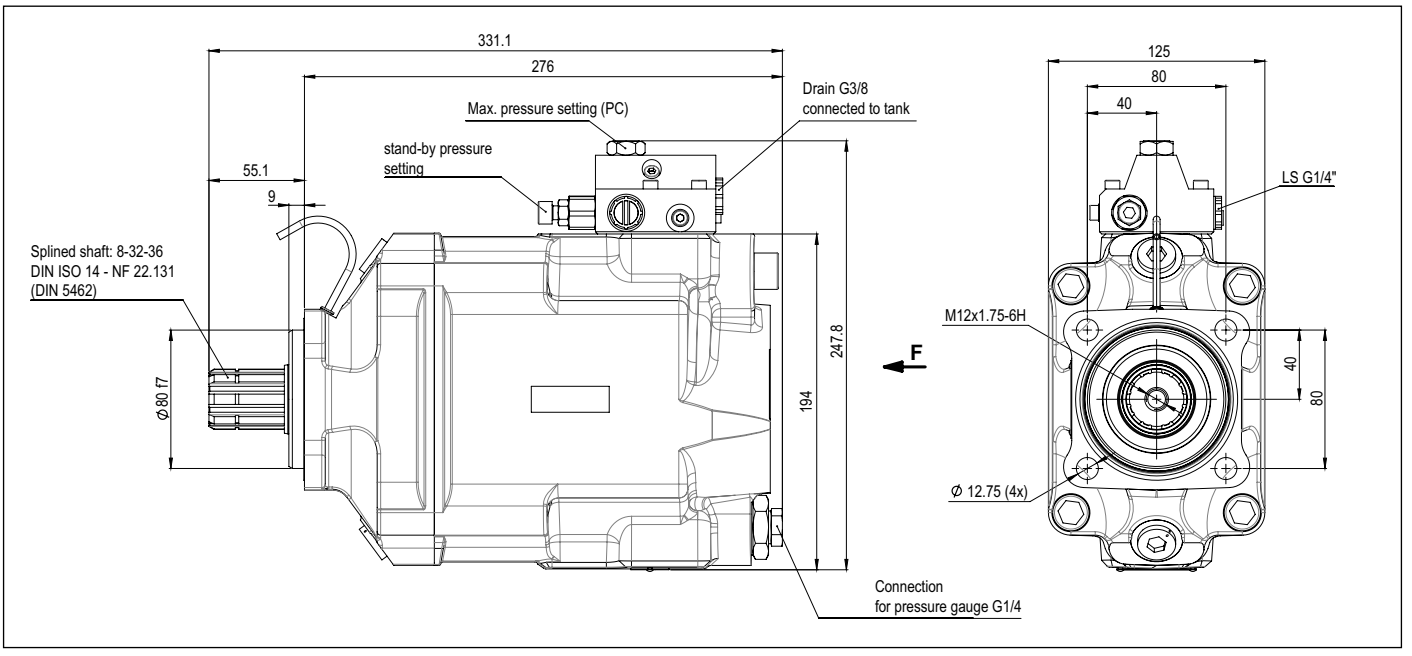
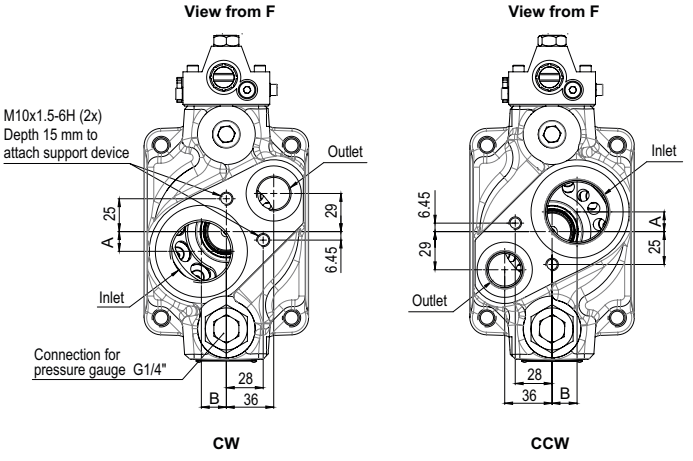
V 40cc to 120cc



Dimensions in mm.

V connections

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

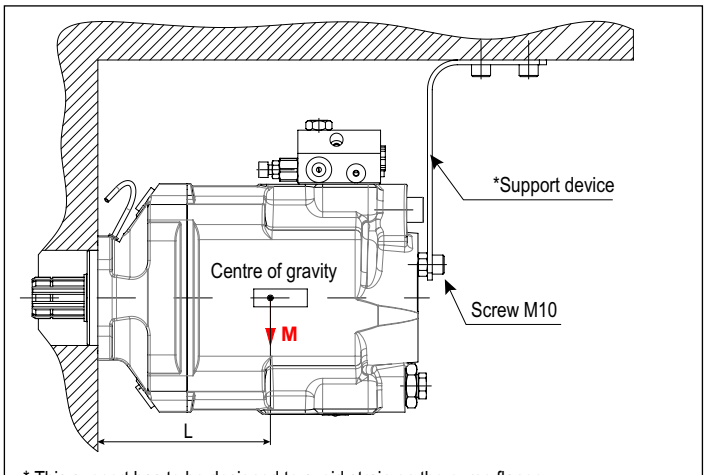


Support device

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.

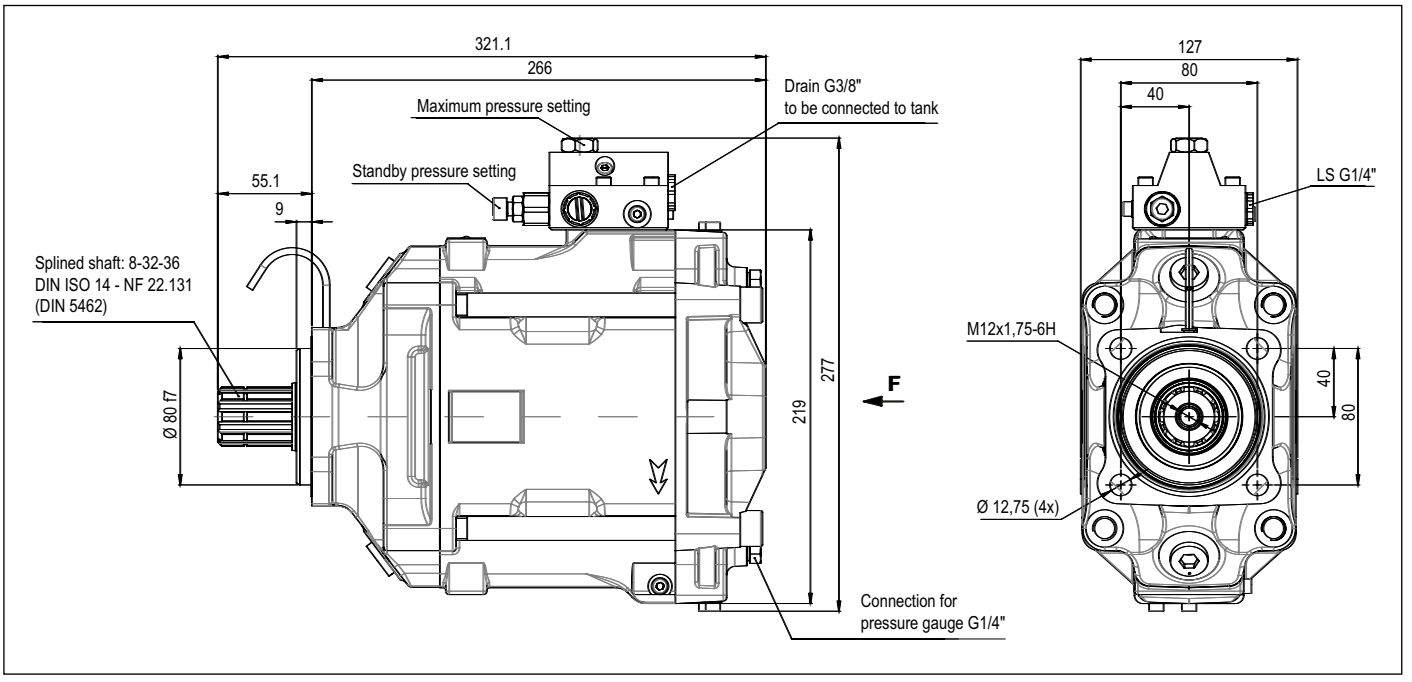
Mass and position of centre of gravity

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

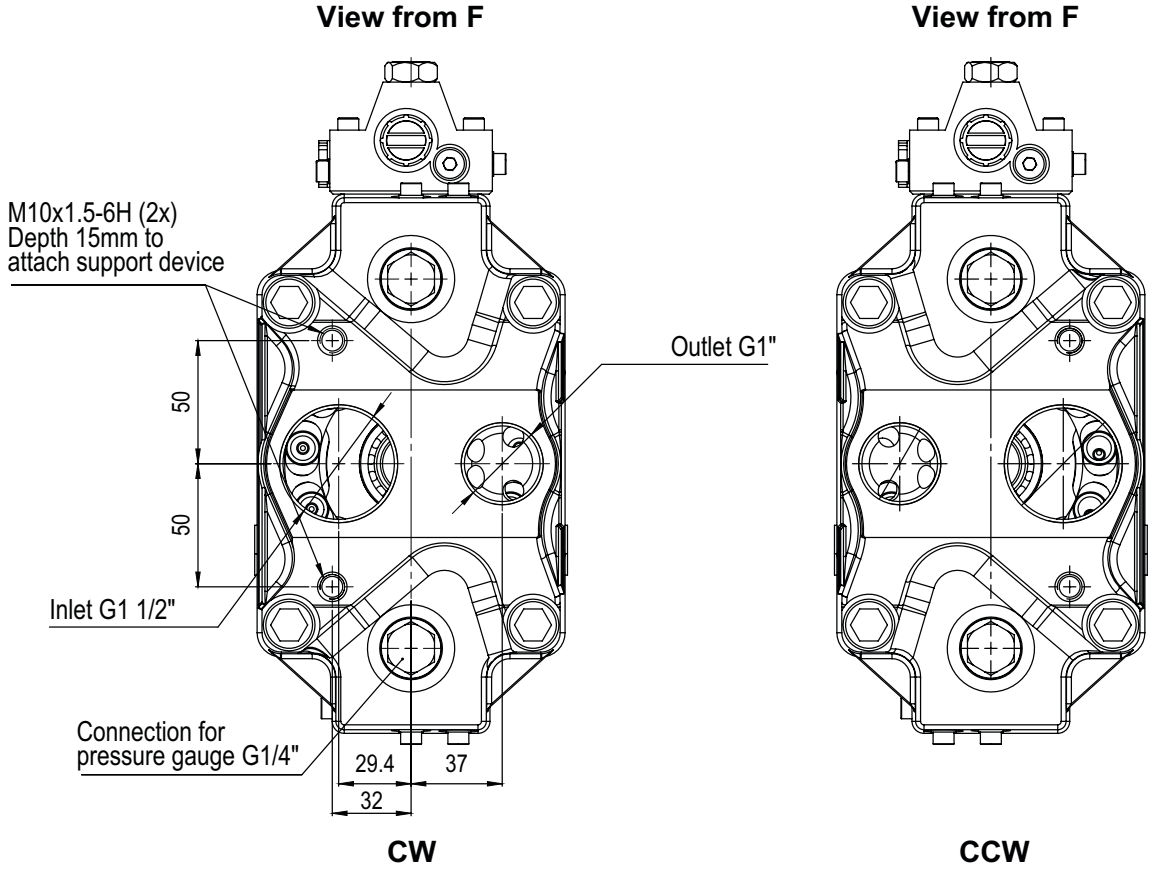


* This support has to be designed to avoid strain on the pump flange.

V 150cc



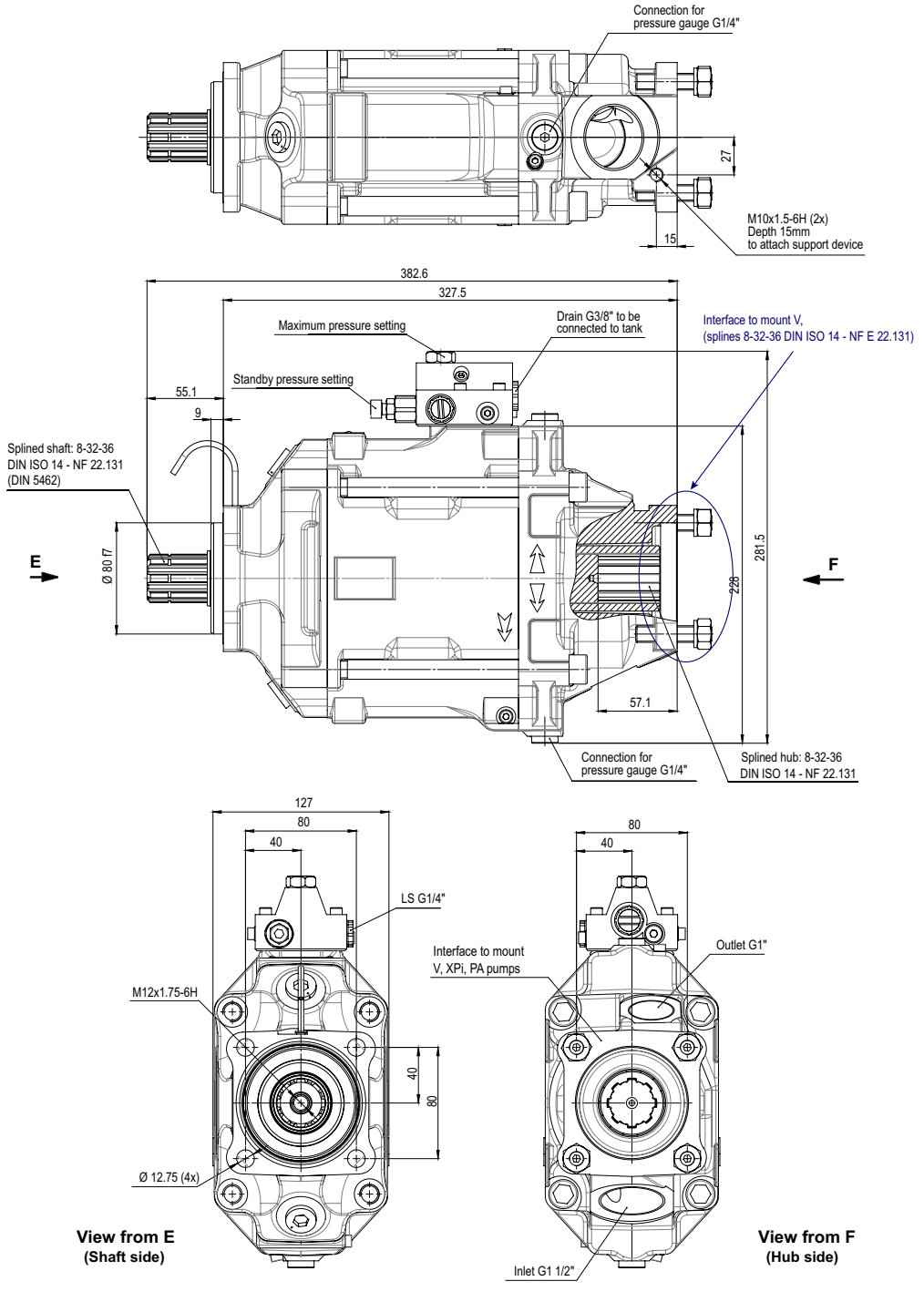
Dimensions in mm.



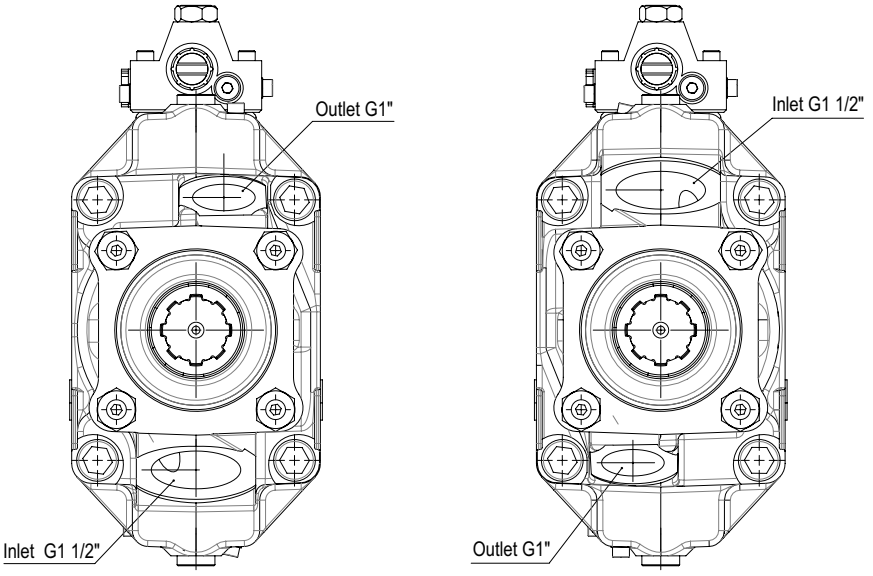
V 130 THROUGH SHAFT PUMP

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

With side porting for inlet and output, this “through shaft” V 130 configuration means any V pump, or fixed displacement pumps or axial piston pump pump, can be mounted on the back.
The maximum displacement of the “through shaft” V 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” V 130 does not exceed 900 N.m.



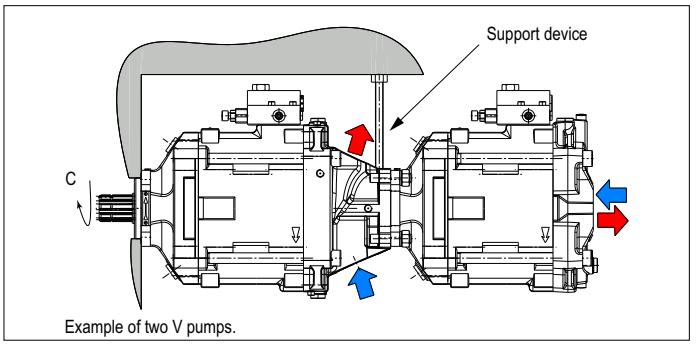
View from F



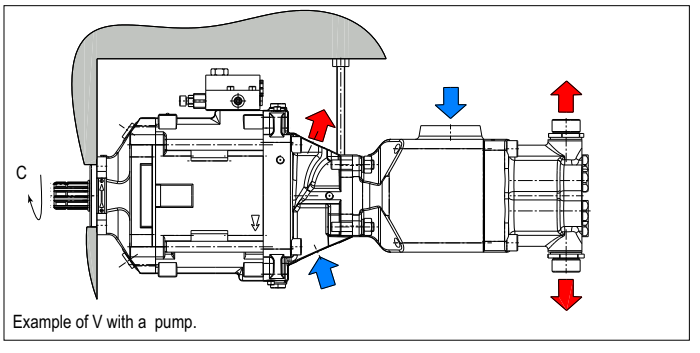
CW **CCW**

Support device

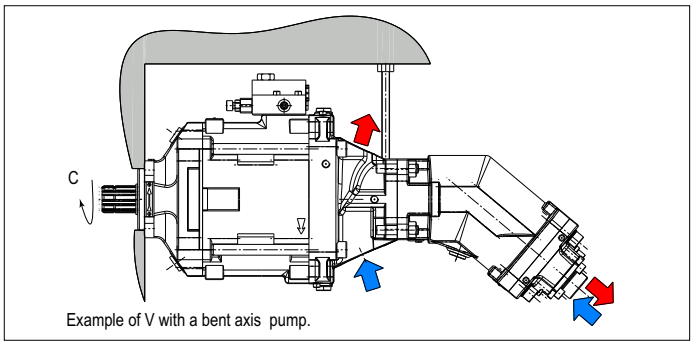
The support device for the pump must be fixed to the same part which the pump is mounted on (see diagram below) and has to be designed to avoid strain on the pump flange.



Example of two V pumps.



Example of V with a pump.



Example of V 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.