

TECHNICAL DATA

Displacement ⁽¹⁾	cm³/rev	14	18
Charge pump displacement	cm³/rev	5,4	
Max. speed ^(2, 3)	rpm	3600	
Min. speed	rpm	700	
Rated pressure	bar	210	
Peak pressure ^(3, 4)	bar	250	
Rated charge pressure	bar	10 ÷ 20	
Max. charge pressure	bar	35	
Max. case drain pressure ⁽⁵⁾	bar	2	
Suction pressure ⁽⁶⁾	bar	≥ 0,8	
Rotating parts moment of inertia	kg m²	0,0014	
Drive shaft radial load	N	600	
Drive shaft axial load	N	400	
Oil operating temperature	°C	-25 ÷ 80	
Viscosity range at operating temperature ⁽⁷⁾	cSt	15 ÷ 60	
Max. permissible contamination level in circuit ⁽⁸⁾	according to ISO 4406:1999	20/18/15	
Filtering cartridge grade ⁽⁸⁾	µm	22	
Connection flange		SAE A	
Standard seals ⁽⁹⁾		NBR	
Installation position and direction		any	
Approx. weight	kg	7	

Notes:

- (1) The same body is used for 14 and 18 cm³ pumps. Displacement limitation can be obtained by means of two setting screws which limit the control piston stroke.
- (2) Stated max. speed value is valid with suction inlet port absolute pressure of 1 bar, in case of use of mineral oil.
- (3) Simultaneous operation at max. speed and max. pressure is not recommended.
- (4) Peak operation must not exceed 1% of every minute.

For short periods or upon cold start:

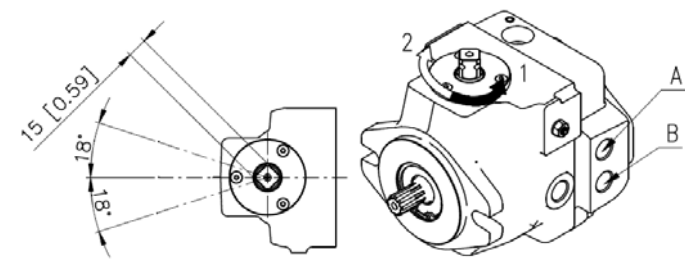
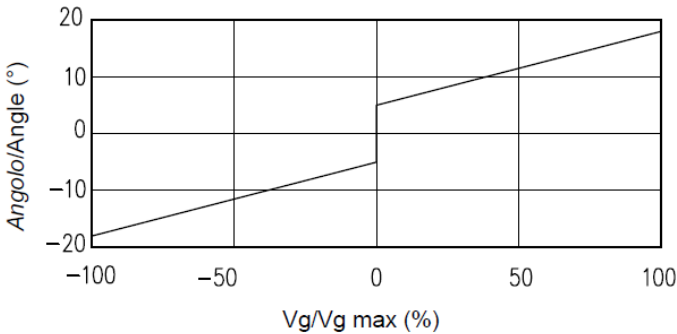
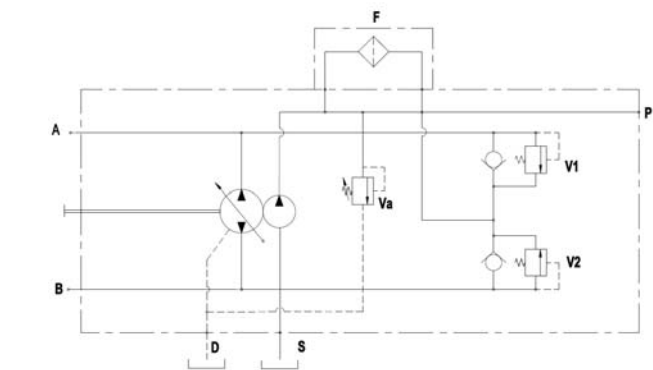
- (5) a case drain pressure of 6 bar is allowed. A higher pressure can damage the main shaft seal or reduce its life.
- (6) an absolute suction pressure of 0,5 bar is allowed.
- (7) a max. viscosity of 800 cSt or a viscosity range of 10 ÷ 15 cSt are allowed. Viscosities less than 10 cSt are not allowed. It is however suggested the use of anticorrosive and antioxidant mineral-base oil with wear-preventing additives (HL or HM).
- (8) In order to improve the control of the fluid contamination levels, the pump can be equipped with a boost flow filter positioned on the delivery outlet of the boost pump. Only the flow necessary to reintegrate the oil lost due to leakage will pass through this filter. All the excess flow, which is discharged through the boost pump valve, is therefore not filtered to ensure a longer life of the filter cartridge.

CONTROLS

Manual without zeroing

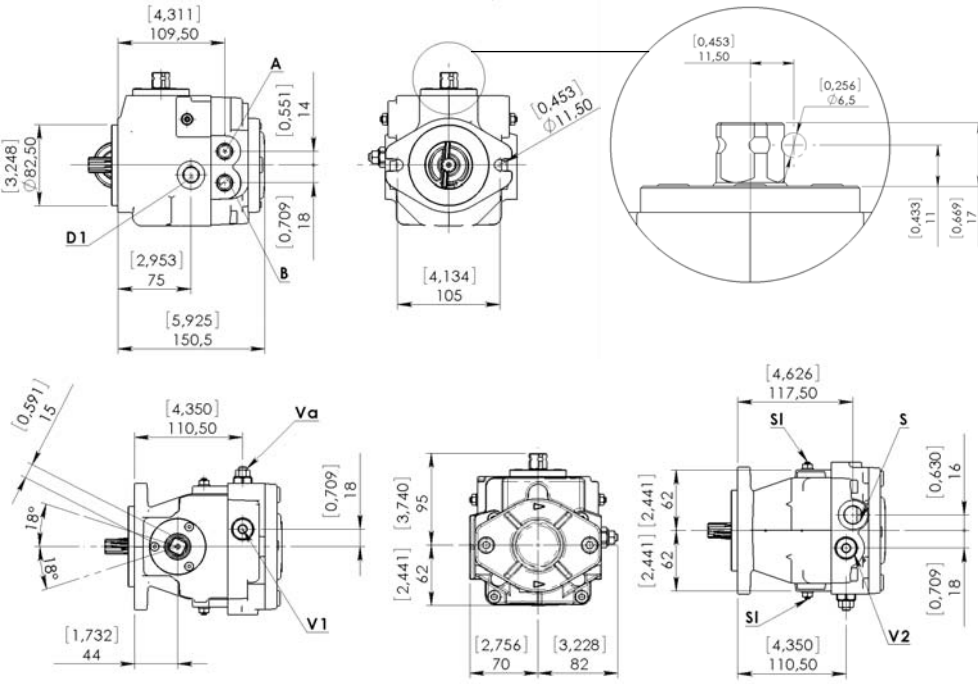
M

The pump displacement variation is achieved through the rotation clockwise or counterclockwise of a control pivot, e.g.: by means of a lever (not included).



Operating pressure	bar	40	200
Necessary torque to turn the control pivot	Min. Nm	6	12
	Max. Nm	15	25

Control pivot rotation	1	2
Shaft rotation	CW	CCW
Oil outlet port	A	B



Threads			
	Ports	Metric	SAE
A	Pressure	3/8 G	9/16 - 18 UNF - 2B
B	Pressure	3/8 G	9/16 - 18 UNF - 2B
D1	Drain	3/8 G	9/16 - 18 UNF - 2B
D2	Drain	3/8 G	9/16 - 18 UNF - 2B
S	Suction	1/2 G	3/4 - 16 UNF - 2B
P	Charge p.	1/4 G	7/16 - 20 UNF - 2B

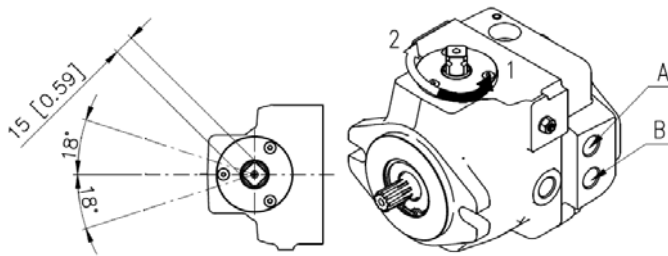
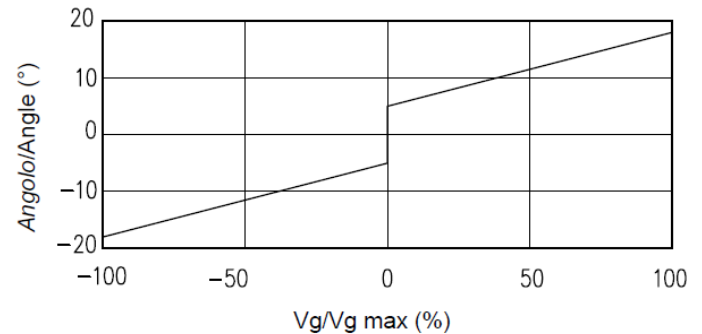
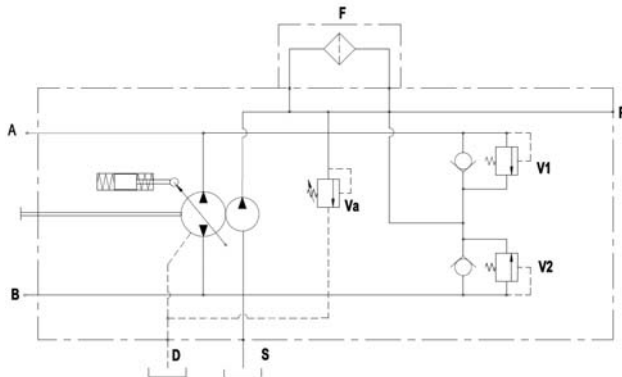
Valves	
Va	Charge pump
V1	Pressure relief
V2	Pressure relief
SI	Stroke limiter

CONTROLS

Manual with zeroing

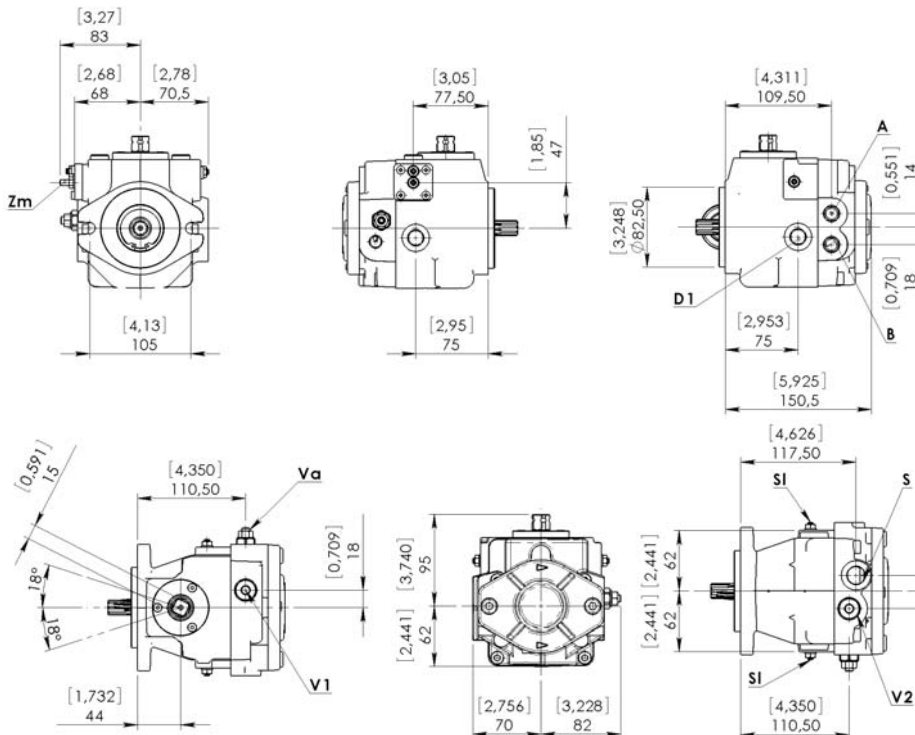
MZ

The pump displacement variation is achieved through the rotation clockwise or counterclockwise of a control pivot, e.g.: by means of a lever (not included). An internal spring guarantees the return to zero displacement of the pump.



Operating pressure		bar	40	200
Necessary torque to turn the control pivot	Min.	Nm	6	12
	Max.	Nm	15	25

Control pivot rotation	1		2	
Shaft rotation	CW	CCW	CW	CCW
Oil outlet port	A	B	B	A



Threads

	Ports	Metric	SAE
A B	Pressure	3/8 G	9/16 - 18 UNF - 2B
D1 D2	Drain	3/8 G	9/16 - 18 UNF - 2B
S	Suction	1/2 G	3/4 - 16 UNF - 2B
P	Charge p.	1/4 G	7/16 - 20 UNF - 2B

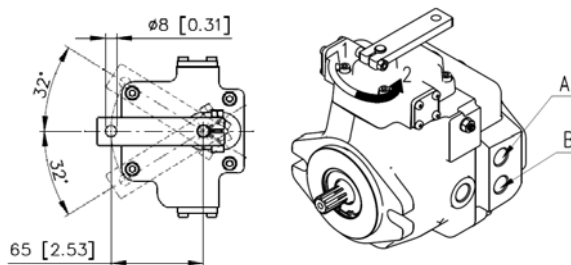
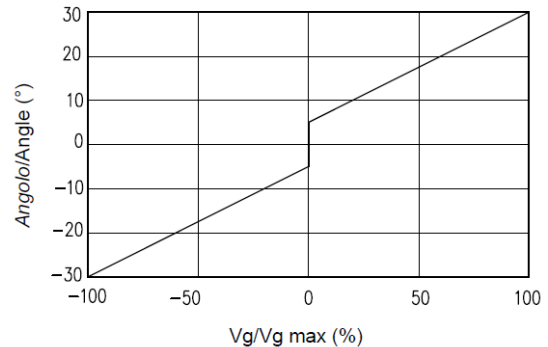
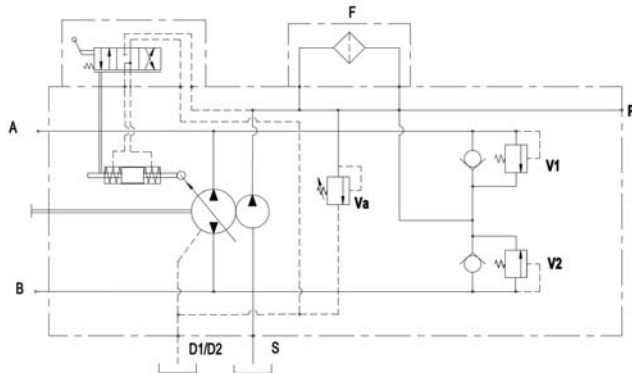
	Valves
Va	Charge pump
V1 V2	Pressure relief
Sl	Stroke limiter
Zm	Zero adjustment screw

CONTROLS

Manual lever with feedback

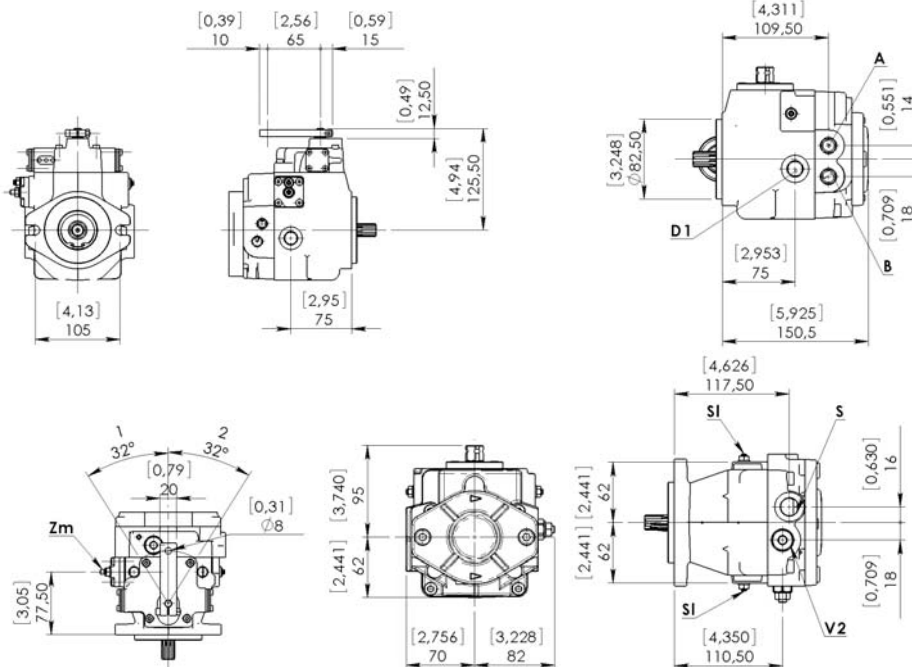
LF

The pump displacement variation is achieved through the rotation clockwise or counterclockwise of a control lever. A feedback system guarantees compensation against operating pressure variations.



Necessary torque to turn the control lever	Min.	Nm	0,6
	Max.	Nm	1,2
Control lever max. torque		Nm	3,0

Control lever rotation	1		2	
Shaft rotation	CW	CCW	CW	CCW
Oil outlet port	B	A	A	B



Threads

	Ports	Metric	SAE
A B	Pressure	3/8 G	9/16 - 18 UNF - 2B
D1 D2	Drain	3/8 G	9/16 - 18 UNF - 2B
S	Suction	1/2 G	3/4 - 16 UNF - 2B
P	Charge p.	1/4 G	7/16 - 20 UNF - 2B

Valves

Va	Charge pump
V1 V2	Pressure relief
Sl	Stroke limiter

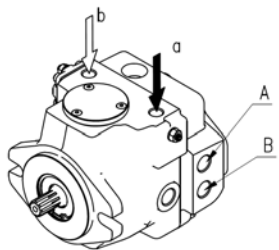
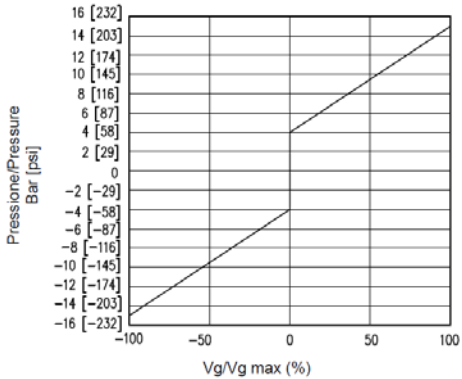
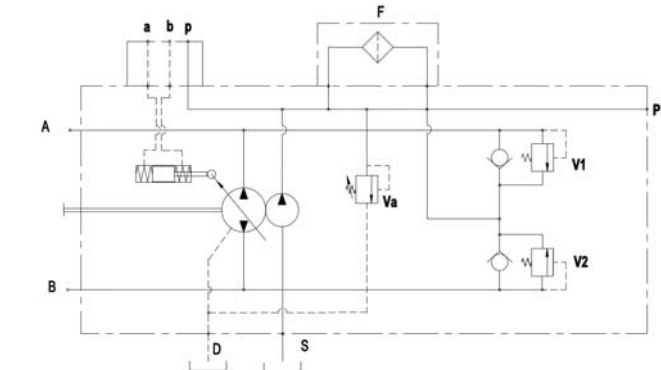
Zm	Zero adjustment screw
-----------	-----------------------

CONTROLS

Hydraulic proportional without feedback

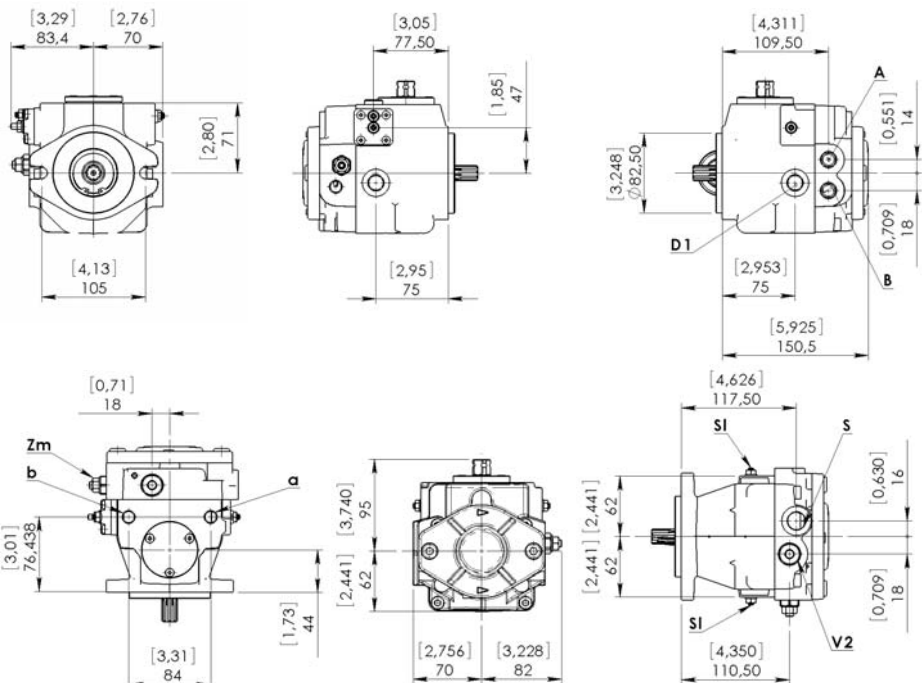
H

The pump displacement variation is achieved through a pilot pressure, which can be provided by charge pressure port and can be controlled by a joystick or by a pressure reducing valve (not included).



Max. pilot pressure bar 25

Pressurized pilot port	a		b	
Shaft rotation	CW	CCW	CW	CCW
Oil outlet port	A	B	B	A



Threads

	Ports	Metric	SAE
A	Pressure	3/8 G	9/16 - 18 UNF - 2B
B	Pressure	3/8 G	9/16 - 18 UNF - 2B
a	Pilot pressure	1/4 G	7/16 - 20 UNF - 2B
b	Pilot pressure	1/4 G	7/16 - 20 UNF - 2B
D1	Drain	3/8 G	9/16 - 18 UNF - 2B
D2	Drain	3/8 G	9/16 - 18 UNF - 2B
S	Suction	1/2 G	3/4 - 16 UNF - 2B
P	Charge pressure	1/4 G	7/16 - 20 UNF - 2B

Valves

Va	Charge pump
V1	Pressure relief
V2	Pressure relief
SI	Stroke limiter

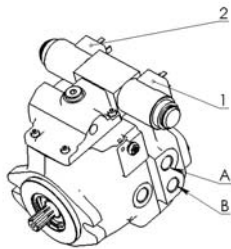
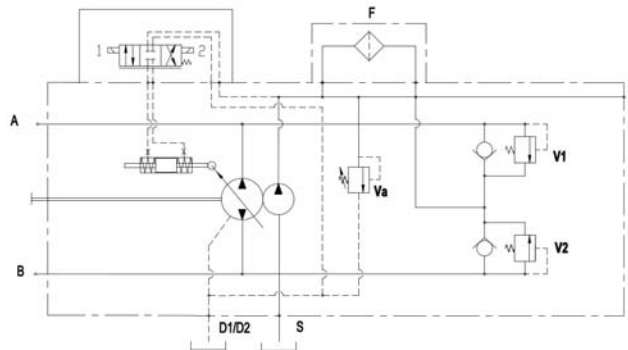
Zm Zero adjustment screw

CONTROLS

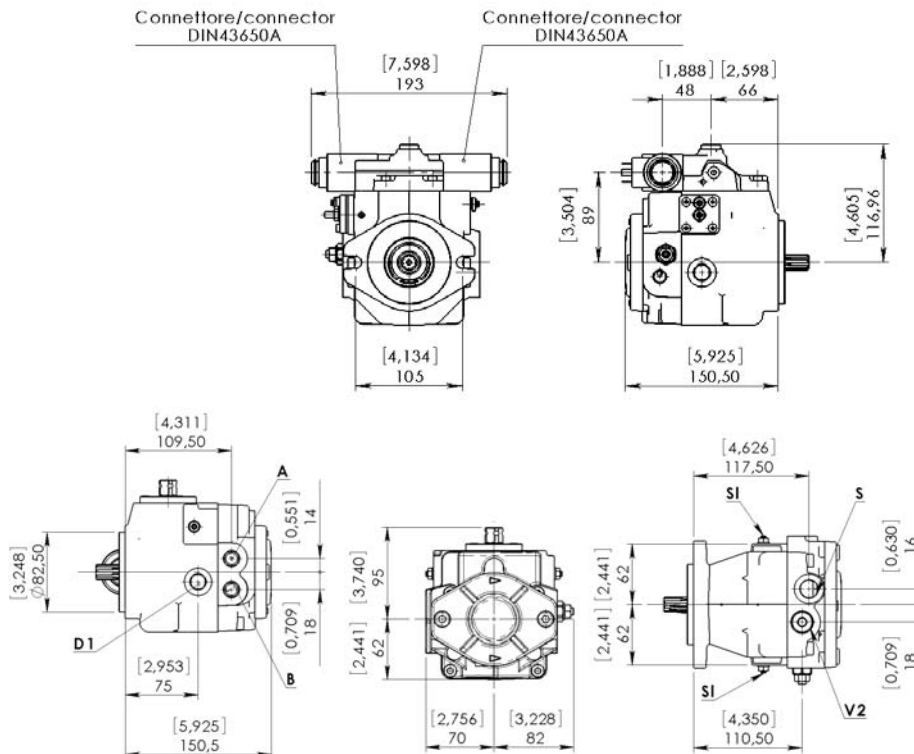
Electric impulse

EI

The pump displacement variation is achieved through inputs of current to one of the two proportional solenoids. There is no zeroing spring, therefore the piston of the servo-control stays in position until a new input of current is given to one of two solenoids.



Energized solenoid	1		2	
Shaft rotation	CW	CCW	CW	CCW
Oil outlet port	B	A	A	B



	Threads		
	Ports	Metric	SAE
A B	Pressure	3/8 G	9/16 - 18 UNF - 2B
D1 D2	Drain	3/8 G	9/16 - 18 UNF - 2B
S	Suction	1/2 G	3/4 - 16 UNF - 2B
P	Charge pressure	1/4 G	7/16 - 20 UNF - 2B

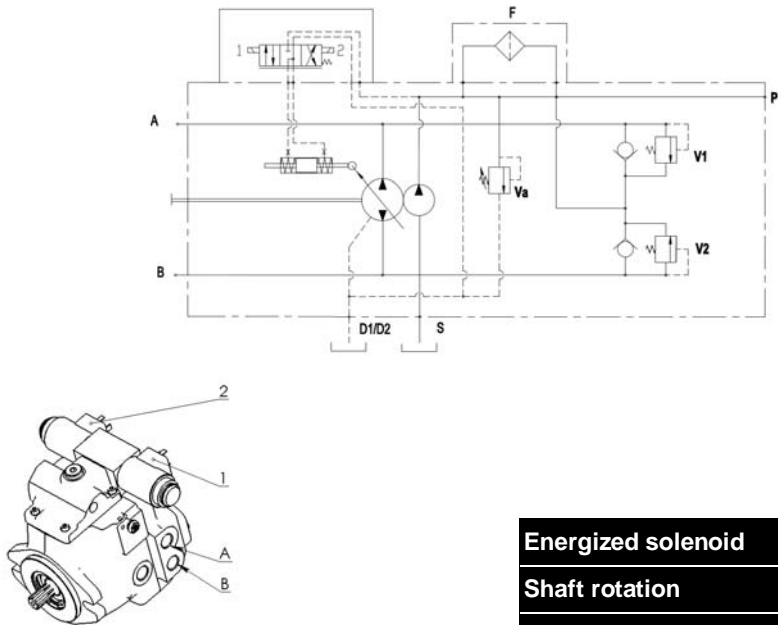
	Valves
Va	Charge pump
V1 V2	Pressure relief
SI	Stroke limiter

CONTROLS

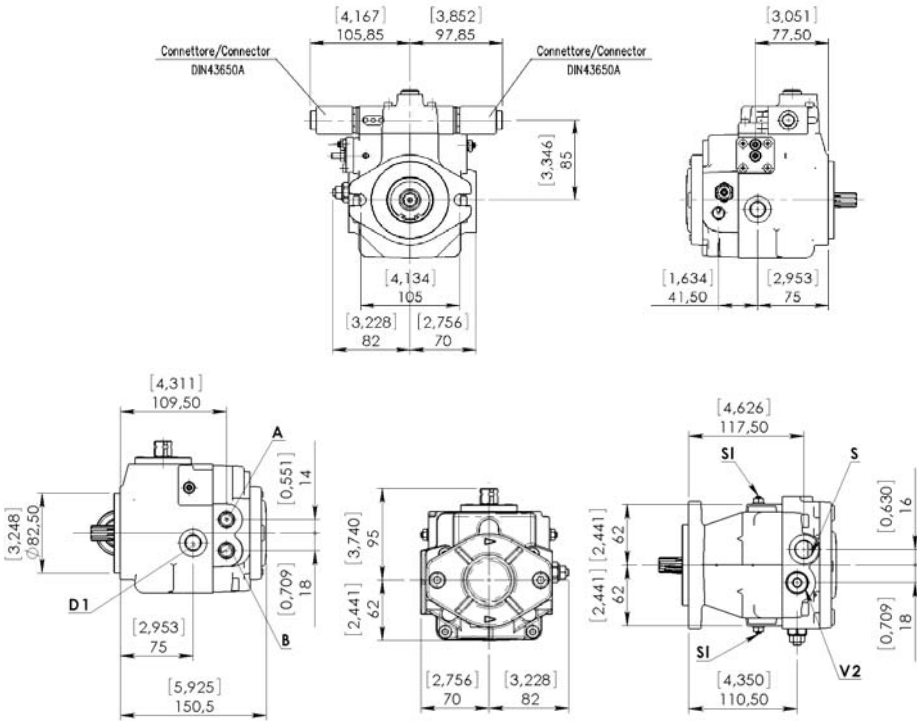
Electric two positions

ET

The pump maximum displacement is achieved through inputs of current to one of the two proportional solenoids. There is no zeroing spring, therefore the piston of the servo-control stays in position until a new input of current is given to one of two solenoids.



Energized solenoid	1		2	
Shaft rotation	CW	CCW	CW	CCW
Oil outlet port	B	A	A	B



Threads

	Ports	Metric	SAE
A	Pressure	3/8 G	9/16 - 18 UNF - 2B
B			
D1	Drain	3/8 G	9/16 - 18 UNF - 2B
D2			
S	Suction	1/2 G	3/4 - 16 UNF - 2B
P	Charge pressure	1/4 G	7/16 - 20 UNF - 2B

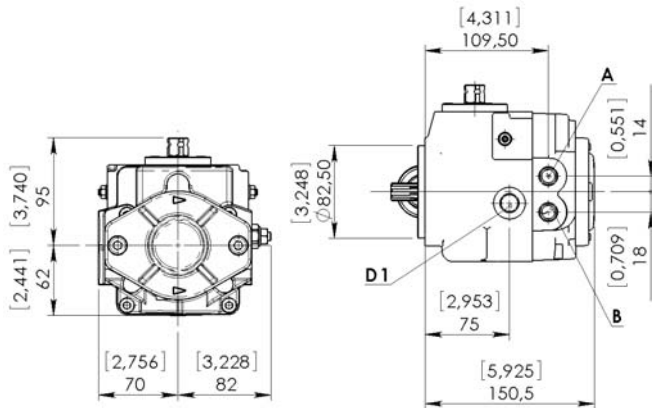
Valves

Va	Charge pump
V1	Pressure relief
V2	
SI	Stroke limiter

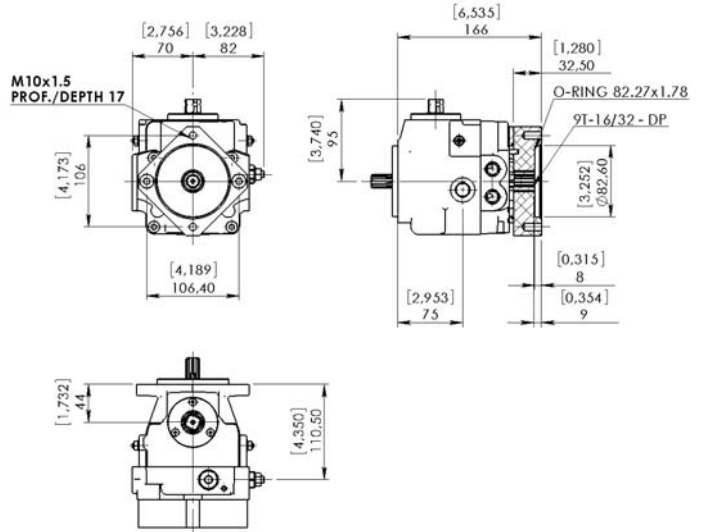
THROUGH DRIVES

No through drive

N

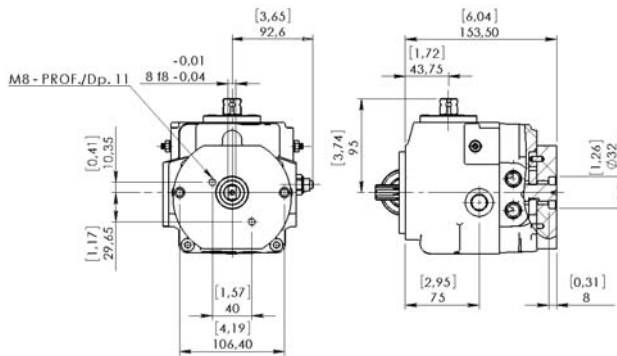
**SAE A**

A



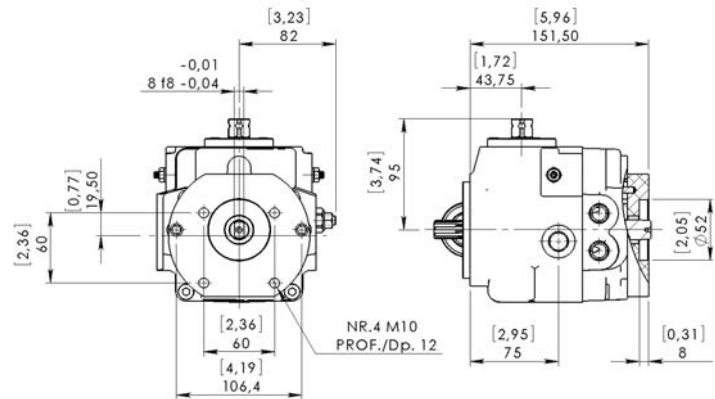
Bosch Group 1

1



Bosch Group 2

2



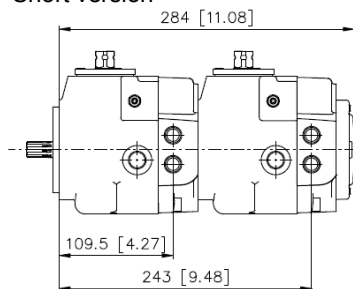
TANDEM PUMPS

14
18

14
18

+

“Short version”



THROUGH DRIVE
1st pump 2nd pump

T
T
T
T

N
1
2
A

SHAFT
1st pump 2nd pump

09
09

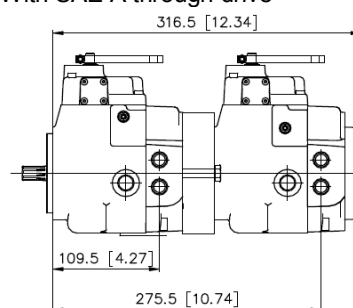
109
109B

14
18

14
18

+

With SAE A through drive



THROUGH DRIVE
1st pump 2nd pump

A
A
A
A

N
1
2
A

SHAFT
1st pump 2nd pump

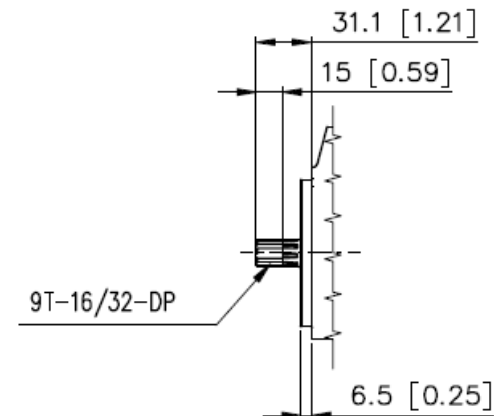
09
09

09
09B

SHAFTS

Splined 9 teeth 16/32 pitch

09
09B

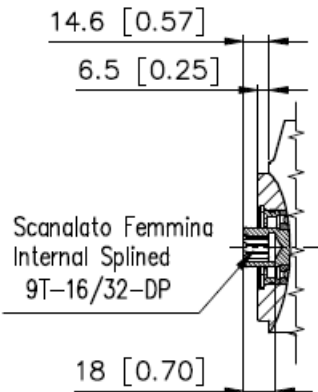


Cylindrical \varnothing 15,88 mm (5/8")

C15

Internal Splined 9 teeth 16/32 pitch

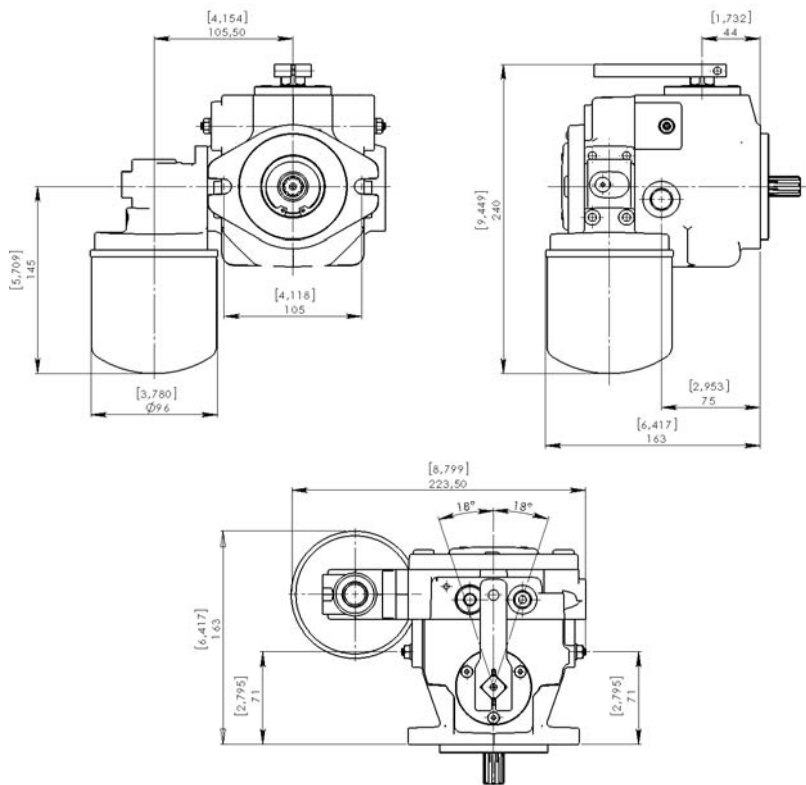
I09
I09B



OPTIONS

Filter

F



MODEL CODE

ASL _ _ (_ _ _) _ (_ _ _) _ _ _ _ (_) _ _ (_) _ (_ _ _ _ _)
 1 2 3 4 5 6 7 8 9 10

1. SERIES

ASL

2. NOMINAL DISPLACEMENT

14 cm ³ /rev	14
18 cm ³ /rev	18

3. DISPLACEMENT LIMITATION

Without limitation	(no code)
Displacement in cm ³ /rev (up to 17 cm ³ /rev)	—

4. CONTROL

Manual without zeroing	M
Manual with zeroing	MZ
Manual lever with feedback	LF
Hydraulic proportional without feedback	H
Electric impulse – Voltage in V (either 12 V or 24 V)	EI
Electric 2 positions – Voltage in V (either 12 V or 24 V)	ET

SHAFT END

5. THROUGH DRIVE

	09	09B	I09B	I09	C15	
No through drive	•		•		•	N
SAE A	•				•	A
Bosch Group 1		•		•		1
Bosch Group 2		•		•		2
Tandem “short version”	•					T

6. PRESSURE RELIEF VALVE

Pressure in bar : 10 (e.g.: 17 for 170 bar, 20 for 200 bar and so on; from 140 bar to 200 bar)	—
--	---

MODEL CODE

A S L () - () - - () () - ()
 1 2 3 4 5 6 7 8 9 10

7. ROTATION DIRECTION

CW	R
CCW	L

8. SHAFT END

	Single pump	Tandem 1 st pump	Tandem 2 nd pump	
Splined 9 teeth 16/32 pitch, standard	•	•	•	09
Splined 9 teeth 16/32 pitch, for BOSCH through drive	•		•	09B
Internal Splined 9 teeth 16/32 pitch, standard			•	I09
Internal Splined 9 teeth 16/32 pitch, for BOSCH through drive			•	I09B
Cylindrical ø 15,88 mm (5/8")	•	•		C15

9. PORT THREADS

Metric (BSPP)	M
SAE (UNF) – only for orders of at least 100 pieces	S

10. OPTIONS – more than one can be chosen

No options	N
Filter	F
Filter with electric sensor	FE
Electric cut-off valve – Voltage in V (either 12 V or 24 V)	C__
Operator safety – Voltage in V (either 12 V or 24 V; not available with “Tandem short version”)	S__

For tandem pumps, both pumps model codes must be stated, divided by a “+”

EXAMPLES

ASL18 MZ A 17 R 09 M N ASL18-15 EI12 1 21 L 09B M F ASL14 H A 25 R 09 M N + ASL14 H 1 25 R 09B M N