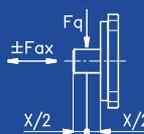




**Axial
Piston Pumps
PMV**

TECHNICAL SPECIFICATION

	Model			
	PMV	18	28	64
Displacement	cm ³ rev ⁻¹ [in ³ rev ⁻¹]	14-18 [0.85-1.09]	21-28 [1.28-1.71]	42-50-64 [2.56-3.05-3.90]
Charge pump displacement	cm ³ rev ⁻¹ [in ³ rev ⁻¹]	5.4 [0.32]	11 [0.671]	13 [0.79]
Maximum speed	min ⁻¹ [rpm]	3500	3500	3500
Minimum speed	min ⁻¹ [rpm]	750	750	750
Operating pressure				
Main pump:				
• Maximum continuous	bar [psi]	250 [3,625]	250 [3,625]	250 [3,625]
• Maximum peak	bar [psi]	350 [5,075]	350 [5,075]	350 [5,075]
Charge pump:				
• Nominal	bar [psi]	10 ÷ 20 [145 ÷ 290]	10 ÷ 20 [145 ÷ 290]	10 ÷ 20 [145 ÷ 290]
• Maximum	bar [psi]	35 [507]	35 [507]	35 [507]
Maximum case drain pressure	bar [psi]	2 [29]	2 [29]	2 [29]
• On cold starting, for short periods	bar [psi]	6 [86]	6 [86]	6 [86]
Minimum suction pressure	bar [psi]	1 [14.5]	1 [14.5]	1 [14.5]
• On cold starting, for short periods	bar [psi]	0,5 [7.25]	0,5 [7.25]	0,5 [7.25]
Operating temperature	°C [°F]	-25 ÷ +80 [-13 ÷ 176]	-25 ÷ +80 [-13 ÷ 176]	-25 ÷ +80 [-13 ÷ 176]
Fluids	Mineral oil basis and anticorrosive, antioxidant and wear preventing addition agents (HL or HM).			
Viscosity:				
• At operating temperature	cSt	15 ÷ 60	15 ÷ 60	15 ÷ 60
• Extreme operating conditions, for short periods	cSt	10 ÷ 15	10 ÷ 15	10 ÷ 15
• On cold starting, for short periods	cSt	< 800	< 800	< 800
Filtration	Optional boost flow filter through which passes only the flow necessary to reintegrate the oil lost due to leakage; 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.			
Cartridge filtration grade:				
• Absolute	µm	22	22	22
• Nominal	µm	10	10	10
Drive shaft loads				
• Radial (F_q max)	N [lbf]	600 [135]	1.200 [270]	3.000 [675]
• Axial (F_{ax} max)	N [lbf]	400 [90]	950 [213]	1.500 [337]
				
Displacement limiting	Obtained by means of two setting screws which limit the control piston stroke.			
Installation	Possible in every position or direction.			
Weight	kg [lb]	7 [15.4]	13 [28.65]	29 [63.9]

ORDERING CODE

PMV		-	*					*		*
1	2	3	4	5	6	7	8	9	10	

* fields number 3, 9 and 10 are optional

Model

1	PMV	Variable displacement medium duty axial piston pump for closed circuit
---	------------	--

Size

2	≈ Displacement in cm ³
---	-----------------------------------

14	18	21	28	42	50	64
----	----	----	----	----	----	----

Displacement limiting

3	Without displacement limiting (no code)
	~ Displacement in cm ³

14	18	21	28	42	50	64
01÷13	15÷17	19÷20	22÷28	29÷41	43÷49	51÷63

Control

		Size	14-18	21-28	42-50-64
4	L	Manual without zeroing	•	/	/
	M	Manual with zeroing	•	/	/
	R	Manual lever with feedback	•	•	•
	N	Hydraulic proportional without feedback	•	•	•
	P	Hydraulic proportional with feedback	/	•	•
	I12	Electric impulse 12V	•	•	•
	I24	Electric impulse 24V	•	•	•
	F12	Electric two positions 12V	•	•	•
	F24	Electric two positions 24V	•	•	•
	E12	Electric proportional with feedback 12V	/	•	•
E24	Electric proportional with feedback 24V	/	•	•	

Shaft

		Size	14-18			21-28			42-50-64		
		Pump	Sin.	1 st	2 nd	Sin.	1 st	2 nd	Single	1 st	2 nd
5	A	Splined 9T-16/32-DP	•	•	•	/	/	/	/	/	/
	B	Splined 9T-16/32-DP BOSCH	•	/	•	/	/	/	/	/	/
	C	Internal Splined 9T-16/32-DP TANDEM BOSCH	/	/	•	/	/	/	/	/	/
	D	Internal Splined 9T-16/32-DP TANDEM	/	/	•	/	/	/	/	/	/
	E	Splined 9T-16/32-DP for SAE-A through drive	•	•	•	/	/	/	/	/	/
	F	Splined 13T-16/32-DP	/	/	/	•	•	•	/	/	/
	G	Internal Splined 13T-16/32-DP TANDEM	/	/	/	•	•	/	/	/	•
	H	Splined 15T-16/32-DP	/	/	/	•	•	/	•	•	•
	I	Splined 15T-16/32-DP TANDEM	/	/	/	•	•	/	•	•	/

Direction of rotation

6	R	Clockwise (CW)
	L	Counterclockwise (CCW)

ORDERING CODE

PMV		-	*					*		*
1	2	3	4	5	6	7	8	9	10	

* fields number 3, 9 and 10 are optional

Pressure relief valve

7	14	140 bar [2,030 psi]
	16	160 bar [2,320 psi]
	17	170 bar [2,465 psi]
	21	210 bar [3,045 psi]
	25	250 bar [3,625 psi]
	30	300 bar [4,350 psi]
	35	350 bar [5,075 psi]

Through drive

		Size	14-18					21-28				42-50-64		
			A	B	C	D	E	F	G	H	I	G	H	I
8	X	Without through drive	•	/	/	•	/	•	•	•	/	•	/	•
	G1	Bosch GP1	/	•	•	/	/	/	/	/	/	/	/	/
	G2	Bosch GP2	/	•	•	/	/	/	/	/	/	/	/	/
	A	SAE A = 9T-16/32-DP	/	/	/	/	•	•	•	/	•	•	/	
	B	SAE B = 13T-16/32-DP	/	/	/	/	/	/	/	•	/	/	•	
	C	SAE B-B = 15T-16/32-DP	/	/	/	/	/	/	/	/	/	/	•	
	D	Double pump, short version	•	/	/	/	/	/	/	•	/	/	•	
	DA	Double pump, SAE A = 9T-16/32-DP	/	/	/	/	•	•	/	•	/	•	/	
	DB	Double pump, SAE B = 13T-16/32-DP	/	/	/	/	/	/	/	•	/	/	•	
	DC	Double pump, SAE B-B = 15T-16/32-DP	/	/	/	/	/	/	/	/	/	/	•	

Port threads

9		Metric (BSPP) (no code)
	U	SAE (UNF) - for minimum quantity orders of 100 pcs.

Options*

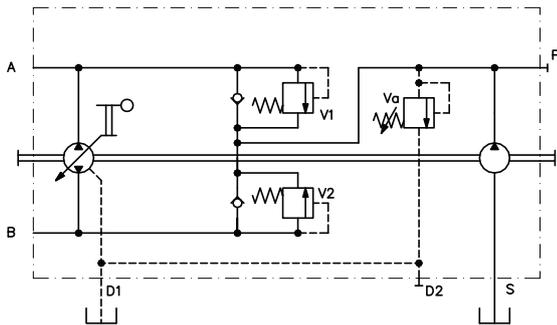
		Size	14-18						21-28						42-50-64					
			L	M	R	N	I	F	R	N	P	I	F	E	R	N	P	I	F	E
10		Without options (no code)	•	•	•	•	•	•	/	/	/	/	/	/	•	•	•	•	•	•
	F	Pressure filter	•	•	•	•	•	•	/	/	/	/	/	/	•	•	•	•	•	•
	B	By-pass	/	/	/	/	/	/	•	•	•	•	•	•	•	•	•	•	•	•
	Z	Additional control pressure gauge ports	/	/	/	/	/	/	/	/	/	/	/	/	•	•	•	•	•	•
	C12	Electric cut-off valve 12 V **	/	/	•	•	/	/	•	•	•	•	•	•	•	•	/	/	/	/
	C24	Electric cut-off valve 24 V **	/	/	•	•	/	/	•	•	•	•	•	•	•	•	/	/	/	/
	L27	Power limiter, destroke at 270 bar [3.915 psi] **	/	/	/	/	/	/	•	•	•	•	•	•	•	•	•	•	•	•
L32	Power limiter, destroke at 320 bar [4.640 psi] **	/	/	/	/	/	/	•	•	•	•	•	•	•	•	•	•	•	•	

* more options can be selected, e.g.: FBL27 for pressure filter, by-pass, power limiter;

** it is not possible to assemble the cut-off valve with power limiter and in the tandem pump short version.

CONTROLS

L Manual without zeroing

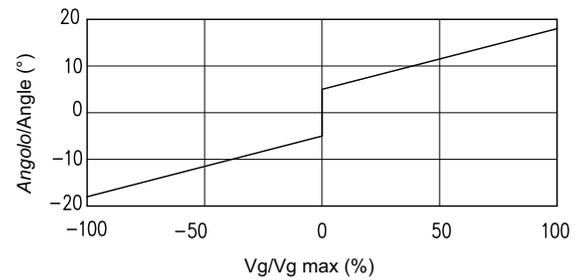


Displacement variation: directly proportional to the angle of rotation of the control pivot which is built-in the swashplate (i.e. by means of a lever – not supplied).

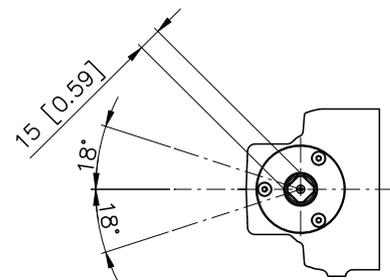
Size	14-18		

Pump flow direction

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

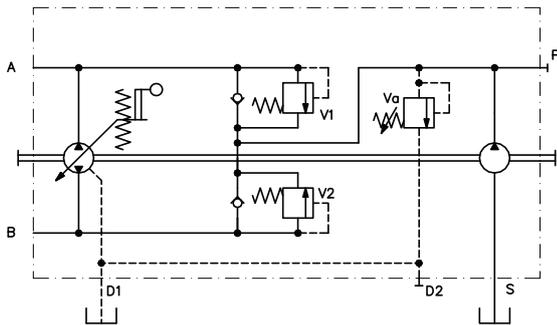


Operating pressure	bar [psi]	40 [580]	200 [2,900]
Required torque on the control pivot	Nm [lbf ft]	2 ÷ 5 [1.47 ÷ 3.68]	8 ÷ 11 [5.89 ÷ 8.1]



CONTROLS

M Manual with zeroing

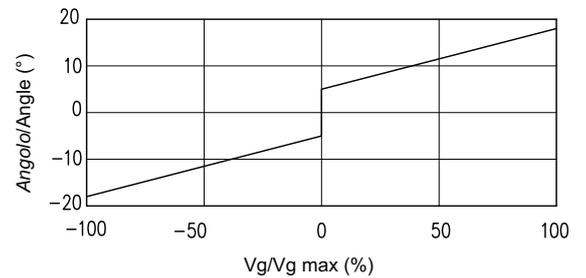


Displacement variation: directly proportional to the angle of rotation of the control pivot which is built-in the swashplate (i.e. by means of a lever – not supplied); an internal spring guarantees return to zero displacement.

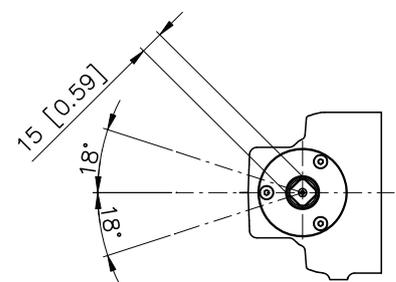
Size	14-18		

Pump flow direction

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

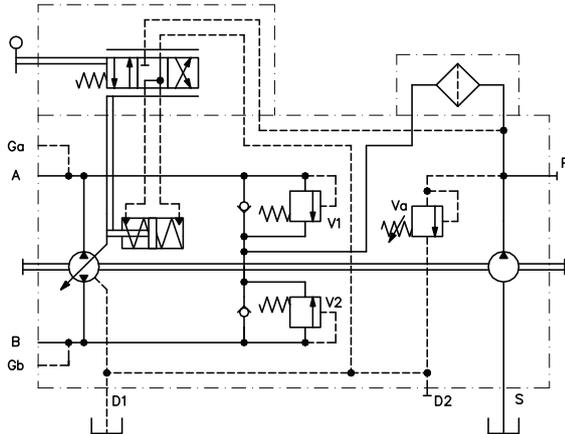


Operating pressure	bar [psi]	40 [580]	200 [2,900]
Required torque on the control pivot	Nm [lbf ft]	6 ÷ 15 [4.42 ÷ 11.05]	12 ÷ 25 [8.84 ÷ 18.42]

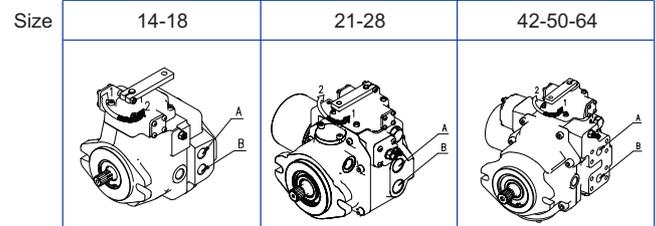


CONTROLS

R Manual lever with feedback

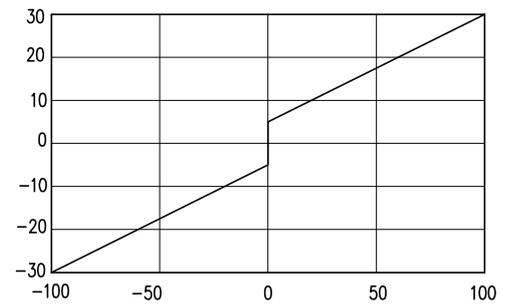


Displacement variation: directly proportional to the angle of rotation of the lever; the feedback guarantees compensation against operating pressure variations.



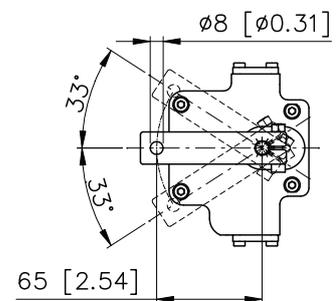
Pump flow direction

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



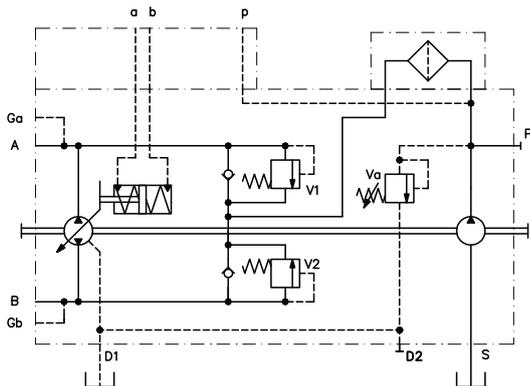
Torque on the control lever

• Required	Nm [lbf ft]	0,6 ÷ 1,2 [0.44 ÷ 0.88]
• Maximum		3 [2.21]

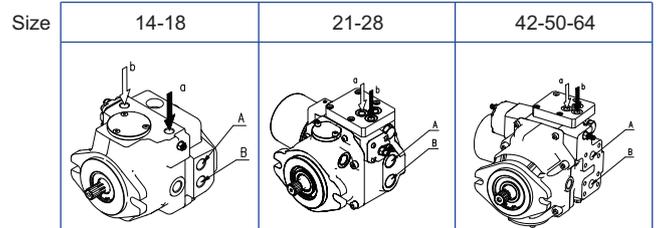


CONTROLS

N Hydraulic proportional without feedback

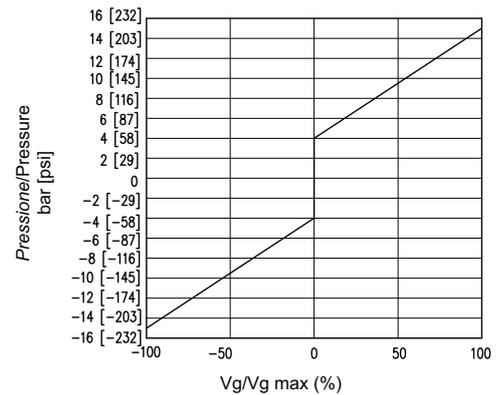


Displacement variation: proportional to the pilot pressure on "a" or "b" ports controlled by a joystick or a pressure reducing valve (not supplied) whose feeding pressure can be provided by charging pressure from P port.



Pump flow direction

Shaft rotation	CCW		CW	
Control rotation	a	b	a	b
Oil outlet	A	B	B	A

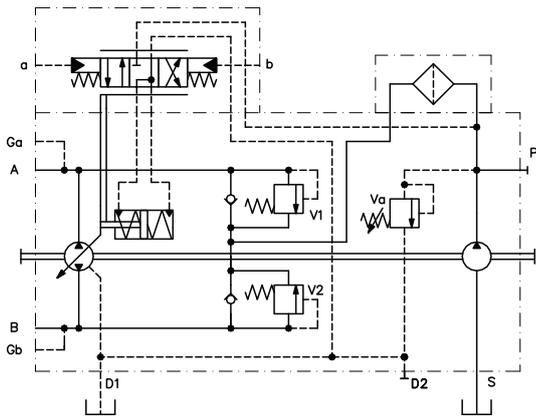


Pressure (at ports "a" and "b")

• Pilot	bar [psi]	4 ÷ 15 [28 ÷ 217]
• Maximum		30 [435]

CONTROLS

P Hydraulic proportional without feedback

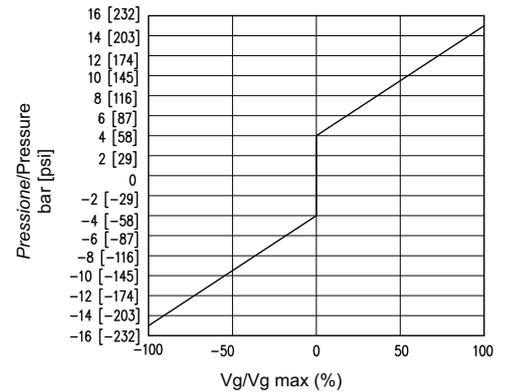


Displacement variation: proportional to the pilot pressure on "a" or "b" ports controlled by a joystick or a pressure reducing valve (not supplied) whose feeding pressure can be provided by charging pressure from P port; the feedback guarantees compensation against operating pressure variations.

Size	14-18	21-28	42-50-64

Pump flow direction

Shaft rotation	CCW		CW	
Control rotation	a	b	a	b
Oil outlet	B	A	A	B



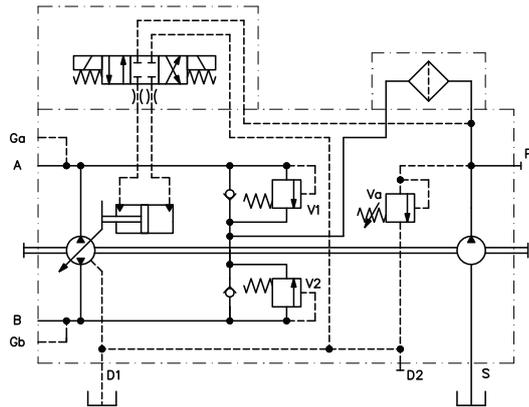
Pressure (at ports "a" and "b")

• Pilot	bar [psi]	4 ÷ 15 [28 ÷ 217]
• Maximum		30 [435]

CONTROLS

I12 Electric impulse 12V

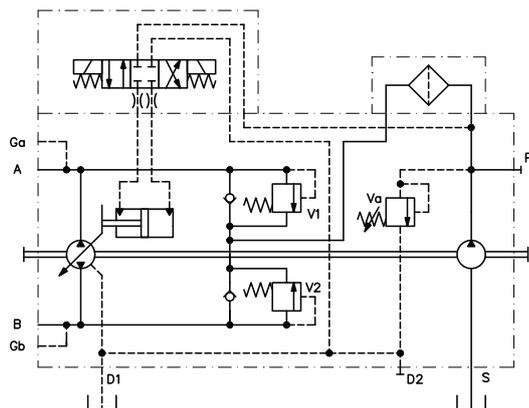
I24 Electric impulse 24V



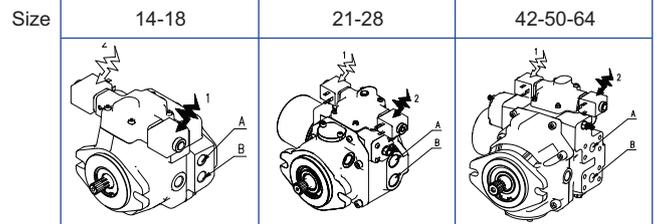
Displacement variation: in function of the number of inputs of current to one of the two proportional solenoids.

F12 Electric two positions 12V

F24 Electric two positions 24V

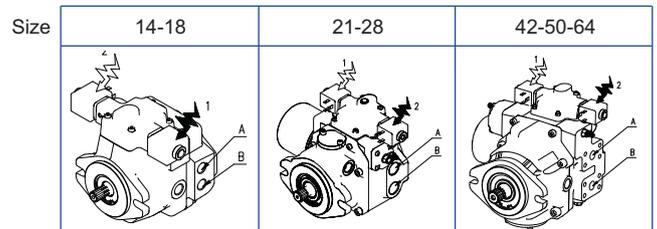


Displacement variation: maximum, when one of the two ON-OFF solenoids is switched on.



Pump flow direction

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



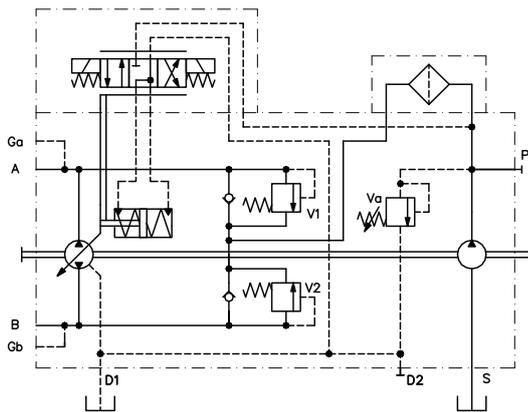
Pump flow direction

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

CONTROLS

E12 Electronic proportional with feedback 12V

E24 Electronic proportional with feedback 24V



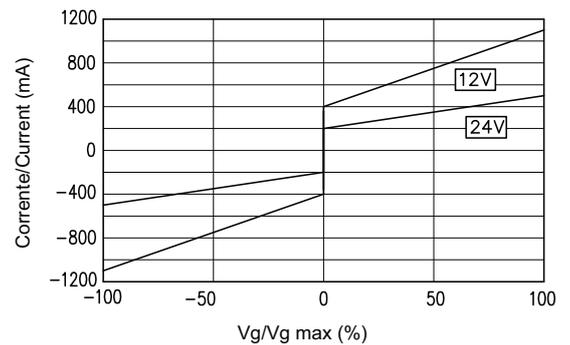
Displacement variation: directly proportional to the input current to one of the two proportional solenoids; the feedback guarantees compensation against operating pressure variations.

Control rotation	V	24	12
Oil outlet	mA	200 ÷ 550	400 ÷ 1.100

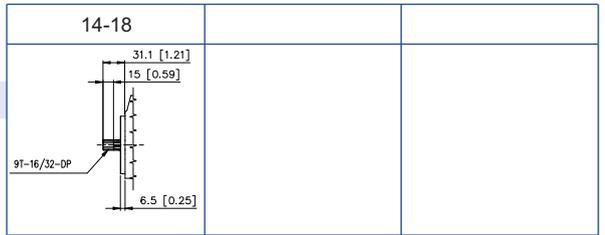
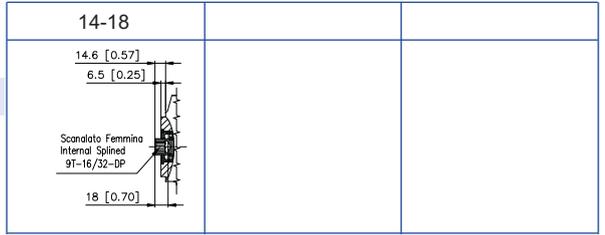
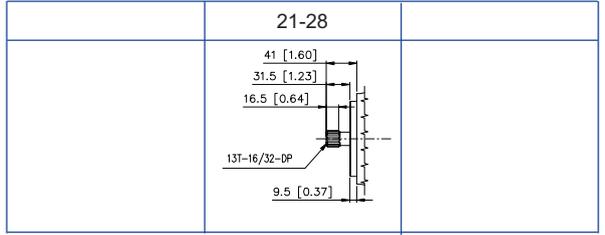
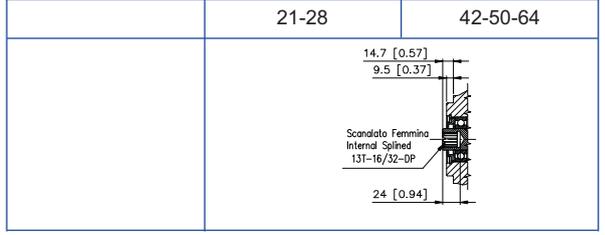
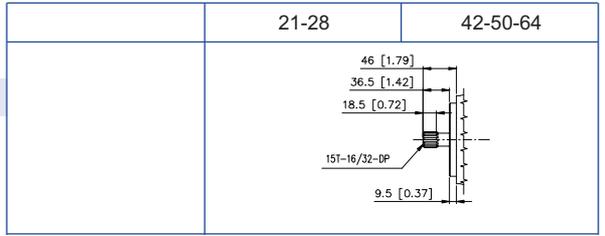
Size	14-18	21-28	42-50-64

Pump flow direction

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



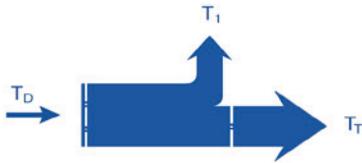
SHAFT ENDS

<p>A Splined 9T-16/32-DP B Splined 9T-16/32-DP BOSCH E Splined 9T-16/32-DP for SAE-A through drive</p>	<p>Size 14-18</p> 
<p>C Internal Splined 9T-16/32-DP TANDEM BOSCH D Internal Splined 9T-16/32-DP TANDEM</p>	<p>Size 14-18</p> 
<p>F Splined 13T-16/32-DP</p>	<p>Size 21-28</p> 
<p>G Internal Splined 13T-16/32-DP TANDEM</p>	<p>Size 21-28 42-50-64</p> 
<p>H Splined 15T-16/32-DP I Splined 15T-16/32-DP TANDEM</p>	<p>Size 21-28 42-50-64</p> 

THROUGH DRIVES

MAXIMUM TORQUES

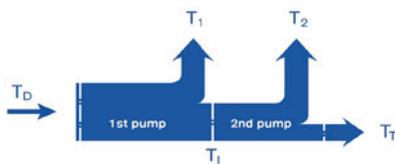
Single pump



Maximum torque at the drive shaft	T_D
Maximum torque at the through shaft	T_T

Drive shaft	14-18			21-28		42-50-64
	A	B	E	F	H	H
Nm	80	80	80	250	360	360
[lbf ft]	[59]	[59]	[59]	[184]	[265]	[265]
Nm	80	45	80	80	80	80
[lbf ft]	[59]	[33]	[59]	[59]	[59]	[59]

Double pump



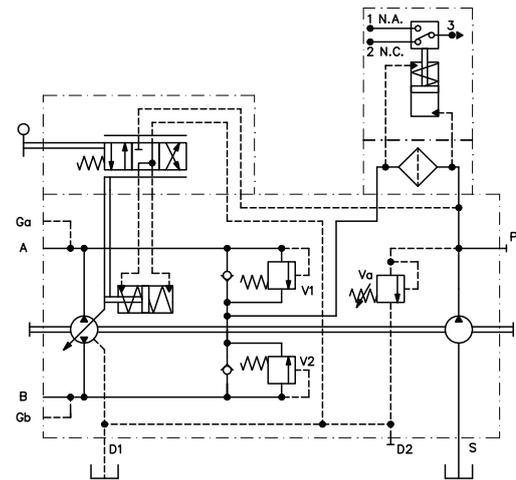
Maximum torque at the drive shaft	T_D
Maximum intermediate torque	T_I
Maximum torque at the through shaft	T_T

Drive shaft	14-18					21-28			42-50-64	
	A	B	C	D	E	I	G	H	I	G
Nm	80	-	-	-	80	360	-	-	360	-
[lbf ft]	[59]	-	-	-	[59]	[265]	-	-	[265]	-
Nm	80	80	80	80	80	250	250	80	250	250
[lbf ft]	[59]	[59]	[59]	[59]	[59]	[184]	[184]	[59]	[184]	[184]
Nm	-	45	45	45	-	-	80	-	-	80
[lbf ft]	-	[33]	[33]	[33]	-	-	[59]	-	-	[59]

OPTIONS

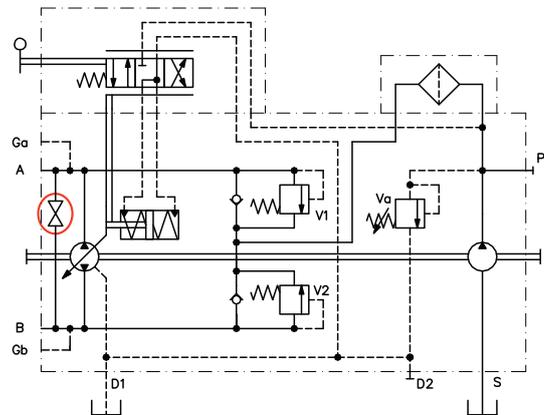
F Pressure filter

The filter, positioned on the delivery outlet of the booster pump, enables only the flow necessary to reintegrate the lost oil due to drainage to pass, guaranteeing an optimum stability of the fluid contamination conditions. All the excess flow, which is drained by the booster pump valve, is therefore not filtered; in this way it is guaranteed a longer life of the filter cartridge.



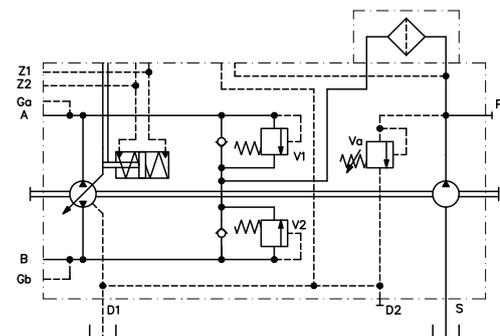
B By-pass

The By-pass valve is a tap inside the pump that allows, if necessary, to connect the pressure port line A and B.



Z Additional control pressure gauge ports

The additional Z1 and Z2 control pressure ports allow to control the pressure on the servocontrol, independently from the control of the pump.

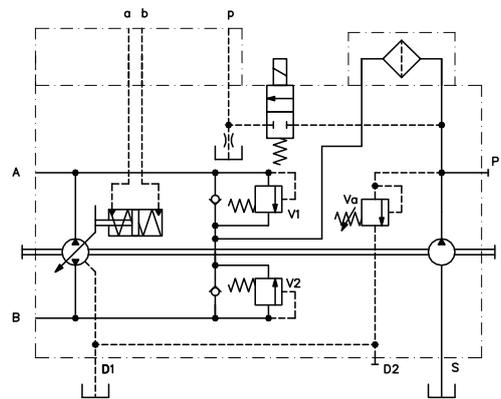


OPTIONS

C12 Electric cut-off valve 12V

C24 Electric cut-off valve 24V

The electric cut-off valve brings to zero the displacement of the pump when power supply to the ON/OFF solenoid is cut-off. Feed voltage is 12 V DC or 24 V DC. It is not possible to assemble the cut-off valve with power limiter and in the tandem pump short version.



L27 Power limiter, destroke at 270 bar [3.915 psi]

L32 Power limiter, destroke at 320 bar [4.640 psi]

When set power is reached, the power limiter ensures that the pump destrokes as the pressure increases. It has been designed to work only on pressure port line A of the pump. The power setting is not externally adjustable and must be stated in the purchase order.

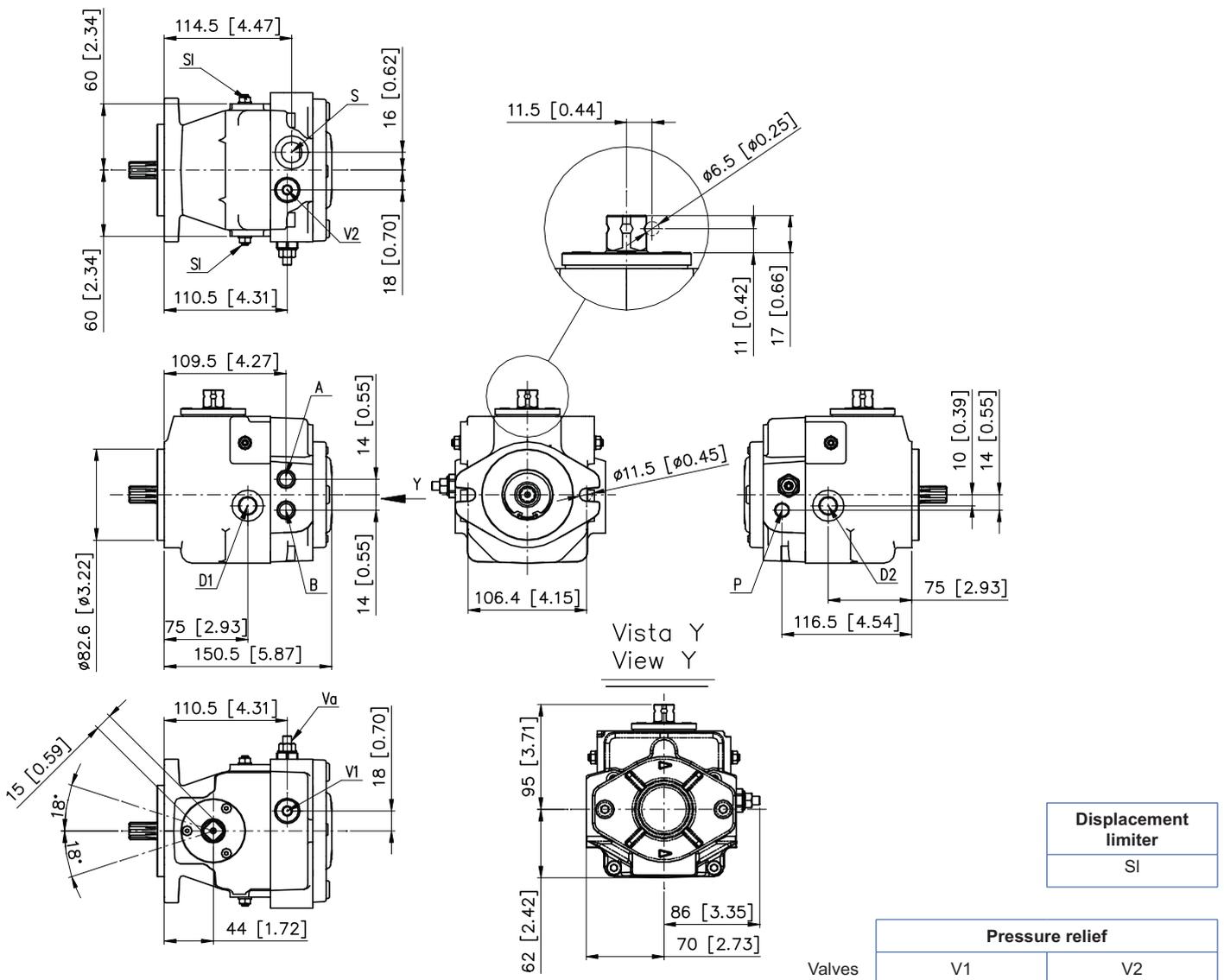
DRAWINGS

Size

- 14 SAE A mounting flange
- 18

Control

- L Manual without zeroing



Port threads

- Metric (BSPP)
- U SAE (UNF)

Ports

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

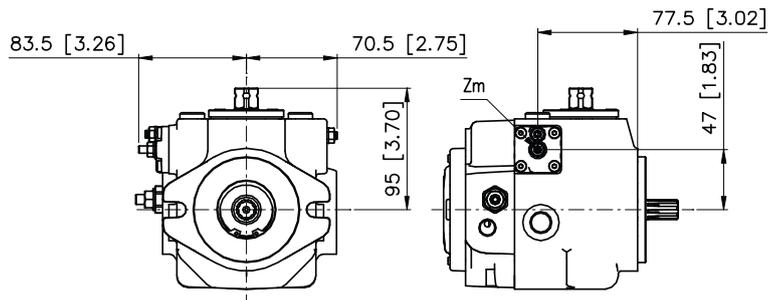
DRAWINGS

Size

- 14** SAE A mounting flange
- 18**

Control

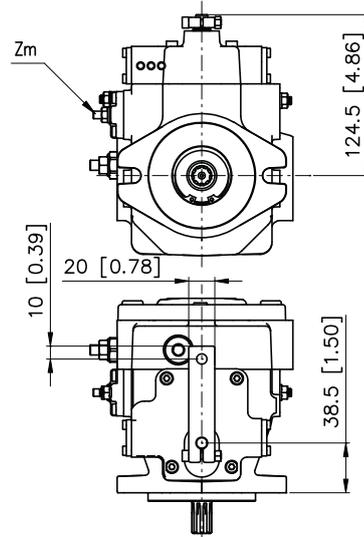
- M** Manual without zeroing



Control

- R** Manual lever with feedback

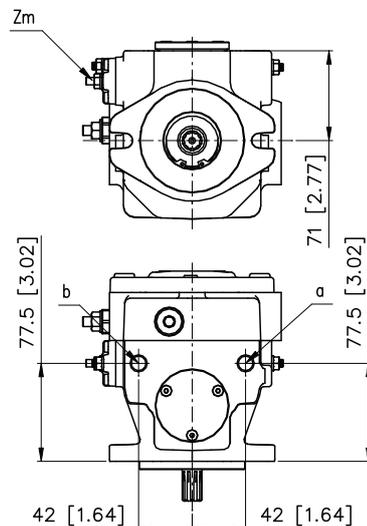
Zero adjustment screw
Zm



Control

- N** Hydraulic proportional without feedback

Zero adjustment screw
Zm



Port threads

- Metric (BSPP)
- U** SAE (UNF)

Ports

Control pressure	
a	b
1/4 G	
7/16 - 20 UNF - 2B	

DRAWINGS

Size

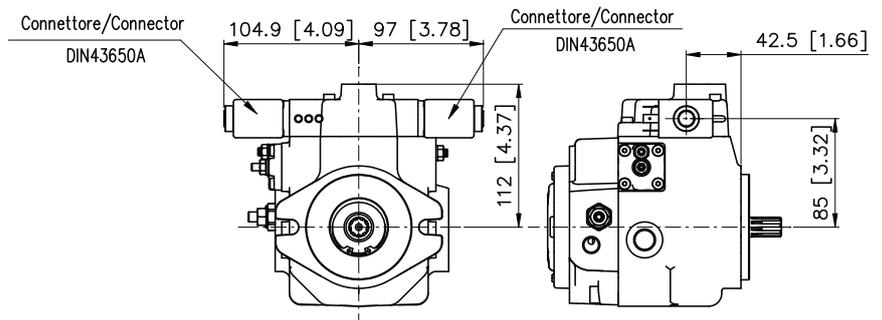
- 14** SAE A mounting flange
- 18**

Control

- I12** Electric impulse 12V
- I24** Electric impulse 24V

Control

- F12** Electric two positions 12V
- F24** Electric two positions 24V

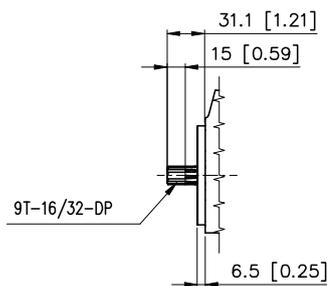


Size

- 14** SAE A mounting flange
- 18**

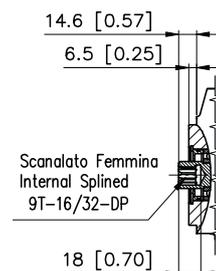
Shaft

- A** Splined 9T-16/32-DP
- B** Splined 9T-16/32-DP BOSCH
- E** Splined 9T-16/32-DP for SAE-A through drive



Shaft

- C** Internal Splined 9T-16/32-DP TANDEM BOSCH
- D** Internal Splined 9T-16/32-DP TANDEM



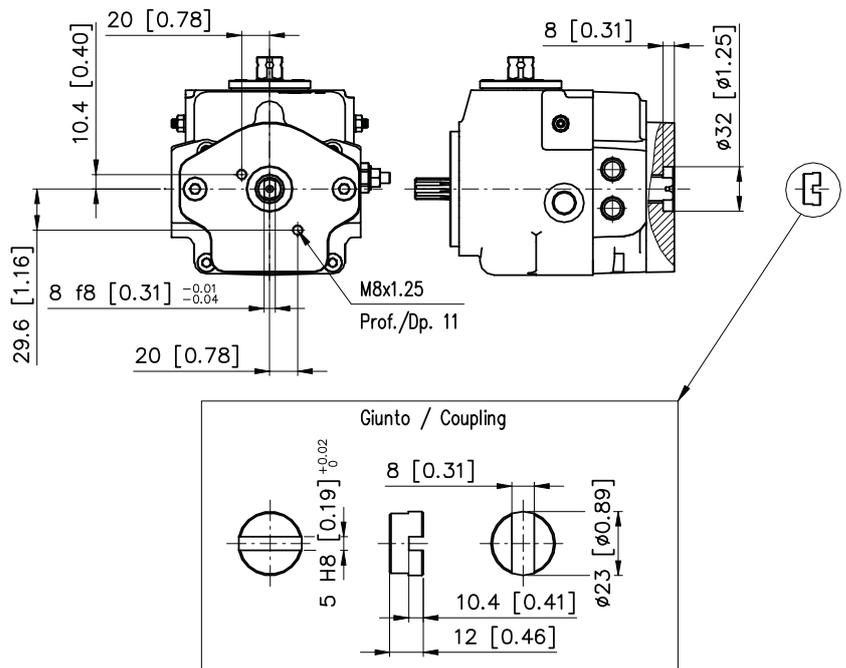
DRAWINGS

Size

- 14 SAE A mounting flange
- 18

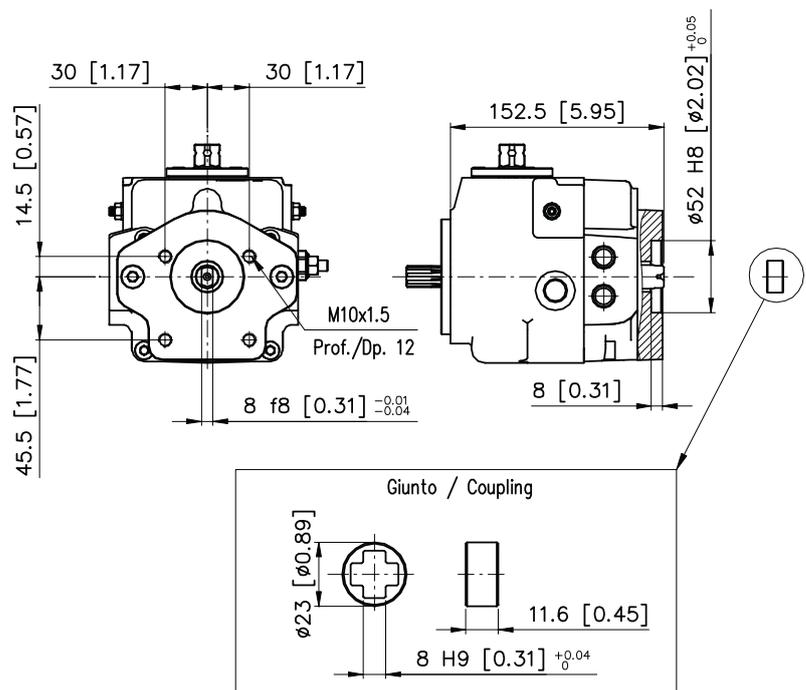
Through drive

- G1 Bosch GP1



Through drive

- G2 Bosch GP2



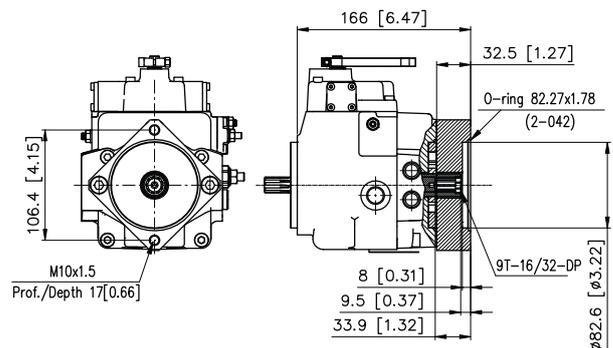
DRAWINGS

Size

- 14** SAE A mounting flange
- 18** SAE A mounting flange

Through drive

- A** SAE A = 9T-16/32-DP



Size

- 14** SAE A mounting flange
- 18** SAE A mounting flange



Size

- 14** SAE A mounting flange
- 18** SAE A mounting flange

Through drive

- D** Double pump, short version

Shaft

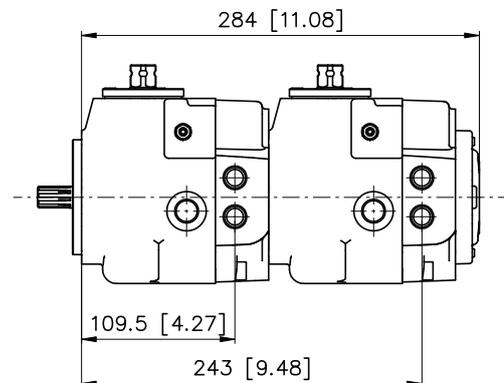
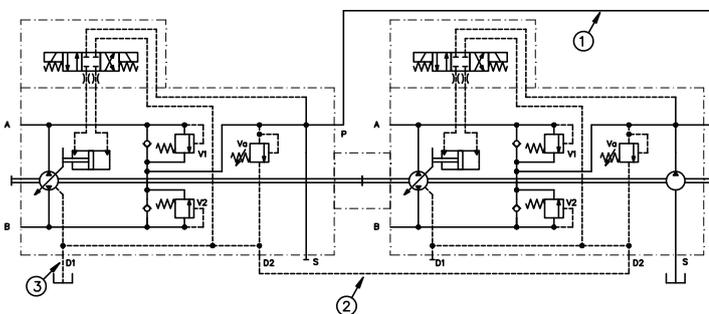
- A** Splined 9T-16/32-DP

Through drive

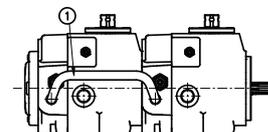
- X** Without through drive
- G1** Bosch GP1
- G2** Bosch GP2

Shaft

- C** Internal Splined 9T-16/32-DP TANDEM BOSCH
- D** Internal Splined 9T-16/32-DP TANDEM



The hose (1) used to connect the charge pressure ports (P) is supplied with the units. The hoses (2) and (3) connecting the drain ports must be realized and mounted by the customer. With this configuration, only the second pump has the charge pump.



DRAWINGS

Size

14	SAE A mounting flange
18	

+

Size

14	SAE A mounting flange
18	

Through drive

DA	Double pump, SAE A = 9T-16/32-DP
-----------	----------------------------------

Through drive

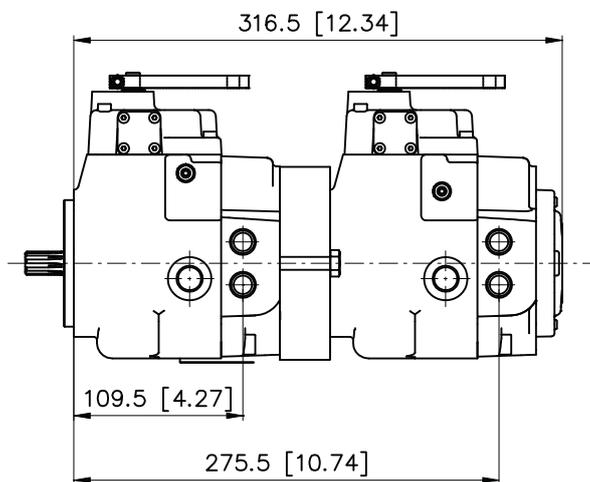
X	Without through drive
G1	Bosch GP1
G2	Bosch GP2
A	SAE A = 9T-16/32-DP

Shaft

E	Splined 9T-16/32-DP for SAE-A through drive
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Shaft

A	Splined 9T-16/32-DP
B	Splined 9T-16/32-DP BOSCH
E	Splined 9T-16/32-DP for SAE-A through drive



With this configuration, both pumps have the charge pump.

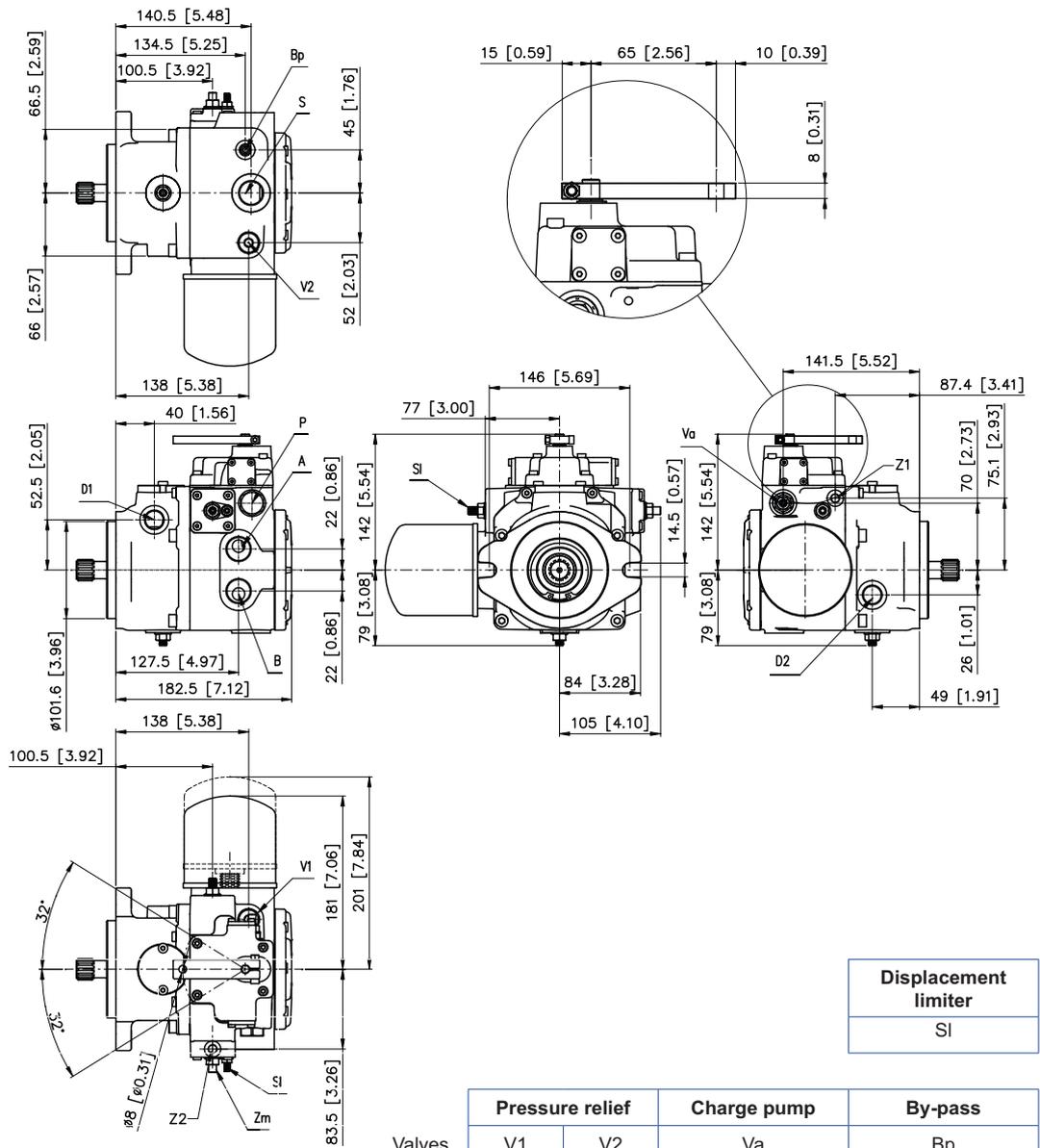
DRAWINGS

Size

21	SAE B mounting flange
28	

Control

R	Manual lever with feedback
---	----------------------------



Displacement limiter
SI

Valves	Pressure relief	Charge pump	By-pass
	V1	V2	Bp

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

Port threads

	Metric (BSPP)
U	SAE (UNF)

Ports

DRAWINGS

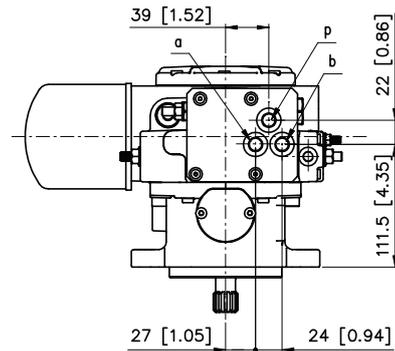
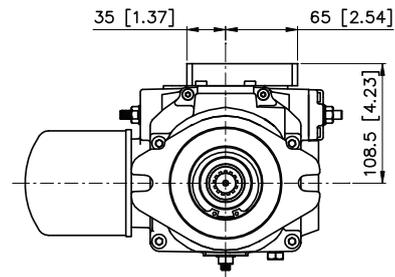
Size

21	SAE B mounting flange
28	

Control

N	Hydraulic proportional without feedback
---	---

Port threads	Ports	Control pressure		Charge pressure
		a	b	p
	Metric (BSPP)	1/4 G		1/4 G
U	SAE (UNF)	7/16 - 20 UNF - 2B		7/16 - 20 UNF - 2B

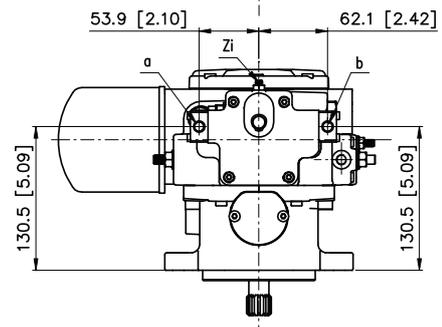
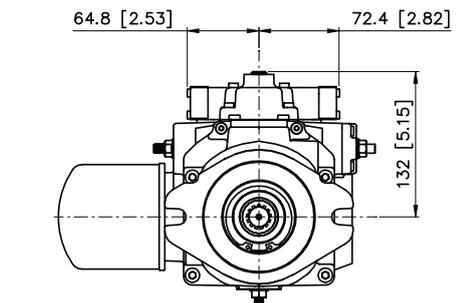


Control

P	Hydraulic proportional with feedback
---	--------------------------------------

Hydraulic zero adjustment screw
Zi

Port threads	Ports	Control pressure	
		a	b
	Metric (BSPP)	1/4 G	
U	SAE (UNF)	7/16 - 20 UNF - 2B	



DRAWINGS

Size

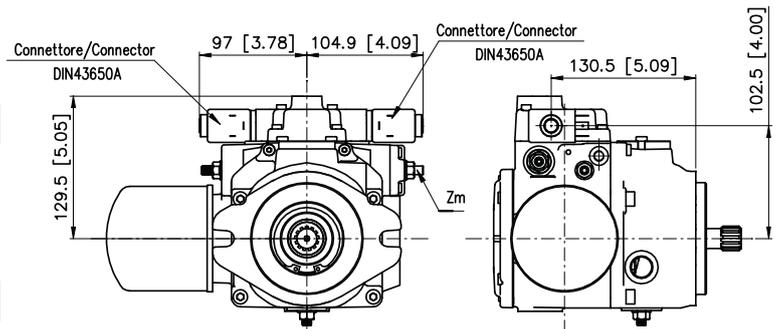
21	SAE B mounting flange
28	

Control

I12	Electric impulse 12V
I24	Electric impulse 24V

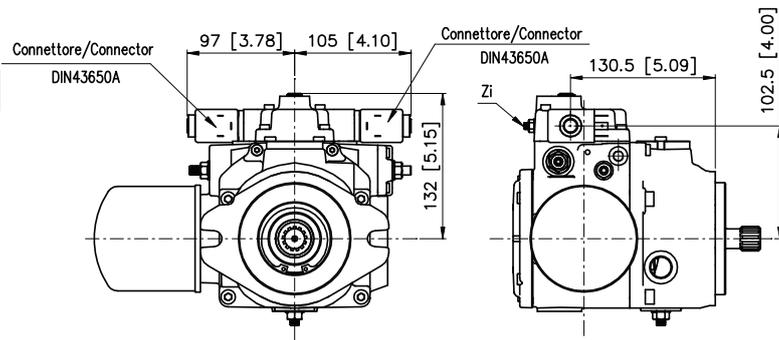
Control

F12	Electric two positions 12V
F24	Electric two positions 24V



Control

E12	Electric proportional with feedback 12V
E24	Electric proportional with feedback 24V

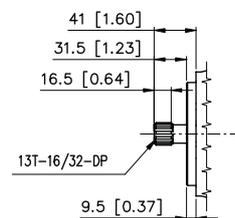


Size

21	SAE B mounting flange
28	

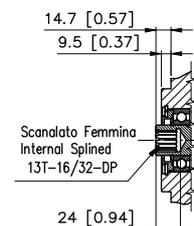
Shaft

F	Splined 13T-16/32-DP
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Shaft

G	Internal Splined 13T-16/32-DP TANDEM
----------	--------------------------------------



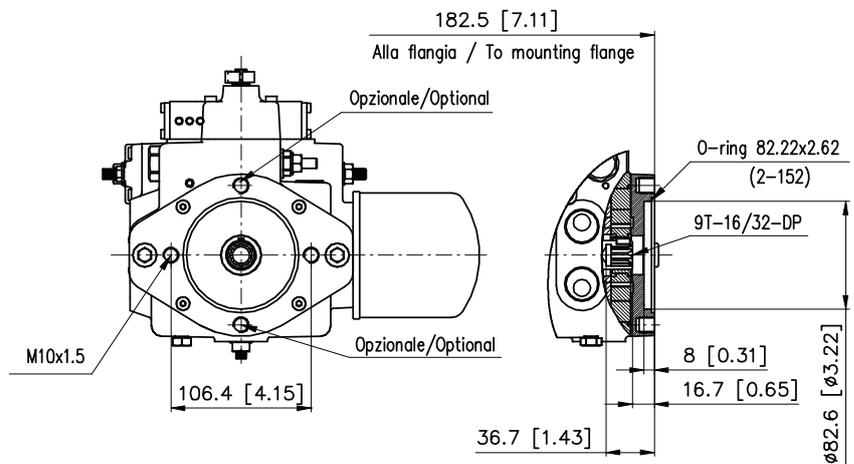
DRAWINGS

Size

- 21 SAE B mounting flange
- 28

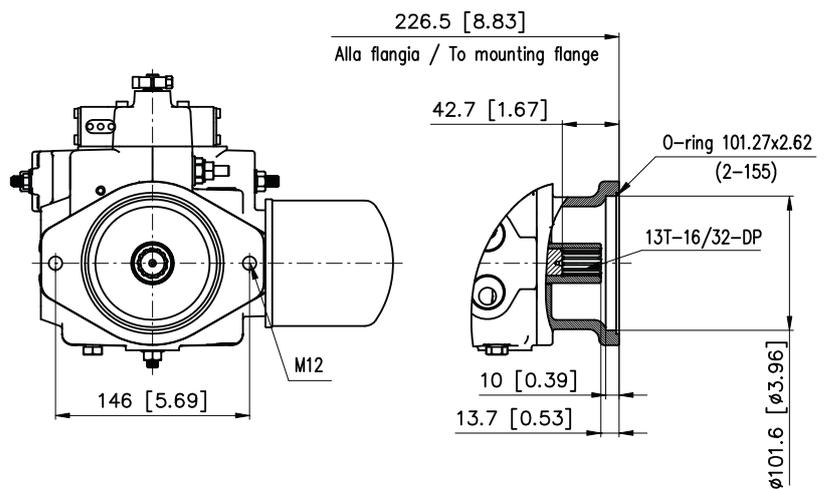
Through drive

- A SAE A = 9T-16/32-DP



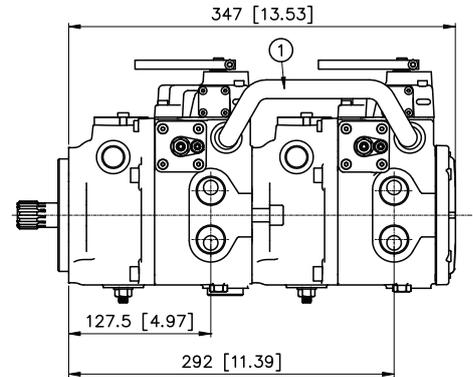
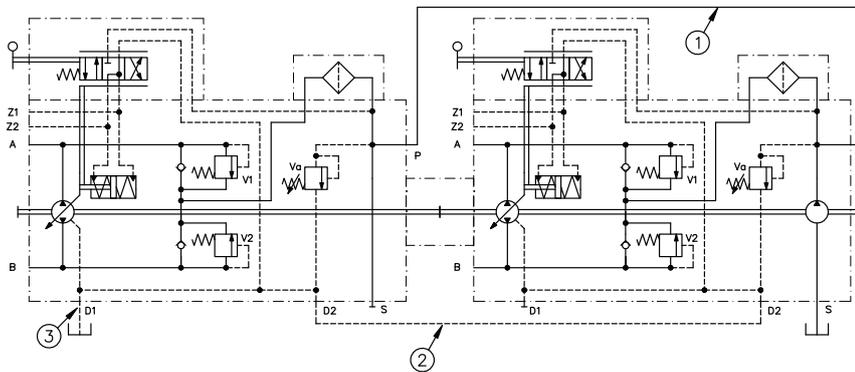
Through drive

- B SAE B = 13T-16/32-DP



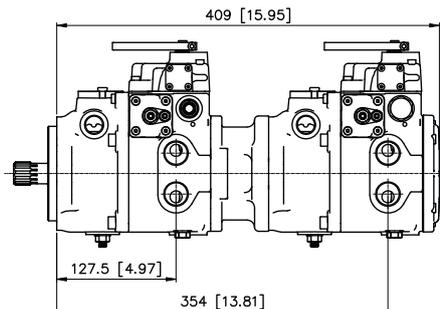
DRAWINGS

- | | | | | | | | | | | | |
|--|----|----|---|---|---|--|----|----|---|---|---|
| <p>Size</p> <table border="1"> <tr><td>21</td></tr> <tr><td>28</td></tr> </table> <p>SAE B mounting flange</p> <p>Through drive</p> <table border="1"> <tr><td>D</td></tr> </table> <p>Double pump, short version</p> <p>Shaft</p> <table border="1"> <tr><td>I</td></tr> </table> <p>Splined 15T-16/32-DP TANDEM</p> | 21 | 28 | D | I | + | <p>Size</p> <table border="1"> <tr><td>21</td></tr> <tr><td>28</td></tr> </table> <p>SAE A mounting flange</p> <p>Through drive</p> <table border="1"> <tr><td>X</td></tr> <tr><td>A</td></tr> </table> <p>Without through drive
SAE A = 9T-16/32-DP</p> <p>Shaft</p> <table border="1"> <tr><td>G</td></tr> </table> <p>Internal Splined 13T-16/32-DP TANDEM</p> | 21 | 28 | X | A | G |
| 21 | | | | | | | | | | | |
| 28 | | | | | | | | | | | |
| D | | | | | | | | | | | |
| I | | | | | | | | | | | |
| 21 | | | | | | | | | | | |
| 28 | | | | | | | | | | | |
| X | | | | | | | | | | | |
| A | | | | | | | | | | | |
| G | | | | | | | | | | | |



The hose (1) used to connect the charge pressure ports (P) is supplied with the units. The hoses (2) and (3) connecting the drain ports must be realized and mounted by the customer. With this configuration, only the second pump has the charge pump.

- | | | | | | | | | | | | |
|--|----|----|----|---|---|--|----|----|---|---|---|
| <p>Size</p> <table border="1"> <tr><td>21</td></tr> <tr><td>28</td></tr> </table> <p>SAE B mounting flange</p> <p>Through drive</p> <table border="1"> <tr><td>DB</td></tr> </table> <p>Double pump, SAE B = 13T-16/32-DP</p> <p>Shaft</p> <table border="1"> <tr><td>I</td></tr> </table> <p>Splined 15T-16/32-DP TANDEM</p> | 21 | 28 | DB | I | + | <p>Size</p> <table border="1"> <tr><td>21</td></tr> <tr><td>28</td></tr> </table> <p>SAE A mounting flange</p> <p>Through drive</p> <table border="1"> <tr><td>X</td></tr> <tr><td>A</td></tr> </table> <p>Without through drive
SAE A = 9T-16/32-DP</p> <p>Shaft</p> <table border="1"> <tr><td>F</td></tr> </table> <p>Splined 13T-16/32-DP</p> | 21 | 28 | X | A | F |
| 21 | | | | | | | | | | | |
| 28 | | | | | | | | | | | |
| DB | | | | | | | | | | | |
| I | | | | | | | | | | | |
| 21 | | | | | | | | | | | |
| 28 | | | | | | | | | | | |
| X | | | | | | | | | | | |
| A | | | | | | | | | | | |
| F | | | | | | | | | | | |



With this configuration, both pumps have the charge pump.

DRAWINGS

Size

21	SAE B mounting flange
28	



Size

21	SAE A mounting flange
28	

Through drive

DA	Double pump, SAE A = 9T-16/32-DP
----	----------------------------------

Through drive

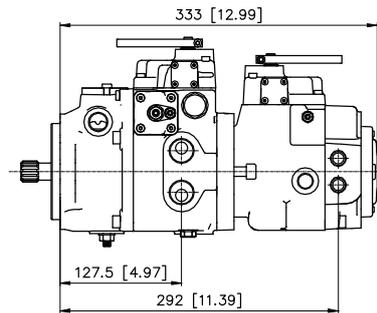
X	Without through drive
G1	Bosch GP1
G2	Bosch GP2

Shaft

F	Splined 13T-16/32-DP
---	----------------------

Shaft

A	Splined 9T-16/32-DP
B	Splined 9T-16/32-DP BOSCH



With this configuration, both pumps have the charge pump.

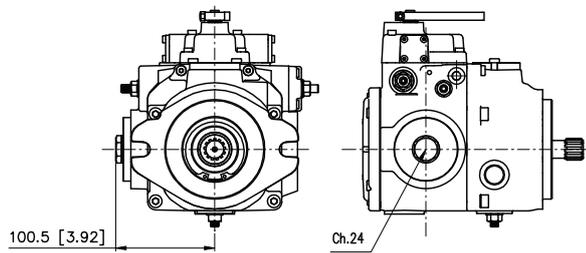
DRAWINGS

Size

- 21** SAE B mounting flange
- 28**

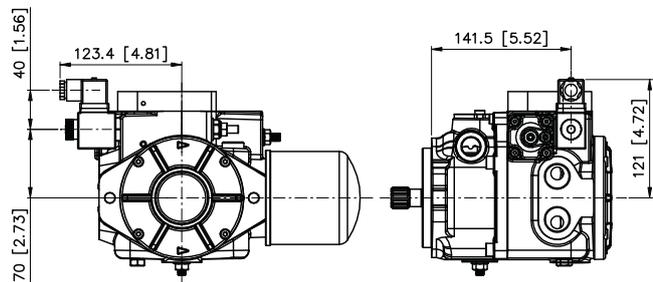
Options

- Electric cut-off valve**



Options

- C12** Electric cut-off valve
- C24**



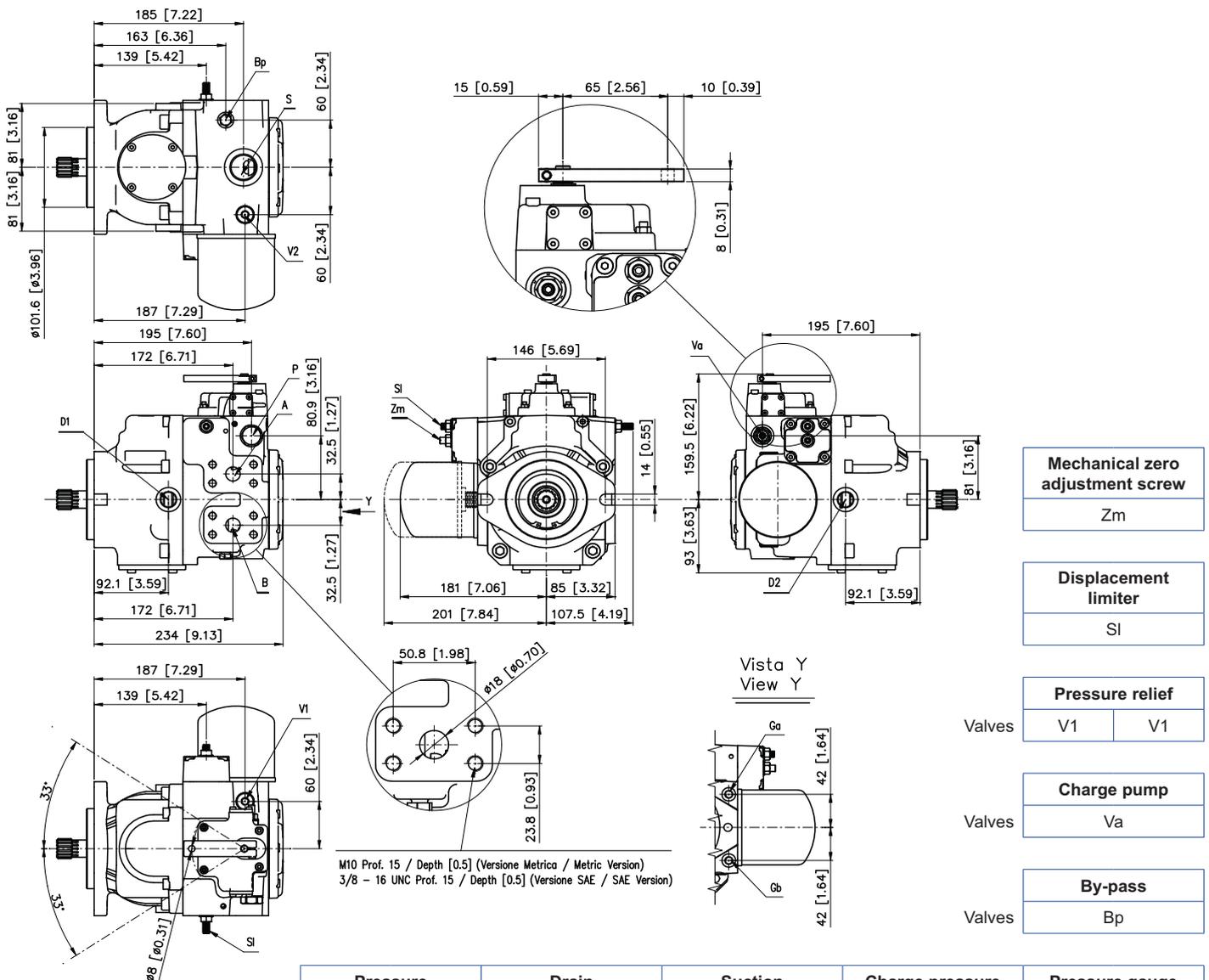
DRAWINGS

Size

42	SAE B mounting flange
50	SAE B mounting flange
64	SAE B mounting flange

Control

R	Manual lever with feedback
---	----------------------------



Mechanical zero adjustment screw
Zm

Displacement limiter
Sl

Pressure relief
Valves V1 V1

Charge pump
Valves Va

By-pass
Valves Bp

Port threads

	Ports
	Metric (BSPP)
U	SAE (UNF)

Pressure		Drain		Suction	Charge pressure	Pressure gauge	
A	B	D1	D2	S	P	Ga	Gb
3/4 SAE 6000		1/2 G		1" G	3/4 - 16 UNF - 2B	1/8 G	
3/4 SAE 6000		3/4 - 16 UNF - 2B		1 5/16 - 12 UNF - 2B	3/4 - 16 UNF - 2B	5/16 - 24 UNF - 2B	

DRAWINGS

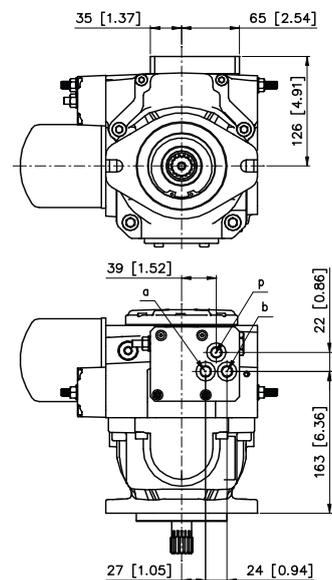
Size

42	SAE B mounting flange
50	SAE B mounting flange
64	SAE B mounting flange

Control

N	Hydraulic proportional without feedback
----------	---

Port threads	Ports	Control pressure		Charge pressure	
		a	b	p	D2
	Metric (BSPP)	1/4 G		1/4 G	
U	SAE (UNF)	7/16 - 20 UNF - 2B		7/16 - 20 UNF - 2B	

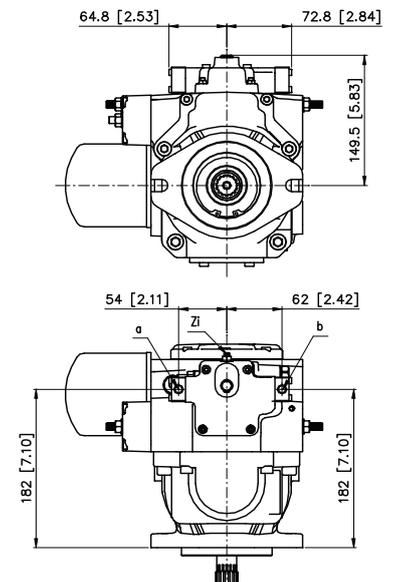


Control

P	Hydraulic proportional with feedback
----------	--------------------------------------

Hydraulic zero adjustment screw
Zi

Port threads	Ports	Control pressure	
		a	b
	Metric (BSPP)	1/8 G	
U	SAE (UNF)	5/16 - 24 UNF - 2B	



DRAWINGS

Size

42	SAE B mounting flange
50	SAE B mounting flange
64	SAE B mounting flange

Control

I12	Electric impulse 12V
I24	Electric impulse 24V

Control

F12	Electric two positions 12V
F24	Electric two positions 24V

Control

E12	Electric proportional with feedback 12V
E24	Electric proportional with feedback 24V

Size

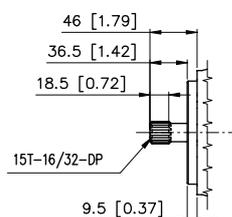
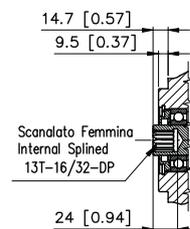
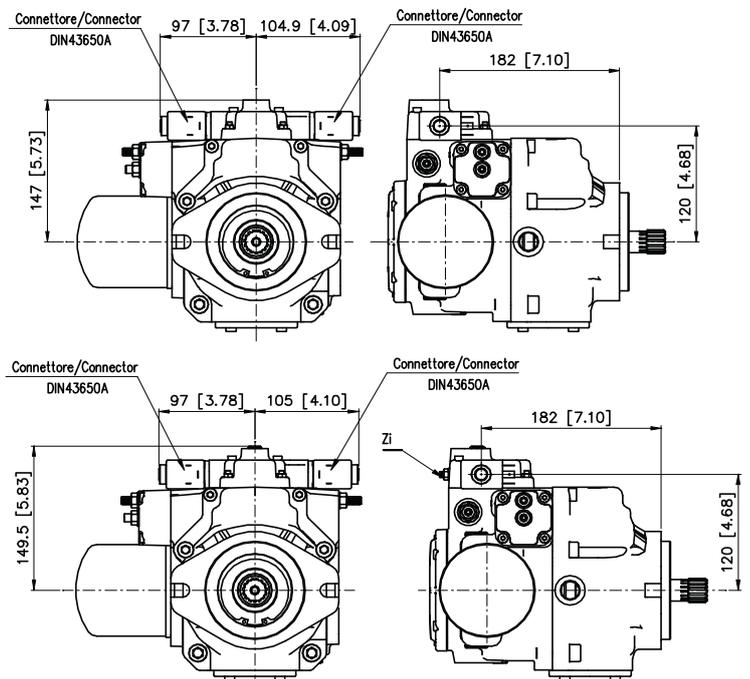
42	SAE B mounting flange
50	SAE B mounting flange
64	SAE B mounting flange

Shaft

G	Internal Splined 13T-16/32-DP TANDEM
----------	--------------------------------------

Shaft

H	Splined 15T-16/32-DP
----------	----------------------



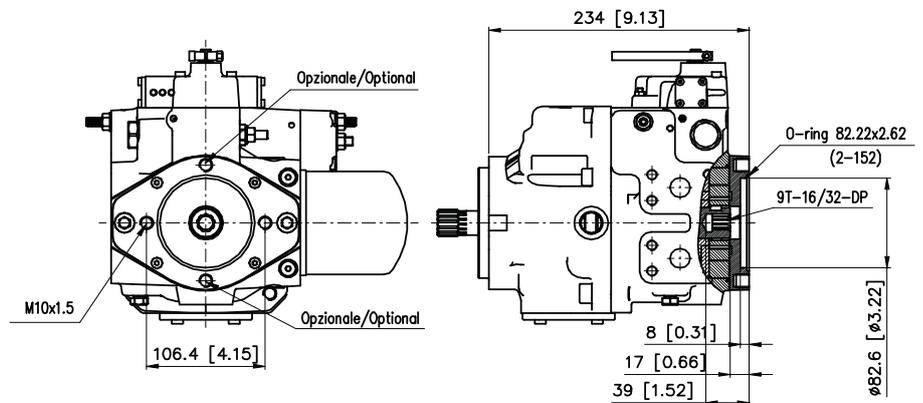
DRAWINGS

Size

42	SAE B mounting flange
50	SAE B mounting flange
64	SAE B mounting flange

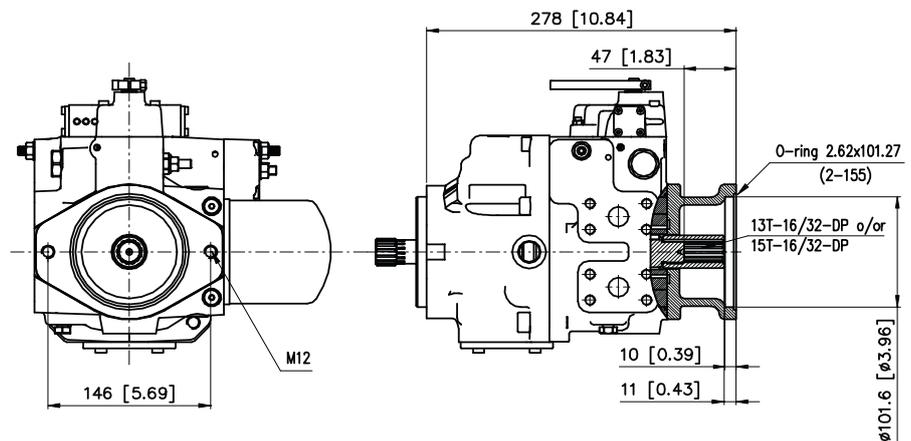
Through drive

A	SAE A = 9T-16/32-DP
---	---------------------



Through drive

B	SAE B = 13T-16/32-DP
---	----------------------

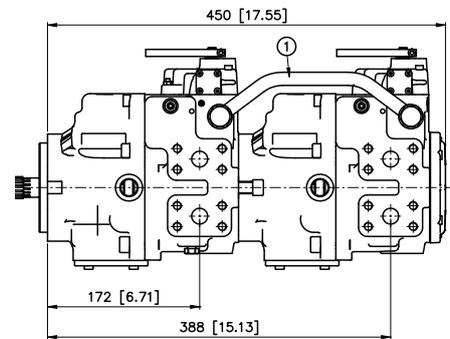
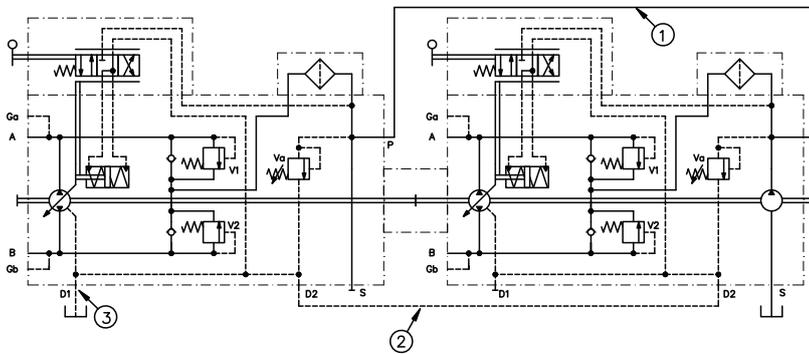


DRAWINGS

<p>Size</p> <table border="1"> <tr><td>42</td><td>SAE B mounting flange</td></tr> <tr><td>50</td><td>SAE B mounting flange</td></tr> <tr><td>64</td><td>SAE B mounting flange</td></tr> </table>	42	SAE B mounting flange	50	SAE B mounting flange	64	SAE B mounting flange	+	<p>Size</p> <table border="1"> <tr><td>42</td><td>SAE B mounting flange</td></tr> <tr><td>50</td><td>SAE B mounting flange</td></tr> <tr><td>64</td><td>SAE B mounting flange</td></tr> </table>	42	SAE B mounting flange	50	SAE B mounting flange	64	SAE B mounting flange
42	SAE B mounting flange													
50	SAE B mounting flange													
64	SAE B mounting flange													
42	SAE B mounting flange													
50	SAE B mounting flange													
64	SAE B mounting flange													

<p>Through drive</p> <table border="1"> <tr><td>D</td><td>Double pump, short version</td></tr> </table>	D	Double pump, short version	<p>Through drive</p> <table border="1"> <tr><td>X</td><td>Without through drive</td></tr> <tr><td>A</td><td>SAE A = 9T-16/32-DP</td></tr> </table>	X	Without through drive	A	SAE A = 9T-16/32-DP
D	Double pump, short version						
X	Without through drive						
A	SAE A = 9T-16/32-DP						

<p>Shaft</p> <table border="1"> <tr><td>I</td><td>Splined 15T-16/32-DP TANDEM</td></tr> </table>	I	Splined 15T-16/32-DP TANDEM	<p>Shaft</p> <table border="1"> <tr><td>G</td><td>Internal Splined 13T-16/32-DP TANDEM</td></tr> </table>	G	Internal Splined 13T-16/32-DP TANDEM
I	Splined 15T-16/32-DP TANDEM				
G	Internal Splined 13T-16/32-DP TANDEM				



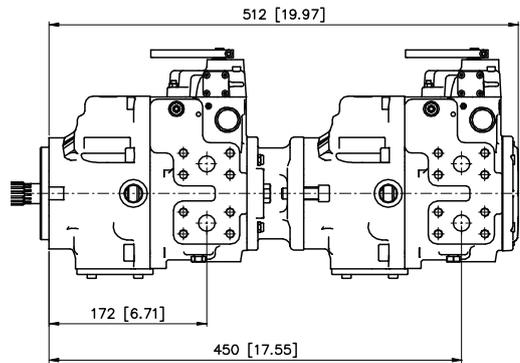
The hose (1) used to connect the charge pressure ports (P) is supplied with the units. The hoses (2) and (3) connecting the drain ports must be realized and mounted by the customer. With this configuration, only the second pump has the charge pump.

DRAWINGS

Size		Size
42 SAE B mounting flange	+	42 SAE B mounting flange
50 SAE B mounting flange		50 SAE B mounting flange
64 SAE B mounting flange		64 SAE B mounting flange

Through drive		Through drive
DC Double pump, SAE B-B = 15T-16/32-DP		A SAE A = 9T-16/32-DP

Shaft		Shaft
I Splined 15T-16/32-DP TANDEM		H Splined 15T-16/32-DP

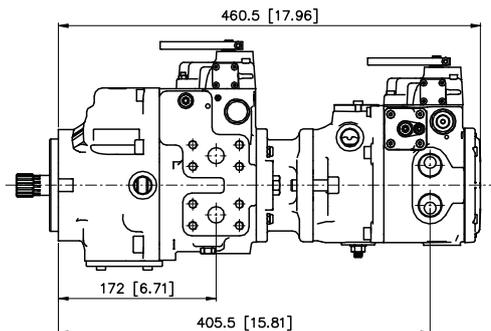


With this configuration, both pumps have the charge pump.

Size		Size
42 SAE B mounting flange	+	21 SAE B mounting flange
50 SAE B mounting flange		28 SAE B mounting flange
64 SAE B mounting flange		

Through drive		Through drive
DB Double pump, SAE B = 13T-16/32-DP		X Without through drive
		A SAE A = 9T-16/32-DP

Shaft		Shaft
I Splined 13T-16/32-DP TANDEM		F Splined 13T-16/32-DP



With this configuration, both pumps have the charge pump.

DRAWINGS

Size		Size
42 SAE B mounting flange		14 SAE A mounting flange
50 SAE B mounting flange	+	18 SAE A mounting flange
64 SAE B mounting flange		

Through drive

DA Double pump, SAE A = 15T-16/32-DP

Through drive

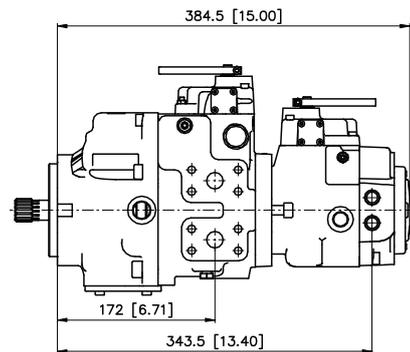
X	Without through drive
G1	Bosch GP1
G2	Bosch GP2

Shaft

H Splined 15T-16/32-DP

Shaft

A	Splined 9T-16/32-DP
B	Splined 9T-16/32-DP BOSCH



With this configuration, both pumps have the charge pump.

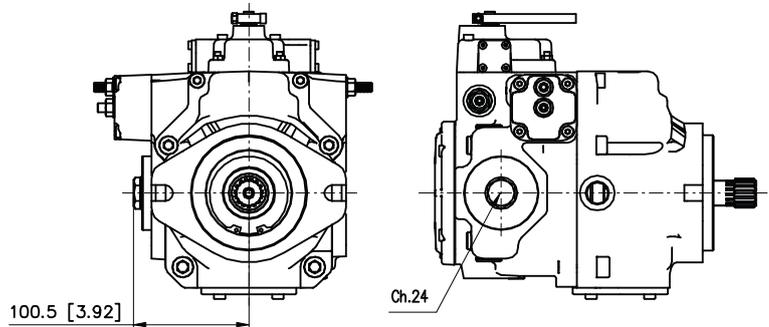
DRAWINGS

Size

42	SAE B mounting flange
50	SAE B mounting flange
64	SAE B mounting flange

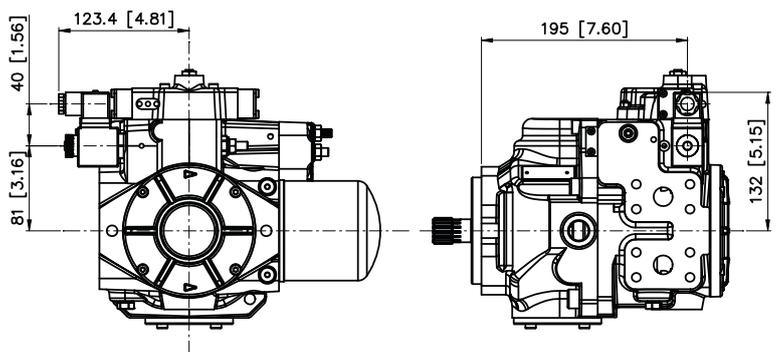
Options

Without filter



Options

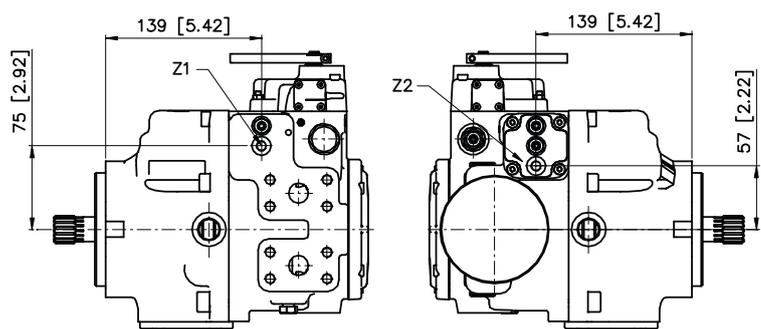
C12	Electric cut-off valve
C24	



Options

Z	Additional control pressure gauge ports
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Port threads	Ports	Pressure gauge	
		Z1	Z2
U	Metric (BSPP)	1/8 G	
U	SAE (UNF)	1/8 G	





SMIT
hydraulics

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(Domestic market)

(International market)