



HYDRAULIC COMPONENTS
HYDROSTATIC TRANSMISSIONS
GEARBOXES - ACCESSORIES

Via M. L. King, 6 - 41122 MODENA (ITALY)
Tel: +39 059 415 711
Fax: +39 059 415 729 / 059 415 730
INTERNET: <http://www.hansatmp.it>
E-MAIL: hansatmp@hansatmp.it

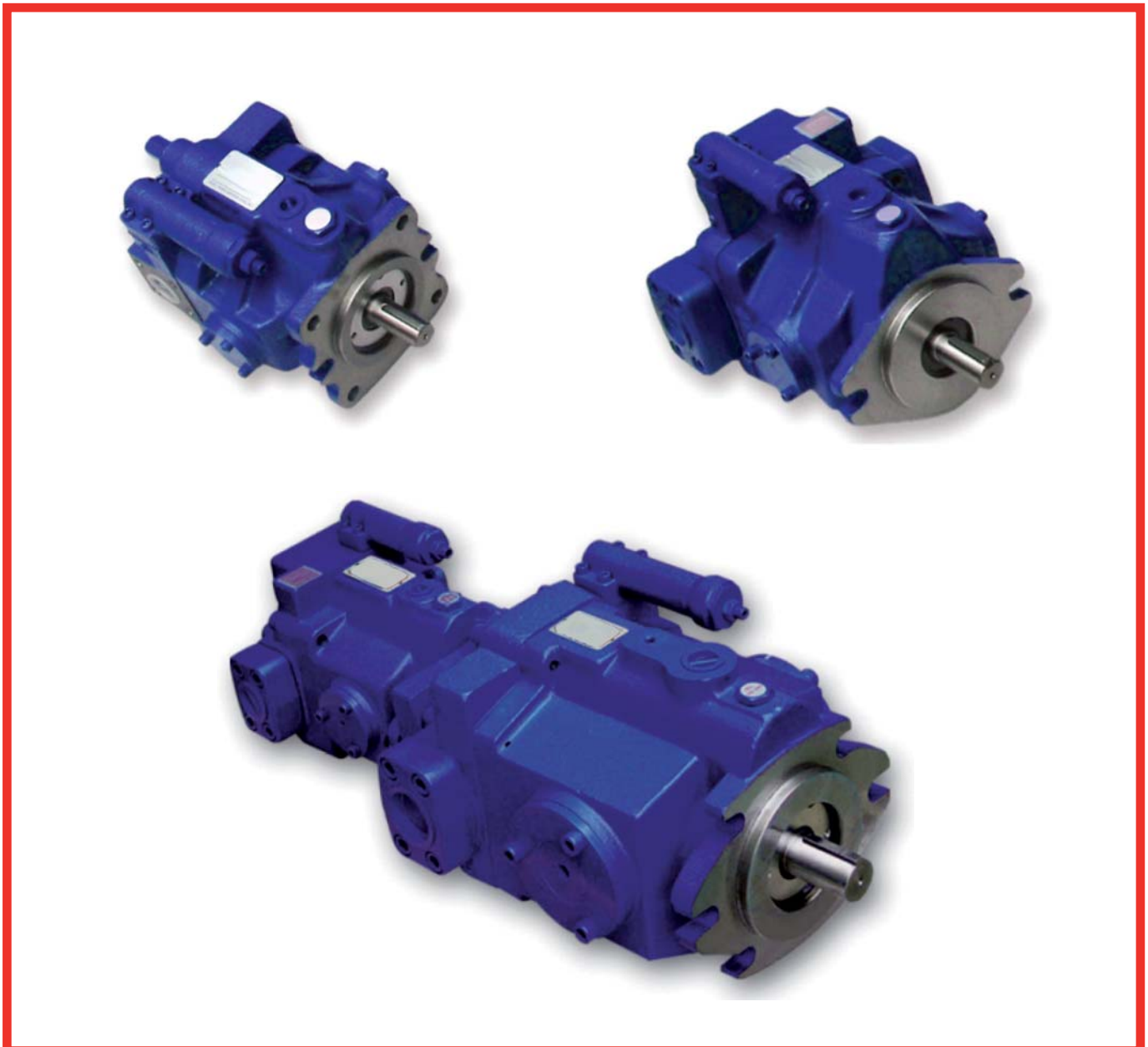
Certified ISO 9001 and 14001



HT 130 / A / 108 / 0413 / E

Variable Displacement Open Loop Circuit Axial Piston Pumps

V Series



Contents

Installation - General Information	4
Spare Parts	5
Features & Technical Characteristics	6
Order Code	7
Control Type	8 - 11
V 15 - V 18 Series Pump - Technical Specifications	12
V 15 - V 18 Series Pump - Installation Drawing	13 - 20
V 23 - V 25 Series Pump - Technical Specifications	21
V 23 - V 25 Series Pump - Installation Drawing	22 - 29
V 38 - V 42 Series Pump - Technical Specifications	30
V 38 - V 42 Series Pump - Installation Drawing	31 - 38
V 50 - V 70 Series Pump - Technical Specifications	39
V 50 - V 70 Series Pump - Installation Drawing	40 - 45
Tandem Pumps Installation Drawing	46
Piping Connections Flanges	47 - 48

Installation - General Information

1 - Fluid recommendations

Premium quality hydraulic mineral oil fluids are recommended, like H-LP oils to DIN 51542 part 2. The oil viscosity range should be from 25 mm²/s to 50 mm²/s. Operating temperature from -10° C to 70° C are recommended. For other fluids such as phosphoric acid esters or for other operating conditions please consult our Tech.Dpt.

2 - Seals

NB (Nitrile) seals are used for operation with hydraulic fluids based on mineral oil. For synthetic, as perhaps phosphoric acid ester, Fluorocarbon seals are required. For any assistance please consult our Tech.Dpt.

3 - Filtration

Contamination of the hydraulic oil may cause trouble with the pump and shorten its life. For maximum pump and system component functionality and life, the system should be protected from contamination by effective filtration. Fluid cleanliness should be in accordance with classification ISO 4406.

The quality of filter elements should be in accordance with ISO standards

Minimum requirement for filtration rate:

General hydraulic system for satisfactory operation: Class 19/17/14 to ISO 4406 (Class 9 NAS 1638)

Hydraulic system with maximized component life and reliability: Class 17/15/12 to ISO 4406 (Class 7 NAS 1638)

It is recommended to use return or pressure line filter, a wide range of filters for all common application are available.

The use of suction filter should be avoided, especially with fast response pump.

Off-line filtration is a good choice for the best filtering efficiency.

4 - Installation and mounting

Horizontal mounting: Outlet port, side or top; Inlet port, side or bottom; Drain port always uppermost.

Vertical mounting: Drive shaft vertically upward.

Install pump and suction line in such a way that the maximum inlet vacuum never exceeds 0,8 bar absolute.

The inlet line should be as short and straight as possible.

A short suction line cut to 45° is recommended when the pump is mounted inside the reservoir, to improve the inlet conditions.

All connections to be leadfree, as air in the suction line will cause cavitation, noise and damage the pump.

5 - Alignment and installation

Pump and motor shaft must be aligned within 0,25 mm. T.I.R max. A floating coupling must be used.

Please follow the coupling manufacturer's installation instruction. Consult our Tech.Dpt. in event of radial load drives.

6 - Start-up

Prior to start-up, the pump case must be filled with clean system hydraulic fluid (use case drain port).

Do not operate the pump at full speed right away. Instead, turn the motor input switch on - off several times so as to extract air from the piping, then operate it continuously.

Initial start-up should be at zero pressure with an unloaded circuit to enable the pump to prime.

Pressure should only be increased once the pump has been fully primed.

Attention: Check the motor rotation direction.

Operating noise of pumps

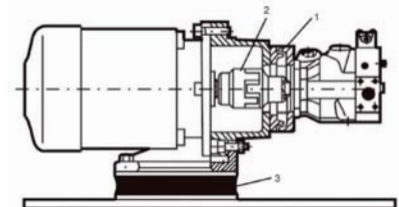
The normal operating noise of a pump and consequently the operating noise of the entire hydraulic system is largely determined by where and how the pump is mounted and connected to the hydraulic system.

Also size, style and installation of the hydraulic tubing have a major influence on the overall noise emitted by a hydraulic system.

Noise reducing measures

Flexible element help to prevent pump body vibration being transmitted to other construction elements, where possible amplification may occur. Such element can be:

- 1 - Floating and flexible coupling.
- 2 - Damping rails.
- 3 - Or silent block for mounting the electric motor or the foot mounting flange.
- 4 - Flexible tube connections (compensator) or hoses for inlet, outlet and drain port.
- 5 - Exclusive use of gas tight tube fittings for inlet connection to avoid air entry causing cavitation and excessive noise.



7 - Drain line

The case pressure must not exceed 0,04 MPa (0,36 bar).

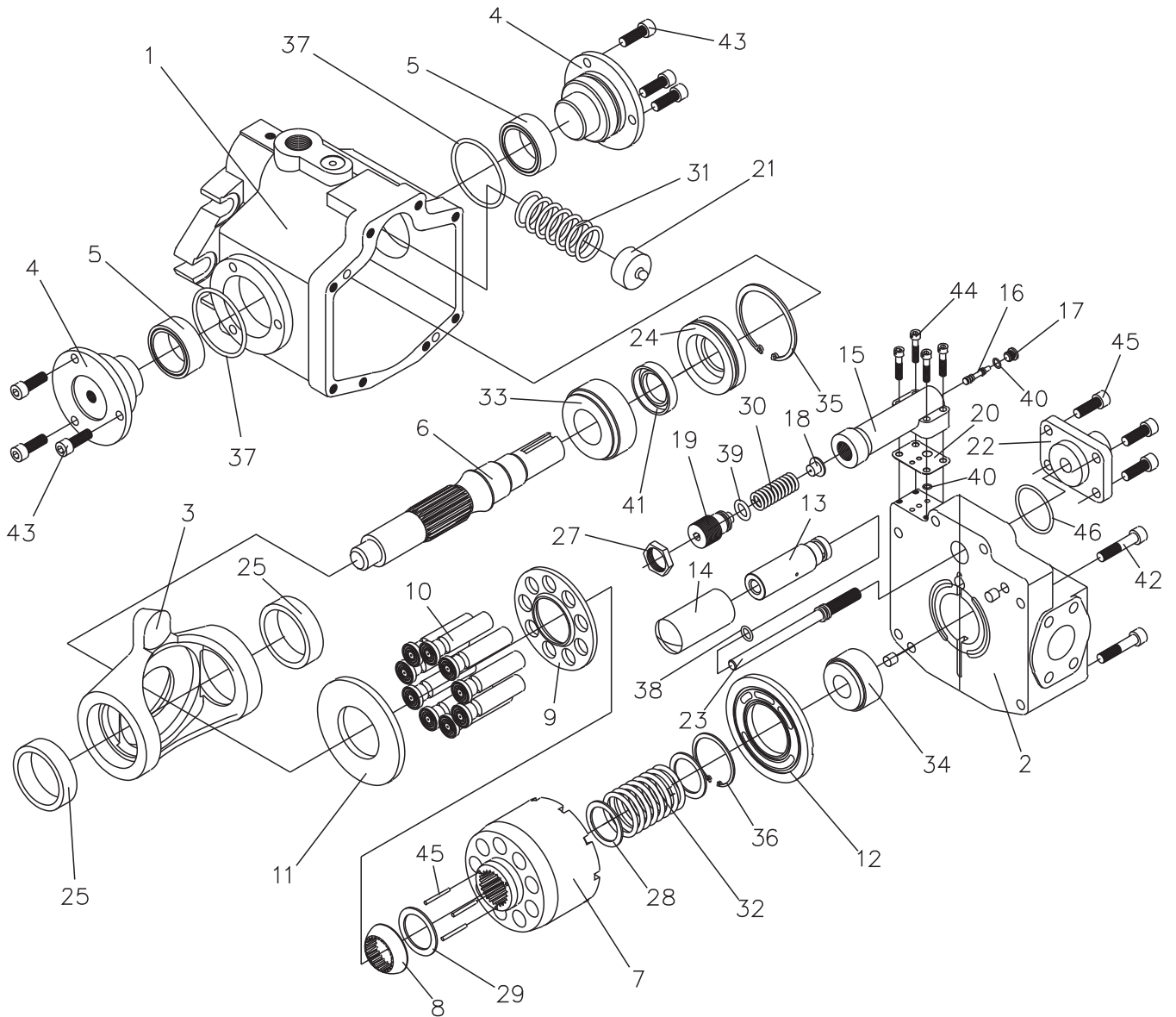
The drain line must be connected directly to the reservoir without restriction and must not be connected to any other return line.

The end of the drain line must be below the lowest fluid level in the reservoir and as far-away as possible from the pump input line to ensure that the pump does not empty itself when not in operation and that the hot oil will not recirculated.

For the same reason, when the pump is mounted inside the reservoir, the drain line should be arranged in such a way that a siphon is created. For drain line size and length refer to the table below.

Pump model	V 15 - V 18 - V 23 - V25	V 38 - V 42	V 50 - V70
Pipe joint size	3/8"	1/2"	3/4"
Pipes internal diam.	> 12 mm.	> 15 mm.	> 18 mm
Pipes length	< 1 m.		

V Series Axial Piston Pump - Spare Parts (pump body)



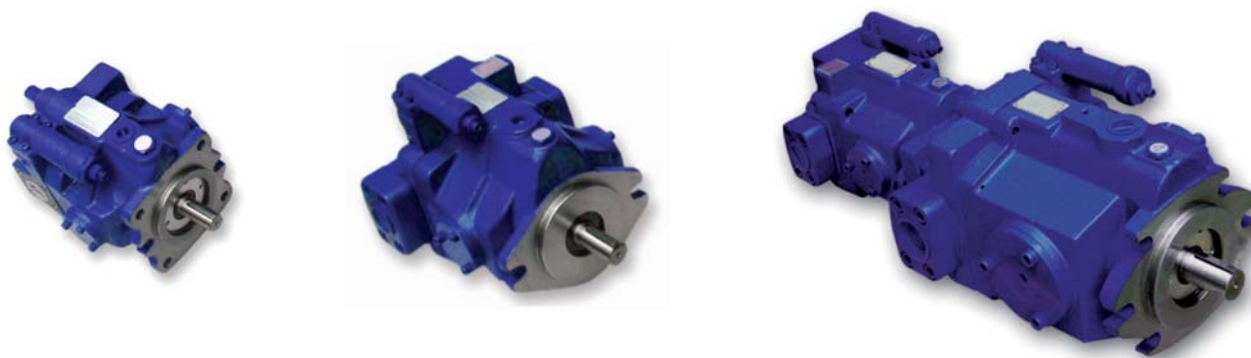
V Series AXIAL PISTON PUMP

FEATURES

The latest design in the proven V Series, medium pressure, open loop system variable displacement pump has been developed for the mobile and industrial market where low noise, high overall efficiency, excellent controllability, extended pump life and high reliability are all considered essential.

The features such as high efficiency, compact design, long life and a wide range of control options allow each of the V Series units to be easily matched to any application.

Specially designed for the noise-critical application, its rigid and compact structure reduces air borne noise emissions. All noise reduction features of the V Series provide a typical reduction of 6dB(A) compared with conventional designs.

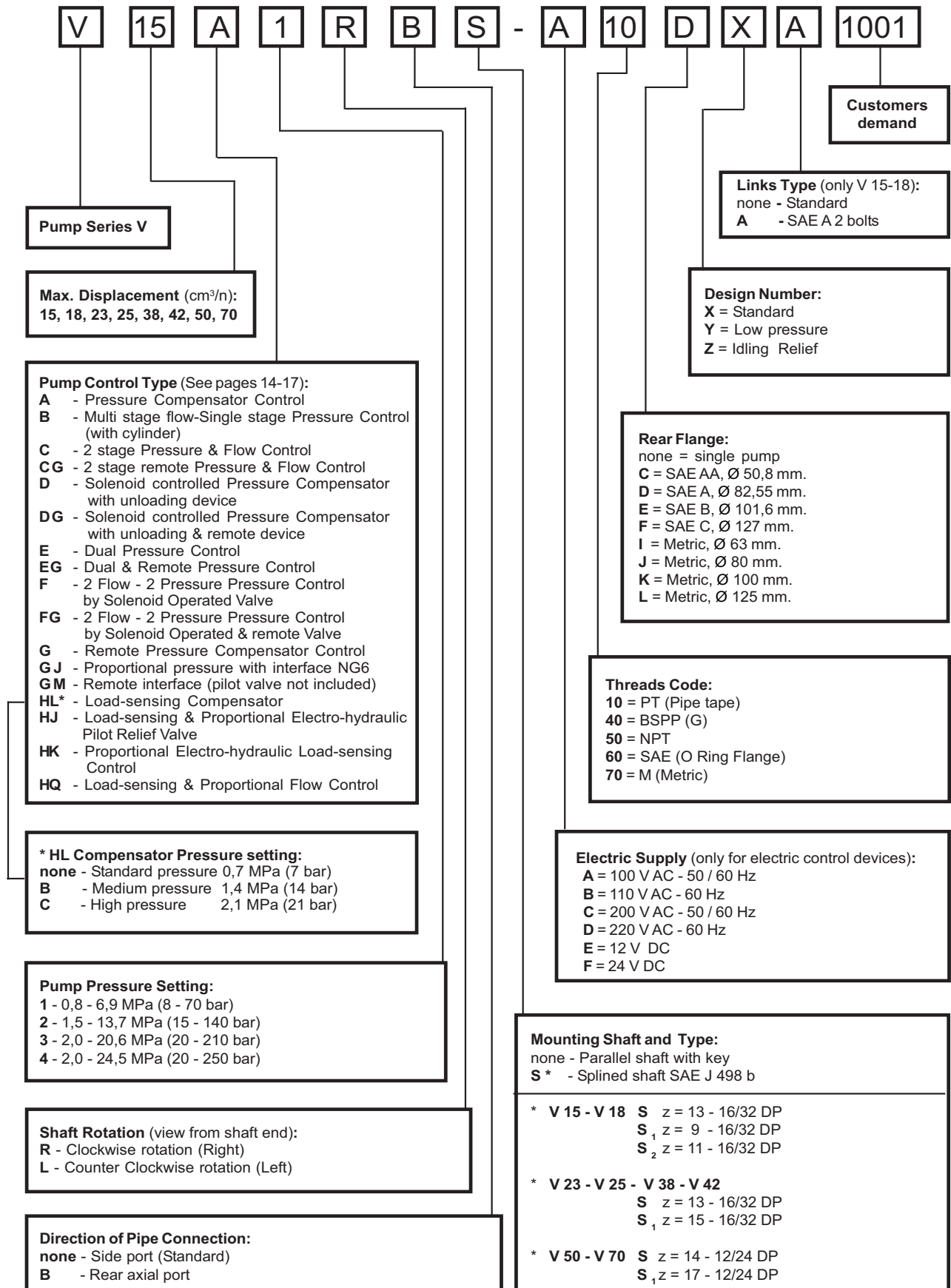


Technical Characteristics

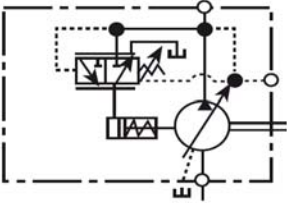
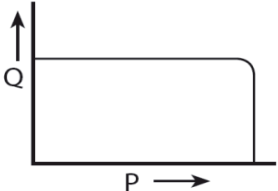
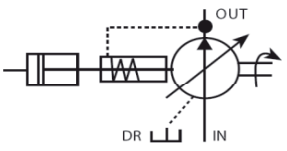
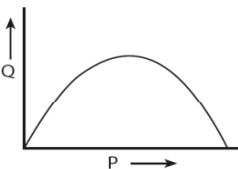
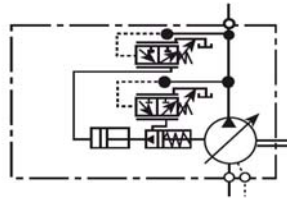
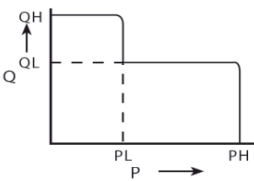
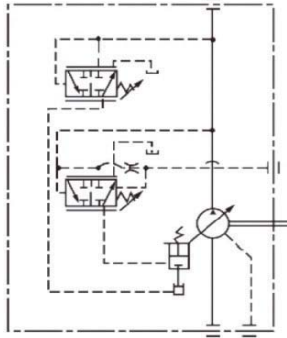
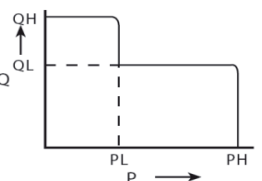
Pump model	Max. pressure bar	Displacement cm ³ /n	Delivery under unloading conditions lt/min.		Pressure adjustment range bar	Input Speed range n/min.		Weight kg
			1.500 n/min.	1.800 n/min.		min.	max.	
V 15 A	250	15,0	22,5	27,0	1 : 8 - 70 2 : 15 - 140 3 : 20 - 210 4 : 20 - 250	500	1.800	13,0
V 18 A	250	17,8	26,7	32,0				13,0
V 23 A	250	23,0	35,4	41,4				22,0
V 25 A	250	25,0	37,5	45,0				22,0
V 38 A	250	37,8	56,7	68,0				26,0
V 42 A	250	42,0	63,0	76,0				26,0
V 50 A	210	51,5	77,2	92,7				55,0
V 70 A	210	69,7	104,5	125,4				56,0
V 15 A + V 15 A	250	15,0 + 15,0	22,5 + 22,5	27,0 + 27,0				28,5
V 23 A + V 23 A	250	23,0 + 23,0	35,4 + 35,4	41,4 + 41,4				46,5
V 38 A + V 15 A	250	37,8 + 15,0	56,7 + 22,5	68,0 + 27,0				41,5
V 38 A + V 38 A	250	37,8 + 37,8	56,7 + 56,7	68,0 + 68,0				54,5
V 70 A + V 15 A	210	69,7 + 15,0	104,5 + 22,5	125,4 + 27,0				71,5
V 70 A + V 38 A	210	69,7 + 37,8	104,5 + 56,7	125,4 + 68,0				84,5

V Series AXIAL PISTON PUMP

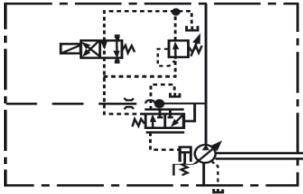
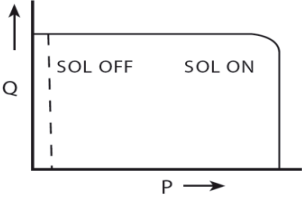
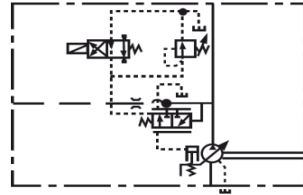
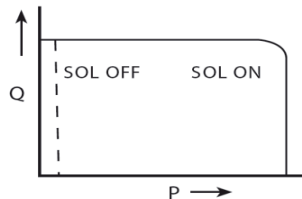
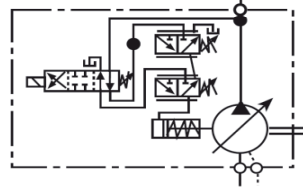
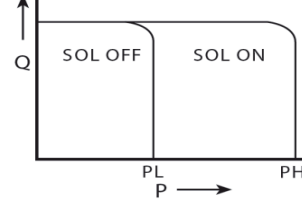
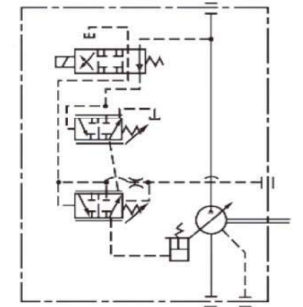
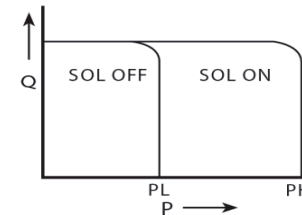
ORDER CODE



FUNCTIONAL DESCRIPTION OF REGULATOR

Control Type	Hydraulic Symbol	Control Curve
<p>A - Pressure compensator control</p> <p>1 - When system pressure increase and reach preset pressure the flow decrease automatically and pressure maintain without changing.</p> <p>2 - Flow and pressure can be adjusted manually.</p>		
<p>B - Multi-stage flow & single-stage pressure control (with cylinder)</p> <p>1 - Flow can be adjusted form zero to maximum and pressure can have been maintaining at preset pressure.</p> <p>2 - Absorbing impact and vibration which are produced by up and down motions of actuators.</p> <p>It is suitable for lifting equipment etc...</p>		
<p>C - Two-stage pressure & flow control</p> <p>1 - Low consumption electric motor can be selected to save energy because of the functions of high flow at low pressure and low flow at high pressure.</p> <p>2 - When pressure increase and reach preset pressure "PH", flow is reduced to "QL".</p> <p>3 - Pressure "PH-PL" and Flow "QH QL" can be adjusted optionally.</p> <p>4 - It is applied to actuators requiring long unloaded or short loaded strokes. Speedy and horse-power efficient.</p>		
<p>CG - Two-stage remote pressure & flow control</p> <p>1 - The same function of "C" control type.</p> <p>2 - The pressure range can be adjusted remotely by the integrated remote pressure control valve.</p> <p>3 - Proportional Electro-Hydraulic pressure control can be applied with proportional valve.</p>		

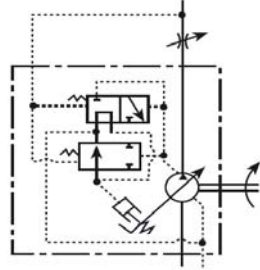
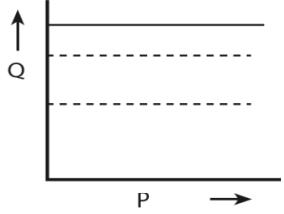
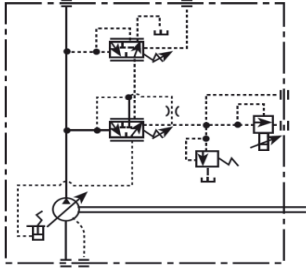
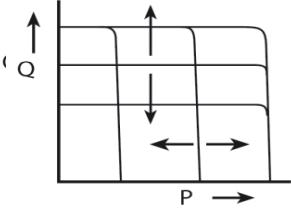
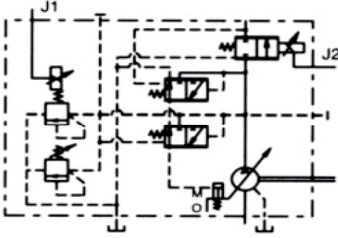
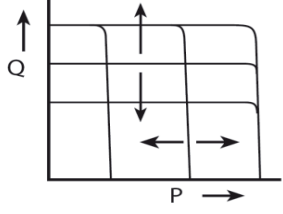
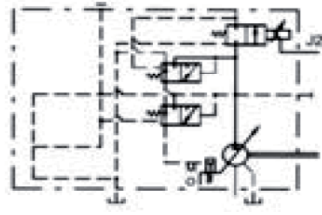
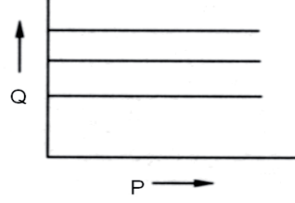
FUNCTIONAL DESCRIPTION OF REGULATOR

Control Type	Hydraulic Symbol	Control Curve
<p>D - Solenoid controlled pressure compensating control with unloading device</p> <p>1 - Same as Type "A" and unloading function added.</p> <p>2 - It is applied to systems requiring long time unloading operation.</p> <p>3 - When solenoid is turned off, the pump operates under unloading conditions. This results in less noise and heat generation.</p>		
<p>DG - Solenoid controlled pressure compensating control with unloading & remote device</p> <p>1 - The same function of "D" control type</p> <p>2 - The pressure range can be adjusted remotely by the integrated remote pressure control valve.</p> <p>3 - Proportional Electro-hydraulic pressure control can be applied with proportional valve.</p>		
<p>E - Dual pressure control</p> <p>1 - High and low pressure can be controlled by switching directions of solenoid control valve.</p> <p>2 - This type is applied to actuators requiring 2-stage pressures with single speed.</p> <p>3 - One of "PL" and "PH" relief valves can optionally be high pressure.</p>		
<p>EG - Dual & remote pressure control</p> <p>1 - The same function of "E" control type</p> <p>2 - The pressure range can be adjusted remotely by the integrated remote pressure control valve.</p> <p>3 - Proportional Electro-hydraulic pressure control can be applied with proportional valve.</p>		

FUNCTIONAL DESCRIPTION OF REGULATOR

Control Type	Hydraulic Symbol	Control Curve
<p>F - Two flow - Two pressure p.c. by solenoid operated valve</p> <p>1 - Actuators can be shifted slowly (high pressure low flow) and quickly (low pressure high flow) by switching directions of solenoid control valve.</p> <p>2 - This type is applied to actuator requiring operations to shift speed from high to low or low to high.</p> <p>3 - Pressure "PL, PH" and flow "QL, QH" can be adjusted optionally.</p>		
<p>FG - Two flow - Two pressure p.c. by solenoid operated & remote valve</p> <p>1 - The same function of "F" control type.</p> <p>2 - The pressure range can be adjusted remotely by the integrated remote pressure control valve.</p> <p>3 - Proportional Electro-hydraulic pressure control can be applied with proportional valve.</p>		
<p>G - Remote pressure compensator control</p> <p>1 - The same function of "A" control type.</p> <p>2 - The pressure range can be adjusted remotely by the integrated remote pressure control valve.</p>		
<p>GJ - Proportional pressure with interface</p> <p>1 - The same function of "GM" control type and proportional valve added.</p> <p>2 - The proportional valve is installed on the NG 6 interface to reach proportional electro-hydraulic control to save energy.</p>		
<p>GM - Remote interface (valve not included)</p> <p>1 - GM control with a NG6 interface, supply an installation for pilot valve to prove the operating pressure. The pressure setting can be set directly from the control panel of the machine.</p> <p>2 - The remote pressure compensator responds faster and offer more stable pressure.</p> <p>3 - The adjustment can also be manual or proportional pressure control.</p>		

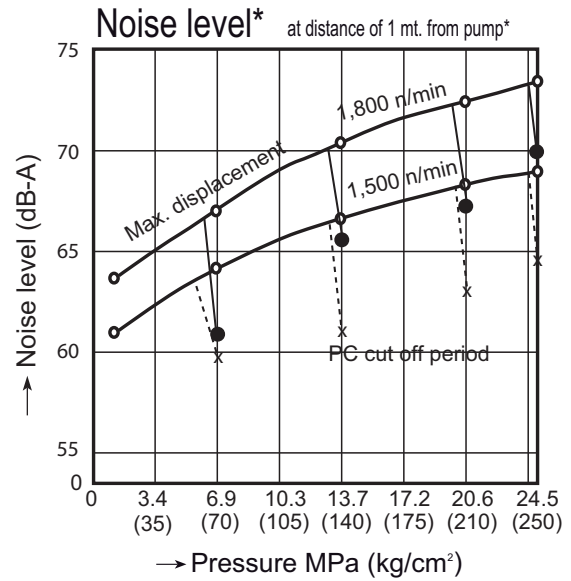
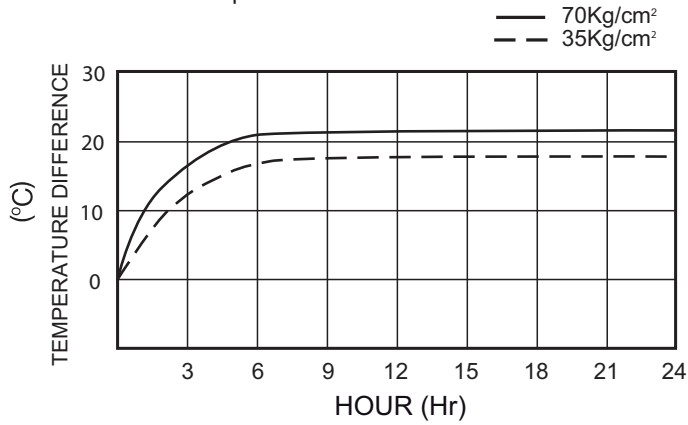
FUNCTIONAL DESCRIPTION OF REGULATOR

Control Type	Hydraulic Symbol	Control Curve
<p>HL - Load sensing compensator control 1 - The pump outlet can be controlled by the setting pressure value of control valve. An ideal energy conservation system can be configured by combining the proportional directional control. 2 - When setting pressure value, flow is changed depending on the throttle valve. The sensing flow feedback function can reach to low oil heat generation and saving energy.</p>		
<p>HJ - Load sensing & proportional electro-hydraulic pilot relief valve 1 - The same function of "HL" and proportional function added. 2 - Supplied with proportional electro-hydraulic pilot relief valve can reach to power saving.</p>		
<p>HK- Proportional electro-hydraulic load sensing control 1 - This control type supply the system pressure and flow depending on the proportional pressure and flow, voltage and load value to save energy. When in waiting circle, the outlet displacement and horse-power loss are close to zero. When pressure reaches to preset value, the flow decrease to the min. and the pressure is constant to reach low oil heat generation and energy loss. 2 - HK control type can save 30-50% energy compared to vane and gear pump + PQ valve. It is an energy saving and environmental design.</p>		
<p>HQ - Load sensing proportional flow control 1 - The same function of "HL" control type and proportional flow function added. 2 - The proportional flow control allows the adjustment of the pump output flow with an electric input signal. Pump flow rate are controlled proportionally to the input current to the control device on the pump and the input current is regulated by the specific amplifier.</p>		

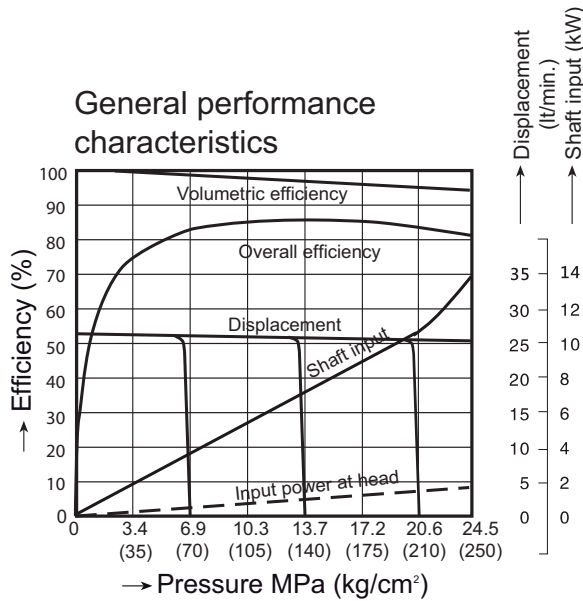
V 15 - V 18 Series Axial Piston Pump - Technical Specifications

Typical performance characteristics

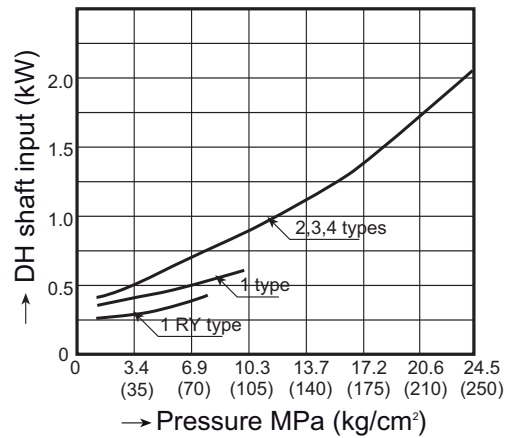
*Input speed: 1,800 n/min
 *Oil: ISOVG32
 *Oil temperature: 50°C



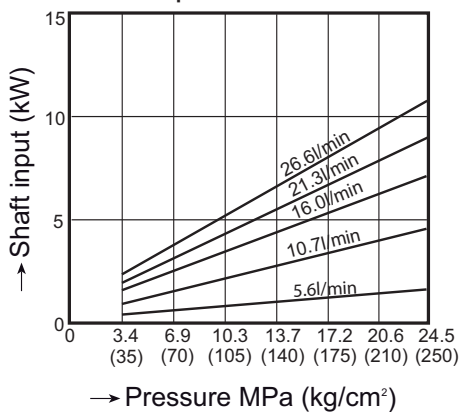
General performance characteristics



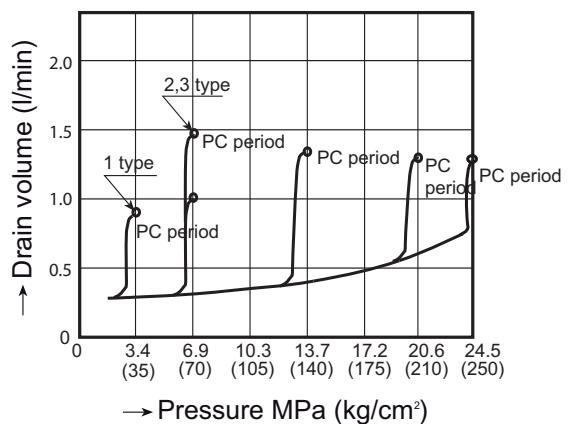
Dead head shaft input



Shaft input characteristics

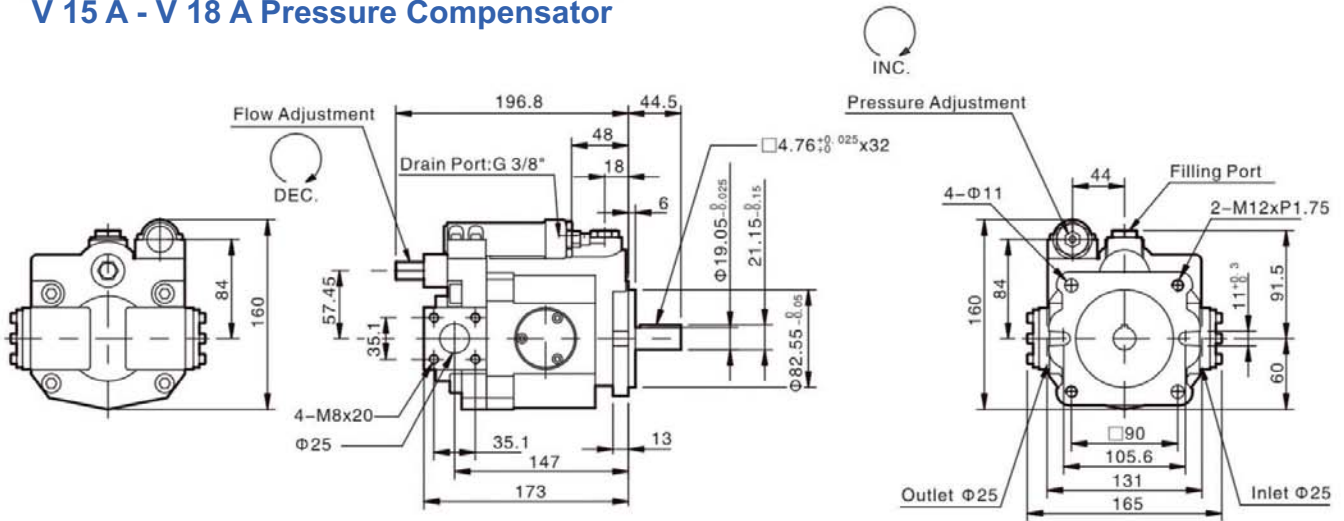


Drain volume characteristics

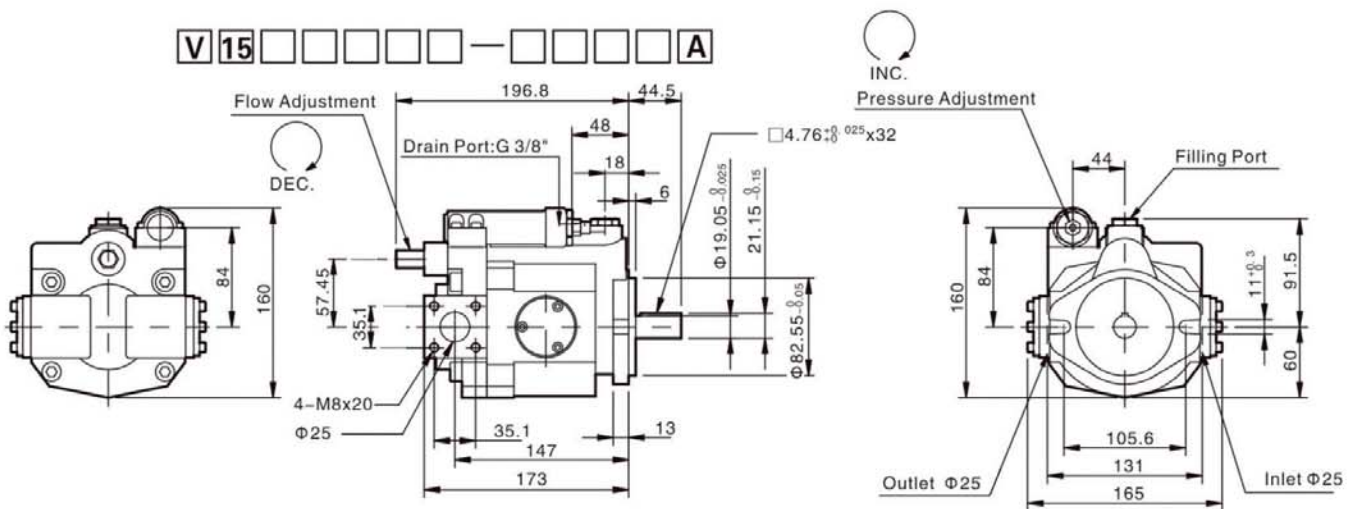


V 15 - V 18 Series Axial Piston Pump - Installation Drawing

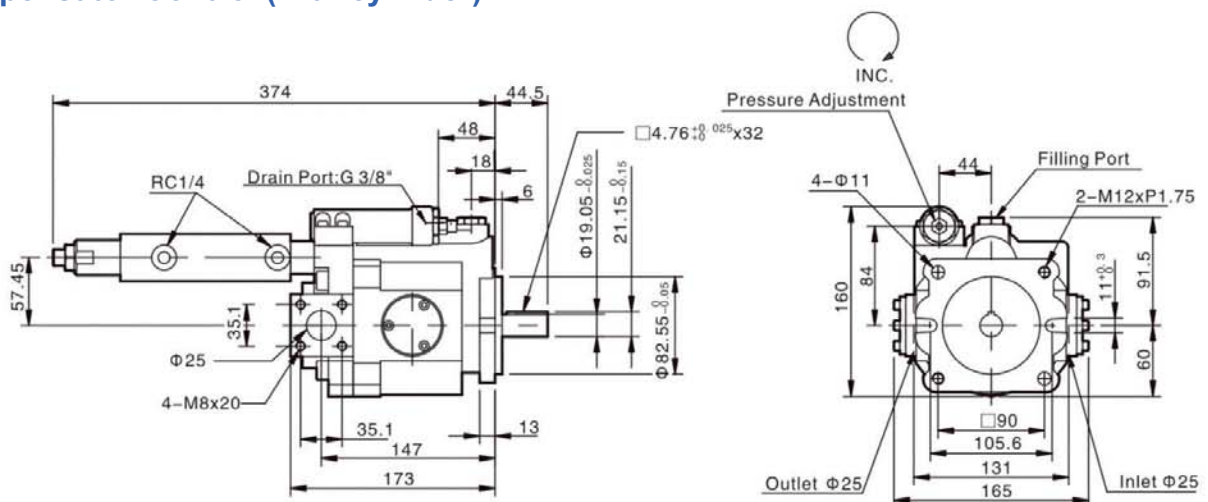
V 15 A - V 18 A Pressure Compensator



V 15 A - V 18 A Pressure Compensator (SAE A two bolt)



V 15 B - V 18 B Multi-Stage Flow & Single - Stage Pressure Compensator Control (with cylinder)

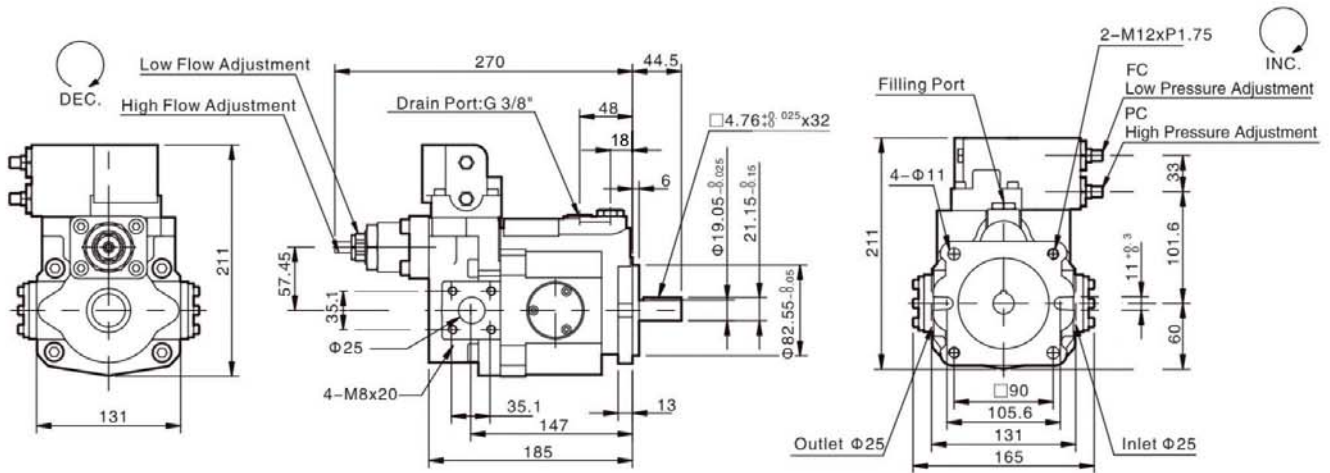


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 20.

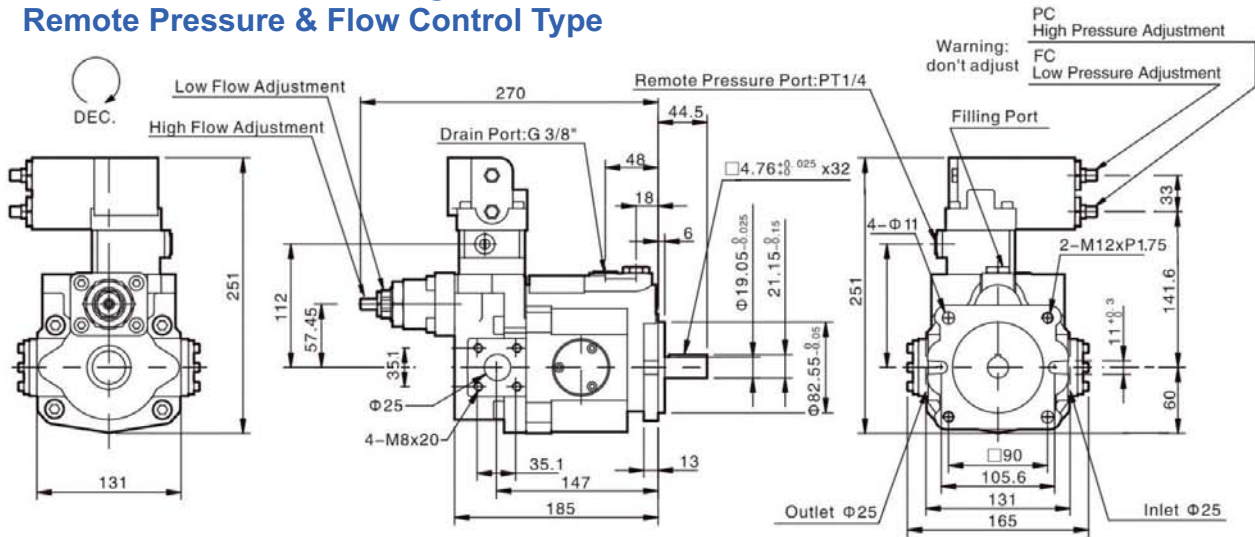


V 15 - V 18 Series Axial Piston Pump - Installation Drawing

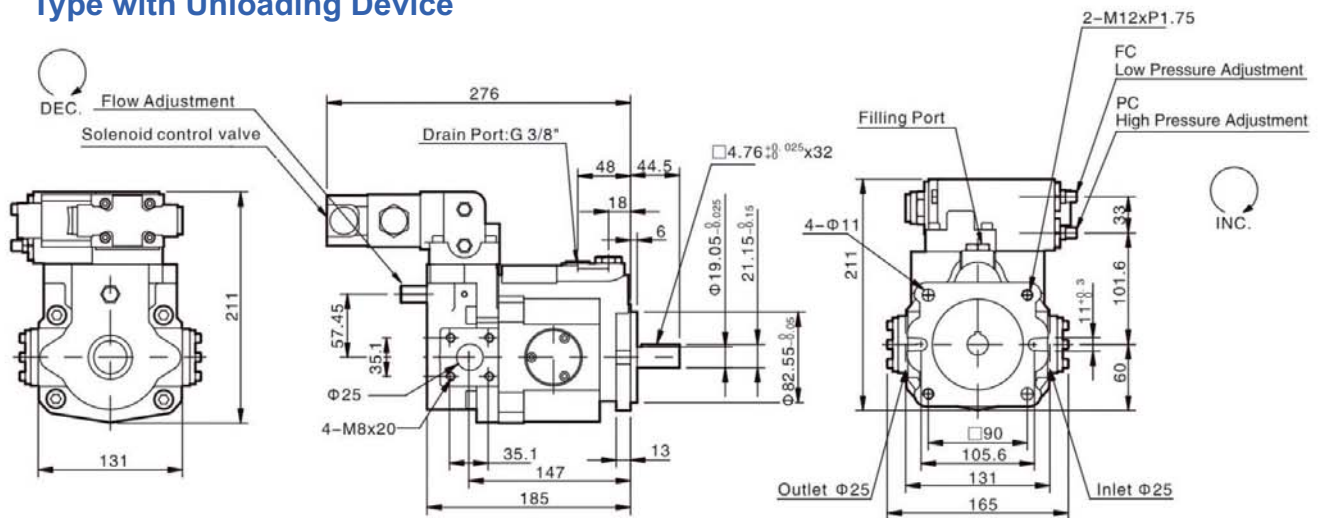
V 15 C - V 18 C Two-Stage Pressure & Flow Control Type



V 15 CG - V 18 CG Two-Stage Remote Pressure & Flow Control Type



V 15 D - V 18 D Solenoid Controlled Pressure Compensating Type with Unloading Device

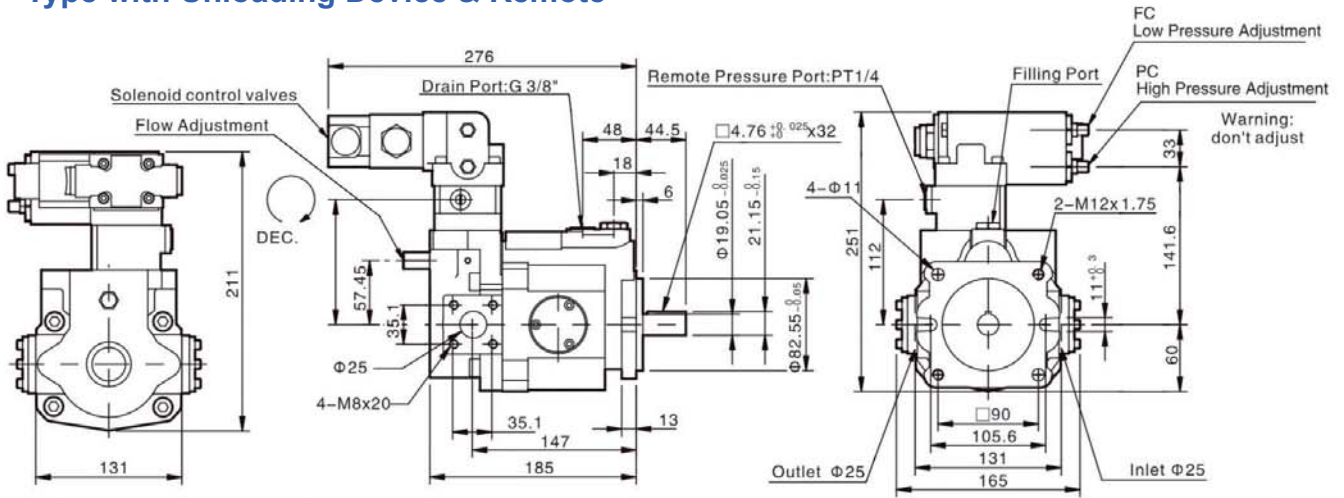


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 20.

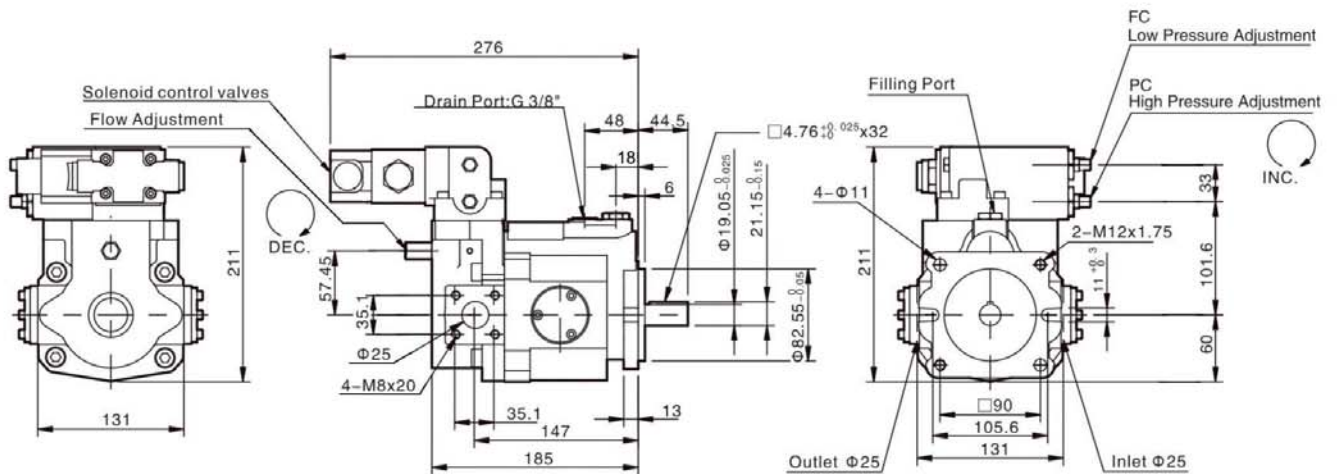


V 15 - V 18 Series Axial Piston Pump - Installation Drawing

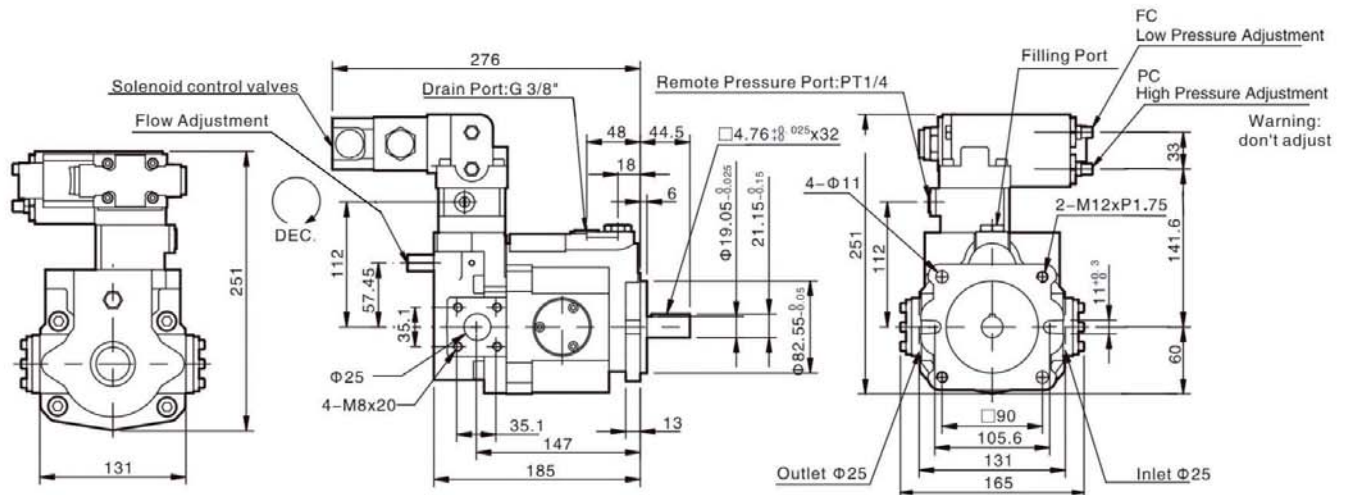
V 15 DG - V 18 DG Solenoid Controlled Pressure Compensating Type with Unloading Device & Remote



V 15 E - V 18 E Dual Pressure Control



V 15 EG - V 18 EG Dual & Remote Pressure Control

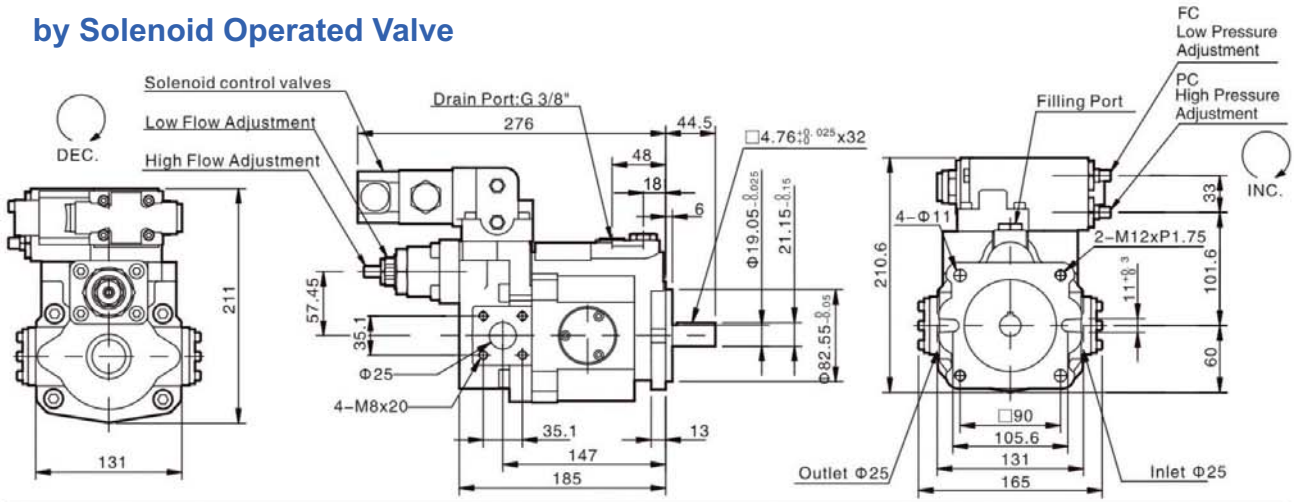


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 20.

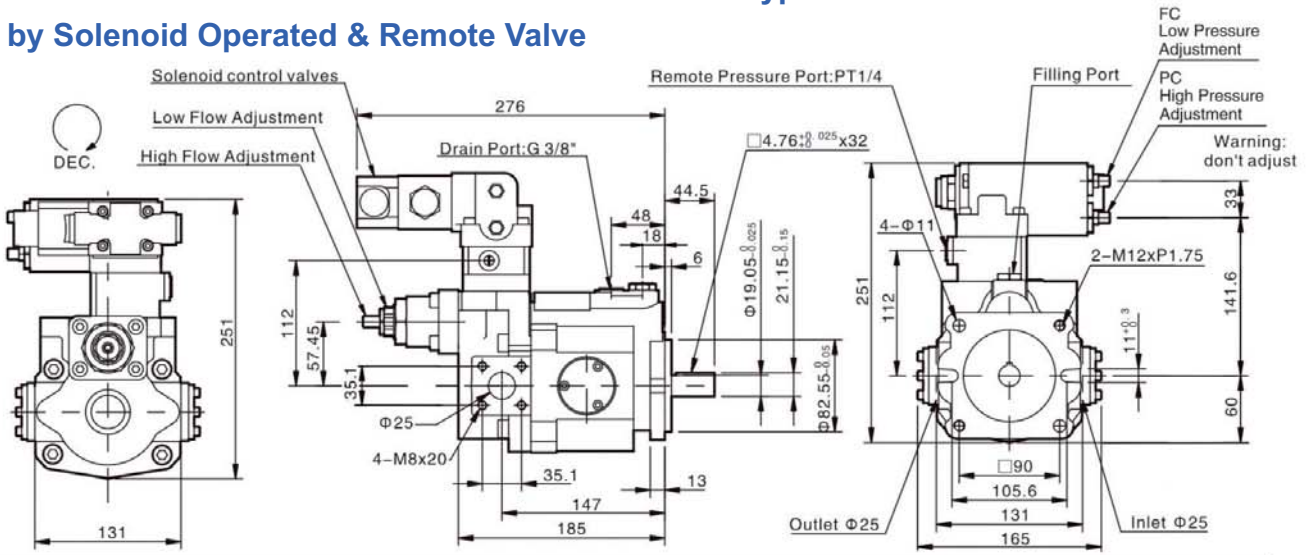


V 15 - V 18 Series Axial Piston Pump - Installation Drawing

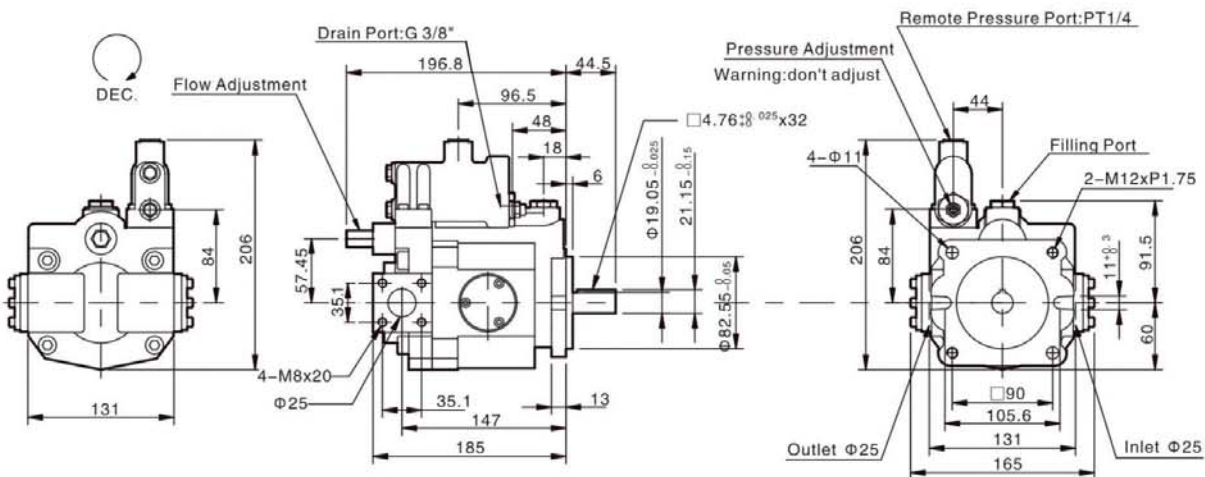
V 15 F - V 18 F Dual Pressure & Flow Control Type by Solenoid Operated Valve



V 15 FG - V 18 FG Dual Pressure & Flow Control Type by Solenoid Operated & Remote Valve



V 15 G - V 18 G Remote Pressure Compensator Control

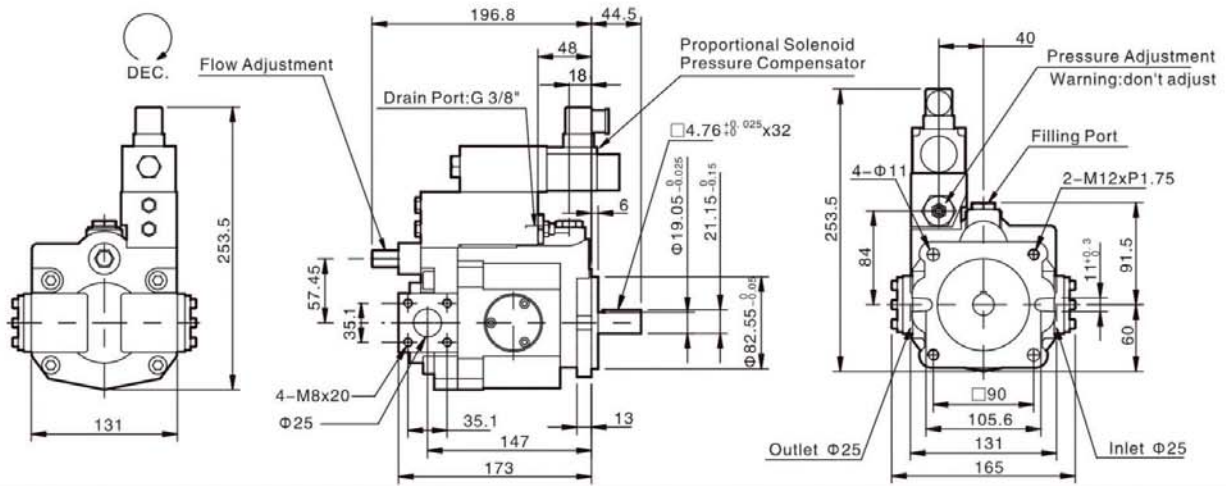


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 20.

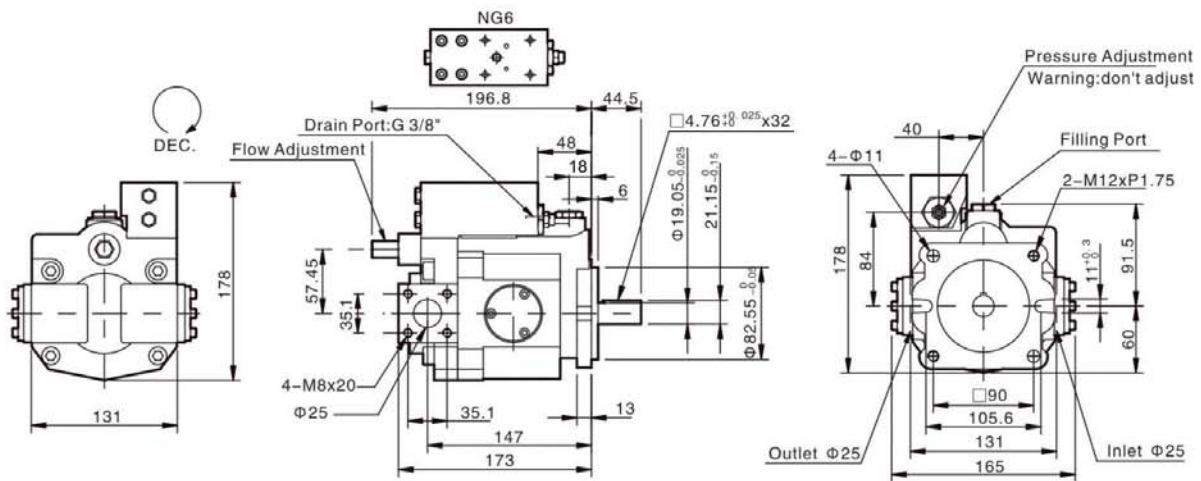


V 15 - V 18 Series Axial Piston Pump - Installation Drawing

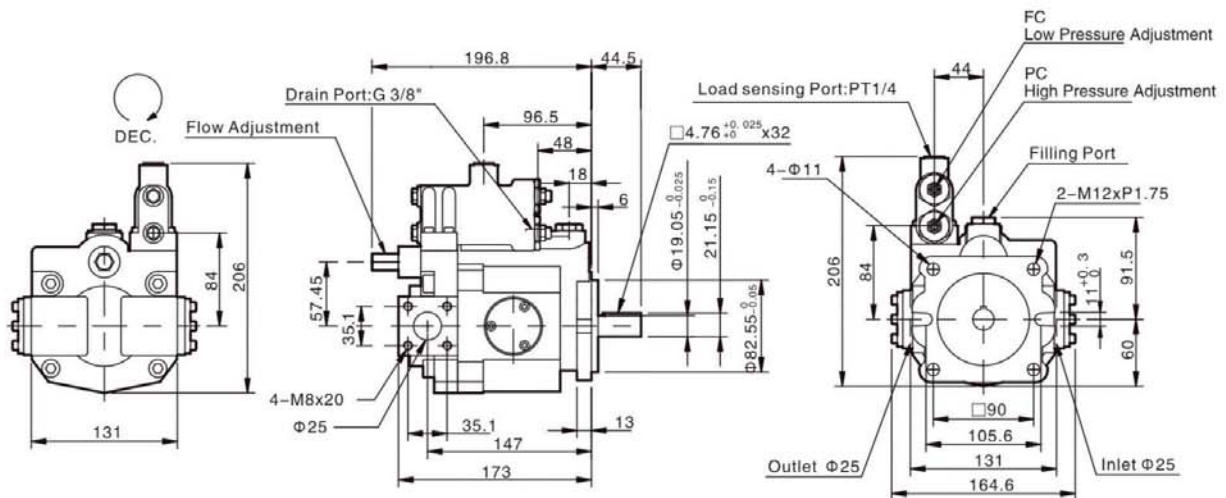
V 15 GJ - V 18 GJ Proportional Pressure with Interface



V 15 GM - V 18 GM Remote Interface (valve not Included)



V 15 HL - V 18 HL Load-Sensing Compensator

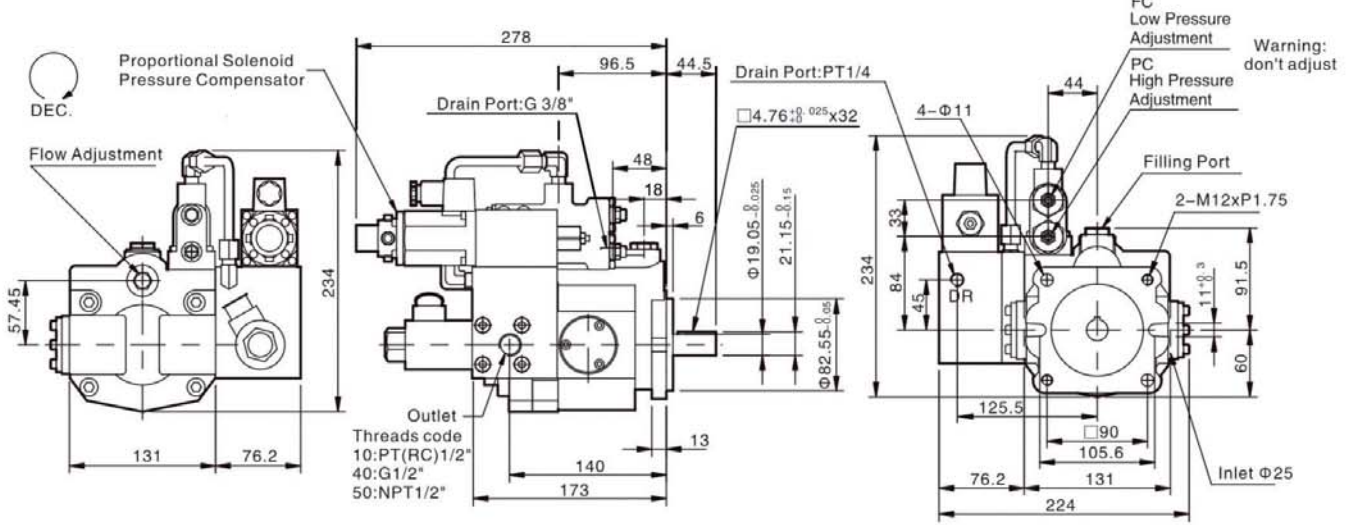


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 20.

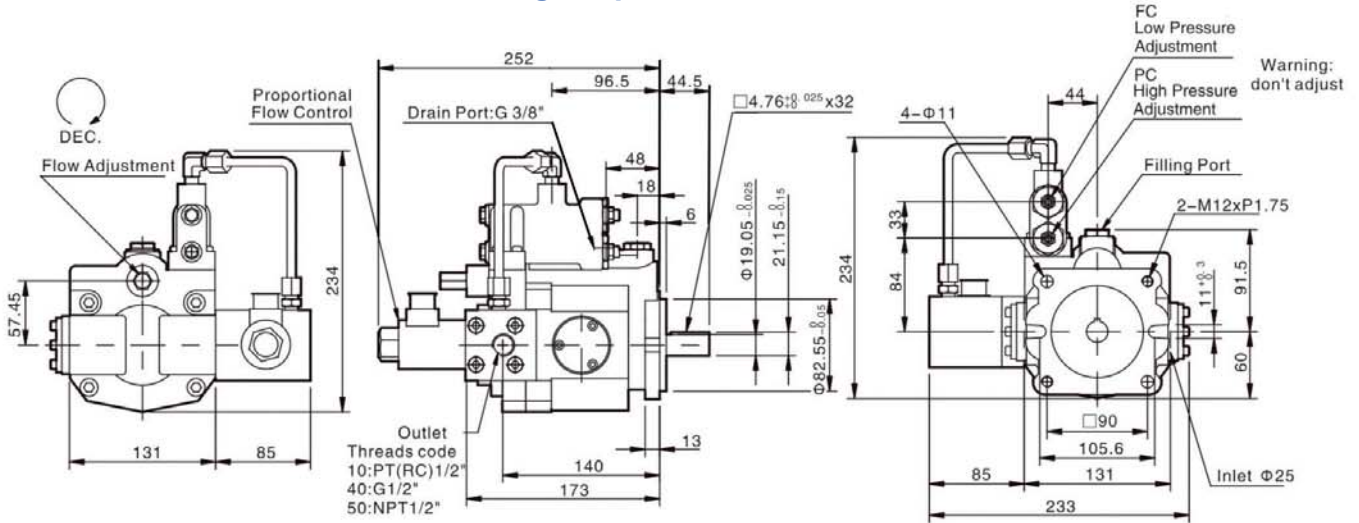


V 15 - V 18 Series Axial Piston Pump - Installation Drawing

V 15 HK - V 18 HK Proportional Electro-Hydraulic Load Sensing Compensator

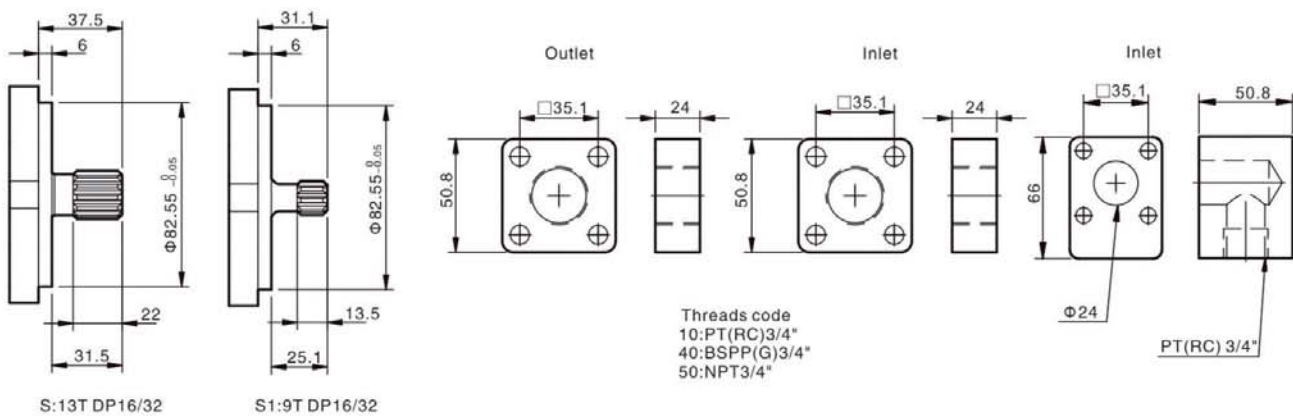


V 15 HQ - V 18 HQ Load-Sensing Proportional Flow Control



V 15 - V 18 Splined Shaft Type

V 15 - V 18 Hydraulic Flange

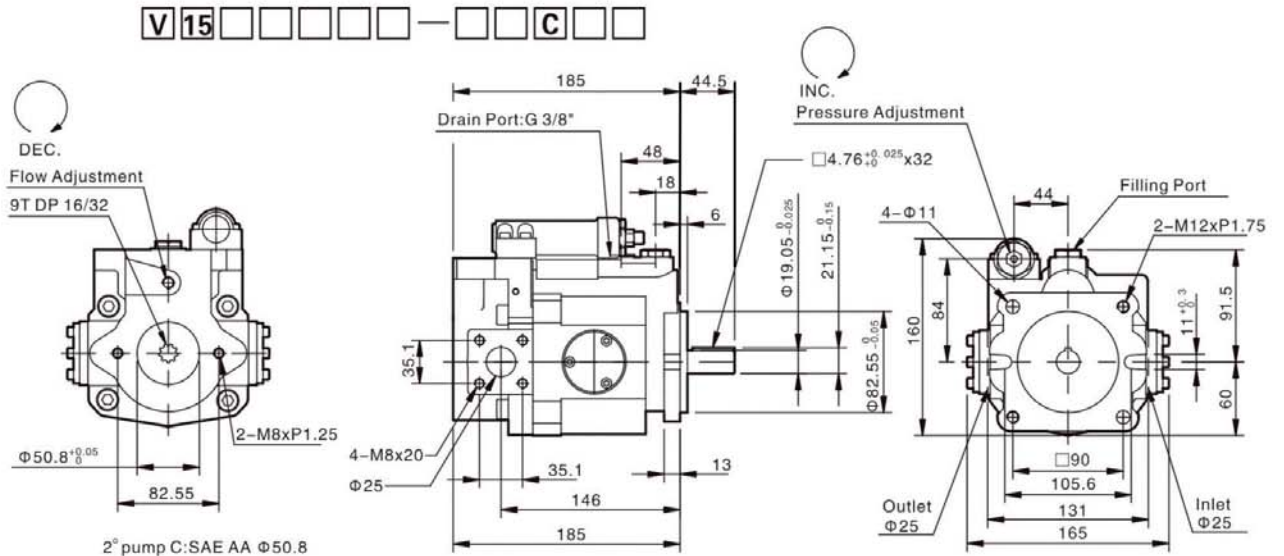


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 20.



V 15 - V 18 Series Axial Piston Pump - Installation Drawing

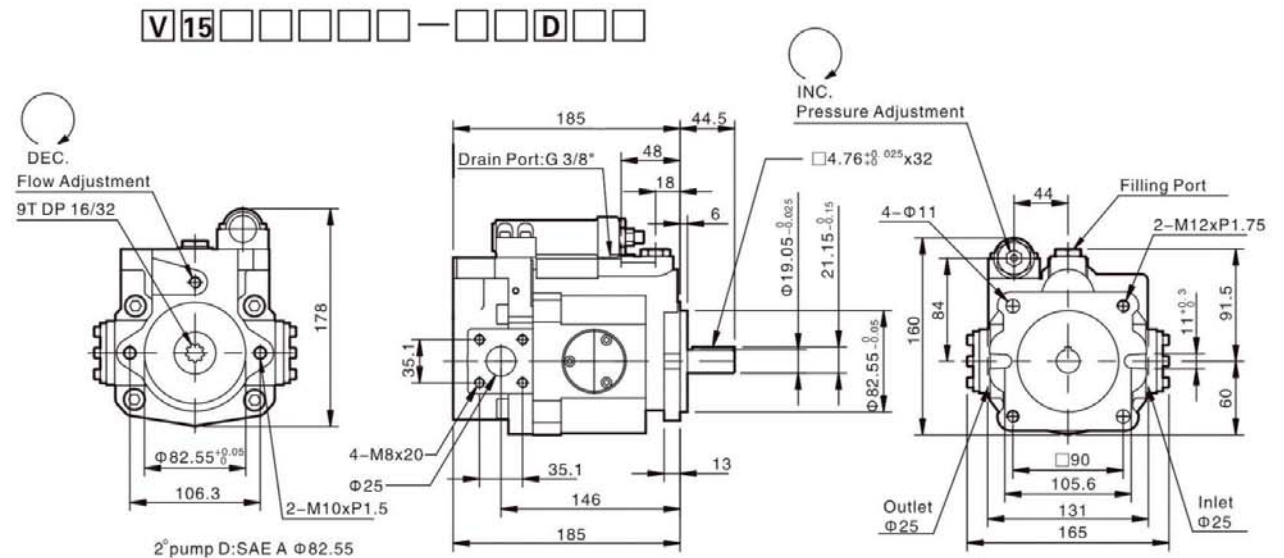
V 15 - V 18 Thru Drive Option SAE AA (spigot diam. 50,8)



Type	A	B	C	CG	D	DG	E	EG	F	FG	G	GJ	GM	HL	HK	HQ
	○				○	○	○	○			○	○	○	○	○	○

Thru Drive Option

V 15 - V 18 Thru Drive Option SAE A (spigot diam. 82,55)



Type	A	B	C	CG	D	DG	E	EG	F	FG	G	GJ	GM	HL	HK	HQ
	○				○	○	○	○			○	○	○	○	○	○

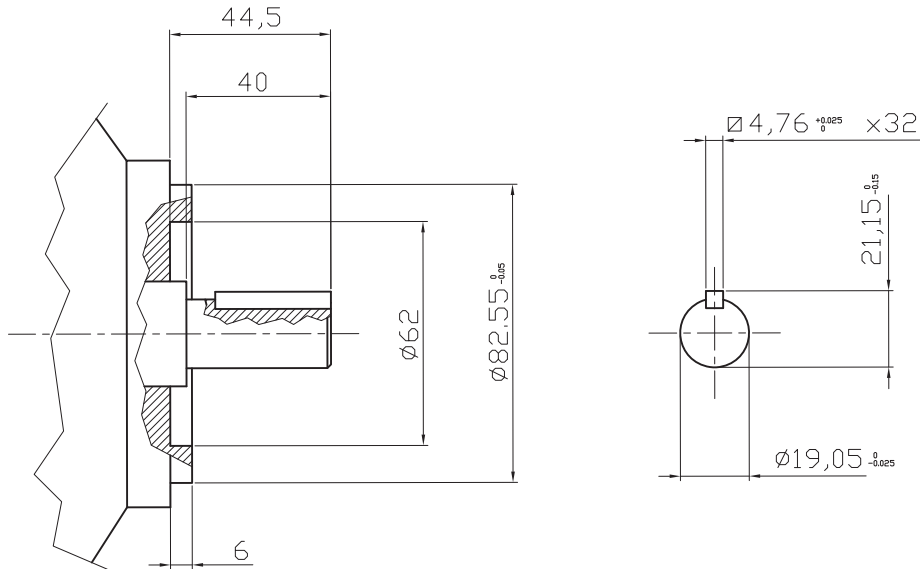
Thru Drive Option

Notes: - Inlet - Outlet port are for standard rotation (clockwise).
- For shaft detail see page 20.

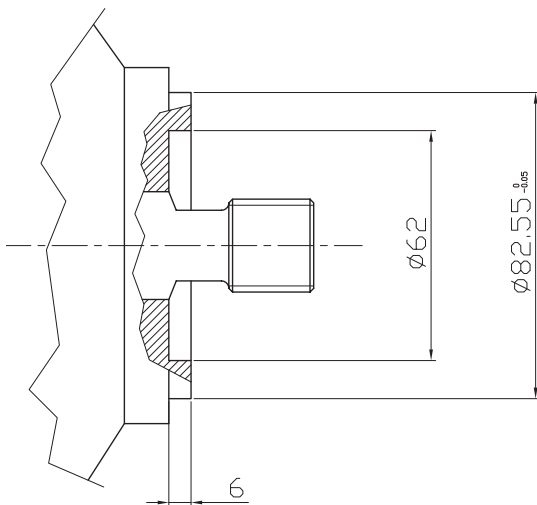


V 15 - V 18 Series Axial Piston Pump - Installation Drawing - Shaft Option

Parallel Shaft



Splined Shaft



Spline Characteristics

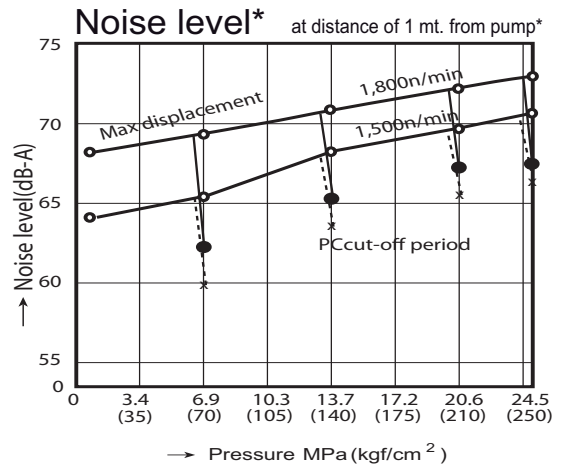
Splined shaft type S	SAE J 498 B 13 theet 16/32 DP Involute spline 30°
Splined shaft type S1	SAE J 498 B 9 theet 16/32 DP Involute spline 30°
Splined shaft type S2	SAE J 498 B 11 theet 16/32 DP Involute spline 30°

V 23 - V 25 Series Axial Piston Pump - Technical Specifications

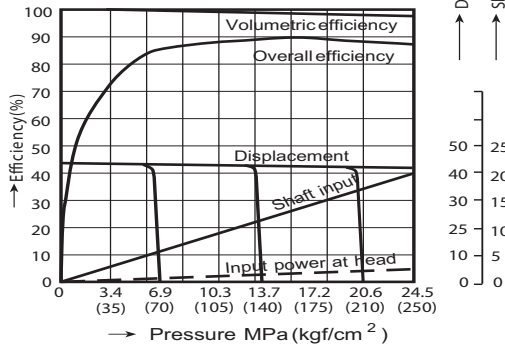


Typical performance characteristics

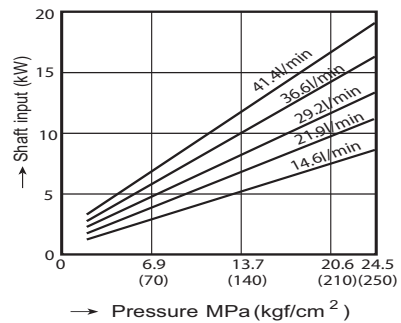
- *Input speed: 1,800 n/min
- *Oil : ISOVG32
- *Oil temperature: 50°C



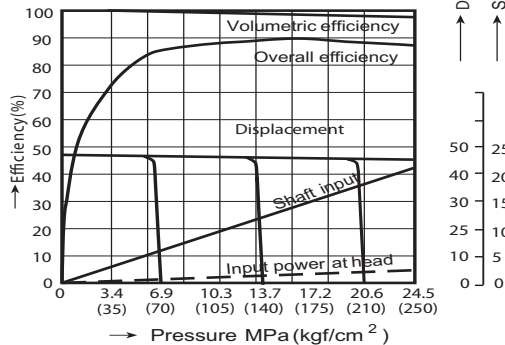
V 23 General performance characteristics



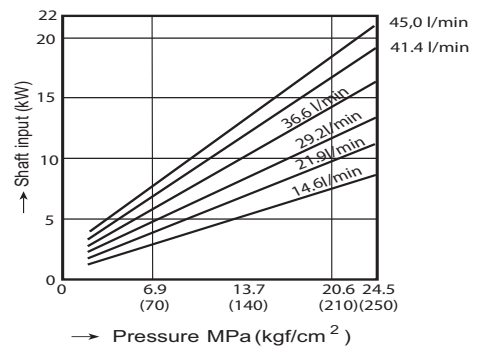
V 23 Shaft input characteristic



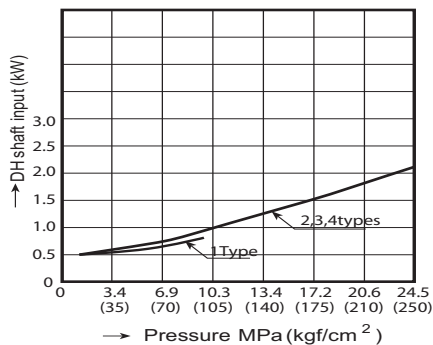
V 25 General performance characteristics



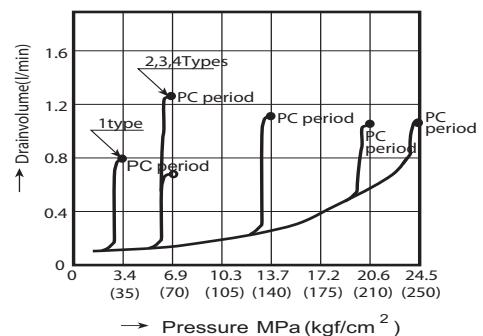
V 25 Shaft input characteristic



Dead head shaft input

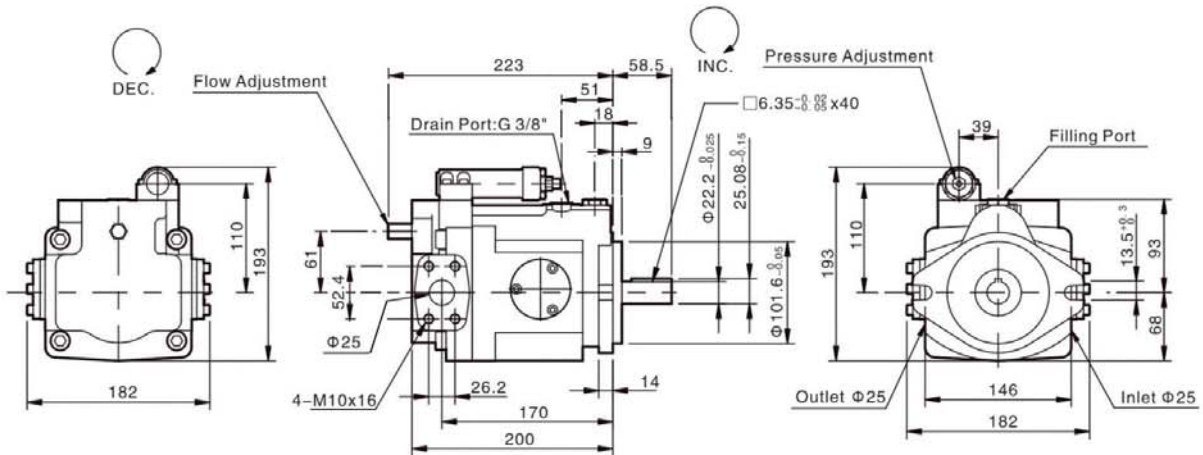


Drain volume characteristic

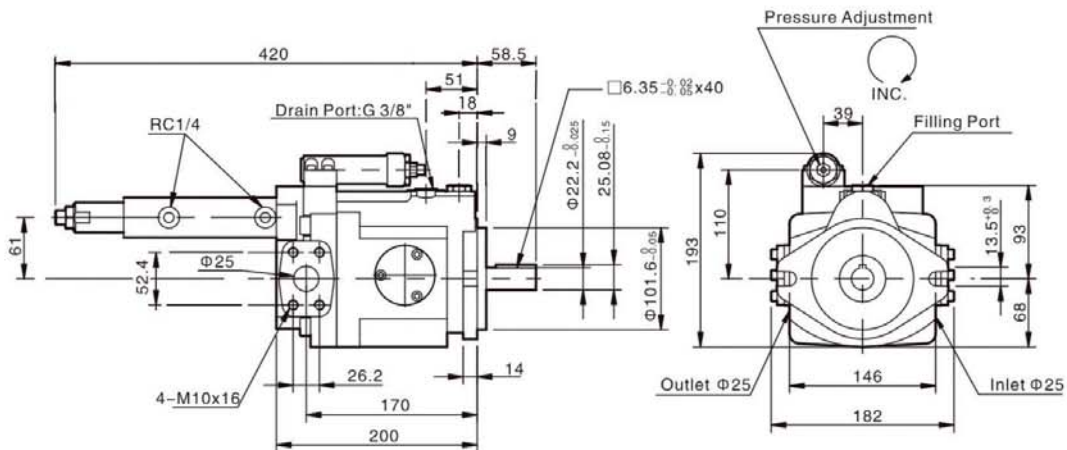


V 23 - V 25 Series Axial Piston Pump - Installation Drawing

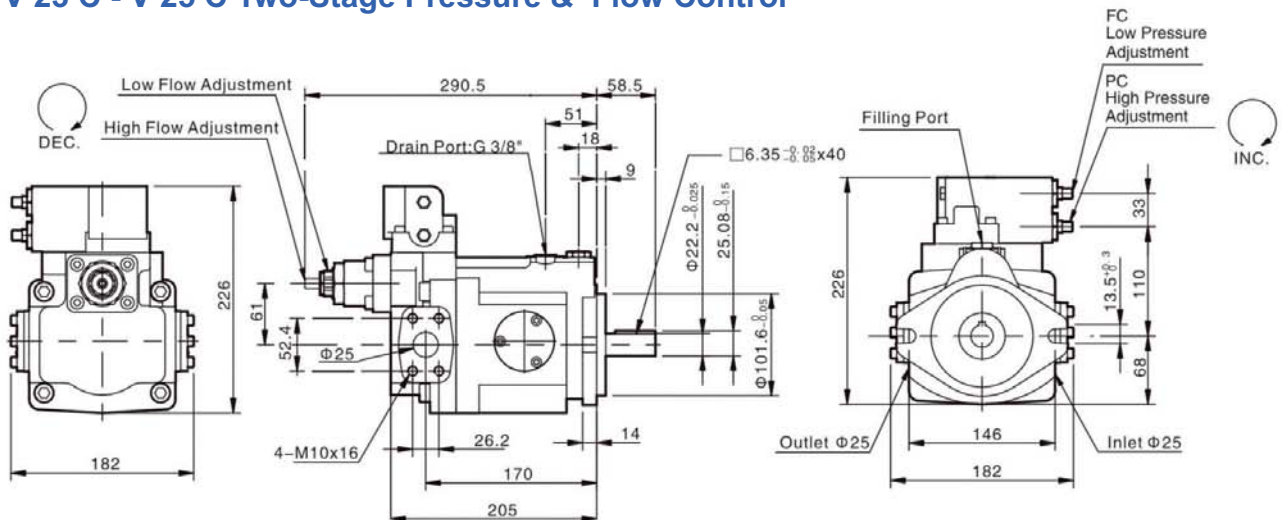
V 23 A - V 25 A Pressure Compensator



V 23 B - V 25 B Multi-Stage Flow & Single-Stage Pressure Compensator Control (with cylinder)



V 23 C - V 25 C Two-Stage Pressure & Flow Control

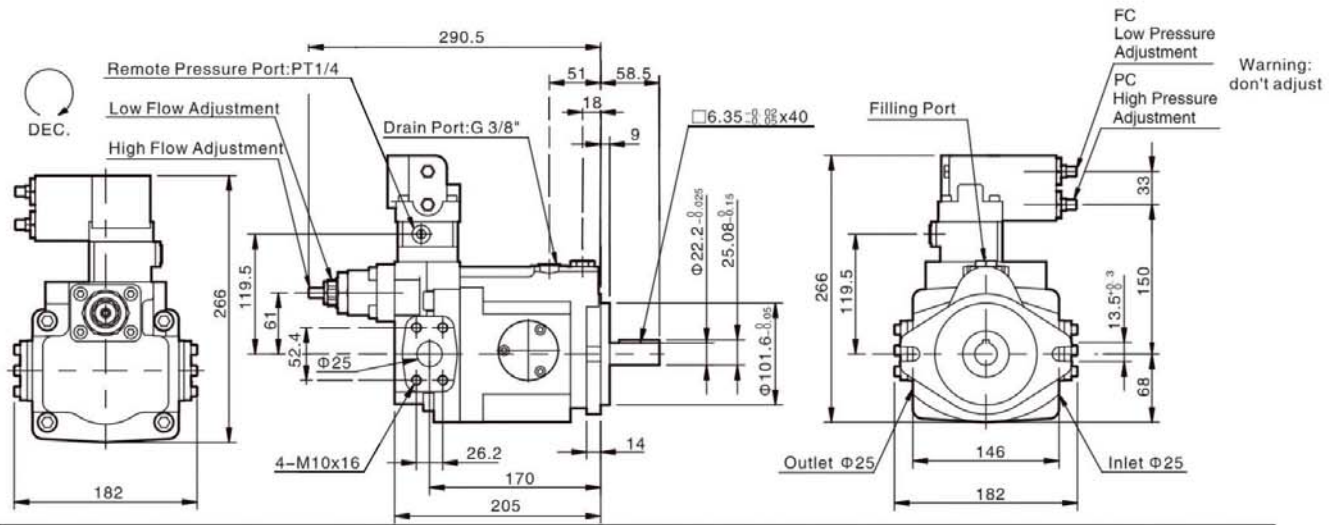


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
- For shaft detail see page 29.

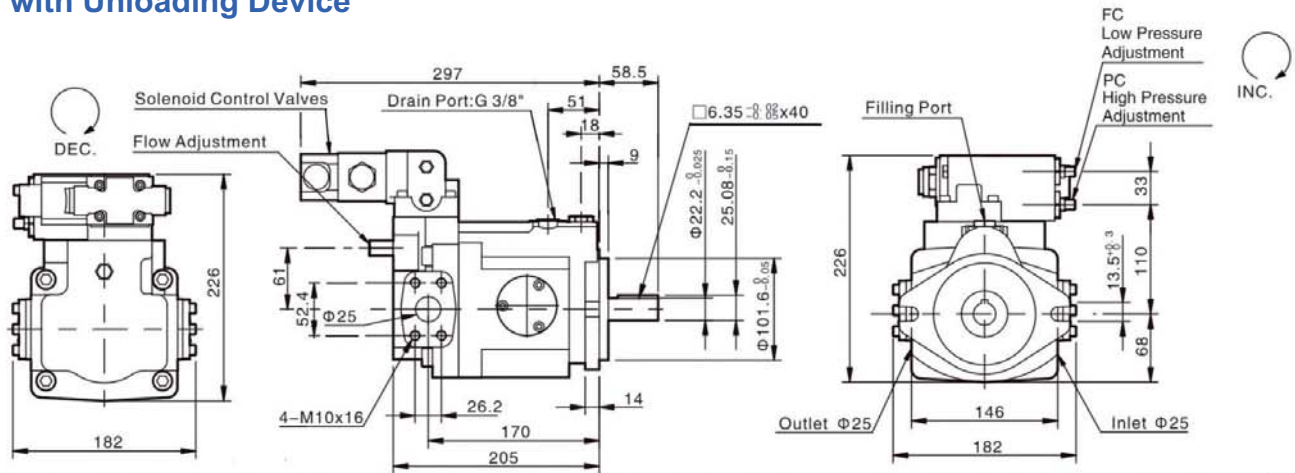


V 23 - V 25 Series Axial Piston Pump - Installation Drawing

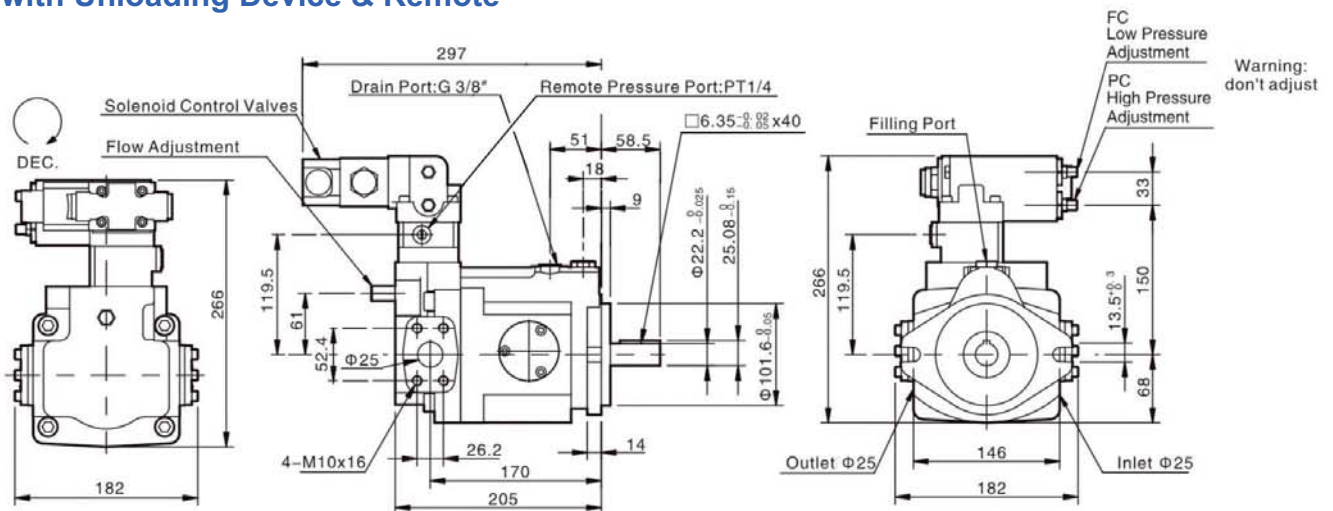
V 23 CG - V 25 CG Two stage Pressure & Flow Control with Remote



V 23 D - V 25 D Solenoid Controlled Pressure Compensating Type with Unloading Device



V 23 DG - V 25 DG Solenoid Controlled Pressure Compensating Type with Unloading Device & Remote

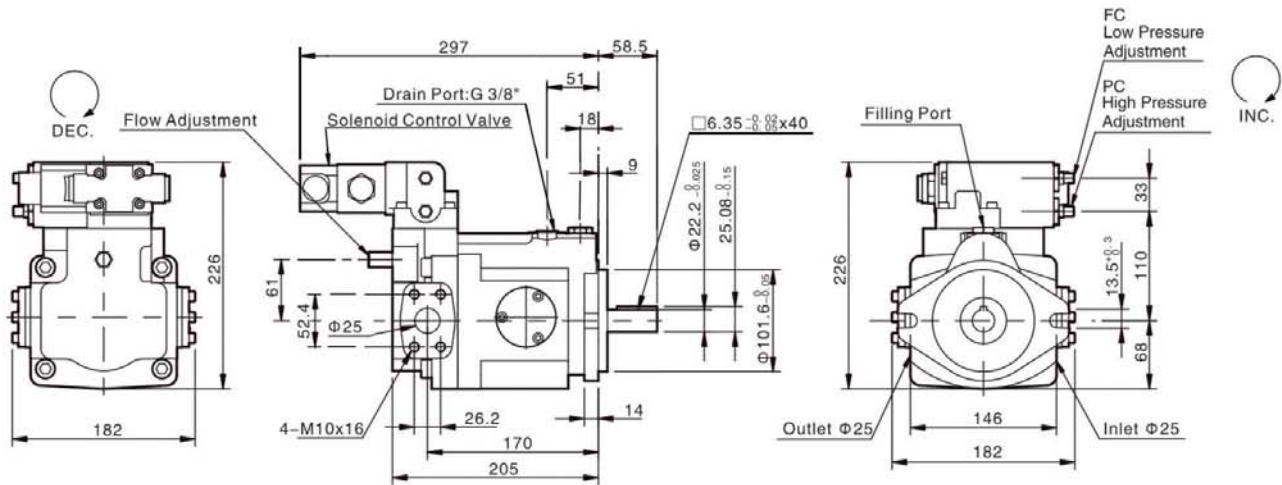


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
- For shaft detail see page 29.

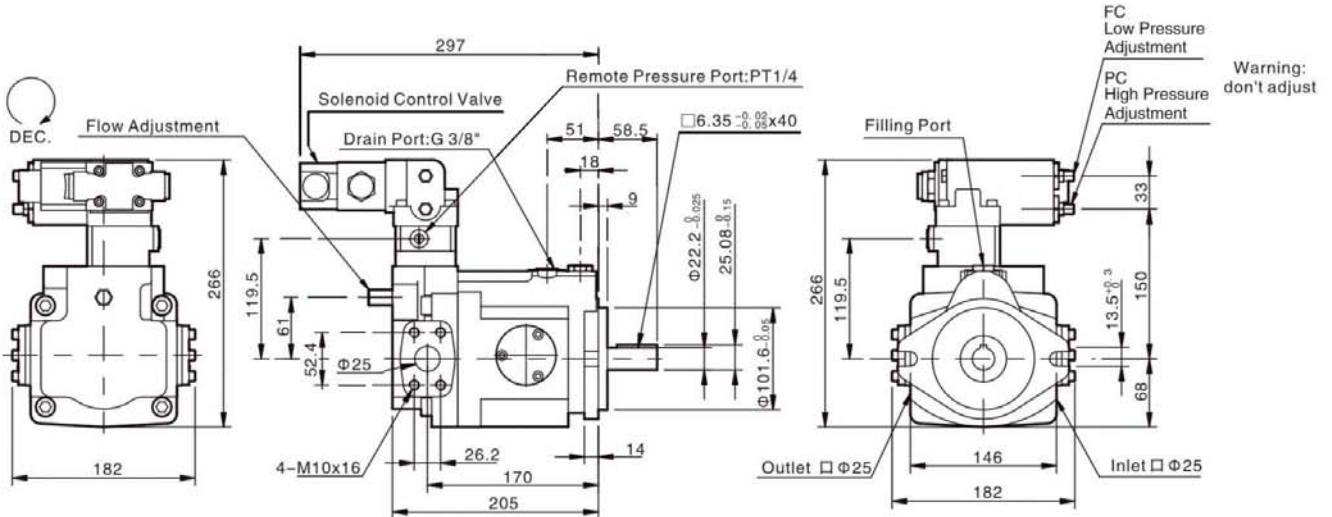


V 23 - V 25 Series Axial Piston Pump - Installation Drawing

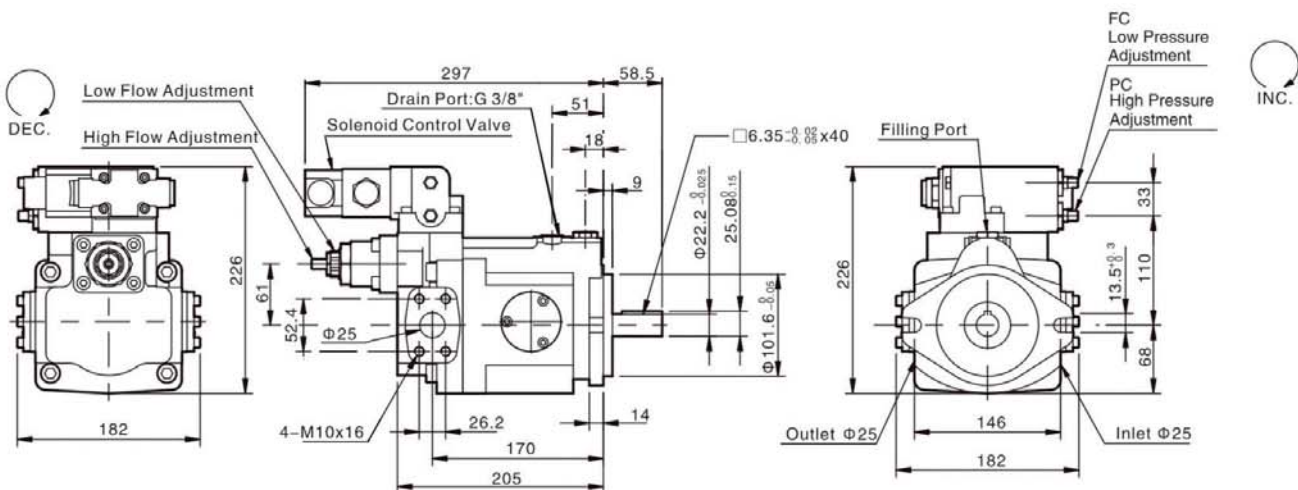
V 23 E - V 25 E Dual Pressure Control



V 23 EG - V 25 EG Dual & Remote Pressure Control



V 23 F - V 25 F Dual Pressure & Flow Control by Solenoid Operated Valve

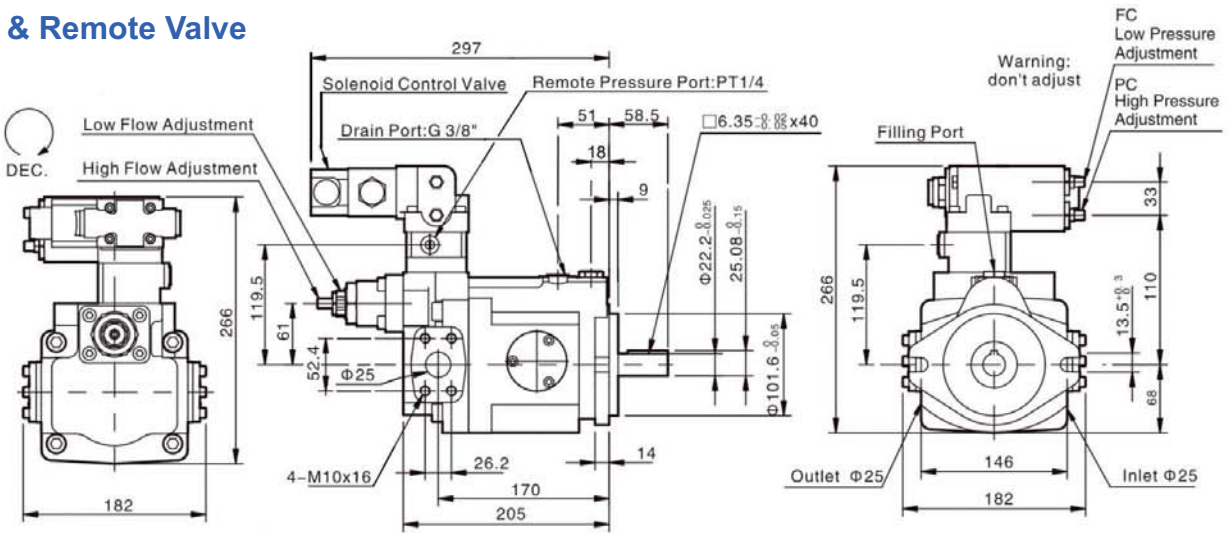


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
- For shaft detail see page 29.

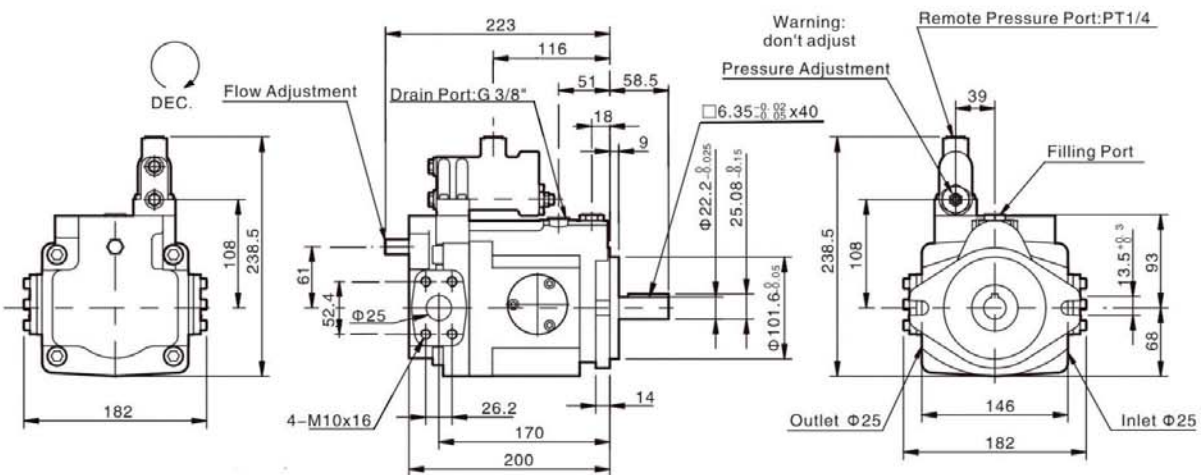


V 23 - V 25 Series Axial Piston Pump - Installation Drawing

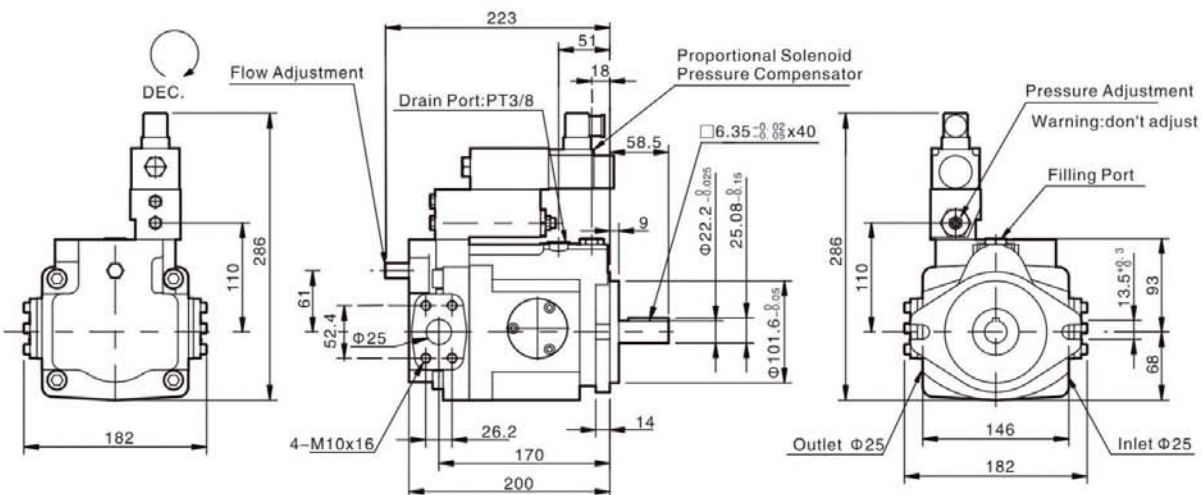
V 23 FG - V 25 FG Dual Pressure & Flow Control by Solenoid Operated & Remote Valve



V 23 G - V 25 G Remote Pressure Compensator Control



V 23 GJ - V 25 GJ Proportional Pressure with Interface

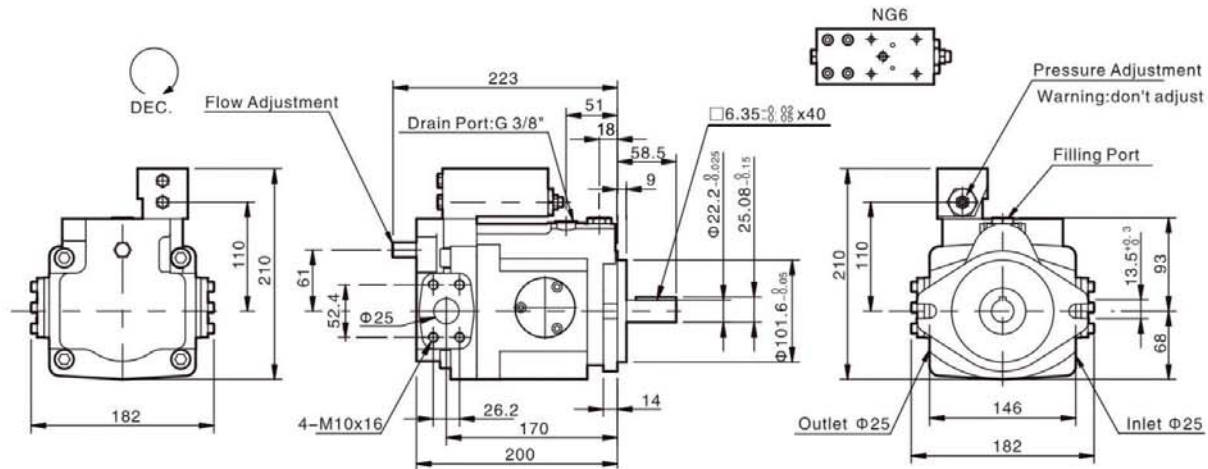


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 29.

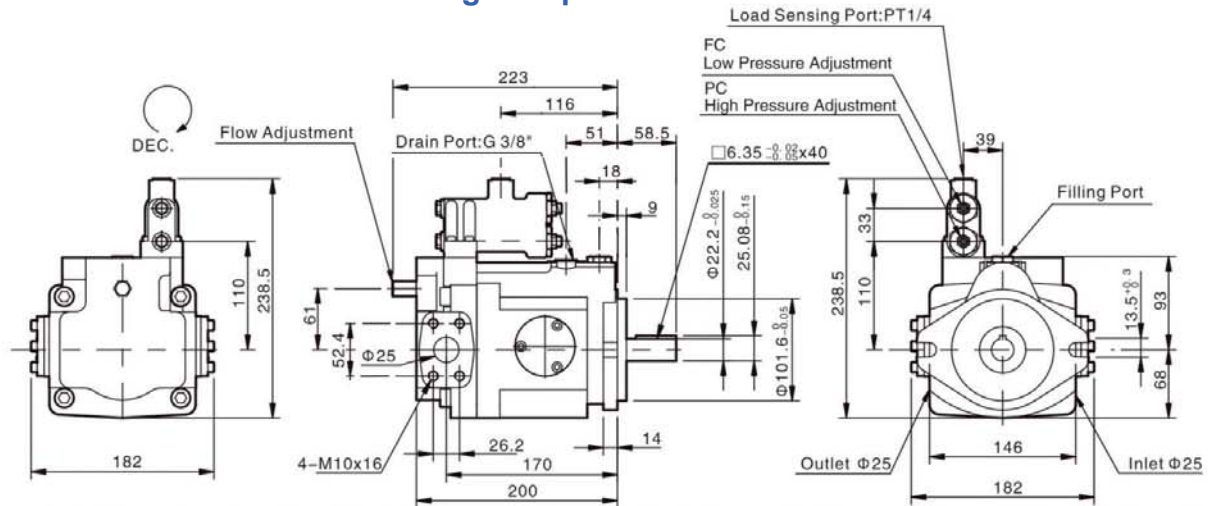


V 23 - V 25 Series Axial Piston Pump - Installation Drawing

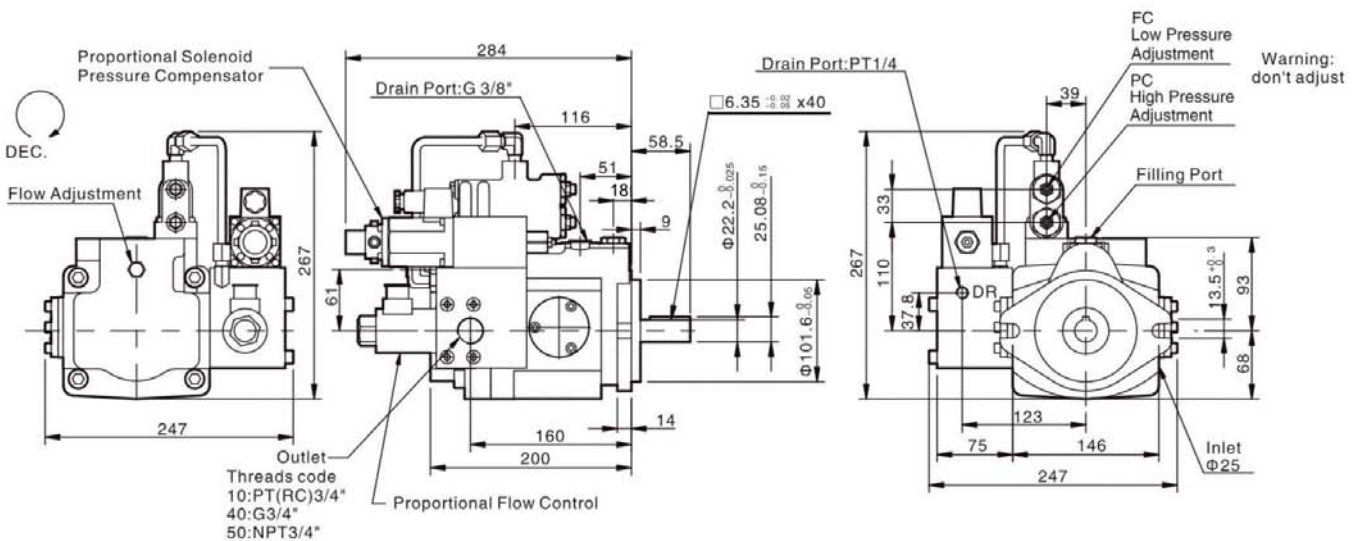
V 23 GM - V 25 GM Remote Interface (valve not included)



V 23 HL - V 25 HL Load Sensing Compensator



V 23 HK - V 25 HK Proportional Electro-Hydraulic Load Sensing Compensator

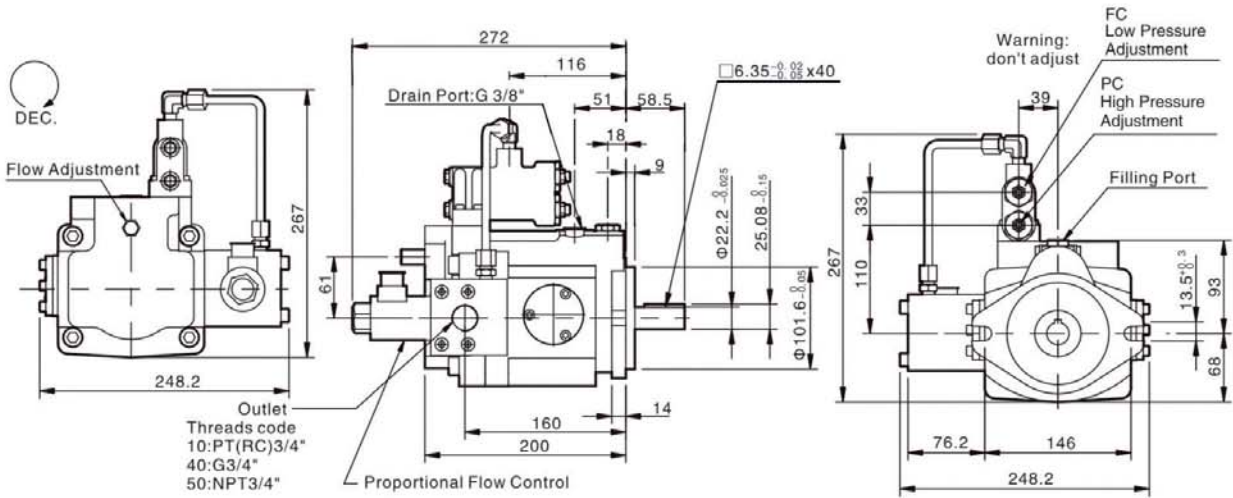


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 29.

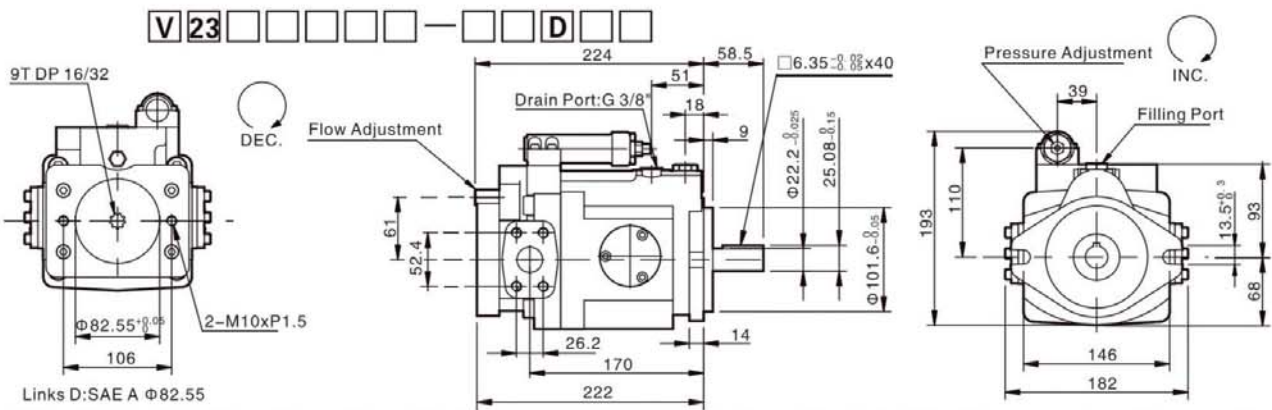


V 23 - V 25 Series Axial Piston Pump - Installation Drawing

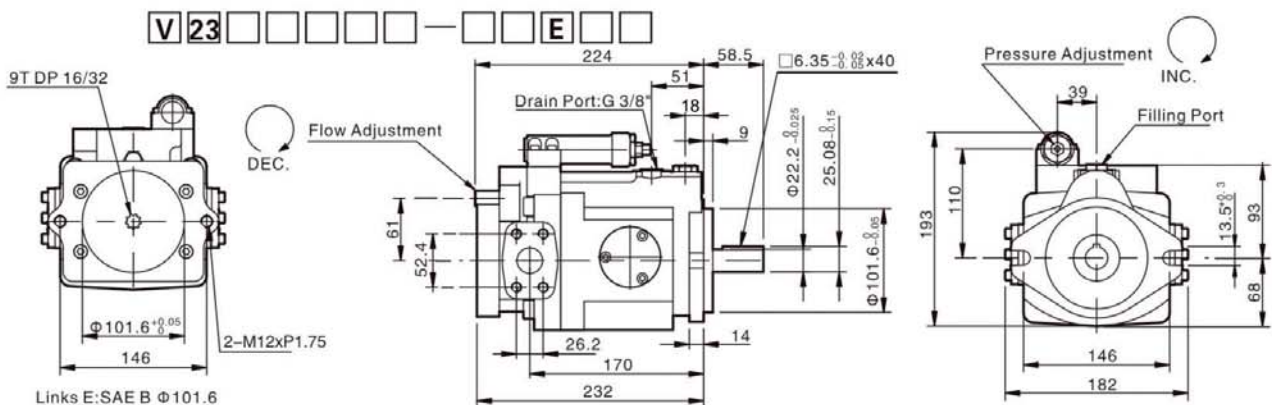
V 23 HQ - V 25 HQ Load Sensing Proportional Flow Control



V 23 - V 25 Thru Drive Option SAE A (spigot diam. 82,55)



V 23 - V 25 Thru Drive Option SAE B (spigot diam. 101,6)



Type	A	B	C	CG	D	DG	E	EG	F	FG	G	GJ	GM	HL	HK	HQ
	○				○	○	○	○			○	○	○	○	○	○

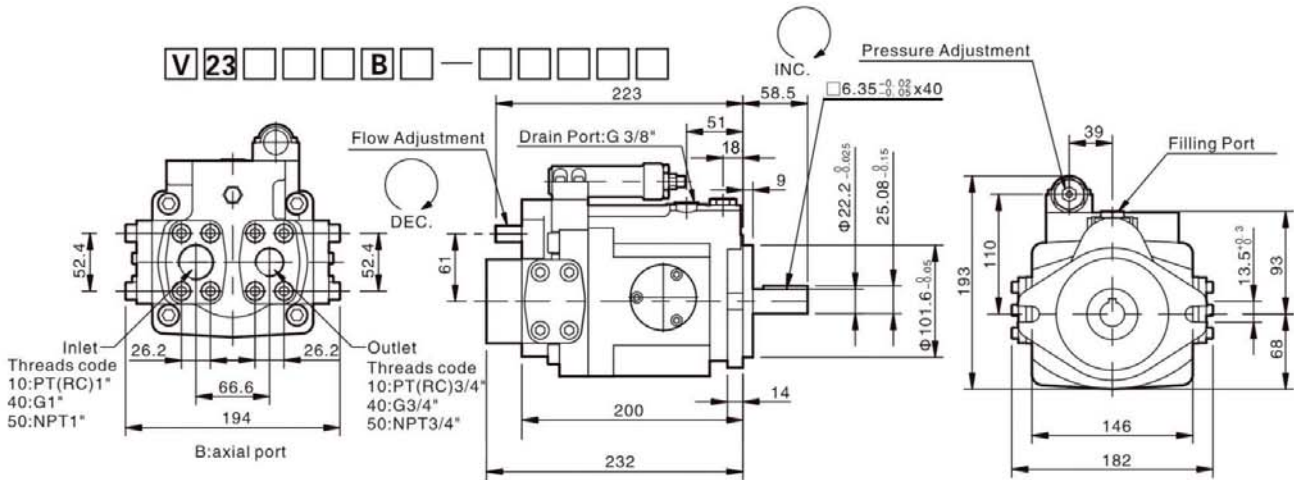
Thru Drive Option

Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 29.

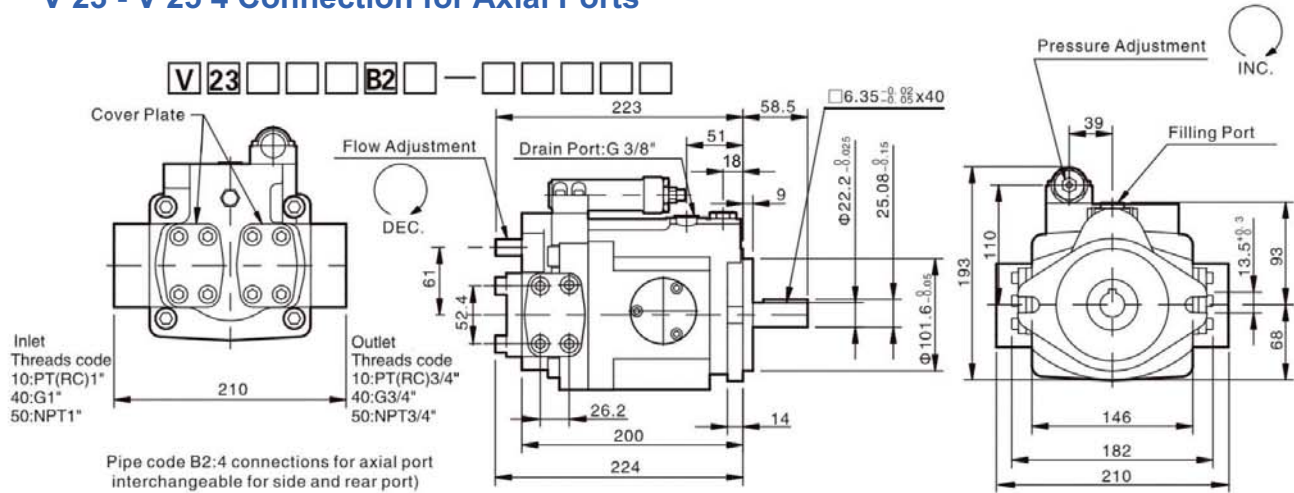


V 23 - V 25 Series Axial Piston Pump - Installation Drawing

V 23 - V 25 Axial Ports



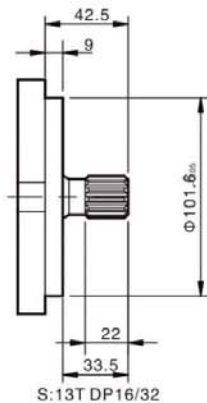
V 23 - V 25 4 Connection for Axial Ports



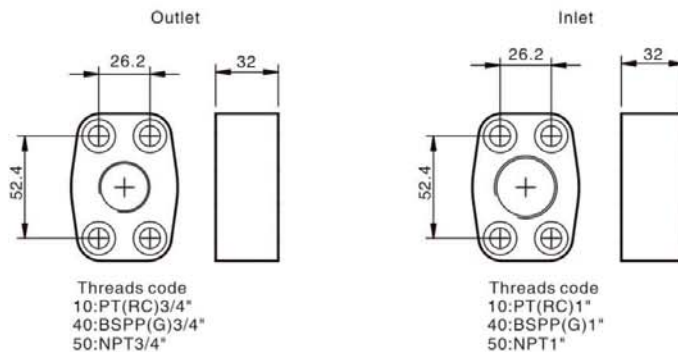
Type	A	B	C	CG	D	DG	E	EG	F	FG	G	GJ	GM	HL	HK	HQ
	○	○									○	○	○	○		

Axial Port Option

V 23 - V 25 Splined Shaft



V 23 - V 25 Hydraulic Flange

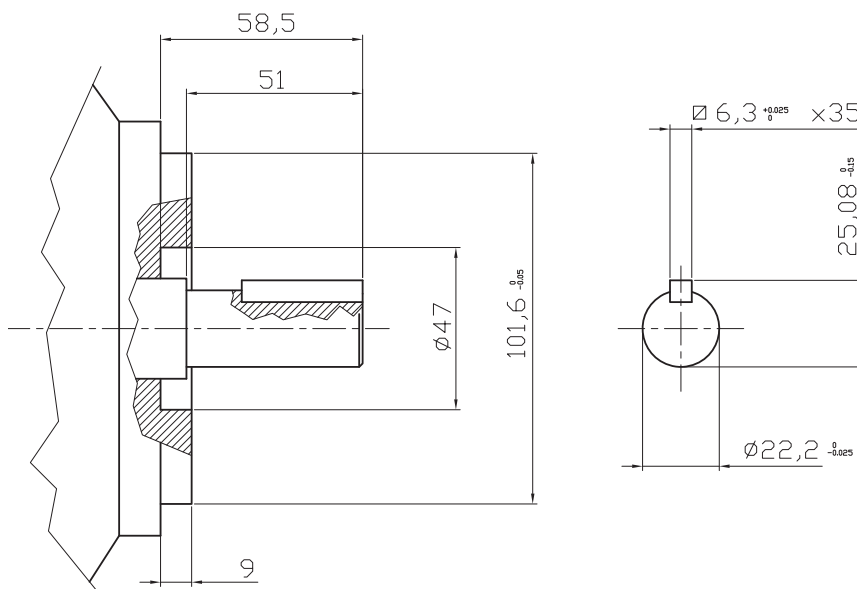


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
- For shaft detail see page 29.

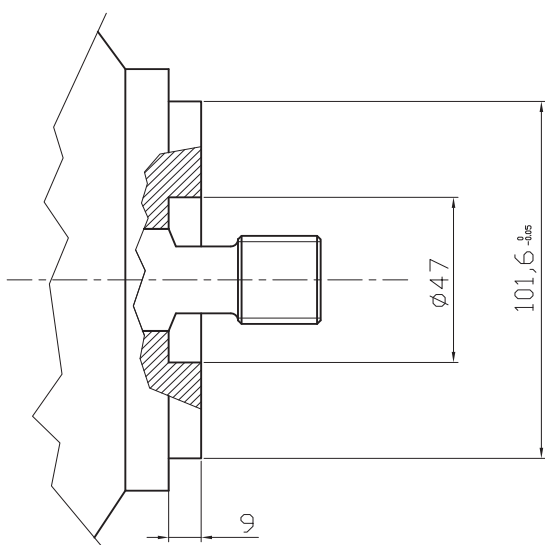


V 23 - V 25 Series Axial Piston Pump - Installation Drawing - Shaft Option

Parallel Shaft



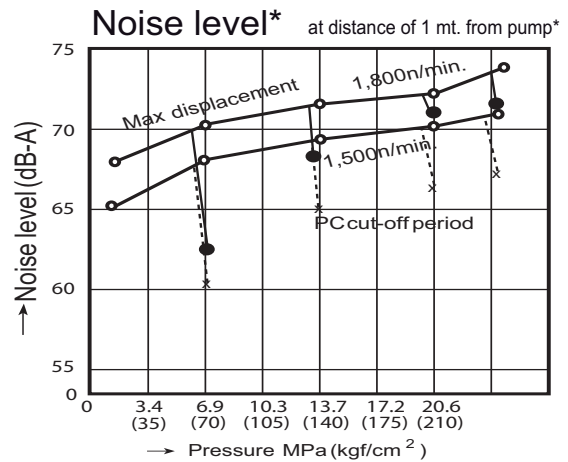
Splined Shaft



Spline Characteristics

Splined shaft type S	SAE J 498 B 13 theet 16/32 DP Involute spline 30°
Splined shaft type S1	SAE J 498 B 15 theet 16/32 DP Involute spline 30°
Splined shaft type S3	SAE J 498 B 13 theet (lengthening) 16/32 DP Involute spline 30°

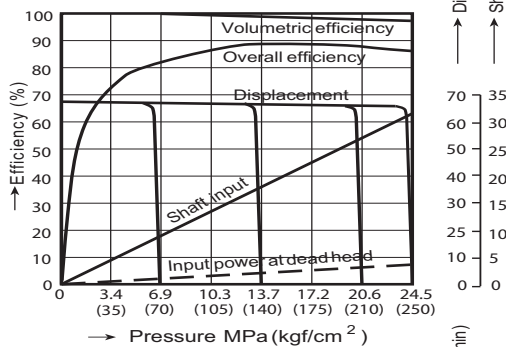
V 38 - V 42 Series Axial Piston Pump - Technical Specifications



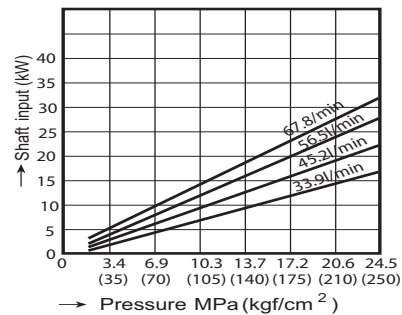
Typical performance characteristics

- *Input speed: 1,800n/min.
- *Oil: ISOVG32
- *Oil temperature: 50°C

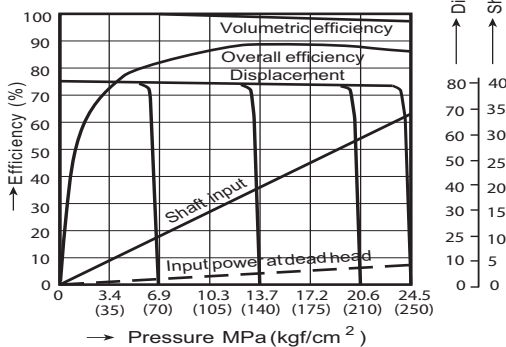
V 38 General performance characteristics



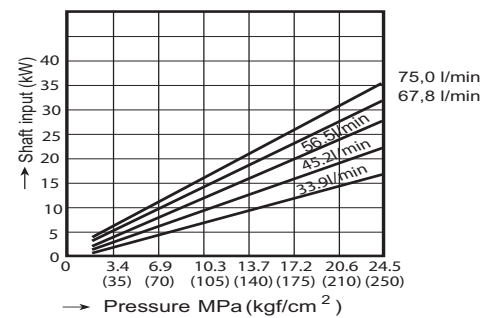
V 38 Shaft input characteristic



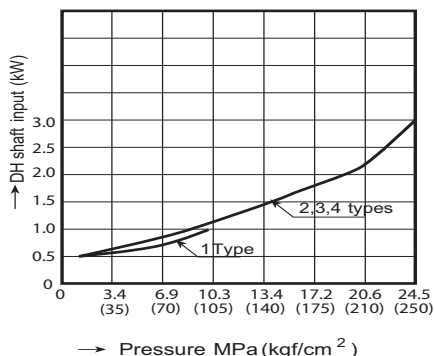
V 42 General performance characteristics



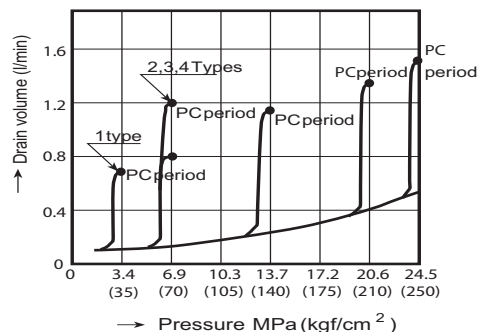
V 42 Shaft input characteristic



Dead head shaft input

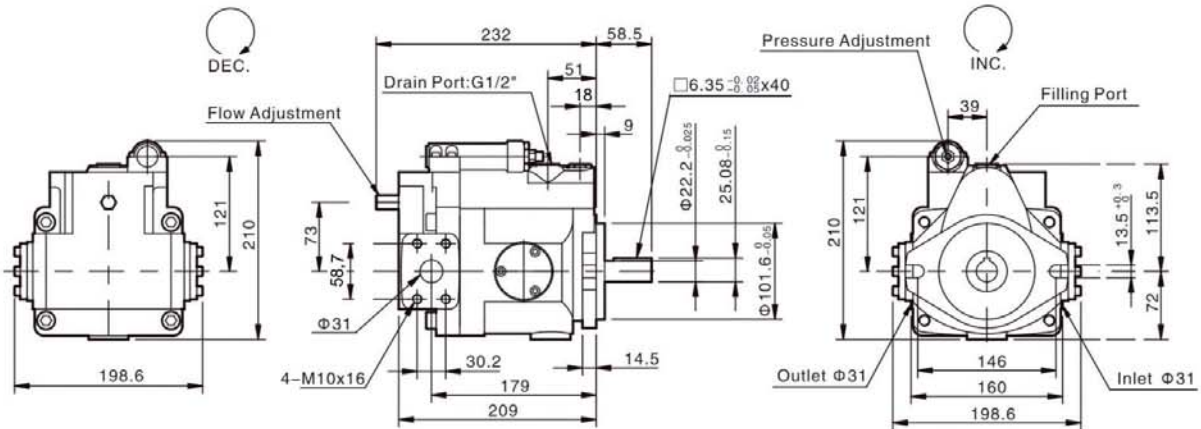


Drain volume characteristic

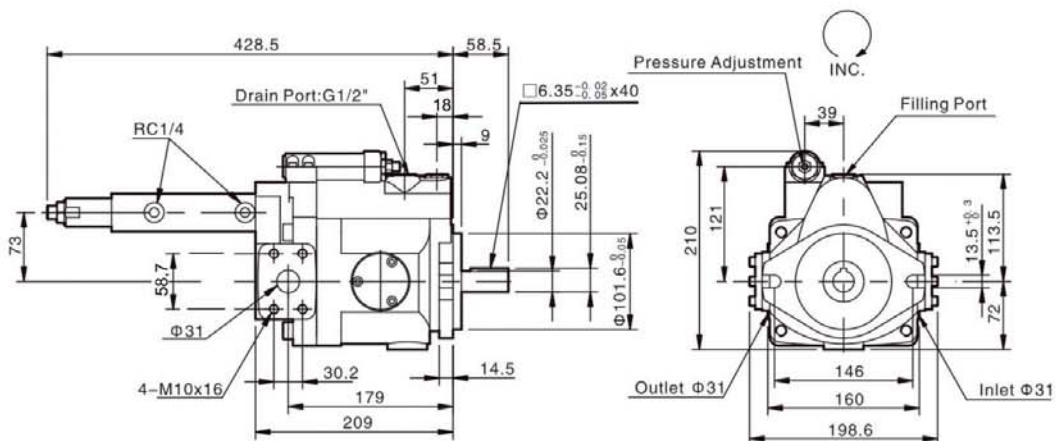


V 38 - V 42 Series Axial Piston Pump - Installation Drawing

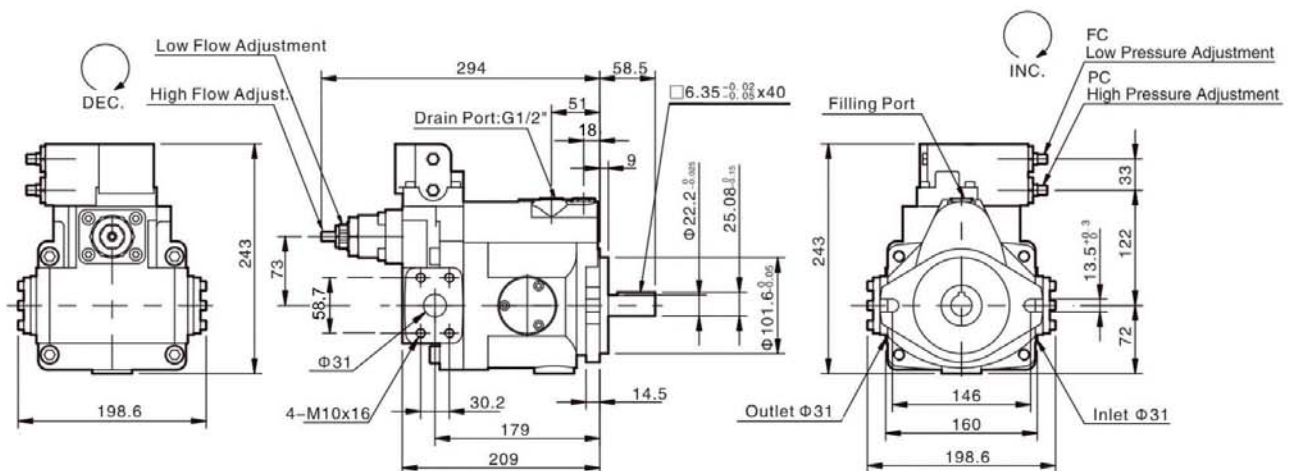
V 38 A - V 42 A Pressure Compensator



V 38 B - V 42 B Multi-Stage Flow & Single-Stage Pressure Compensator Control (with cylinder)



V 38 C - V42 C Two-Stage Pressure & Flow Control

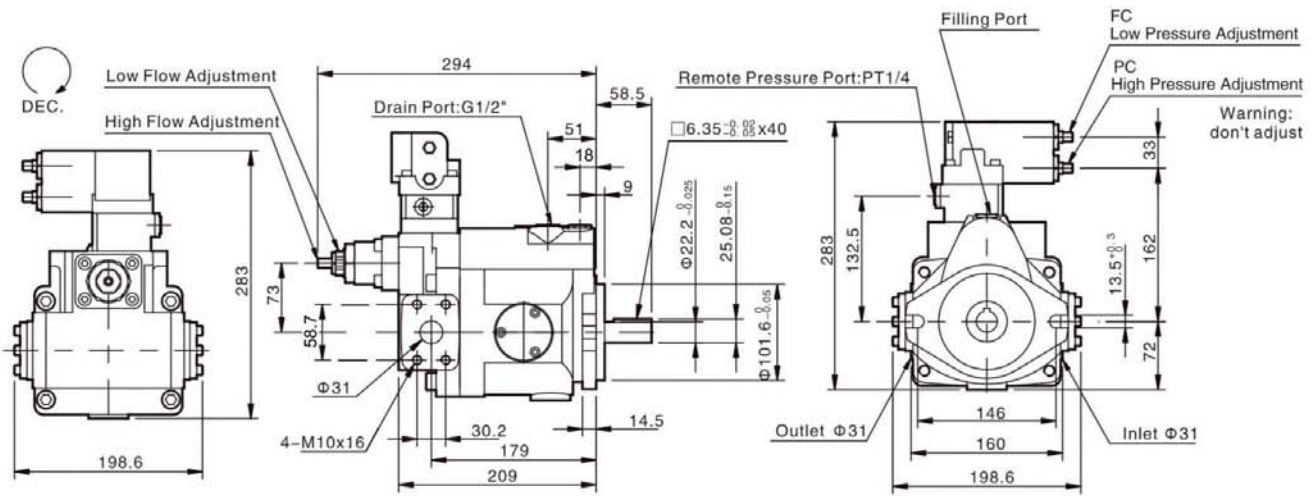


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 38.

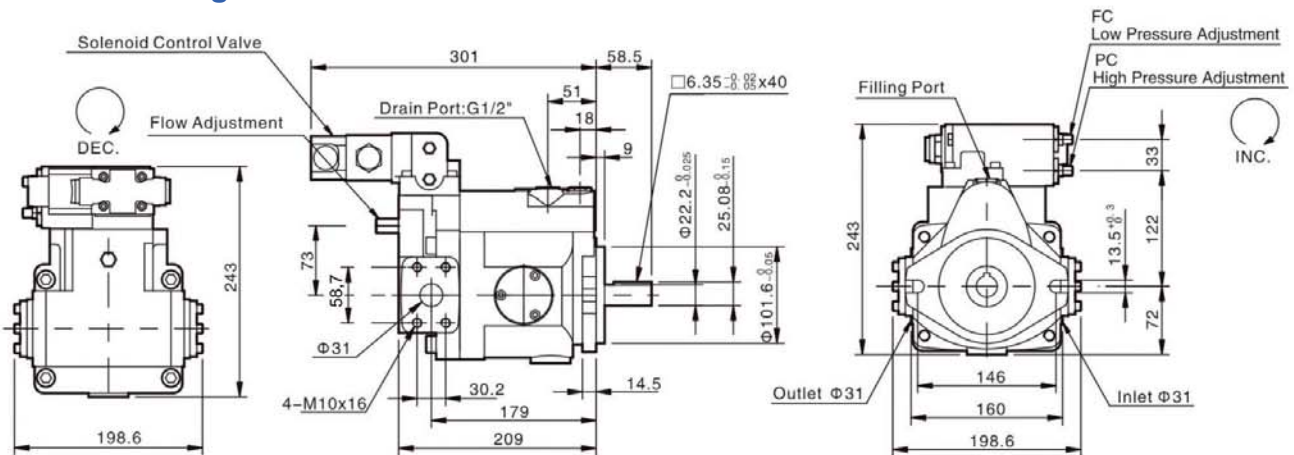


V 38 - V 42 Series Axial Piston Pump - Installation Drawing

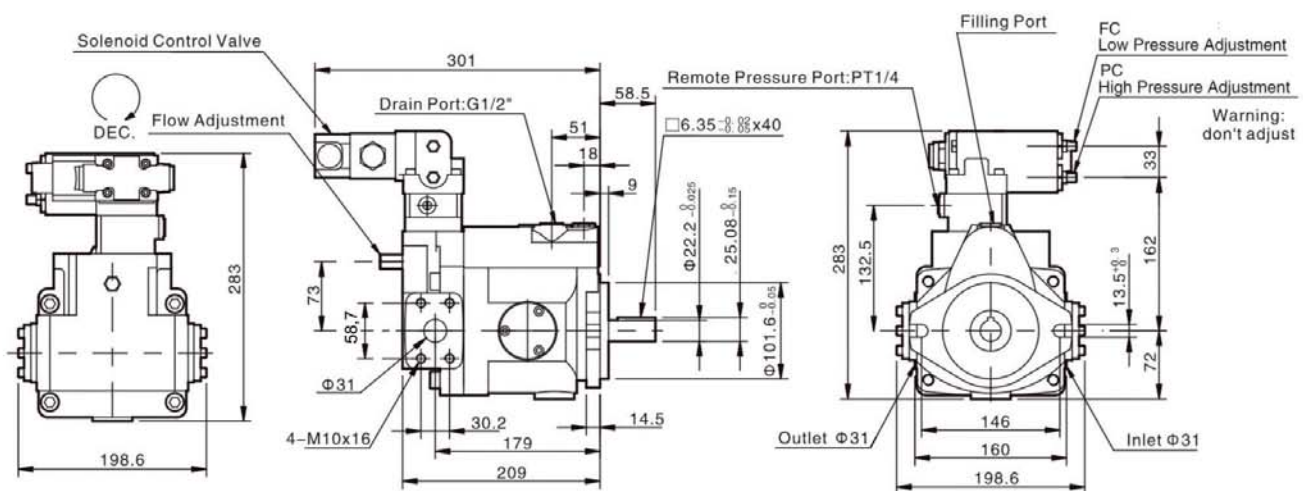
V 38 CG - V42 CG Two-Stage Pressure & Flow Control Type with Remote



V 38 D - V 42 D Solenoid Controlled Pressure Compensating Type with Unloading Device



V 38 DG - V 42 DG Solenoid Controlled Pressure Compensating Type with Unloading Device & Remote

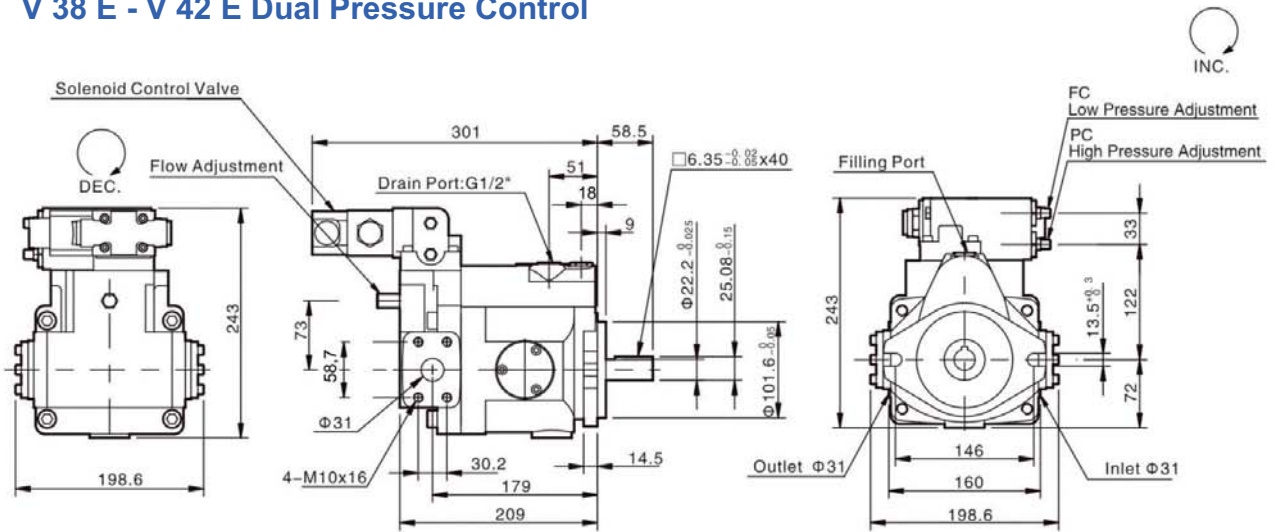


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 38.

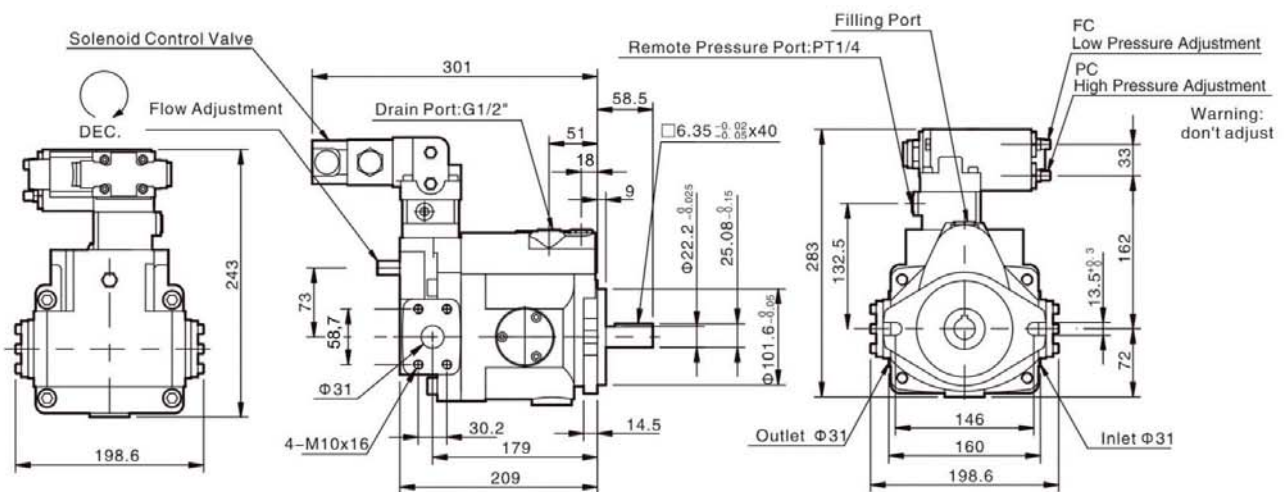


V 38 - V 42 Series Axial Piston Pump - Installation Drawing

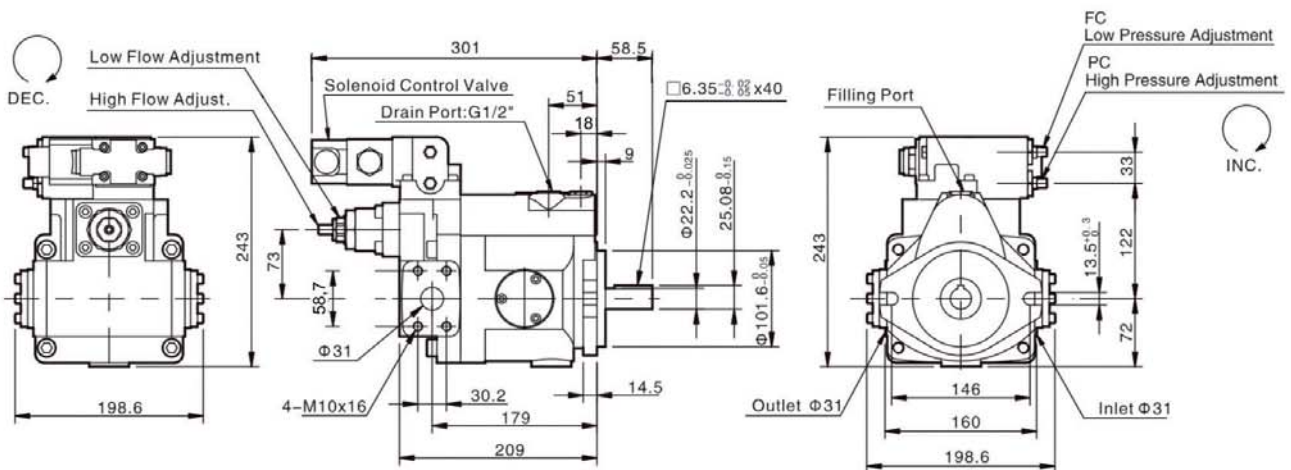
V 38 E - V 42 E Dual Pressure Control



V 38 EG - V 42 EG Dual & Remote Pressure Control



V 38 F - V 42 F Dual Pressure & Flow Control by Solenoid Operated Valve

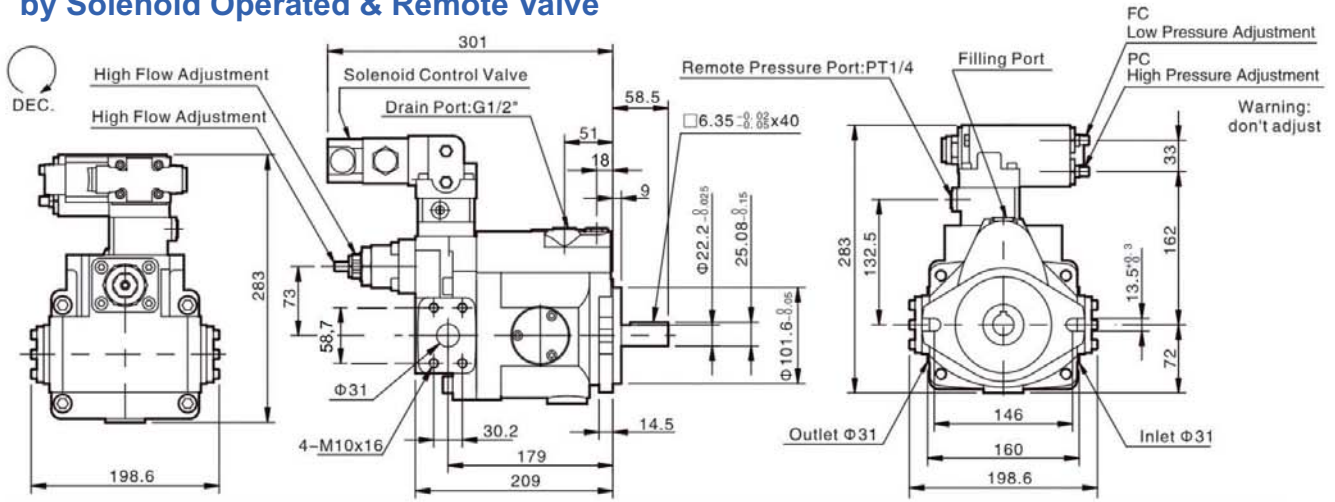


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 38.

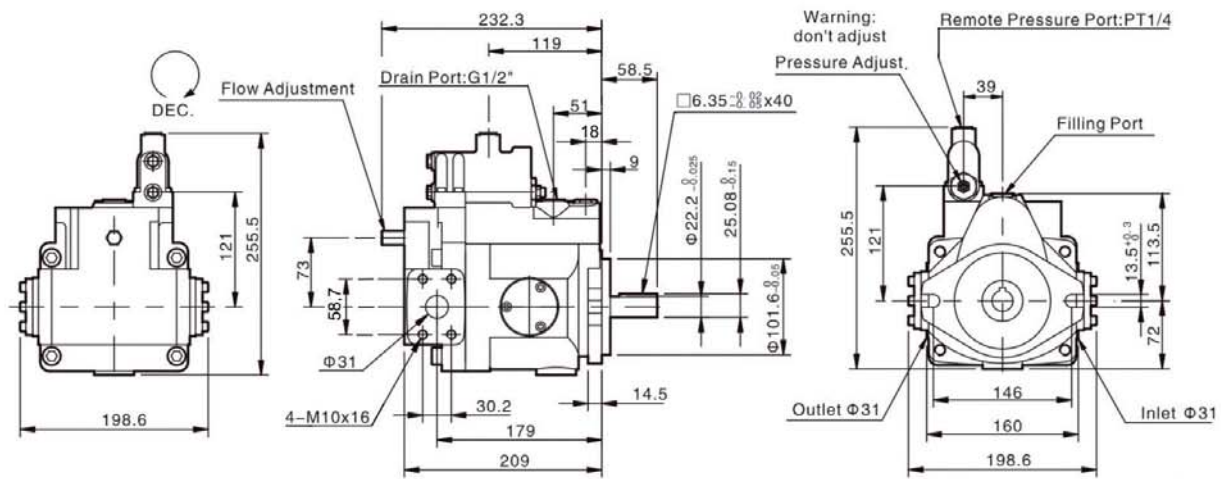


V 38 - V 42 Series Axial Piston Pump - Installation Drawing

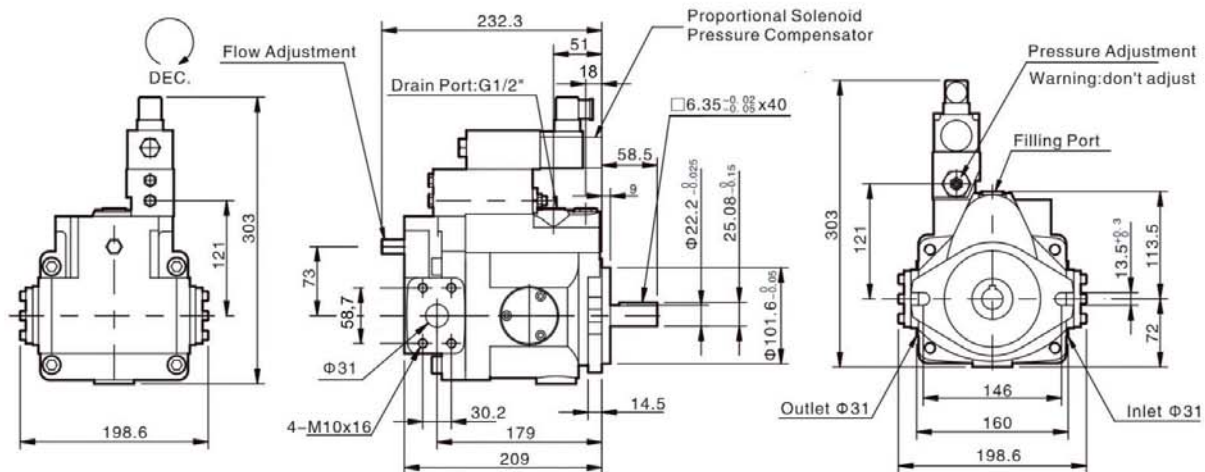
V 38 FG - V 42 FG Dual Pressure & Flow Control Type by Solenoid Operated & Remote Valve



V 38 G - V 42 G Remote Pressure Compensator Control



V 38 GJ - V 42 GJ Proportional Pressure with Interface

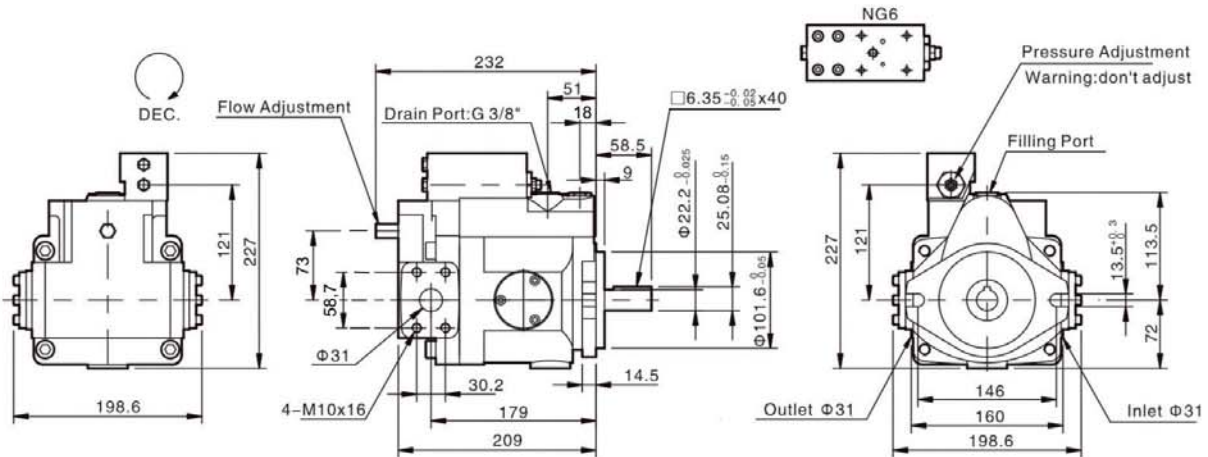


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 38.

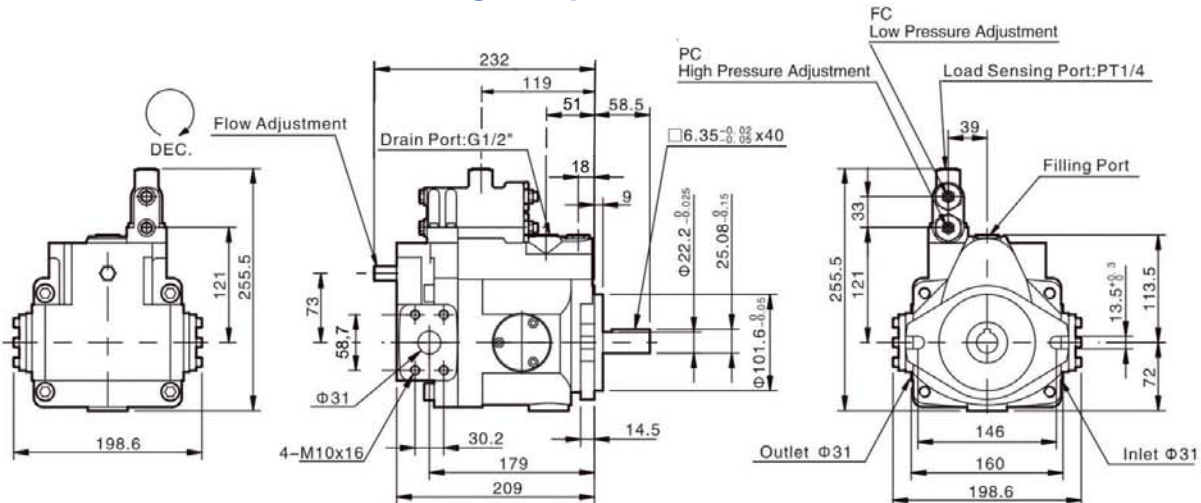


V 38 - V 42 Series Axial Piston Pump - Installation Drawing

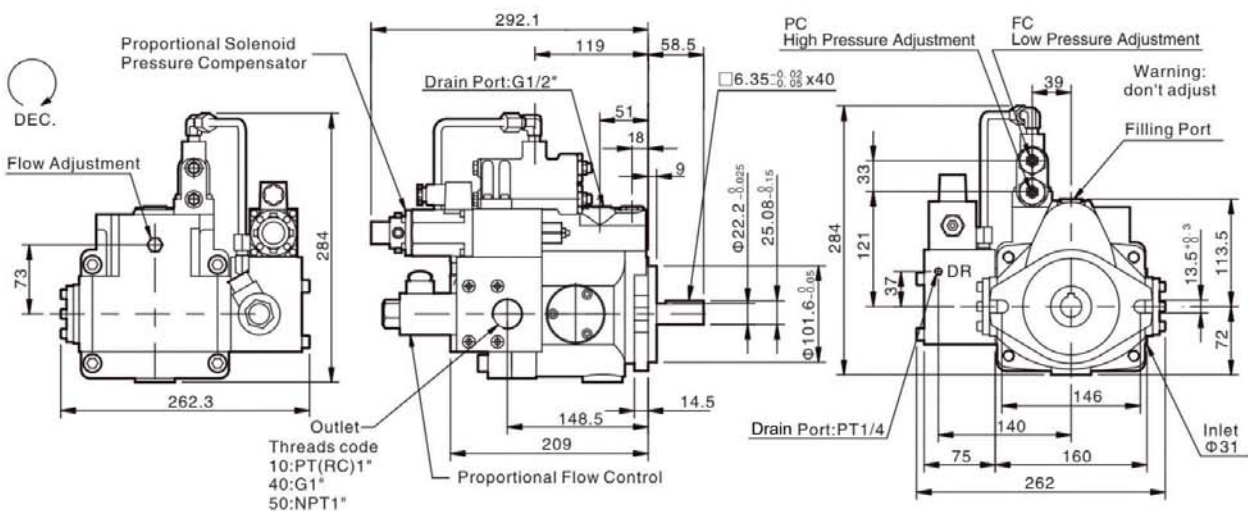
V 38 GM - V 42 GM Remote Interface (valve not included)



V 38 HL - V 42 HL Load Sensing Compensator



V 38 HK - V 42 HK Proportional Electro-Hydraulic Load Sensing Compensator

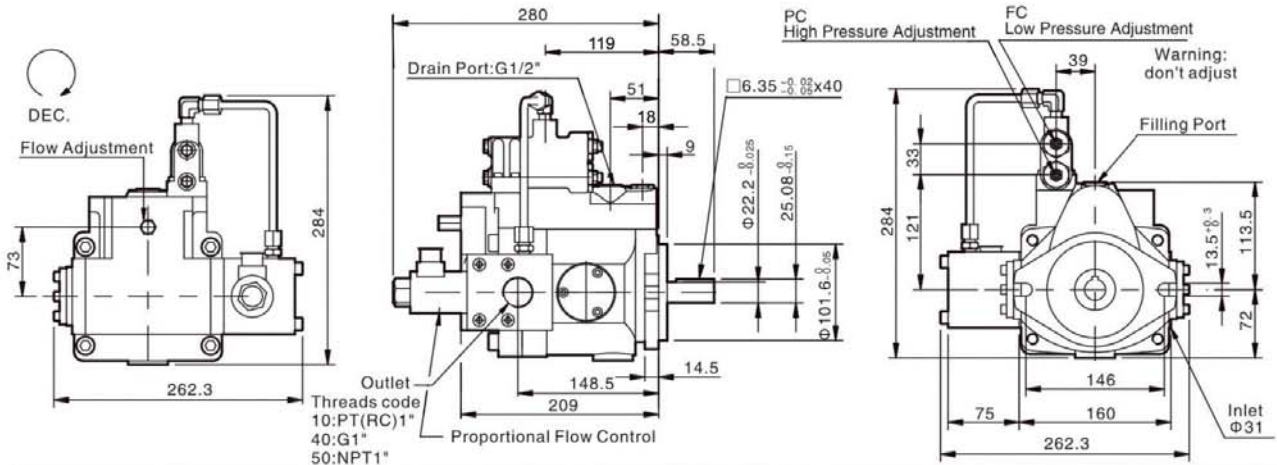


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 38.

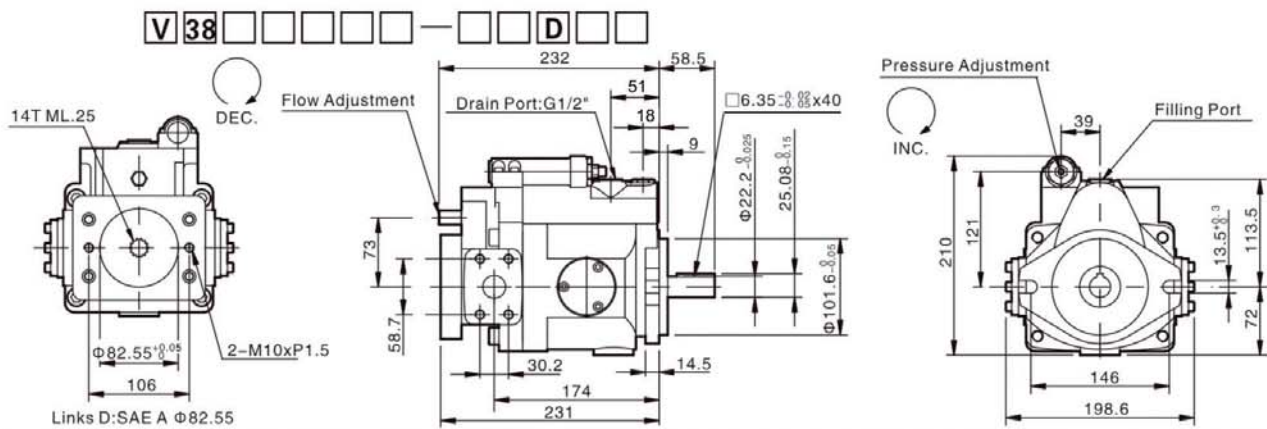


V 38 - V 42 Series Axial Piston Pump - Installation Drawing

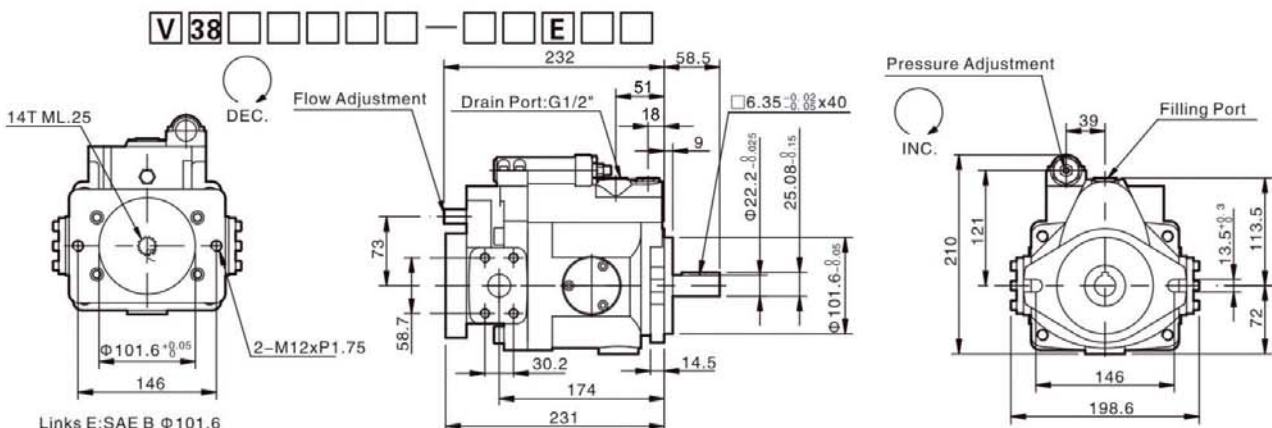
V 38 HQ - V 42 HQ Load Sensing Proportional Flow Control



V 38 - V 42 Thru Drive Option SAE A (spigot diam. 82,55)



V 38 - V42 Thru Drive Option SAE B (spigot diam. 101,6)



Type	A	B	C	CG	D	DG	E	EG	F	FG	G	GJ	GM	HL	HK	HQ
	○				○	○	○	○			○	○	○	○	○	○

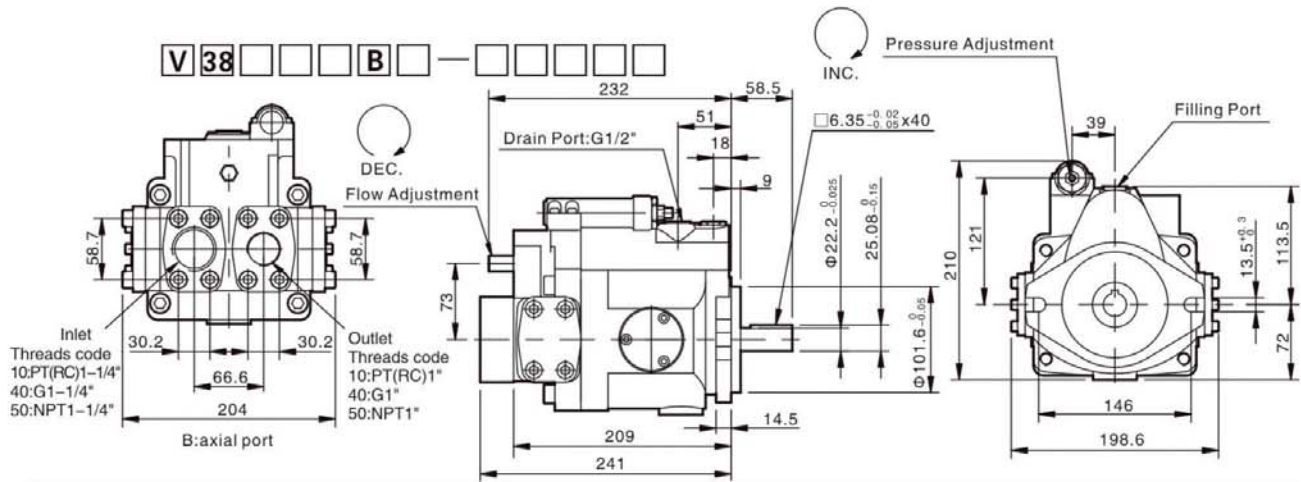
Thru Drive Option

Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 38.

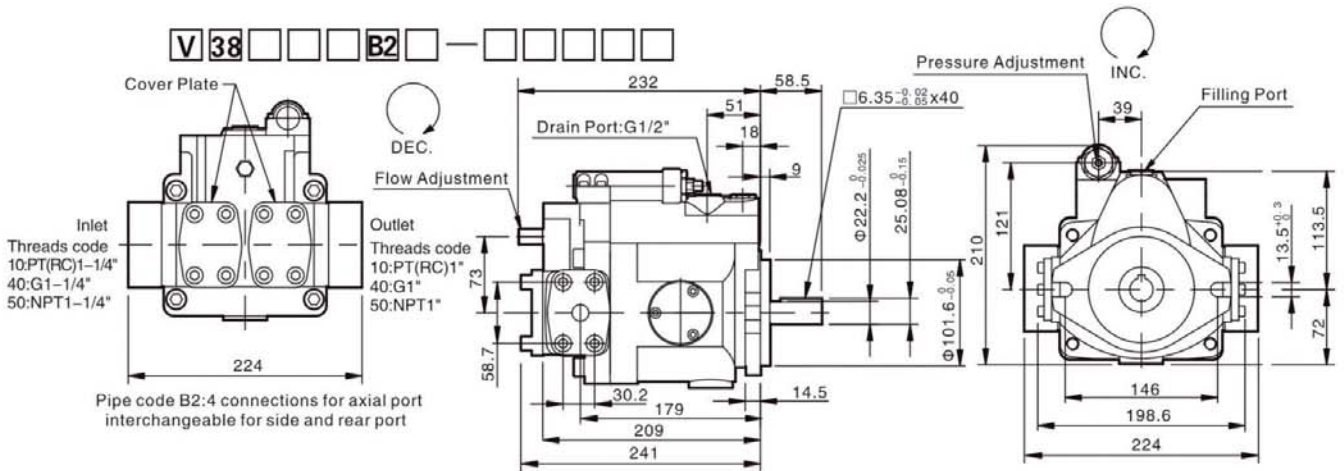


V 38 - V 42 Series Axial Piston Pump - Installation Drawing

V 38 - V 42 Axial Port



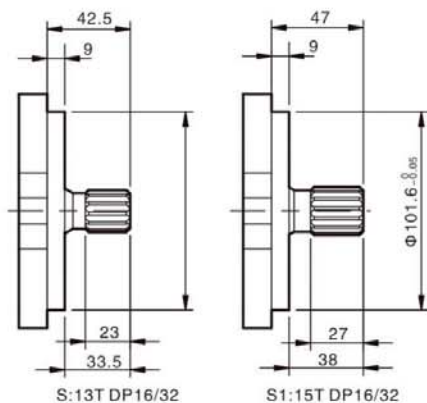
V 38 - V 42 4 Connection for Axial Port



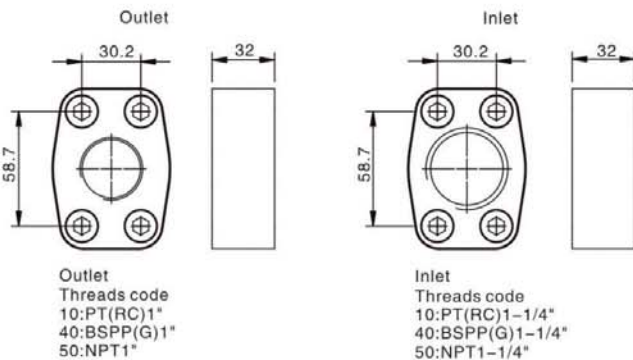
Type	A	B	C	CG	D	DG	E	EG	F	FG	G	GJ	GM	HL	HK	HQ
	○	○	○	○					○	○	○	○	○	○		

Axial Port Option

V 38 - V 42 Splined Shaft



V 38 - V 42 Hydraulic Flange

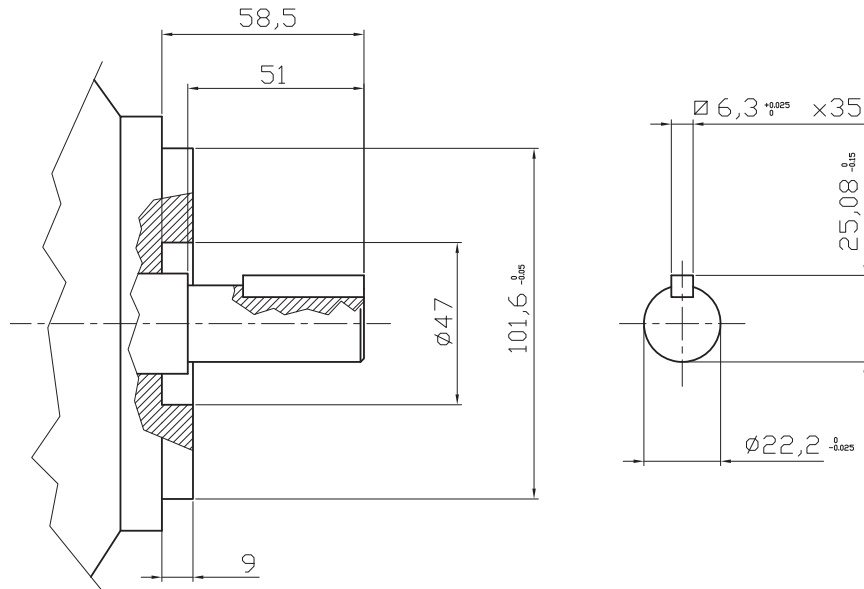


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 38.

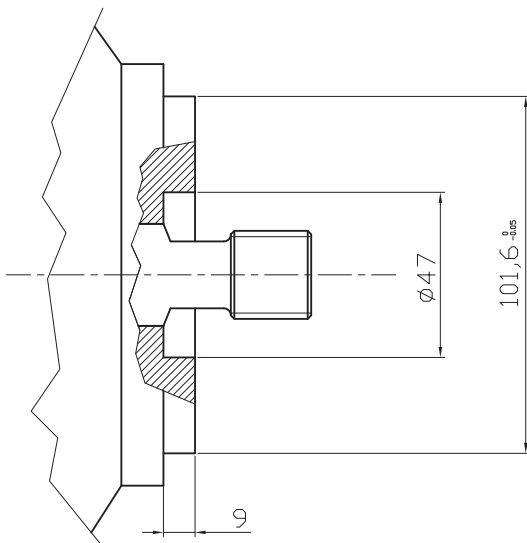


V 38 - V 42 Series Axial Piston Pump - Installation Drawing - Shaft Option

Parallel Shaft



Splined Shaft



Spline Characteristics

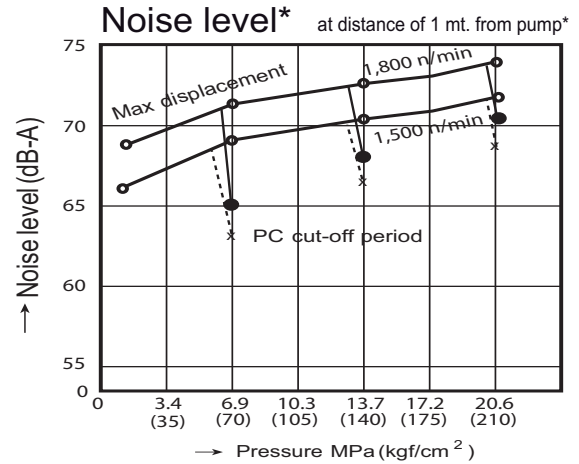
Splined shaft type S	SAE J 498 B 13 theet 16/32 DP Involute spline 30°
Splined shaft type S1	SAE J 498 B 15 theet 16/32 DP Involute spline 30°
Splined shaft type S3	SAE J 498 B 13 theet (lenghtening) 16/32 DP Involute spline 30°

V 50 - V 70 Series Axial Piston Pump - Technical Specifications

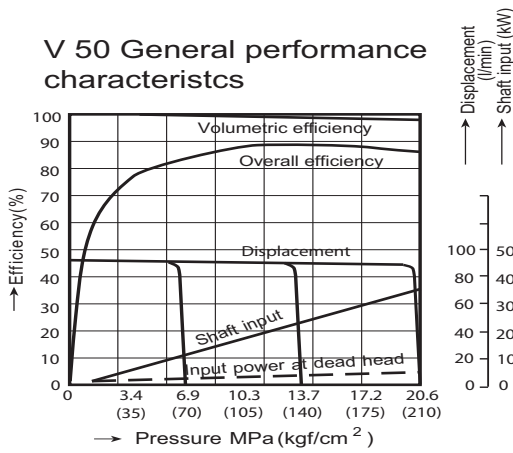


Typical performance characteristics

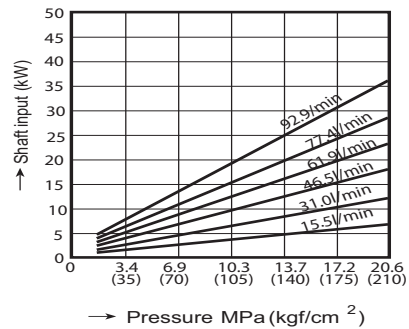
- *Input speed: 1,800 n/min.
- *Oil: ISOVG32
- *Oil temperature: 50°C



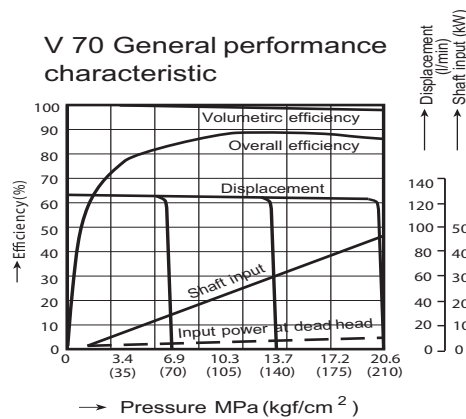
V 50 General performance characteristics



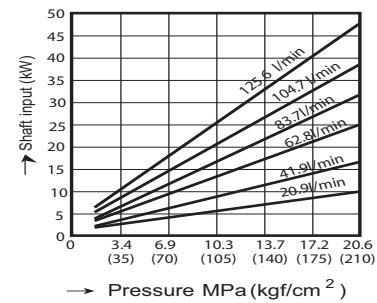
V 50 Shaft input characteristic



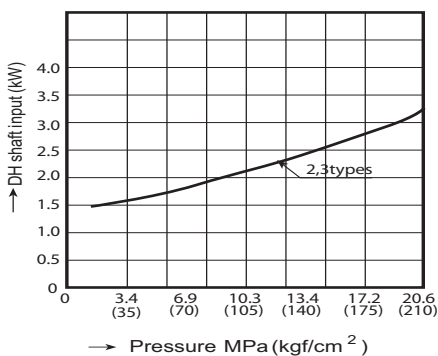
V 70 General performance characteristic



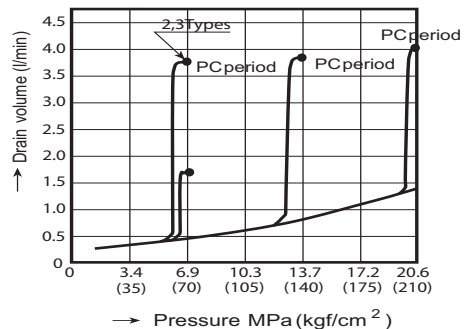
V 70 Shaft input characteristic



Dead head shaft input

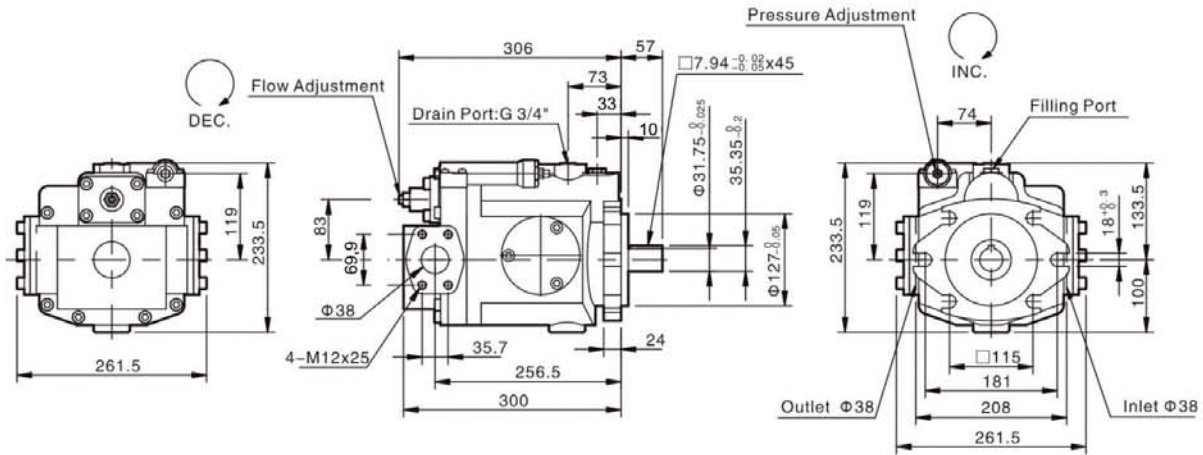


Drain volume characteristic

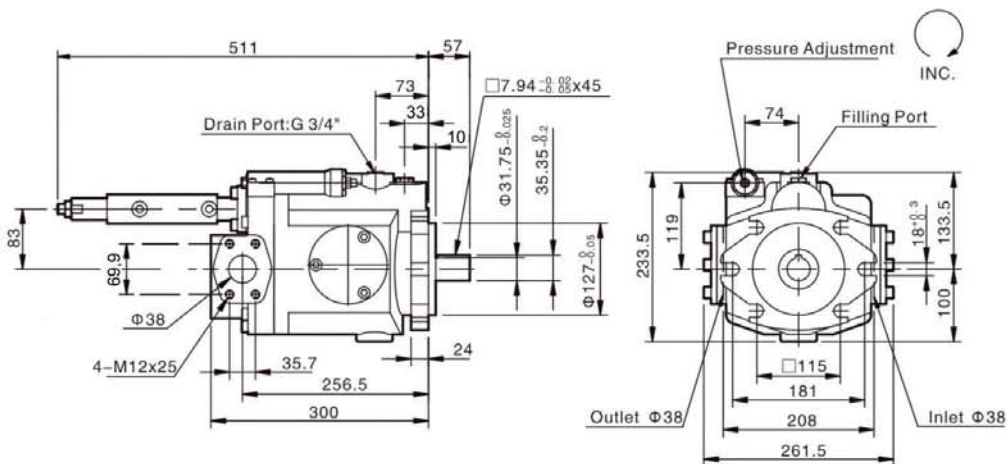


V 50 - V 70 Series Axial Piston Pump - Installation Drawing

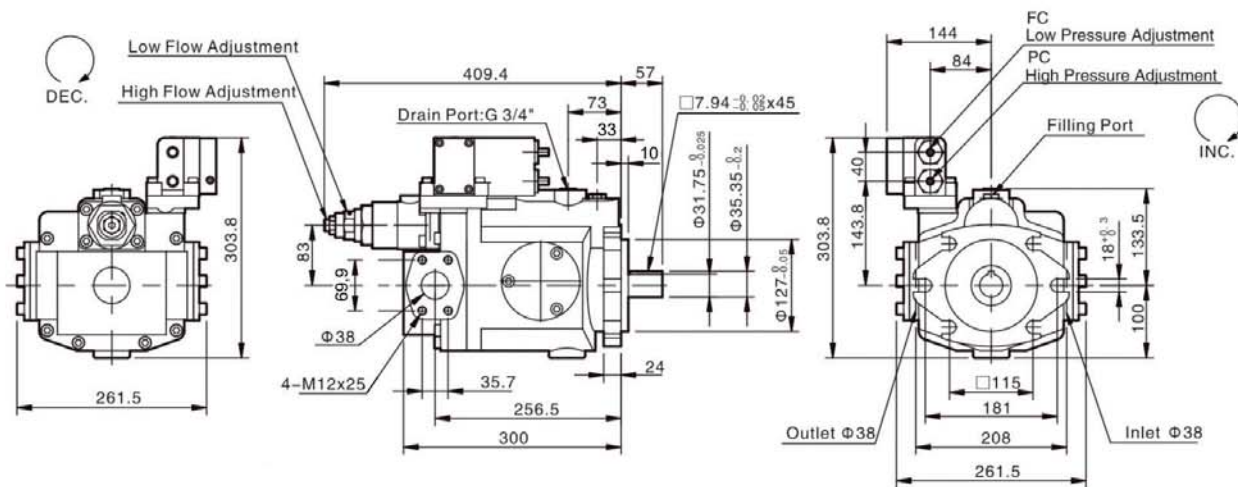
V 50 A - V 70 A Pressure Compensator



V 50 B - V 70 B Multi-Stage Flow & Single-Stage Pressure Compensator Control (with cylinder)



V 50 C - V 70 C Two-Stage Pressure & Flow Control Type

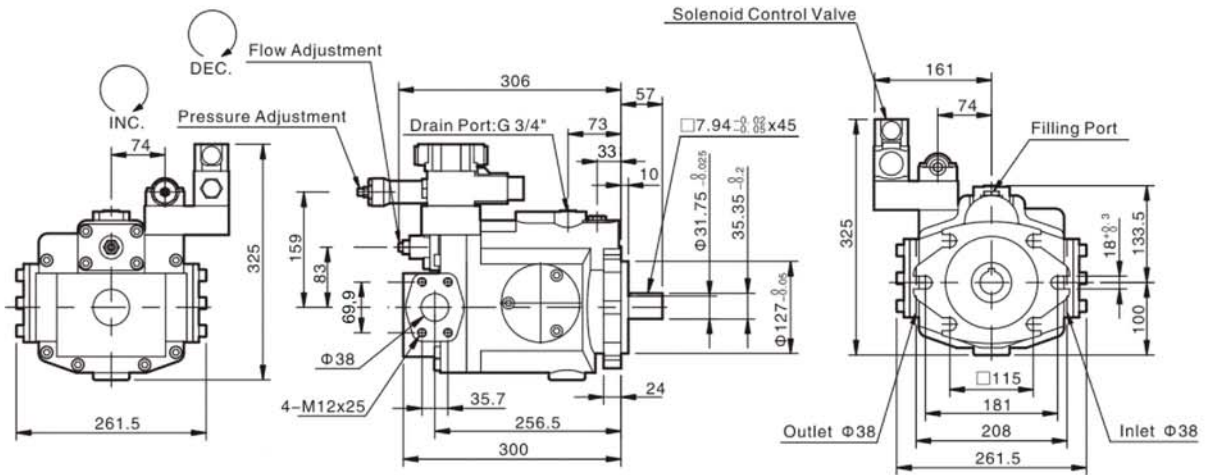


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
- For shaft detail see page 45.

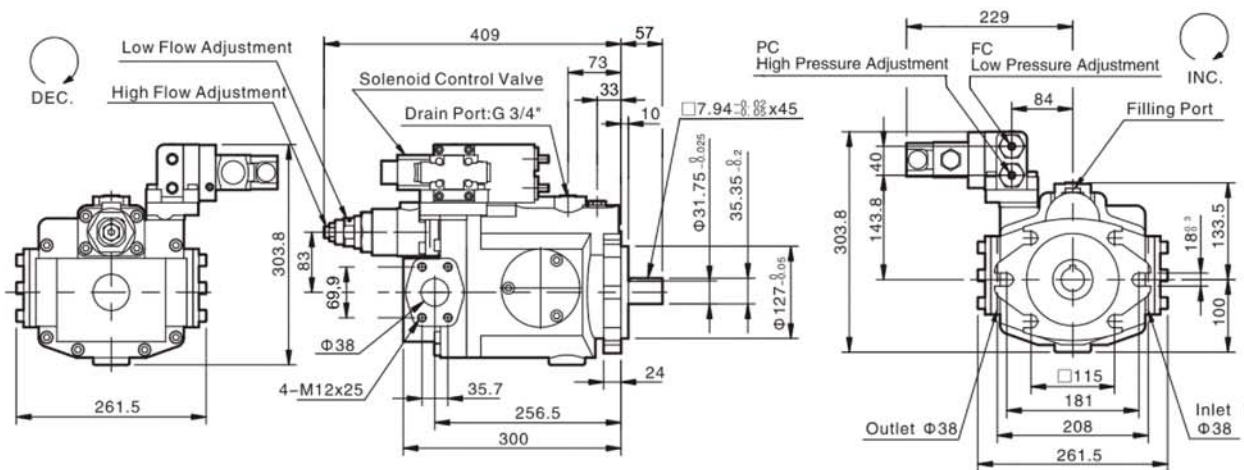


V 50 - V 70 Series Axial Piston Pump - Installation Drawing

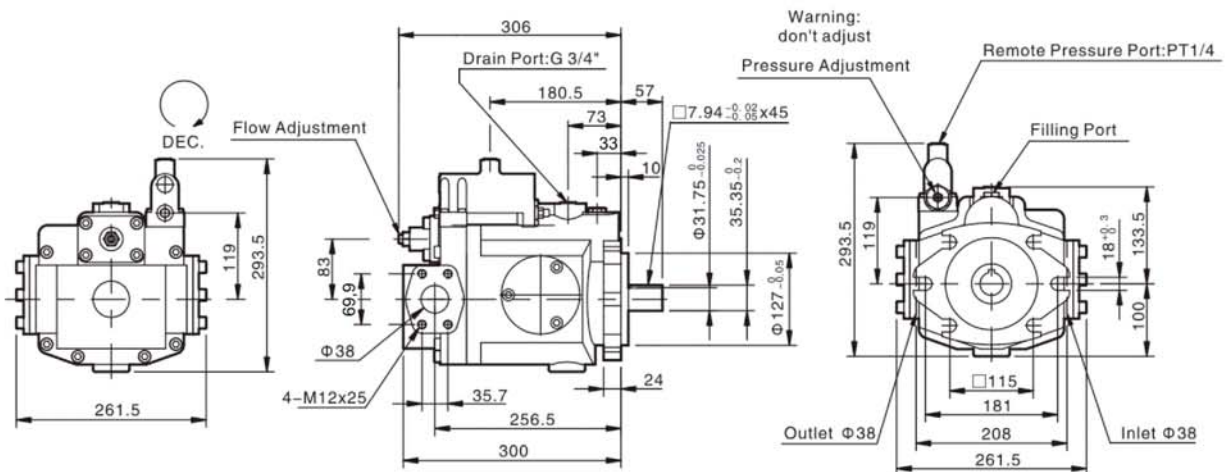
V 50 D - V 70 D Solenoid Controlled Pressure Compensating Type with Unloading Device



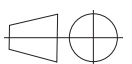
V 50 F - V 70 F Dual Pressure & Flow Control by Solenoid Operated Valve



V 50 G - V 70 G Remote Pressure Compensator Control

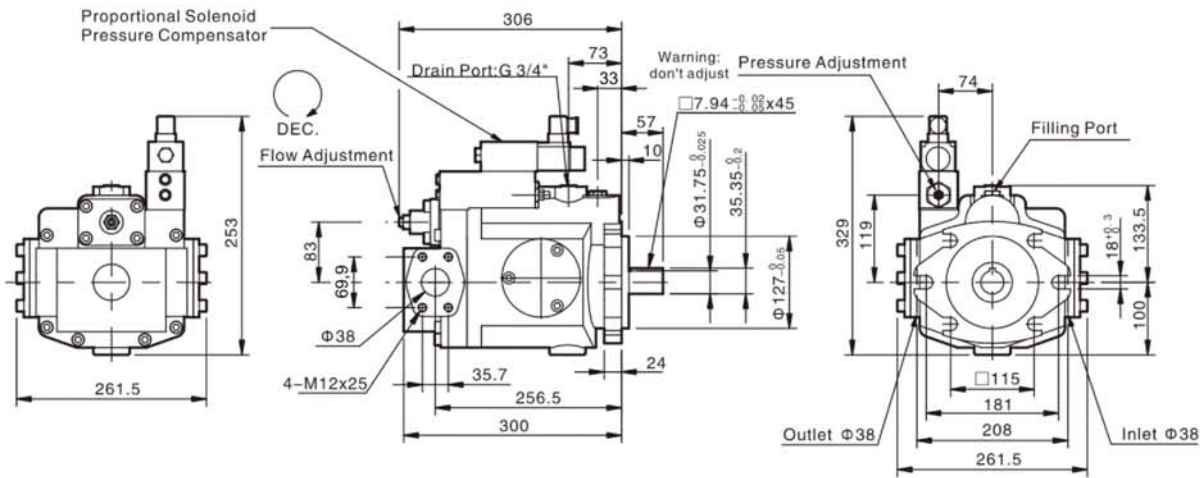


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 45.

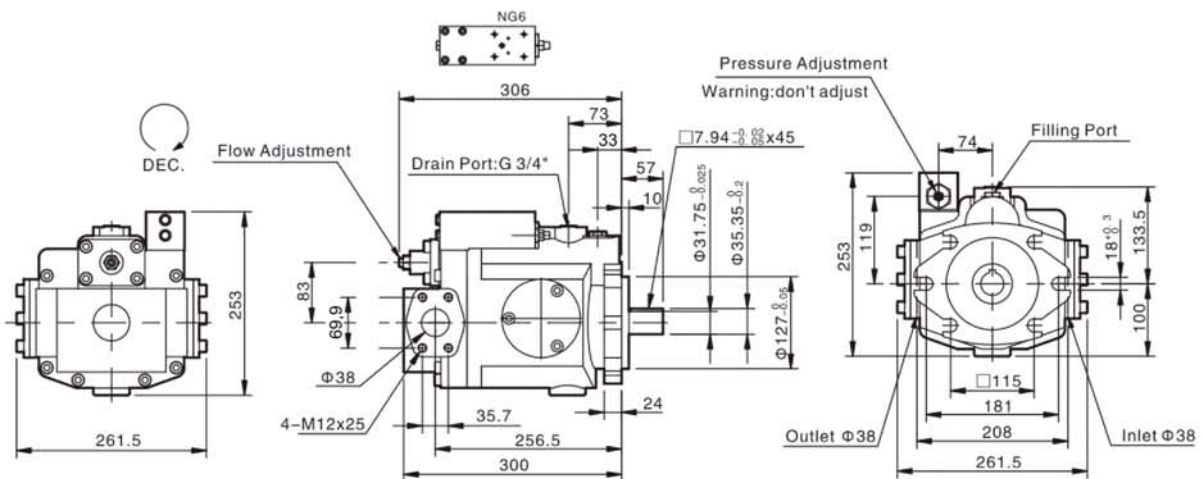


V 50 - V 70 Series Axial Piston Pump - Installation Drawing

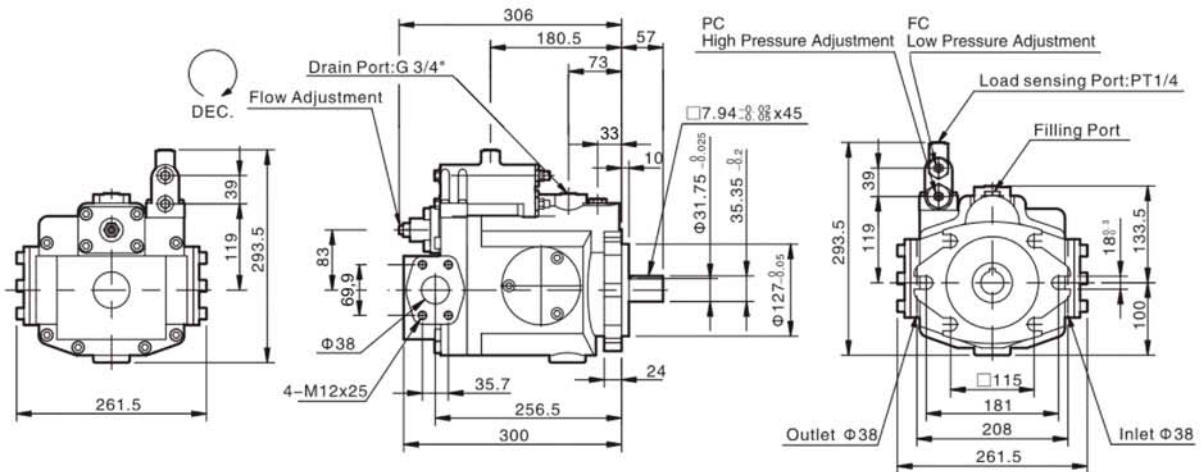
V 50 GJ - V 70 GJ Proportional Pressure with Interface



V 50 GM - V 70 GM Remote Interface (valve not included)



V 50 HL - V 70 HL Load Sensing Compensator

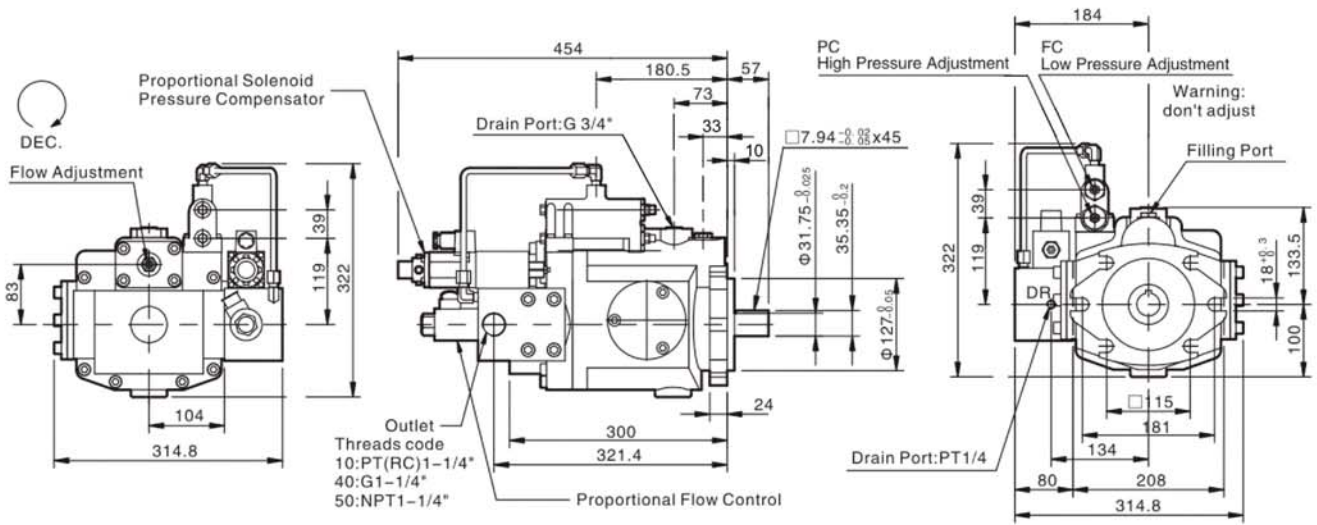


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 45.

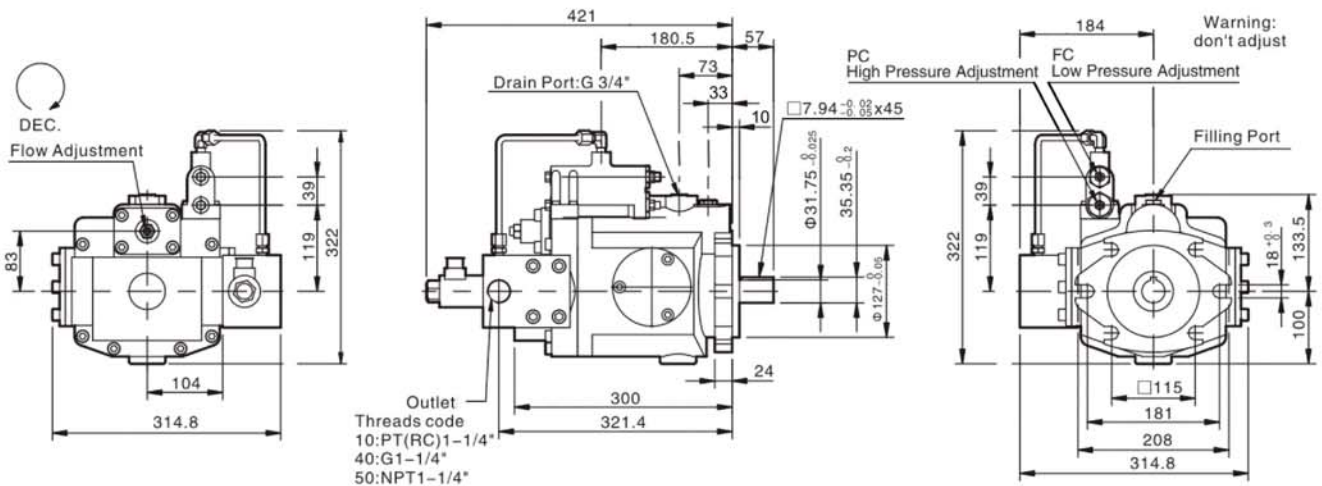


V 50 - V 70 Series Axial Piston Pump - Installation Drawing

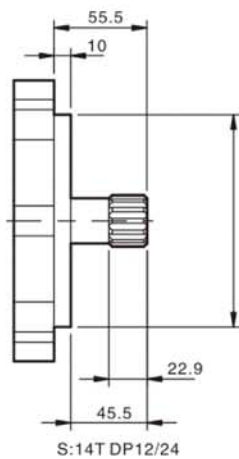
V 50 HK - V 70 HK Proportional Electro-Hydraulic Load Sensing Compensator



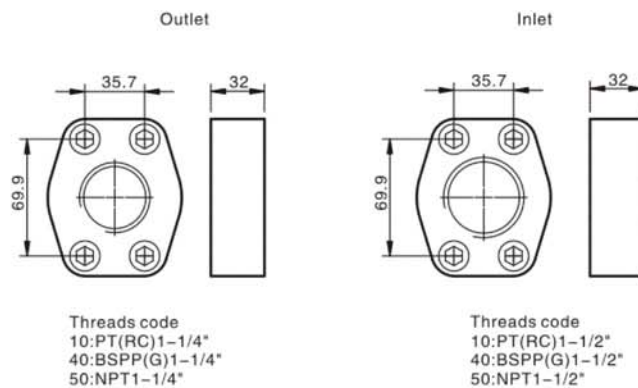
V 50 HQ - V 70 HQ Load Sensing Proportional Flow Control



V 50 - V 70 Splined Shaft



V 50 - V 70 Hydraulic Flange

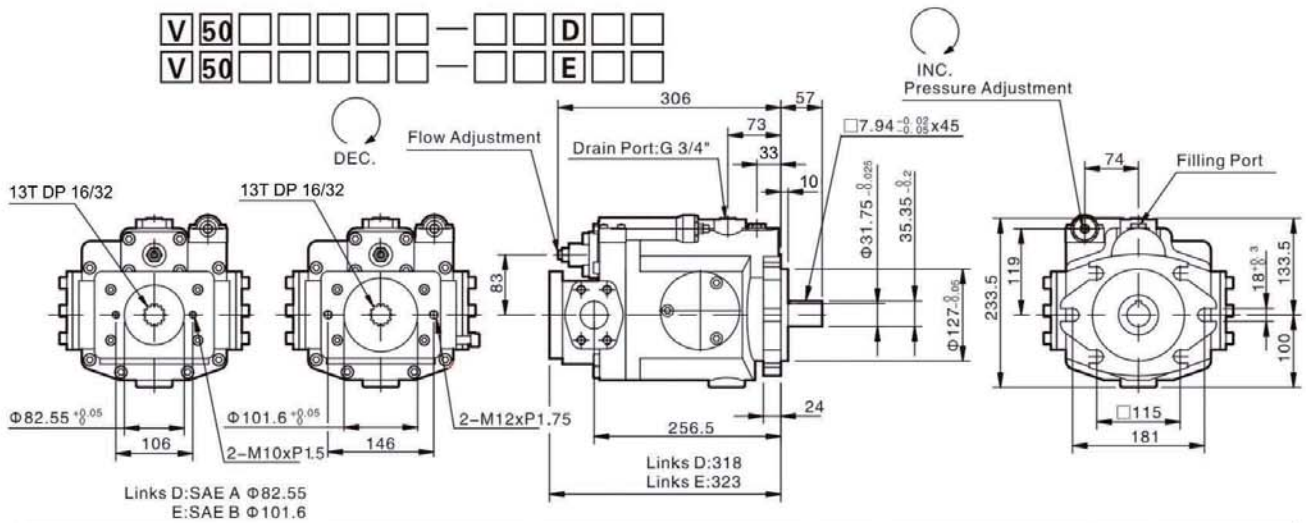


Notes: - Inlet - Outlet port are for standard rotation (clockwise).
 - For shaft detail see page 45.



V 50 - V 70 Series Axial Piston Pump - Installation Drawing

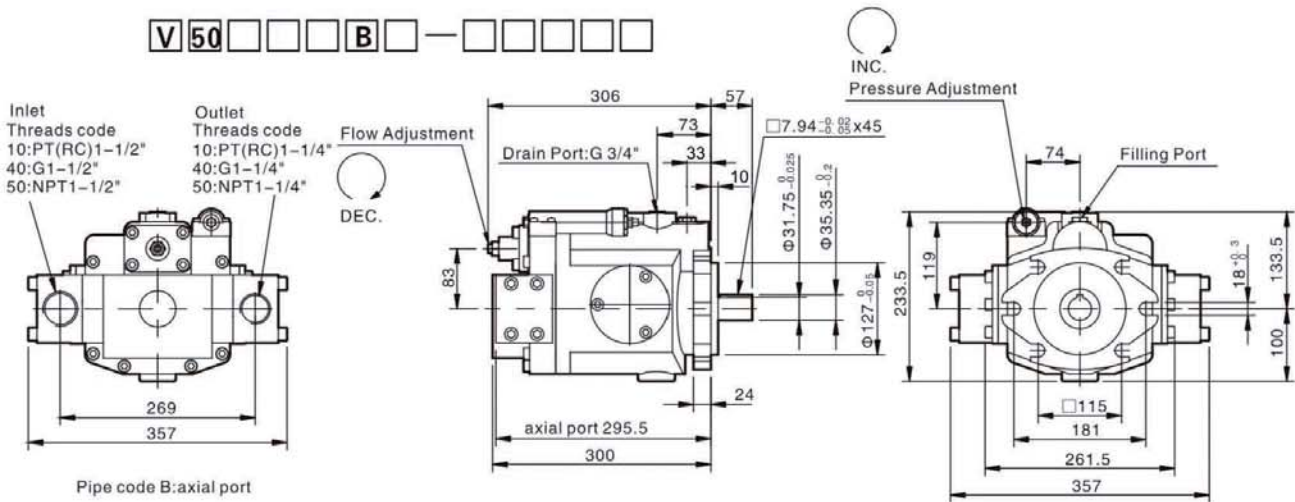
V 50 - V 70 Thru Drive Option SAE A (spigot diam. 82,55) - SAE B (spigot diam. 101,6)



Type	A	B	C	CG	D	DG	E	EG	F	FG	G	GJ	GM	HL	HK	HQ
	○				○	○	○	○			○	○	○	○	○	○

Thru Drive Option

V 50 - V 70 Axial Port



Type	A	B	C	D	F	G	GJ	GM	HL	HK	HQ
	○	○	○	○	○	○	○	○	○		

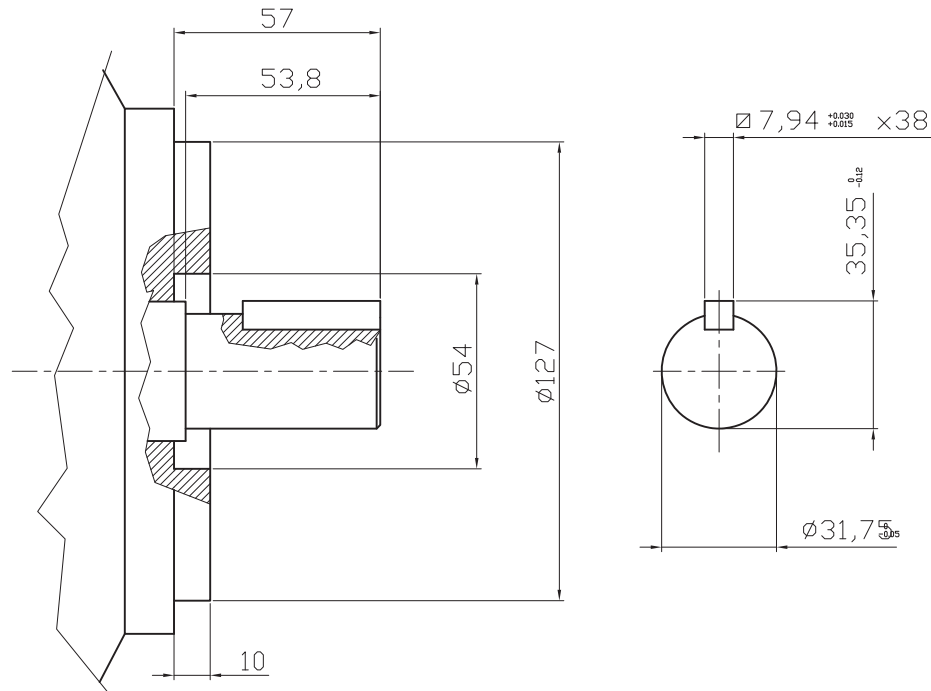
Axial Port Option

Notes: - Inlet - Outlet port are for standard rotation (clockwise).
- For shaft detail see page 45.

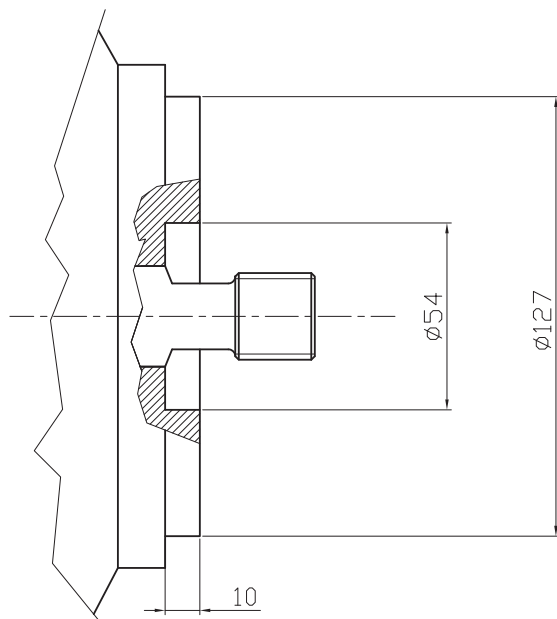


V 50 - V 70 Series Axial Piston Pump - Installation Drawing - Shaft Option

Parallel Shaft



Splined Shaft

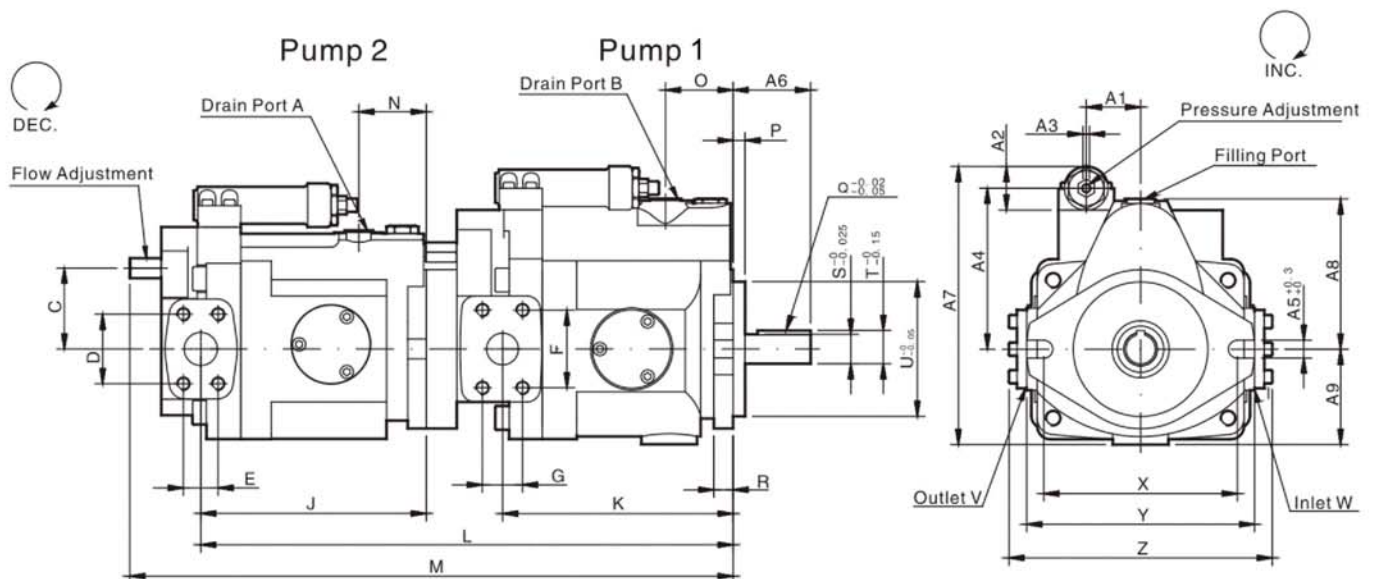


Spline Characteristics

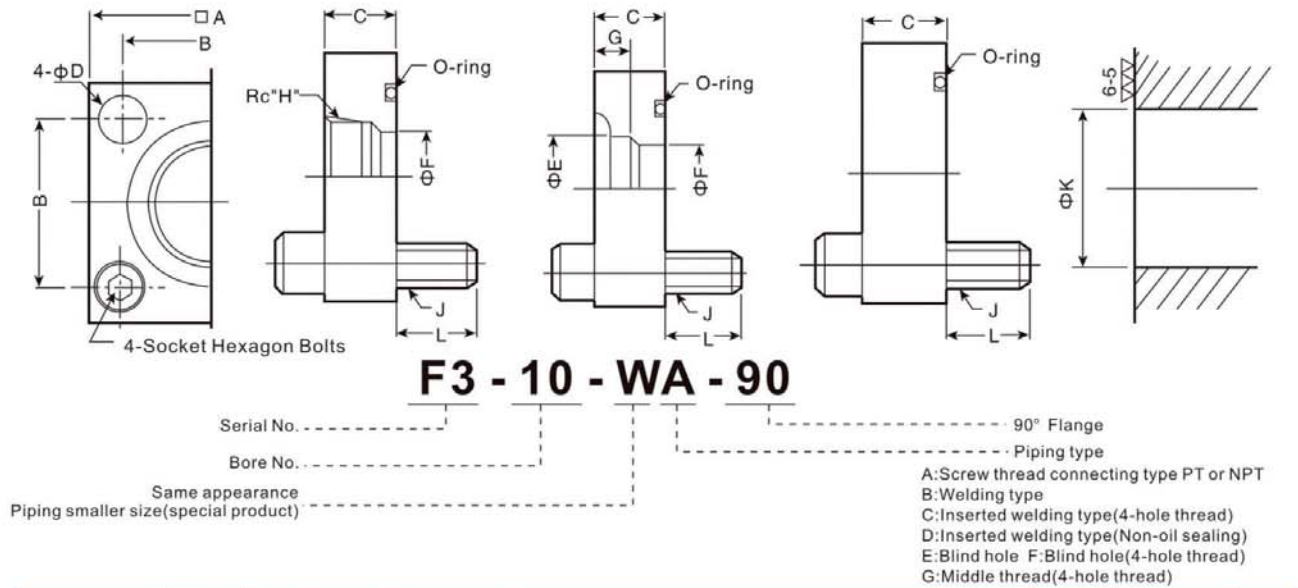
Splined shaft type S	SAE J 498 B 14 teet 12/24 DP Involute spline 30°
Splined shaft type S1	SAE J 498 B 17 teet 12/24 DP Involute spline 30°

V Series Axial Piston Pump - Installation Drawing Tandem Pump (Multi-Option for Tandem Pump)

Pump 1	V15(V18)	V23(V25)	V23(V25)	V38(V42)	V38(V42)	V38(V42)	V50(V70)	V50(V70)	V50(V70)
Pump 2	V15(V18)	V15(V18)	V23(V25)	V15(V18)	V23(V25)	V38(V42)	V15(V18)	V23(V25)	V38(V42)
A	G 3/8"	G 3/8"	G 3/8"	G 3/8"	G 3/8"	G 1/2"	G 3/8"	G 3/8"	G 1/2"
B	G 3/8"	G 3/8"	G 3/8"	G 1/2"	G 1/2"	G 1/2"	G 3/4"	G 3/4"	G 3/4"
C	57.45	57.45	61	57.45	61	73	57.45	61	73
D	35.1	35.1	52.4	35.1	52.4	58.7	35.1	52.4	58.7
E	35.1	35.1	26.2	35.1	26.2	30.2	35.1	26.2	30.2
F	35.1	52.4	52.4	58.7	58.7	58.7	69.9	69.9	69.9
G	35.1	26.2	26.2	30.2	30.2	30.2	35.7	35.7	35.7
H	M8x20	M8x20	M10x16	M8x20	M10x16	M10x16	M8x20	M10x16	M10x16
I	M8x20	M10x16	M10x16	M10x16	M10x16	M10x16	M12x25	M12x25	M12x25
J	147	147	170	147	170	179	147	170	179
K	147	170	170	179	179	179	256.5	256.5	256.5
L	332	369	402	378	401	410	464	493	502
M	382	419	455	428	454	465	515	546	555
N	48	48	51	48	51	51	48	51	51
O	48	51	51	51	51	51	73	73	73
P	6	9	9	9	9	9	10	10	10
Q	4.76x32	6.35x40	6.35x40	6.35x40	6.35x40	6.35x40	7.94x45	7.94x45	7.94x45
R	13	14	14	14.5	14.5	14.5	24	24	24
S	Φ 19.05	Φ 22.22	Φ 22.22	Φ 22.22	Φ 22.22	Φ 22.22	Φ 31.75	Φ 31.75	Φ 31.75
T	21.15	25.08	25.08	25.08	25.08	25.08	35.35	35.35	35.35
U	Φ 82.55	Φ 101.6	Φ 101.6	Φ 101.6	Φ 101.6	Φ 101.6	Φ 127	Φ 127	Φ 127
V	Φ 25	Φ 25	Φ 25	Φ 31	Φ 31	Φ 31	Φ 38	Φ 38	Φ 38
W	Φ 25	Φ 25	Φ 25	Φ 31	Φ 31	Φ 31	Φ 38	Φ 38	Φ 38
X	106	146	146	146	146	146	181	181	181
Y	131	146	146	160	160	160	208	208	208
Z	165	182	182	198.6	198.6	198.6	261.5	261.5	261.5
A1	44	39	39	39	39	39	74	74	74
A2	31.2	31.2	31.2	31.2	31.2	31.2	40	40	40
A3	5	5	5	5	5	5	8	8	8
A4	84	110	110	121	121	121	119	119	119
A5	11	13.5	13.5	13.5	13.5	13.5	18	18	18
A6	44.5	58.5	58.5	58.5	58.5	58.5	57	57	57
A7	160	193	193	210	210	210	233.5	233.5	233.5
A8	91.5	93	93	113.5	113.5	113.5	133.5	133.5	133.5
A9	60	68	68	72	72	72	100	100	100

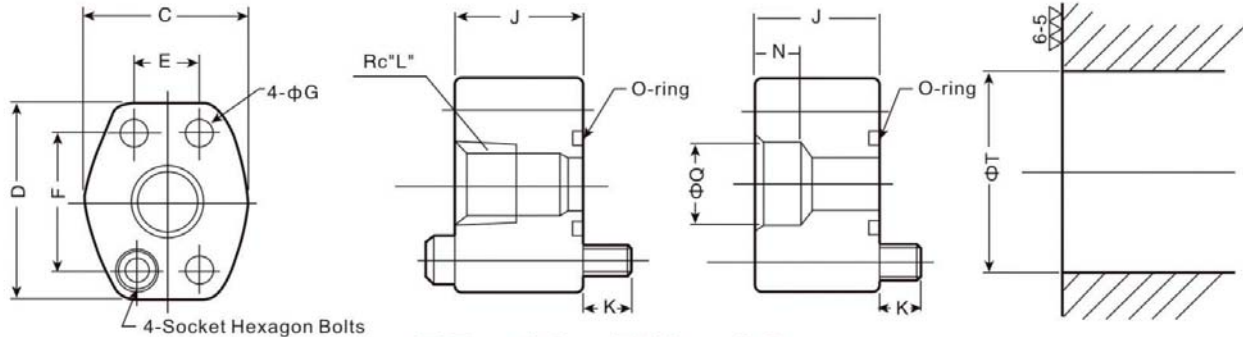


Piping Connection Flanges



Flange Model	Port size	Dimensions (mm.)											O-Ring (JIS B 2401) Hs90	Proper Bolts (JIS B 1176)	kg/cm ²
		A	B	C	D	E	F	G	H	J	K	L			
F3-03-WA	3/8	54	36	21	11	---	14	---	3/8	M10	15	14	G25	M10x35	250
F3-03-WB						17.8	12.5	9	---						
F3-03-A	1/2	54	36	21	11	---	17.5	---	1/2	M10	20	14	G30	M10x35	250
F3-03-B						22.2	16	11	---						
F3-06-WA	1/2	58	40	21	11	---	17.5	---	1/2	M10	20	14	G30	M10x35	250
F3-06-WB				22.2		16	11	---							
F3-06-A	3/4	58	40	27	11	---	23	---	3/4	M10	20	13	G30	M10x40	250
F3-06-B				27		20	12	---							
F3-08-WA	3/4	68	48	27	13.5	---	23	---	3/4	M12	25	18	G35	M12x45	250
F3-08-WB						27.2	20	12	---						
F3-08-A	1	68	48	27	13.5	---	29	---	1	M12	31.5	18	G40	M12x45	250
F3-08-B						34.5	25	14	---						
F3-10-WA	1	76	56	27	13.5	---	29	---	1	M12	31.5	18	G40	M12x45	250
F3-10-WB						34.5	25	14	---						
F3-10-A	1 1/4	76	56	27	13.5	---	31.5	---	1 1/4	M12	31.5	18	G40	M12x45	250
F3-10-B						43.2	31.5	16	---						
F3-12-WA	1 1/4	92	65	35	18	---	31.5	---	1 1/4	M16	37.5	25	G50	M16x60	250
F3-12-WB						43.2	31.5	16	---						
F3-12-A	1 1/2	92	65	35	18	---	43.5	---	1 1/2	M16	50	25	G60	M16x60	250
F3-12-B						49.1	37.5	18	---						
F3-16-WA	1 1/2	100	73	35	18	---	43.5	---	1 1/2	M16	50	25	G60	M16x60	250
F3-16-WB						49.1	37.5	18	---						
F3-16-A	2	100	73	35	18	---	47.5	---	2	M16	50	25	G60	M16x60	250
F3-16-B						61.1	47.5	20	---						
F3-20-WA	2	128	92	44	22	---	47.5	---	2	M20	60	30	G75	M20x75	250
F3-20-WB						61.1	47.5	20	---						
F3-20-A	2 1/2	128	92	44	22	---	70	---	2 1/2	M20	60	30	G75	M20x75	250
F3-20-B						77.1	60	22	---						
F3-24-WA	2 1/2	140	103	44	24	---	70	---	2 1/2	M22	75	36	G85	M22x80	250
F3-24-WB						77.1	60	22	---						
F3-24-A	3	140	103	49	24	---	71	---	3	M22	75	31	G85	M22x80	250
F3-24-B						90.0	71	25	---						

Piping Connection Flanges



F5 - 10 - WA - 90

Serial No. _____ 90° Flange
 Bore No. _____ Piping type
 Same appearance _____
 Piping smaller size (special product) _____

A: Screw thread connecting type PT or NPT
 B: Welding type
 C: Inserted welding type (4-hole thread)
 D: Inserted welding type (Non-oil sealing)
 E: Blind hole F: Blind hole (4-hole thread)
 G: Middle thread (4-hole thread)

Flange Model	Port size	Dimensions (mm.)											O-Ring (JIS B 2401) Hs90	Proper Bolts (JIS B 1176)	kgf/cm ²
		C	D	E	F	G	J	K	L	N	Q	T			
F5-04-WA	3/8	40	54	17.5	38.1	8.8	30	10	3/8	---	---	13	P22	M8x40	250
F5-04-WB									---	9	17.8				
F5-04-A	1/2								1/2	---	---				
F5-04-B									---	11	22.2				
F5-06-WA	1/2	48	65	22.2	47.6	11	30	15	1/2	---	---	19	G30	M10x45	250
F5-06-WB									---	12	27.7				
F5-06-A	3/4								3/4	---	---				
F5-06-B									---	12	27.7				
F5-08-WA	3/4	55	70	26.2	52.4	11	30	15	3/4	---	---	26	G35	M10x45	250
F5-08-WB									---	12	27.7				
F5-08-A	1								1	---	---				
F5-08-B									---	14	34.5				
F5-10-WA	1	64	80	30.2	58.7	11	30	17	1	---	---	32	G40	M10x50	250
F5-10-WB									---	14	34.5				
F5-10-A	1 1/4								1 1/4	---	---				
F5-10-B									---	16	43.2				
F5-12-WA	1 1/4	72	94	35.7	69.9	13.5	30	17	1 1/4	---	---	38	G50	M12x50	250
F5-12-WB									---	16	43.2				
F5-12-A	1 1/2								1 1/2	---	---				
F5-12-B									---	18	49.1				
F5-16-WA	1 1/2	85	102	42.9	77.8	13.5	30	17	1 1/2	---	---	48	G60	M12x50	250
F5-16-WB									---	18	49.1				
F5-16-A	2								2	---	---				
F5-16-B									---	20	61.1				
F5-20-WA	2	102	114	50.8	88.9	13.5	40	17	2	---	---	63	G75	M12x60	175
F5-20-WB									---	20	61.1				
F5-20-A	2 1/2								2 1/2	---	---				
F5-20-B									---	22	77.1				
F5-24-WA	2 1/2	116	135	61.9	106.4	17.5	50	17	2 1/2	---	---	76	G85	M16x70	35
F5-24-WB									---	22	77.1				
F5-24-A	3								3	---	---				
F5-24-B									---	25	90				
F5-28-WA	3	134	153	69.9	120.7	17.5	50	17	3	---	---	88	G100	M16x70	35
F5-28-WB									---	25	90				
F5-28-A	3 1/2								3 1/2	---	---				
F5-28-B									---	28	102.8				
F5-32-WA	3 1/2	150	162	77.8	130.2	17.5	50	17	3 1/2	---	---	101	G115	M16x70	35
F5-32-WB									---	---	---				
F5-32-A	4								4	---	---				
F5-32-B									---	13.5	115.5				

As HANSA-TMP has a very extensive range of products and some products have a variety of applications, the information supplied may often only apply to specific situations. If the catalogue does not supply all the information required, please contact HANSA-TMP.

In order to provide a comprehensive reply to queries we may require specific data regarding the proposed application.

Whilst every reasonable endeavour has been made to ensure accuracy this publication cannot be considered to represent part of any contract, whether expressed or implied.

HANSA-TMP reserves the right to amend specifications at their discretion.



HYDRAULIC COMPONENTS
HYDROSTATIC TRANSMISSIONS
GEARBOXES - ACCESSORIES

Via M. L. King, 6 - **41122 MODENA (ITALY)**
Tel: +39 059 415 711
Fax: +39 059 415 729 / 059 415 730
INTERNET: <http://www.hansatmp.it>
E-MAIL: hansatmp@hansatmp.it