

VPS1, 2, 3

Fixed displacement vane pump

Nominal size : 16 to 180 cc/rev
Max. operating pressure: 245 bar - 280 bar
Max. speed : 2200 - 2800 rpm



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Features

- The construction of the pump incorporates a leakage line help reducing the pump holding temperature and enhancing the life and the stability of the pump.
- The design enables the pump to perform at low speed and high pressure.
- Low operating noise,
- Wide spread range upto 2800 rpm, Minimum rpm not less than 80.
- Better resistance to oil contamination.
- Wide range to displacement 16cc - 180cc/rev (200cc/rev under testing).
- Pressure upto 280 bar.
- Cartridge assembly replacement available as spares.
- This pump is specially designed for servo system application offering fast and low speed, with excellent response to switching.
- Also the pump is widely suitable for mobile applications offering pressure and flow under low engine rpm.

Ordering code

		VPS1	50	P	R	14	/ 1xT	V	
Series Build									
VPS 1									
VPS 2									
VPS 3									
Build Flow cc/rev									
VPS1		= 16, 20, 25, 32, 40, 50, 64							
VPS2		= 64, 70, 80, 100, 110, 125, 145, 160							
VPS3		= 160 ,180, 200							
Shaft type									
Cylindrical drive shaft		= P							
Splined shaft		= S							
(Please refer shaft code table on page : 7)									
Rotation-Viewed from shaft end									
Right hand for clockwise		= R							
Left hand for counter clockwise		= L							
Connections									
SAE Suction and pressure connections, Metric fixing screws									
Outlet position-Viewed from shaft end									
Top (0° from the inlet)		= D							
Right (90° to the right of the inlet)		= R							
Left (90° to the left of the inlet)		= L							
Bottom (180° from the inlet)		= U							
Series code		= 1xT							
Sealing Material									
NBR Seals		= M							
FKM Seals		= V							
Shaft Code									
VPS1		= 3A, 2A, 1A							
VPS2		= 1A							
VPS3		= 2A							



Technical data

• General

Mounting style	Flange mounting to SAE J744
Pipe connections	SAE fange version (Metric threads)
Direction of rotation	Clockwise and anti-clockwise
Direction of flow	Inlet and outlet are independent of the direction of rotation
Installation	Optional, inlet connection preferably at the top
Drive	Direct, co-axial drive; radial and axial forces cannot be taken up

Weight		VPS1							VPS2					VPS3		
	BS	16	20	25	32	40	50	64	64	70	80	100	125	160	180	200
	Kg	43	43	43	43	43	43	43	65	65	65	65	65	65	65	65

Series	Flow code (USgpm)	Geometric displace- ment ml/r	Max pressure bar						Max speed (r/min)		Min. speed r/min
			Antiwear hydraulic oil		General hydraulic oil phosphate eater fluid		Water glycol fluid or water-oil emulsion		General hydraulic oil or antiwear hydraulic oil	Waterglysol fluid or phosphate eater fluid or water oil emulsion	
			Instant	Continous	Instant	Continous	Instant	Continous			
VPS1	16	16.0	280	245	210	175	175	140	2800	1800	50
	20	20.0									
	25	24.8									
	32	32.1									
	40	40.1									
	50	50.3									
	64	63.5									
VPS2	70	70.3	245	210	210	175	175	140	2500		
	80	80.4									
	100	100.5									
	125	125.3									
VPS3	160	160.1	245	210	210	175	175	140	2200		
	180	180.0									
	200	200.5									

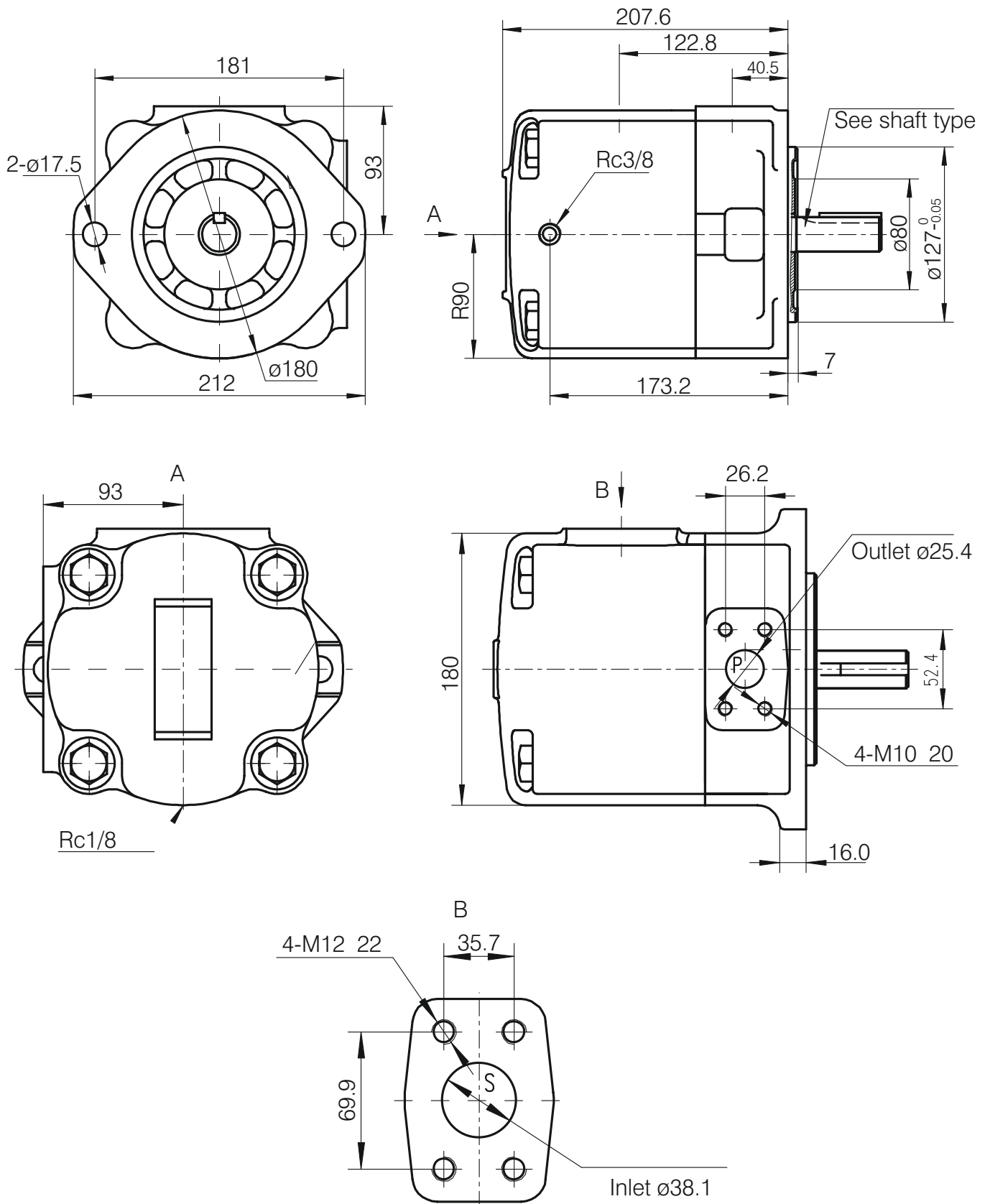
• Product Performance

Performance index	Performance data
Displacement range ml/r	16~200
Max pressure bar	245-280
Max speed	2200~2800
Volume efficiency% (Within rotation speed 1500r/min, pump displacement 40mL/r, pressure 16MPa, oil temperature 50°C)	≥95



Mounting dimensions of VPS1

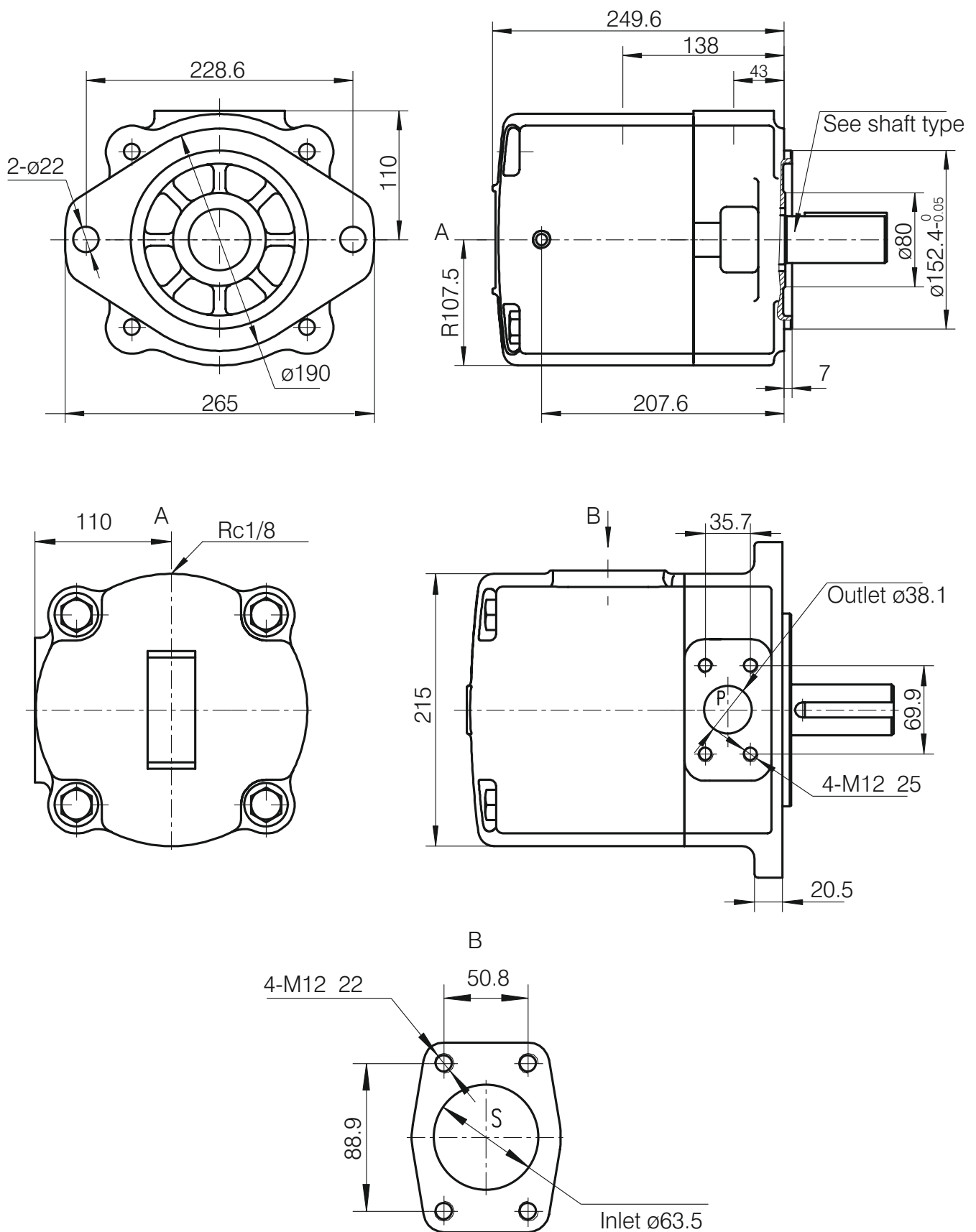
(dimensions in mm)





Mounting dimensions of VPS2

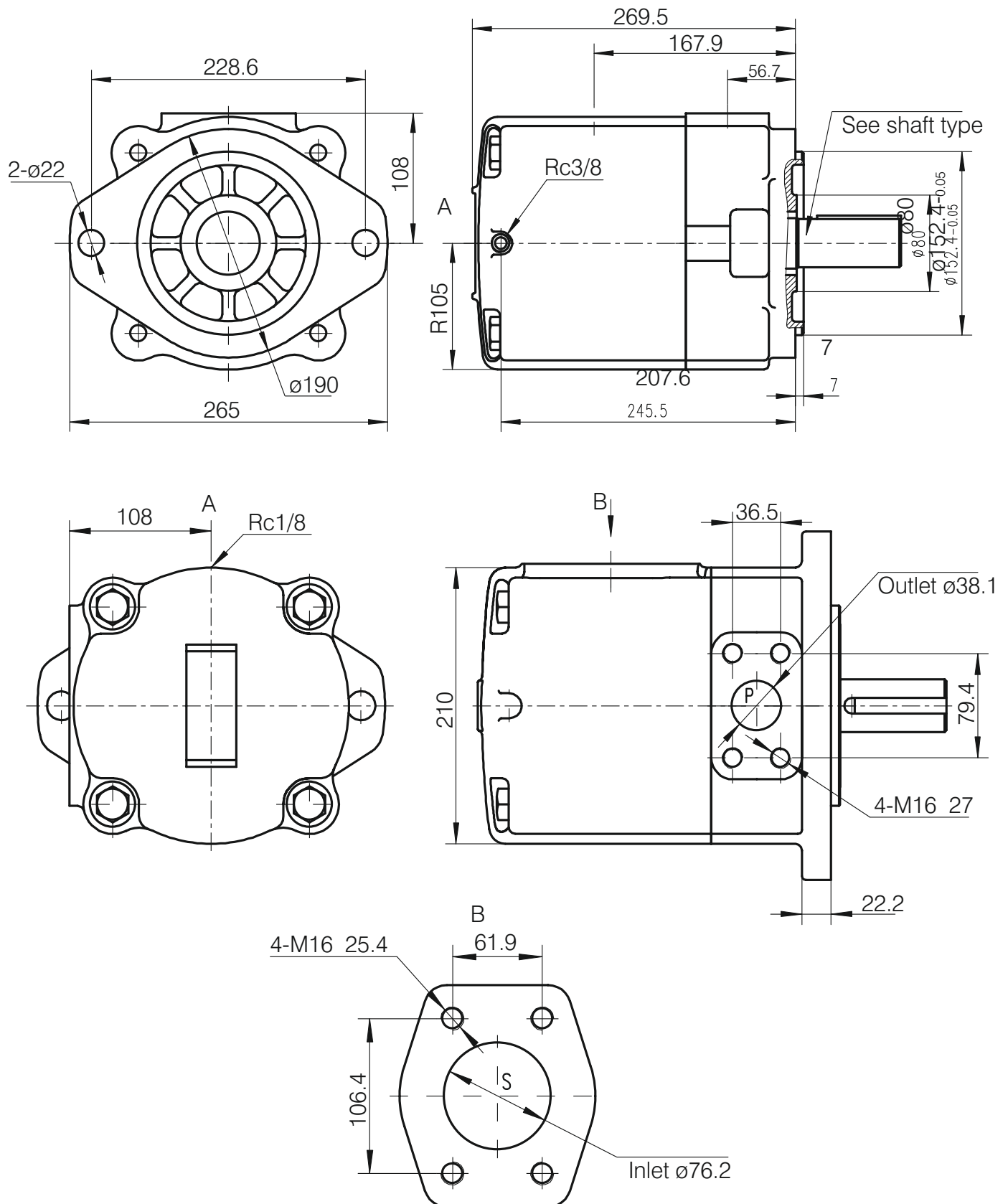
(dimensions in mm)





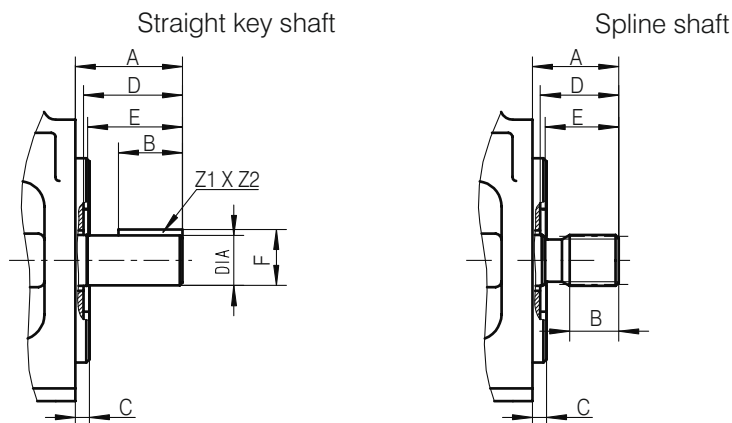
Mounting dimensions of VPS2

(dimensions in mm)





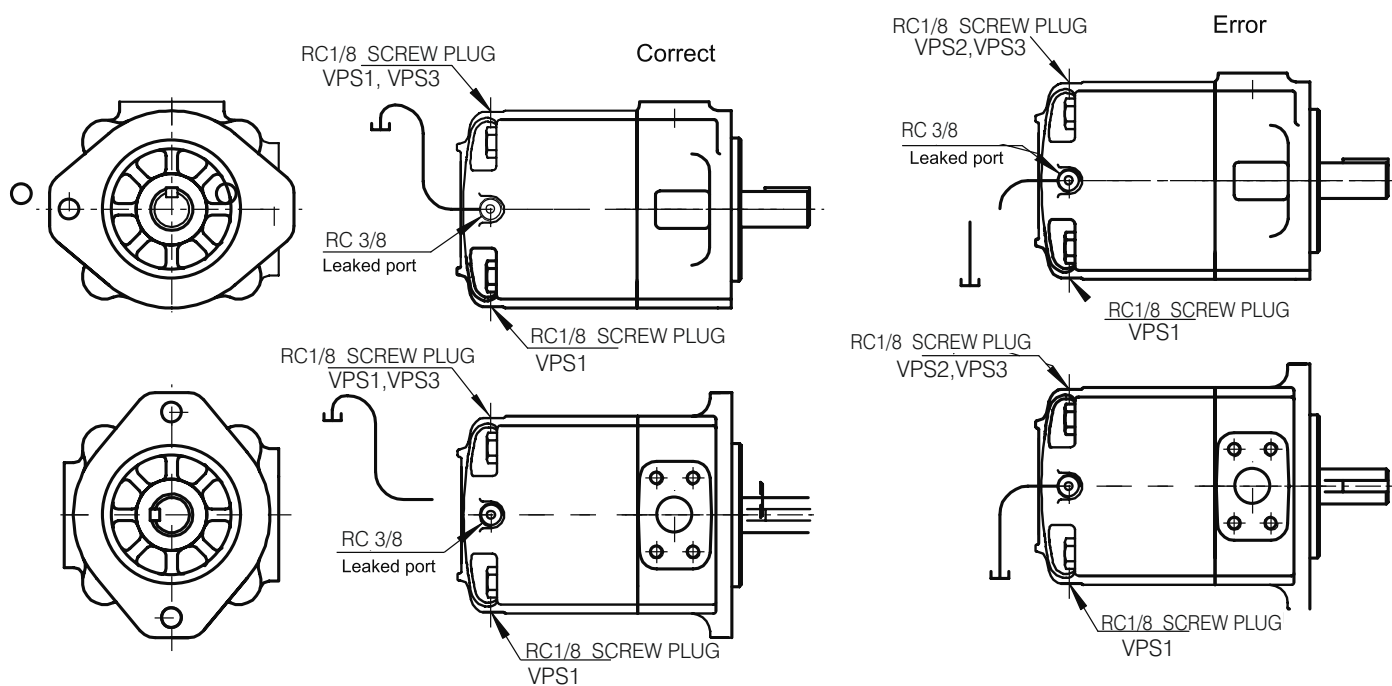
Shaft type



Model	Shaft code	A	B	C	D	E	F	Shaft DIA.	Z1XZ2
VPS1	3A	46	24.5	7.0	41.0	39.6	ANSI B92.1-1996 16/32 DP 30° 15T		
	2A	56	32		51.0	49.6	28	ø25g6	8h9x7
	1A	68	45		63.0	61.6	28	ø25g6	8h9x7
VPS2	1A	88	70	7.0	87.0	85.6	43	ø40g6	12h9x8
VPS3	1A	88	70	7.0	87.0	85.6	43	ø40g6	12h9x8

Drain port details

- Pump housing design with RC3/8 drain oil port, the leaking oil must piped back to tank freely, or will cause the shaft seal damage.
- Follow below instruction, Drain of oil pipeline must be in the upward arrangement, make the sliding bearing of the pump shaft dipped in full oil lubrication.
- Rc1/8 screw plug is connected to high pressure oil chamber, Do not remove, or it may cause accident / injury.





Installation, Application, Maintenance

- Oil Medium:
 - Anti-wear hydraulic oil is recommended for better performance and longer life. Viscosity range: 10-860cst, Recommended viscosity 46cst.
 - Proper fluid condition is essential for long and satisfactory life of hydraulic components and systems. The filtration rating should not be lower than $25\mu\text{m}$. Filter of $70\text{-}150\mu\text{m}$ on the inlet port is recommended and its rated flow should not be lower than 300% of pump flow capacity.
 - The recommended oil temperature is 10°C - 60°C for ensuring long-term and reliable life.
- Installation notes :
 - Foot and frame for pump must be reliable, solid and vibration absorbent.
 - Horizontal mounting is recommended to maintain necessary case fluid level. Concentricity of shafts between pump and motor is important to pump life and should be within 0.1 mm. It is better to use flexible coupling to avoid harmful effects.
 - Try to avoid using the steel pipe connection for tubing, the rubber hose is recommended for avoiding additional load causing the extra noise.
 - The permissible suction pressure should be near to 110 mm column of mercury. Installation should be near tank, the height of suction should not be higher than 500 mm.
 - Please notice the seal / O ring of flange at port connections, ports and suction pipeline has to be sealed strictly, to prevent air leakage. If not it will cause the noise and vibration of system, also will make foam, and lower the life of pump
 - The diameter of suction pipeline should not smaller than that of inlet.
 - There should be a plank in the tank to separate bubble, dirt and contamination from used oil. Return pipeline should be under the level of oil.
- Start:
 - Before starting pump, please check up if the inlet and outlet have been correctly connected and the rotation of the pump is inline with the nameplate. (CW without notice).
 - When initially starting the pump after long-time unused, removing all trapped air from the system can be accomplished by loosening flange or connections.
- Maintenance:
 - Please pour anti-rust oil in the pump, paint the surface with anti-rust grease and then cover ports, if you do not want to use it right now.
 - Please check up oil periodically, while if the oil can not reach the demand, replace it and clean up tank. Purging of filter regular is recommended.
 - Keep the normal level of oil in the tank. Please observe the level of oil and add some oil when needed. After a period of working, it is likely that after installation bolts of flange of inlet and outlet port would loosen because of vibration. Please tighten them up periodically.
 - The cartridge design of VPS series servo pumps offers fast and efficient field service ability, when replacing the cartridge, seals inside the pump should be checked to avoid them crimping, when tightening the fastening screws, they should be treated with even force in diagonal direction.

