NEW

PWLS

Variable Displacement Piston Pumps

walvoil
FLUID POWER E|MOTION

PWLS

Variable Displacement Piston Pumps

Walvoil presents PWLS, the new range of Variable Displacement Piston Pumps.
PWLS series offers all the features needed for a new generation of mobile hydraulic pumps.
Its compact design allows the installation in narrow spaces, its reactivity and stability grant the maximum comfort for the operator.
The design and production cycle allows heavy duty operation in the medium pressure range, with a nominal service pressure up to 280 bar *(4050 psi)*.
Additional features, like sensors cavities, compact tandems and various control manifolds complete the offer of this new generation of Wavoil piston pumps.

- ☐ **Heavy duty operation**
- ☐ **Compact tandem design**
- ☐ **Different displacement control solutions**
- ☐ **Sensor installation**
- ☐ **ALS Adaptive control**

GENERAL WORKING CONDITIONS		
Suction pressure		from 0,8 to 2 bar *from 11.6 to 29 psi*
Fluid		hydraulic mineral oil-based
Fluid temperature	With NBR (buna N) seals	from -20 to +80 °C *from -4 to +176 °F*
Viscosity	Recommended	from 15 to 92 mm²/s (cSt)
	Permitted for starting	2000 mm²/s (cSt)
Max level of contamination	Recommended for operating pressure > 150 bar *(2150 psi)*	20/18/15 ISO 4406 *class 9 (NAS 1638)*
	Recommended for operating pressure < 150 bar *(2150 psi)*	21/19/16 ISO 4406 *class 10 (NAS 1638)*

Technical data

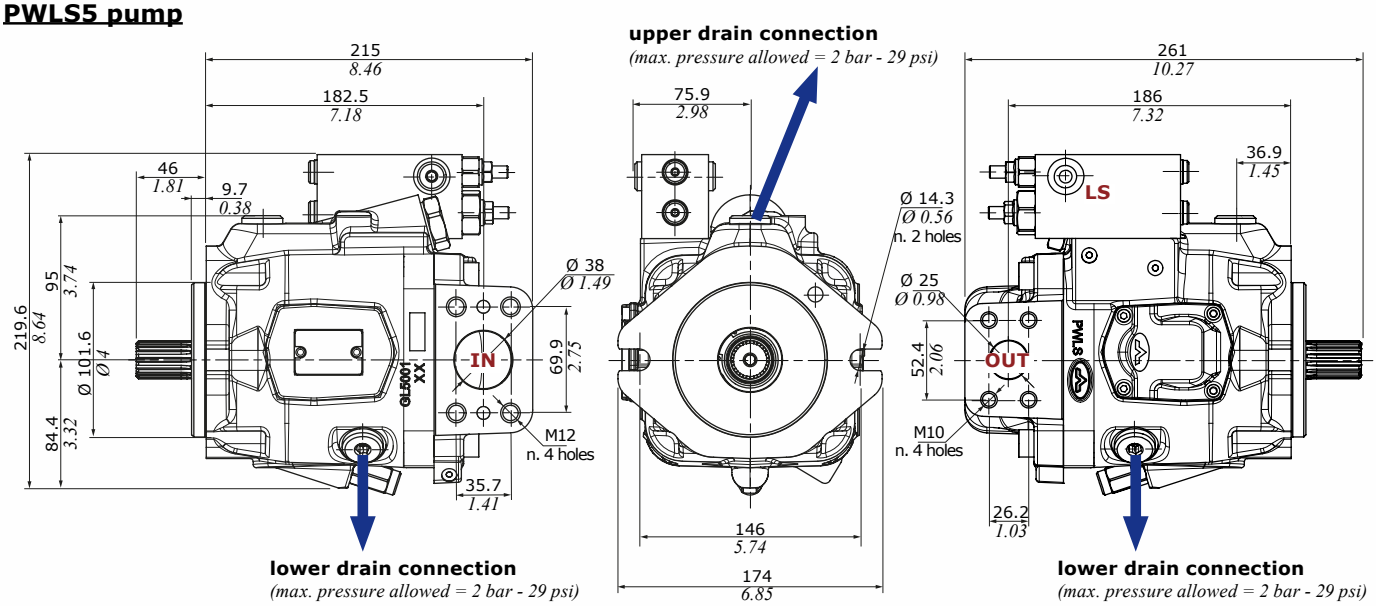
PWLS series	Max. displacement			Max working pressure		Max peak pressure		Max rotation speed	Weight	
		cm³/rev	*in³/rev*	bar	*psi*	bar	*psi*	rpm	kg	*lb*
PWLS5	min.	41	*2.50*	280	*4.050*	320	*4.650*	500-3000	22.5	*49.6*
	std.	53	*3.23*	280	*4.050*	320	*4.650*	500-2600		
	max.	56	*3.41*	280	*4.050*	320	*4.650*	500-2400		
PWLS7	min.	56	*3.41*	280	*4.050*	320	*4.650*	500-2900	25.9	*57.1*
	std.	72	*4.39*	280	*4.050*	320	*4.650*	500-2600		
	max.	80	*4.88*	250	*3.600*	300	*4350*	500-2200		

NEW

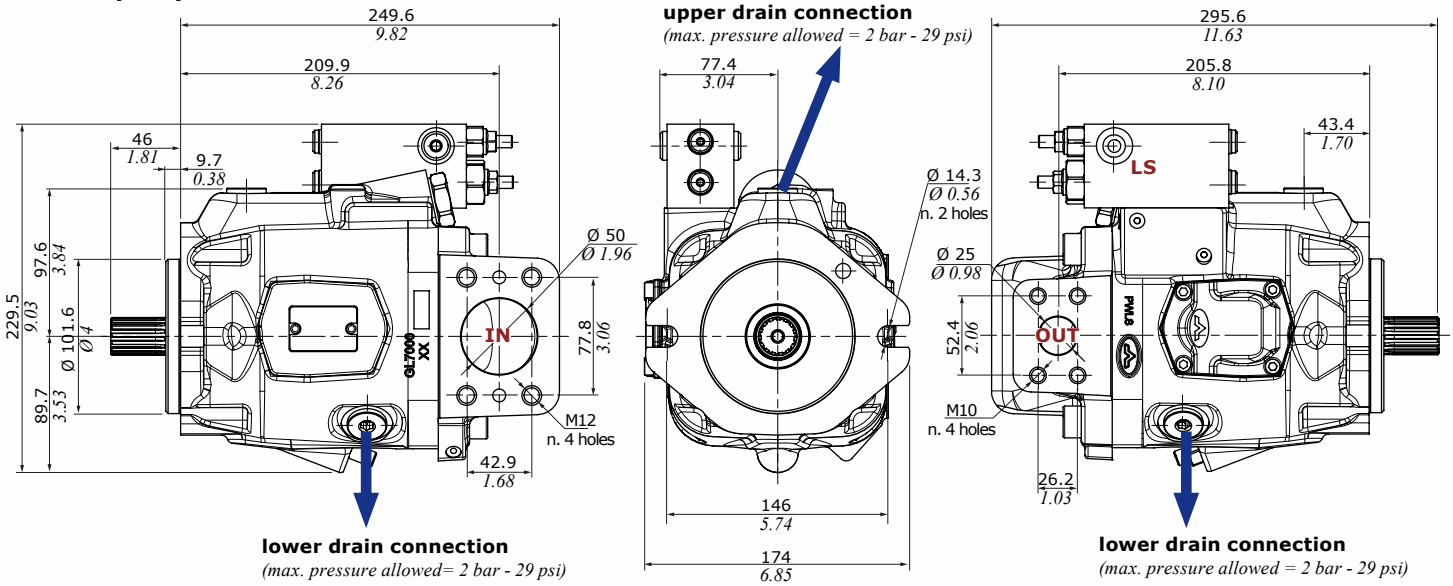
Dimensions

The dimensional drawings represent the version with **SAEB** flange (for other flanges, please contact our Sales Department).

PWLS5 pump



PWLS7 pump



Note: PWLS pumps have to be connected to a separate drain.

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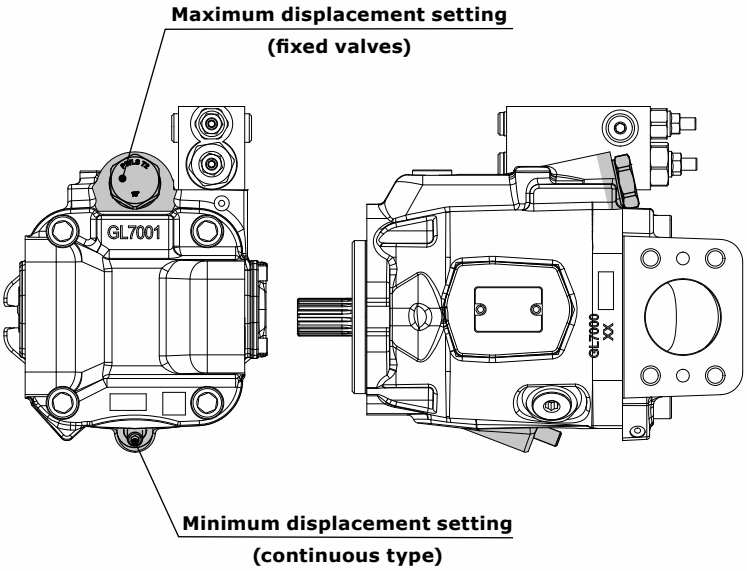
Displacement set-up

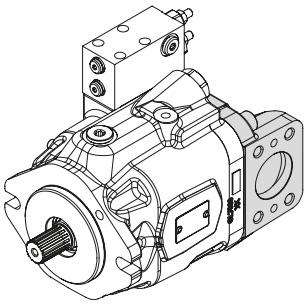
PWLS7 example

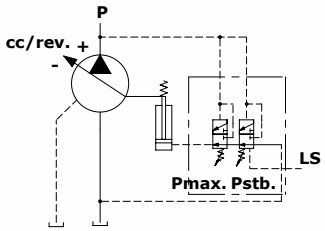


	Maximum displacement setting			Minimum displacement setting	
		cm³/rev	*in³/rev*	cm³/rev	*in³/rev*
PWLS5	min.	41	*2.50*	from 0 to 10	*from 0 to 0.61*
		44	*2.68*		
		47	*2.86*		
		50	*3.05*		
	std.	53	*3.23*		
	max.	56	*3.41*		
PWLS7	min.	56	*3.41*	from 0 to 10	*from 0 to 0.61*
		60	*3.66*		
		64	*3.90*		
		68	*4.15*		
	std.	72	*4.39*		
		76	*4.63*		
	max.	80	*4.88*		

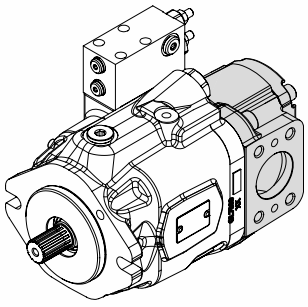
Cover options

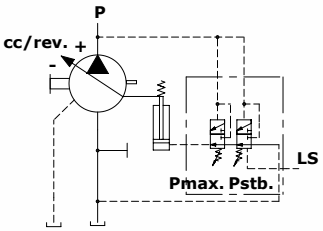
Single pump
PWLS



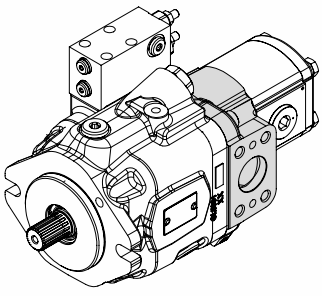


Single pump Dealer type
PWLS

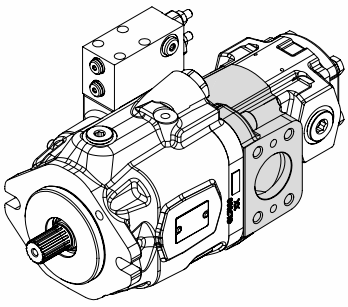


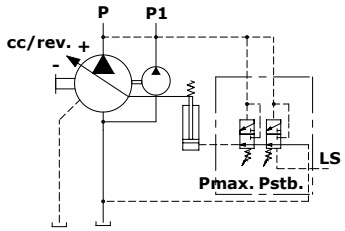


Two stages pump
PWLS + 2XP



Two stages pump
PWLS + 2XPW



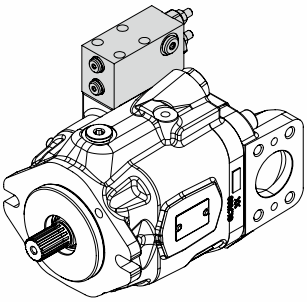


NEW

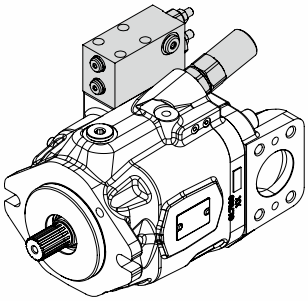
Displacement control options

PWLS product range is now available with three different type of displacement control.
LS control is the traditional load sensing control, aimed to keep a constant pressure margin through the main control valve. In this kit a max pressure limiter is also included, able to minimize the displacement in case of setting pressure reached by the actuator.
LS-TL control complete the offer of LS control. The additional torque limiter reduces automatically the displacement of the pump in case high torque is required by the circuit. This function is used to prevent stall of the thermal engine.
ALS control gives the ECU the possibility to adjust the operating displacement in order to follow a determined displacement or a virtual pressure margin. This feature allows to reduce energy consumption in idle speed and to be more precise in the actuation when needed by the operator.

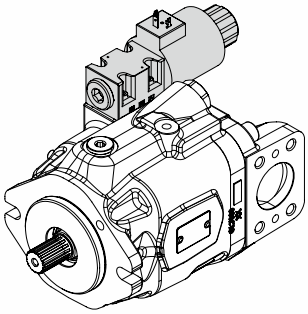
LS
Load Sensing system



LS-TL
Mechanical torque control



ALS
Adaptive Load Sensing system



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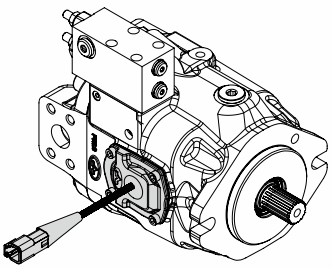
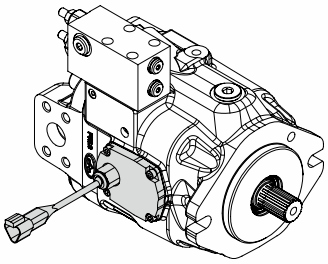
Swashplate window

All PWLS pumps have the predisposition for sensor installations.
Three type of sensors can be individually or simultaneusly connected to the side of the pump.
The swashplate angle is measured to evaluate the pump operating displacement. In the same cavity also the speed of the pump can be measured, providing to the ECU all the information about the delivered flow rate. A third pressure sensor allows to measure the pressure of the delivered flow.
All together these three indicators permit to evaluate the torque and the power request from the implement during operations.

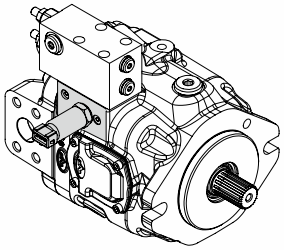
Angle sensor



Speed sensor



Working pressure sensor



Ports and connections

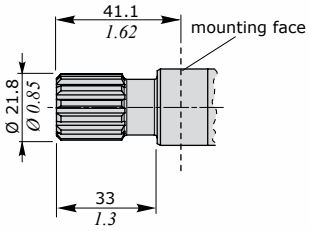
	Type	Suction port (Inlet)	Delivery port (Outlet)	Drain ports (x3)
PWLS5	**F114F1G12**	1"1/2 (ISO 6162-1) 4 x M12x1.75 (depth 20) Ø 38	1'' (ISO 6162-1) 4 x M10x1.5 (depth 18) Ø 25	BSP 1/2" 3/4-16 UNF (SAE8)
PWLS7	**F2F1U10**	2'' (ISO 6162-1) 4 x M12x1.75 (depth 20) Ø 50	1'' (ISO 6162-1) 4 x M10x1.5 (depth 18) Ø 25	BSP 3/4" 7/8-14 UNF (SAE10)

For other connections, please contact our Sales Department

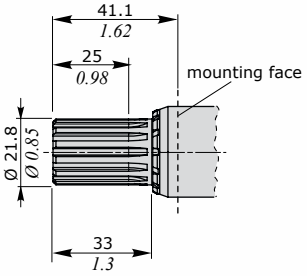
NEW

Shaft features

S13 type
(only for PWLS5)
Torque 280 Nm / *206 ft-lbs*
Spline:
SAE J498B type 13T - 16/32 pitch - 30°

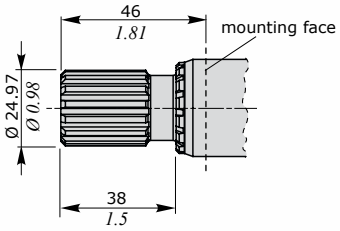


S13N type
(only for PWLS7)
Torque 300 Nm / *221 ft-lbs*
Spline:
SAE J498B type 13T - 16/32 pitch - 30°



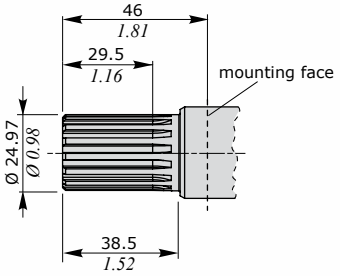
S15 type

Torque 400 Nm / *296 ft-lbs*
Spline:
SAE J498B type 15T - 16/32 pitch - 30°



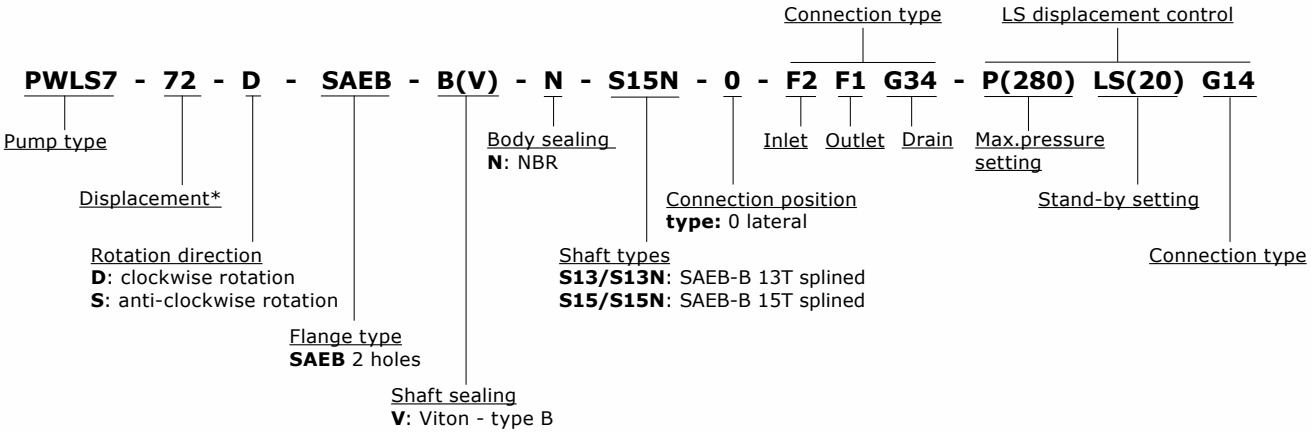
S15N type

Torque 420 Nm / *309 ft-lbs*
Spline:
SAE J498B type 15T - 16/32 pitch - 30°



For other shaft options, please contact our Sales Department

Description composition



(*) for displacement types, see "technical data" table

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