NEW

Hydraulic Digital Solution

Adaptive Load Sensing

Adaptive Electro-hydraulic System for the Efficiency of Mobile Machines

ADAPTIVE LOAD SENSING

walvoil FLUID POWER E|MOTION

The new Hydraulic Digital Solution product line

The modern mobile machinery market demands a constant increase in productivity and performance, together with lower operating costs, greater efficiency and reduced emissions in favor of sustainability and social responsibility.

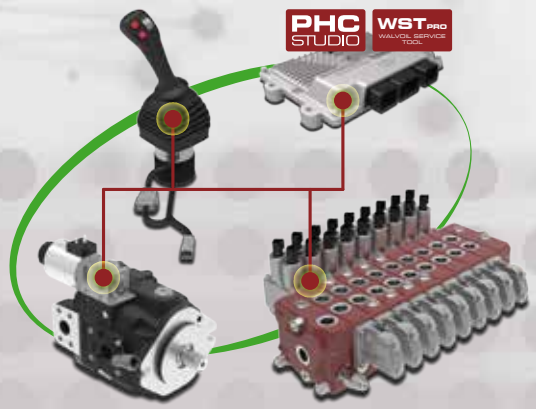
Various research and studies in the field point out that up to 40% of the energy supplied to the hydraulic system of the operating machine is dissipated by the limited efficiency of the components and the pressure drops due to the metering and control of the movements.

The problem is even more evident on electrified applications, where energy efficiency is synonymous with prolonged range and reduced battery capacity.

Walvoil illustrates how to increase efficiency of the hydraulic system and its components with the new **Hydraulic Digital Solution** product line, which guarantees a consumption reduction up to 25%.

The Adaptive Load Sensing system

ADAPTIVE LOAD SENSING



ALS is a synergistic set of components for the efficiency of mobile machines.

The joint control of the hydraulic directional control valve and the pump makes it possible to cut down pressure drops due to the pressure margins of the metering system.

At the same time, a series of logics are available to improve machine control, productivity, and driving comfort.

Walvoil offers three different ALS solutions to provide extreme versatility and adapt to the performance and system requirements of the machine.
In fact, the ALS system can be used as an integral part of the hydraulic directional control valve or fitted to the variable displacement pump.

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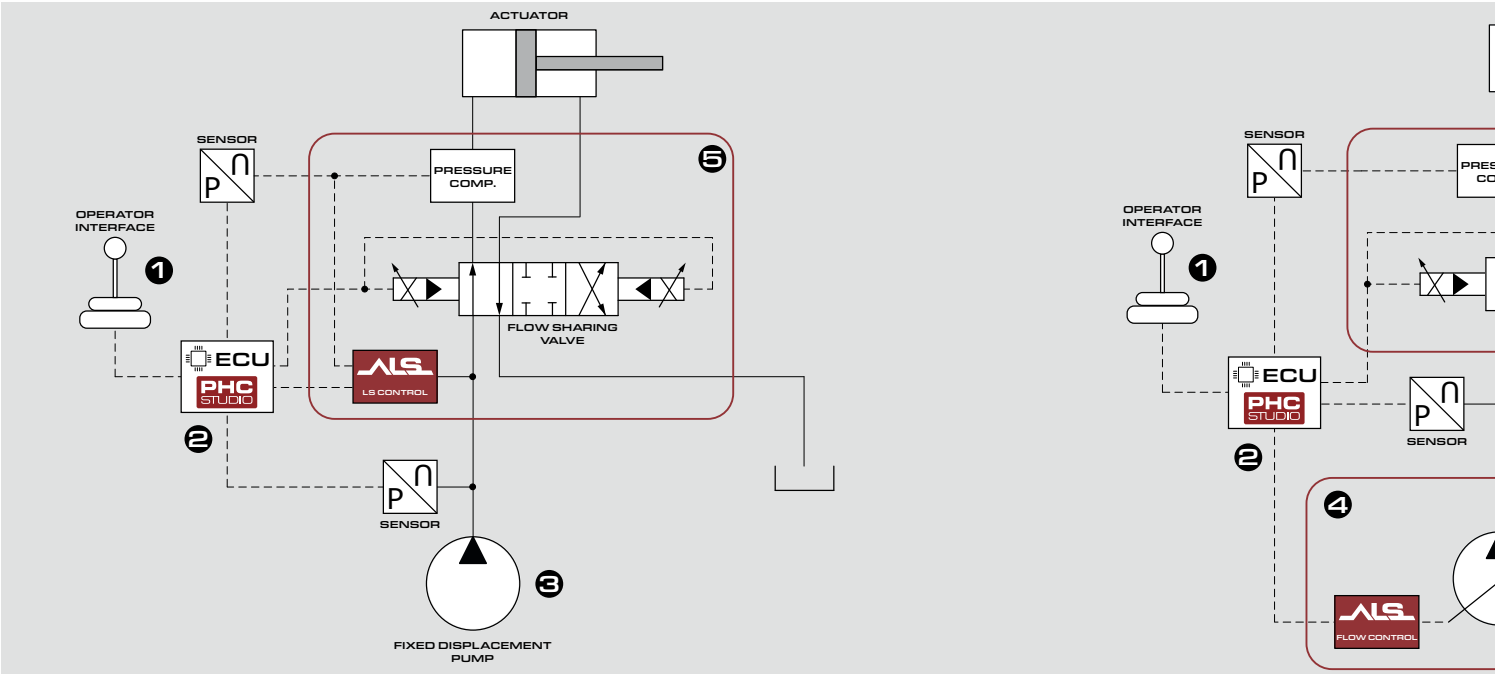
L.S. Electronic Control



This solution enables to use Pressure Control functions paired with Flow Sharing directional control valves of the DPX and EPX series. The system manages and conditions the Load Sensing signal of the circuit in order to reduce consumption and optimize control.
Since the ALS system can be fitted directly to the directional control valve, its benefits can be enjoyed combined with fixed displacement pumps.

In case the DPX or EPX valve is co
pump, the ALS regulator with Flow
which, with this solution, provides th
the logic set by the operator and thro
the signals coming from the various s

Products for the system

❶ Operator interface

HJW

CJW
AJW-DJW

CPW-APW

❷ ECU

CED1200S

CED400W

PHC STUDIO

PHC Studio

❸ Fixed Displacement pump

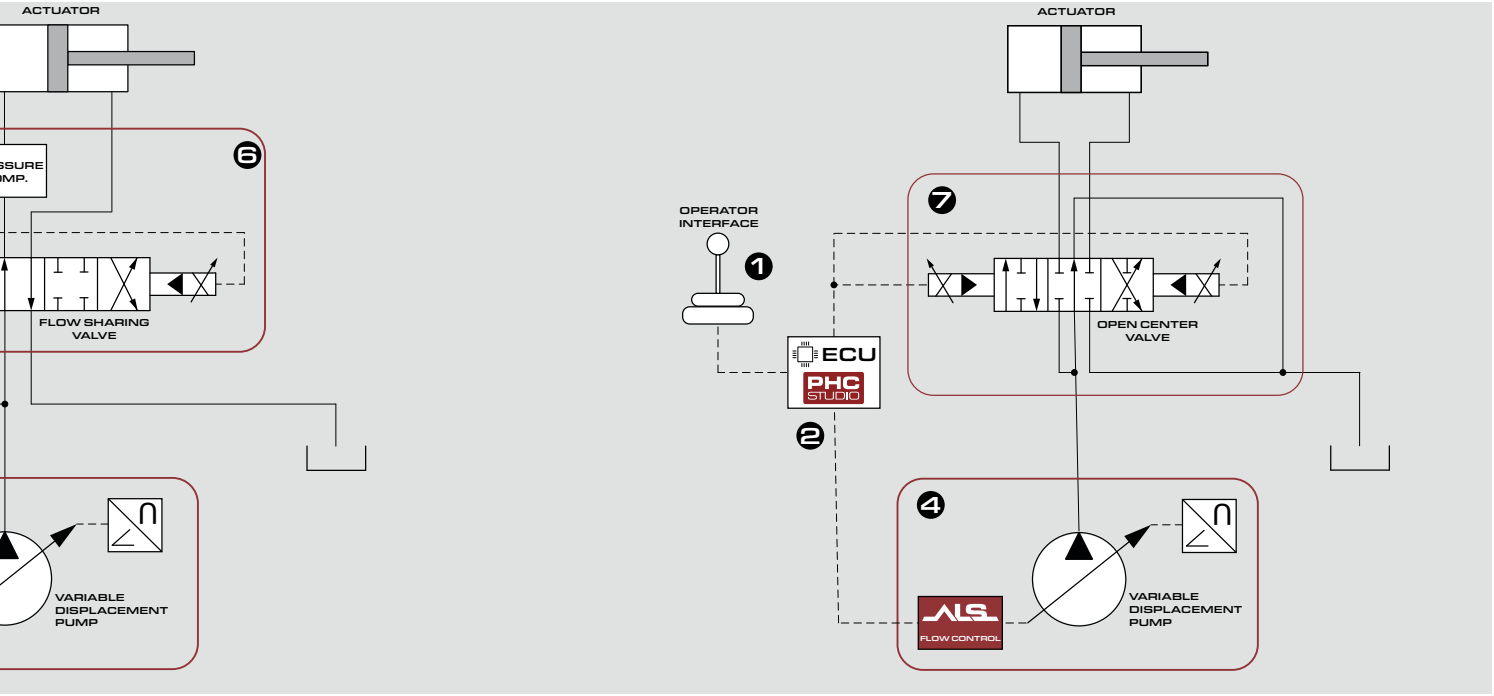
2XP series

3TPW series

❹ Variable Displacement p

PWLS series

Flow Control



mbined with a variable displacement Control is integrated into the pump e defined flow rate, both according to ugh the target values defined through sensors.

The special feature of this configuration is the combination of a normal electro-proportional Open Center directional control valve with the electronically controlled variable displacement pump equipped with ALS logic.
The Variable displacement pump supplies the flow demand settled by the operator logic (dedicated software), accordingly with single or multiple operations. In this configuration the Flow on Demand Logic ensures better load metering and greater vehicle stability combined with a tangible reduction in fuel consumption.
The system is managed by an electronic control unit and specially developed software in the PHC STUDIO environment.

ump

⑤ Flow Sharing valve

DPX series *EPX*

⑥ Flow Sharing valve

DPX series *EPX* *EX series*

⑦ Open Center valve

SDS series *DVS series*

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Features and operational functions

The main benefits of the ALS system are:

- Pressure Margin reduction both during operation and machine inactivity phases
- Definition of easily customizable control and sensitivity curves using PHC STUDIO software
- Definition of different operating conditions for maximizing control or productivity
- Dynamic torque and power limitation
- Greater utilization of installed power
- Less fluid heating
- Less instability and oscillations
- Customizable actuation modes for more comfortable driving

The ALS is also provided standard with some basic functions.

Precision function: reduces the Pressure Margin value, allowing to improve the accuracy and sensitivity of operation.
Boost function: temporarily increases the Pressure Margin value for higher speeds and productivity, without the need to install larger pumps.

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