

## ALS – ADAPTIVE LOAD SENSING: WALVOIL-DIECI COLLABORATION WINS THE EIMA TECHNICAL AWARD



No doubt that "team work" increases the chances of success in achieving a shared goal, improving, in any case, the result obtained.

This is the experience lived by **Walvoil Spa** and **Dieci Srl** in the "Technical Innovation Contest" of **EIMA DIGITAL PREVIEW 2020** taking place next November: they won both the prestigious "Technical Innovation 2020-21" Award, dedicated to machines and devices with features of ABSOLUTE INNOVATION, and the "Blu Award 2020-

21", attributed to the solutions that outstand for environmental aspects.

Not to be missed:

**ALS system presentation** (ALS-Adaptive Load Sensing – Adaptive Electro-hydraulic System for Energy Saving on Dieci Agriplus GD 42.7 Telehandler), to be held by **Walvoil** and **Dieci**

EIMA DIGITAL PREVIEW - November, 11 at 3:00 p.m. (CET) - Agorà (room 3).

**Free registration** on the Eima web portal - <https://www.eima.it/en/visitatori/user-form.phpvalve>

The winning project of this collaboration is the **ALS - ADAPTIVE LOAD SENSING system**; a system that minimizes the dispersion of energy in the hydraulic system of telehandlers, considerably improving the efficiency of the vehicle and consequently obtaining a reduction in wear and consumption.

In which context the solution designed by the synergy between Walvoil and Dieci was born and developed?

Hydraulic systems are an essential part of the most modern and widespread agricultural machinery, especially for telehandlers, which have now become irreplaceable for most companies.

In order to ensure the simultaneous control of movements in these systems, the hydraulic pump generates a **pressure higher** than what is really necessary, a predetermined value called "**Stand-by pressure differential**" which has been considered acceptable until now, but which implies a considerable loss of

energy, limiting the overall performance of the vehicle and unnecessarily increasing wear and consumption, to the detriment of efficiency and environmental impact.

To give a solution to this problem, **Walvoil** has created the **ADAPTIVE LOAD SENSING**, a system, patent pending, able to **MODULATE** the "Stand-by pressure" value according to the REAL WORKING NEEDS of the machine, automatically varying it only when and how required.

In partnership with **Dieci**, the ALS system has been successfully tested on an **AGRIPLUS telehandler**, one of the top machines in the Dieci range for Agriculture.



ALS is made of a directional control valve, an electronic joystick, and an electronic control unit, with customizable modular software developed by Walvoil. The control unit collects information from the operations on the controls and from the machine sensors, and acts on the Load Sensing device, adapting the hydraulic pressure differential to the maximum efficiency value required by the vehicle.

The differential pressure value can also be selected by means of two push buttons on the joystick, the **"Precision Function"**, which increases the movement controllability and precision, and the **"Boost Function"**, which increases the pressure value for a higher movement speed without need to install pumps with higher flow rates.

During the tests, the **Walvoil-Dieci**

**Technical Team** found on the Agri Plus a **drop in energy dispersion values** equal to **28%** during boom operations, and **up to 45%** during traveling phases, with a significant improvement in the overall machine performance at various speeds.

The tests highlighted also **further important advantages**, first of all in terms of **Safety**: by acting directly on the hydraulic signal, the ALS avoids the functional complexity associated with the digital signal. Furthermore, in case of failures, the original operation is automatically restored, avoiding machine downtime. Then in terms of

**Stability:** the control of the pressure value allows to improve the machine stability, with a consequent more comfortable use.

And finally, in terms of **Modernization (Retrofit)**: the few elements of the ALS kit can be easily installed even on older telehandlers, extending their operational life and improving their performance.

The development of the ALS system takes advantage of the collaboration of **TASC, "Smart and Clean Agricultural Tractors Project"**, a project including the participation of the main university research laboratories of the Emilia Romagna Region - Italy, created with the aim of minimizing the environmental impact of agricultural mechanization.

More **energy efficiency**, more **productivity**, greater **control**, high **customization** possibilities, higher **safety** and **stability** and the possibility of **modernizing** older machines represent all the advantages obtainable from the ALS system and the confirmation of the achievements through the collaboration of two Emilian and world excellences, now also recognized by the prestigious awards by EIMA 2020-21.