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Aidro presents 3D printed HD3-AMES valves weighting 65% less than traditional ones

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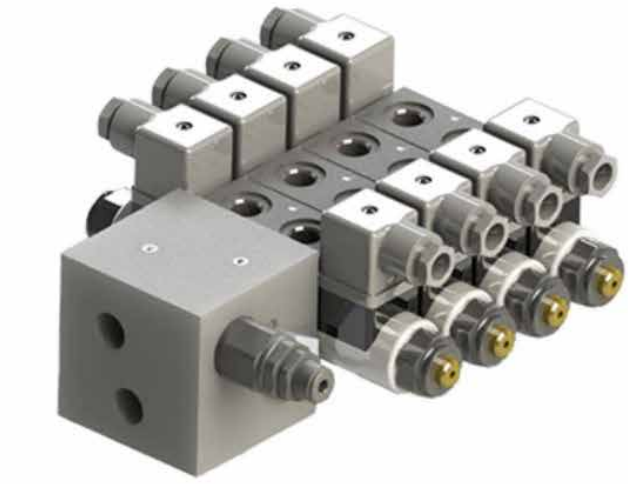
HD3-AMES are metal 3D printed directional control valves with a 316L stainless steel body and solenoid actuators, with a subplate mounting interface, built to meet ISO 4401 and DIN 24340 (CETOP 03) standards. The valve body was produced by Aidro, an innovative Italian company that was among the first to bring AM into the hydraulics industry, using laser powder bed fusion (LPBF) technology.

In order to fully leverage the additive manufacturing process, the internal design was optimized for an improved flow path. Paired with plastic encapsulated coils, the H3D-AMES valve has been proven to be corrosion resistant even in the harshest environments.

The feasibility of the HD3-AMES geometric forms would have been impossible to achieve using conventional manufacturing. AM-based topology optimization was key in creating a lightweight design with increased stiffness using external reinforcements.

Aidro also presented the new HDF-AMES, which are metal 3D printed bankable directional control valves.
The body is made in stainless steel 316L and the internal flow path is optimized through additive manufacturing technology, achieving up to 55% weight reduction. This results in a significant reduction in pressure drops along with unprecedented weight and volume reduction.



From traditional manufacturing...

To additive manufacturing

Both body and actuation are made with stainless steel, which suitable for very harsh environments. The system can also be printed as a single part, thus avoiding assembly issues or possible leaks between working sections. A wide range of optional elements are available and can be integrated within the system. Working sections are available with ON/OFF or proportional control and with parallel or series circuit.