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Pierburg

New electric throttle and control valve in plastic

Pierburg has displayed a new generation of motorized throttle valves specifically suited for use in Euro 6 vehicles. Instead of the usual aluminum alloy, the housing is manufactured from a duromer which is combined with a newly developed plastic/metal hybrid throttle valve for cost and weight savings.

The control valve in a duromer housing meets present customer demands regarding more aggressive media in the intake pipe, tighter EMC/ESD limits, as well as more frequent start/stops and higher operating temperatures.

The resistance and stability of the plastic materials selected protect the housing and throttle against ageing and wear. This allows a new, broader spectrum of critical applications possibly involving aggressive media such as exhaust gas condensates, gases, hydrocarbons and hydrogen, as well as deionized water in the intake pipe and environment.

The new housing material dispenses with the need for costly downstream treatment of the metallic surfaces or the use of quenched-and-tempered metal alloys. And since the intake pipe surface is no longer machined, there is a reduction in the accumulation of deposits such as rust particles, oil sludge or ice. In this way, there is less risk of the throttle jamming in the pipe.

Systematically refined

On the present product generation, the new throttle is again actuated by a series-proven motor coupled with a two-stage spur gear unit. The new materials and improved design of the gear wheels ensure that the throttle can cope with the tougher demands of over a million start/stop cycles even at high closing speeds. At the same time, there is a clear improvement in the number of activations at high-temperatures.

The previous generation had already featured a separate EMC module for the DC motor, and this has been adopted for the new generation as well, to allow the wide

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use of a similar DC motor that can be inexpensively modified to customer EMC specifications.

As in the previous generation, the throttle angle sensor is an integral part of the gear unit cover. A new cover geometry allows further improvement in the area of sensor attachment. Hence the sensor is now more resilient to vibration and heat effects.

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