

Press information

High-performance and cost-effective: Electronic engine sealing frame with integrated cable feed-through

Neu-Ulm, September 2013. Dana's newly developed electronic connector gasket puts the company in an ideal position to prepare for future applications that unite a wide variety of material combinations in a single sealing concept. Dana's specialized expertise in amalgamating polyamides, elastomers, and electrical components in a media-impermeable combination creates the ideal conditions for exceptionally high-performance, special-purpose frames that are cost-effective to produce.

This is the only development of its kind in Europe to date. It provides a cylinder-head seal that is thoroughly impermeable to oil at all points where cables run into and out of the engine. A cut-out provides for a protected cable feed-through from the engine management system to the interior of the cylinder head. This is how the electronic connector gasket innovatively unites the functions of sealing, electrical connections, and cable routing in a single product. Dana offers the complete solution of coordinated components under the successful brand name Victor Reinz®. The new gasket with its built-in cable feed-through is already in serial use in diesel engines.

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Figure 1: Victor Reinz Electronic Connector Gasket

An everlasting connection

The technological highlight of the electronic connector gasket is that it is first media-impermeable connection between an elastomer and a thermoplastic sealing frame made of polyamide for an optimized bond. The firmly bonded connection between the two surfaces does not require any additional primer and provides unimpaired oil resistance and impermeability. Dana procures the polyamide and the elastomer's base components for the "primerless" connection directly from thermoplastics manufacturer DuPont.



Figure 2: Primerless connection between sealing frame and elastomer

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A primer is only used to aid in the 100% jacketing of the pin pack in the area of the electrical feed-through for sealing by the elastomer. The pin pack is a prefabricated unit made up of cables, metal lattices, and crimped or welded plug connections in accordance with OEM specifications.

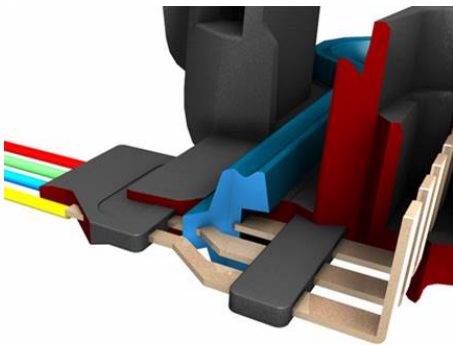


Figure 3: Detailed view of the cable feedthrough

Savings in a complete package

The electronic engine sealing frame has a compact shape with a low installation height which requires relatively little space when installed. The preassembled electrical components are another major benefit. Every cable and connection is factored into the planning and positioned specifically for each and every engine before the injection molding process is carried out. The cable guides for controlling injection valves, sensors, and actuators, etc., can be routed flexibly for each individual situation at hand. The electronic connector gasket is offered as a complete package, which significantly reduces the installation time for the customer during the final assembly. This means that it's no longer necessary to feed the cable.

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High shape retention and durability are further positive features of the engine sealing frame. It is also fully reusable in maintenance cases.

Savings on costs over the entire life cycle of the electronic connector gasket amount to up to 40 percent in comparison with conventional gaskets.

Proven under test conditions

The electronic connector gasket proved itself in a vehicle endurance test of over 240,000 km before ever being put to commercial use. It also passed all commonly used industry standard tests and surpassed their standardised values. Such tests included examinations under dynamic operating conditions, stress from internal engine heat and oil as well as thermal aging. The special rubber composition in particular yields a high level of flexibility and sealant effect under long-term temperature loads of up to 160°C with peak values of up to 190°C.

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VICTOR REINZ®

Sealing Products

About Dana Holding Corporation

Dana is a leading international supplier of drive trains, sealing systems and thermal management products. The technologies engineered by Dana enhance the efficiency and performance of passenger cars, commercial-vehicles and off-highway vehicles, utilizing both conventional and alternative drive concepts. The corporation's global network of development, manufacturing and distribution facilities offer local product and service support to OEM and aftermarket customers. With headquarters in Maumee, Ohio, the corporation employs a workforce of around 23,000 in 26 countries and achieved total sales of US\$ 7.2 billion in 2012.

Under the Victor Reinz® brand, Dana supplies, on a global scale, a full-service range of outstanding products, such as sealing, shielding and valve cover systems for the automotive industry; service parts for the open replacement parts market; gasket materials and special gaskets for industrial applications, alongside components for fuel cells.

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