

# Exhaust Gasket Sealing Solutions



**VICTOR REINZ®**

Sealing Products



## Flexible Solutions for All Engine Applications.

To maximize performance, today's engine designs are calling for reliable thermal-management systems that require innovative sealing solutions. Dana continues to reinvent its exhaust gasket designs to satisfy the requirements of today's high-performance engines.



# Exhaust Gasket Sealing Solutions

## State-of-the-Art Testing and Analysis Capabilities.

Utilizing the most advanced testing equipment and facilities, Dana engineers develop products that deliver superb performance in the most demanding environments and operating conditions. FEA has become the decisive tool to allow Dana engineers to better understand the complete interaction between the gasket and the hardware. The load distribution on the gasket must satisfy minimum sealing criteria under all operating conditions – not only at assembly loads, but also with relaxation and steady-state and transient thermal conditions. In turn, this knowledge leads to optimized designs for each individual application and gives customers the confidence that Dana designs will be “first time right.”

## Demands Placed on Sealing Systems

The automotive industry faces tremendous challenges, from increasing exhaust-gas temperatures and more stringent emissions controls to advanced hardware configurations such as sequential twin-turbo systems. Application parameters such as increased hardware temperatures and gas pressures, thermally induced stresses, uneven loading, flange distortion, and increased motion each demand innovative sealing solutions to ensure optimal performance of the thermal-management systems.

Dana engineers combine the latest in testing technology with years of design expertise to develop exhaust gasket solutions for all ranges of hot exhaust joints. With finite element analysis (FEA) tools, static and dynamic high-temperature test capabilities, and a thorough understanding of cutting-edge materials and processes, Dana engineers are uniquely positioned to deliver the optimum sealing solution for your specific need.

## Flexible Material Solutions

- Graphite-on-core
- Reinforced mica-on-core for very high-temperature operation
- Embossed metal alloys feature grades suited to different application temperatures
- Victifold™ graphite – fully encapsulated to prevent extrusion; oxidation-resistant to 800-850° C
- Graphite filled rings – flange wrapped around graphite-composite core; very high temperature resistance, 800-850° C
- High-temperature, friction-reducing coatings



### Integral Clips

Integral clips facilitate assembly and ensure stability.

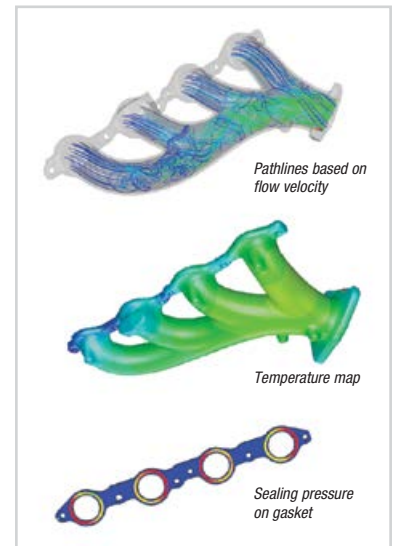


### Exhaust Gasket Manufacturing

Highly automated production lines minimize time and cost.

## Product Features

- Port-to-port expansion system with unique linkage allows system movement without damaging the gasket layers
- Wave-Stopper® technology for maximum flexibility in distributing sealing forces across the surface of the gasket
- Topographic bead design options – bead width can be varied around the gasket to provide uniform sealing stress, better control of load distribution, and improved flange distortion
- Unique retaining clips and internal tags allow gasket sub-assembly
- Integrated heat shields with gasket welded to protective shield



## Finite Element Analysis (FEA)

FEA allows us to better understand how hardware configurations affect gasket requirements. Inputs such as temperature, material properties, and applied stresses are utilized to model the resulting state of the system. Knowledge of this state can be used to enhance the design of exhaust gaskets and customize the fit for each individual application.

## Product Benefits

- Reduced emissions
- Flexible design parameters
- High-temperature performance
- Adapts to wide variety of hardware conditions

Dana engineering is setting new standards in thermal management with innovative total sealing solutions and cutting-edge technology.

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## Application Policy

Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana; contact your representative for application approval. We reserve the right to change or modify our product specifications, configurations, or dimensions at any time without notice.