



# Engineered Molded Parts



# SPECIALLY FOR YOU

## Engineered Molded Parts



Sealing in difficult design windows

Lowers total cost of production

Flexible delivery times

Optimized safety

Materials compatible with virtually all media



### Engineered Solutions for Life Sciences

Find out more about the solutions Trelleborg offers for Engineered Molded Parts and watch our film on:

[tss.trelleborg.com/films](https://tss.trelleborg.com/films)



### Uniquely yours

Trelleborg Sealing Solutions offers one of the broadest ranges of sealing elements on the market. Most of the time the tried and tested method works, but sometimes a unique application requires a unique solution.

Our specially designed sealing solutions can provide significant benefits from a cost, function, manufacturing or performance perspective, providing you with real competitive advantage.

Working with our engineering teams, Trelleborg Sealing Solutions will support you in the development of a customized engineered molded part designed to suit your individual needs. This may be a flat gasket of any dimension, a rubber-to-metal element or a seal of complex geometry that may consolidate a number of products into one.

### CASE STUDY

## Trelleborg Sealing Solutions – Design Competence Heat Exchanger

#### Requirements:

- The seal has to compensate diameter differences of 1.2 mm between plastic and metal case
- Gap on connector flange of 0.3 mm and a bent groove
- The seal has to compensate for the non-central positioning of the spiral tubes related to the flange entry holes
- Low assembly forces of the housing
- Easy assembly for all seals
- Good resistance to aggressive condensate (acid)
- Temperature -20 °C to +130 °C
- Customer provided 3D CAD files for all housings and counter parts

High efficiency or condensing boilers have a heat exchanger that uses heat in the flue gases to pre-heat water. The condensed water is drained away and much less energy is required to raise the temperature of the preheated circulating water to the desired level.



For more case studies go to [www.tss.trelleborg.com](http://www.tss.trelleborg.com)

#### Solutions using Finite Element Analysis:

**Seal 1** between spiral tubes and housing

**Seal 2** between flange connection to the housing

**Seal 3** between plastic and steel case

**Seal 4** for the tube in and the outlet

Maximum Sealing Gap

## RELATIONSHIP? Partnership!

- Knowledge networks
- More than 5,000 employees
- A strong partner
- Leading position in numerous market segments
- Training programs
- Merging of customer and Trelleborg expertise
- More than 60 years experience in sealing technology
- Maximum global synergies
- Marketing companies in more than 50 countries
- Trusted long-term partnerships
- Support of sales engineers
- Distributor network in several markets
- Online services & e-tools
- Project management
- Project teams of experts
- Focus on problem solving
- Social media



Global Network



Knowledge Transfer



Local Contact



Services & Tools



RELATIONSHIP

## MEETING YOUR SPECIFIC NEEDS

Customized engineered molded sealing components are more than just a product, they are a holistic solution. When developing a customized engineered molded part, Trelleborg Sealing Solutions is not just interested in the function it performs. In addition, we want our seal to perform that function more effectively, at a lower total cost while enhancing your manufacturing process and providing your customer with optimized performance.

## DESIGN? Innovative!

- Eight research and development centers
- CAD software: Unigraphics NX
- Drawing Interchange file format: IGES or STEP for 3D-Modelling; DXF-files for 2D-Modelling
- Finite Element Analysis (FEA) software Marc Mentat and Abaqus



Simulation



Testing



Drafts



DESIGN

## PRICE? Value!

The aim of Trelleborg Sealing Solutions is to facilitate customers in the achievement of cost-effective, durable solutions that match their specific business requirements and needs.



Parts



Molds



Service



PRICE

## MATERIAL? Customizable!

Our capability for quick failure analysis is the key to solving application problems. Trelleborg's proprietary materials offer outstanding performance on physical, chemical and thermal properties.

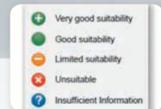
Our experts and easy-to-use online material search and chemical compatibility check tool allow customers to choose the optimum materials for an application from approximately 2,000 compounds in our global materials database. In our state-of-the-art laboratories, we are able to run a variety of tests.



Developing



Mixing



Recommendations



Testing



MATERIAL

## A Unique Mix of Values

DISPLAY MATRIX // MIX OF Values //

Relationship

Design

Price

Material

Supply Chain Management

Quality

Added Technical Value

Manufacturing



SUPPLY CHAIN MANAGEMENT



Central Warehouses



Logistics Concepts



Service



On Time Delivery

## SUPPLY CHAIN MANAGEMENT? Flexible!

We are close to our customers through one of our four logistics centers in Europe, the Americas, Japan or China, or one of our dedicated aerospace centers in the U.K. and France.

- Stock management
- Article classification
- Item level forecast
- Early warning
- Kitting
- Blister packaging

- Tube packaging
- Assembly
- Skin top packaging
- Single bag & tag

Exemplary levels of service are recognized and appreciated by customers. These include added value tailored logistics concepts such as special handling, advanced delivery programs and kitting.



QUALITY



Standards



Processes



Product Quality

## QUALITY? Guaranteed!

- Robust process landscape with clear accountabilities and deliverables through our Integrated Management System.
- Customer oriented project management to maximize customer value.
- Comprehensive understanding of applications and customer needs.
- Comprehensive product quality planning and assurance.

- Zero defect culture with world class automated visual inspection capabilities.
- Dedicated design standards
- TSS TBS-00051 as Surface Quality Standard for finished parts & related Master Inspection Plan.



ADDED TECHNICAL VALUE



Visual Detection



Low Friction



Technical Cleanliness

## ADDED TECHNICAL VALUE? Unique!

Flexcoat™ micro-thin high-performance coatings and surface modification provide the ultimate choice, maximizing friction characteristics during assembly and in dynamic applications. The three Trelleborg Sealing Solutions Flexclean™ standards for technical cleanliness aid

customers in specifying and verifying appropriate cleanliness levels for their seals. Flexcoat™ colored coatings or paint marks on seals allow for 100 percent detection in production and assembly processes.



MANUFACTURING



Mold Design



2K Parts



Rubber Seals



Rubber to Metal Seals

## MANUFACTURING? Global!

In a two-shot molding process, either two dissimilar silicones or a combination of silicone and thermoplastics are injected in two shots into a single tool using a fully automated process.

- Professional mold design for perfect flow characteristic, short production cycles and easy removal of parts.

- Latest mold technology enables tight tolerances, good surface quality, long service life and less waste.
- Highly automated molding environment to achieve best quality and maximum output.
- Production capabilities are structured in 14 different article categories.
- Support of automated assembly by form stability.

Contact your local marketing company for further information:

Europe	Telephone	Americas	Telephone
<b>Austria – Vienna</b> (Slovenia)	+43 (0) 1 406 47 33	<b>Americas Regional</b>	+1 260 749 9631
<b>Belgium – Dion-Valmont</b> (Luxembourg)	+32 (0) 10 22 57 50	<b>Brazil – São José dos Campos</b>	+55 12 3932 7600
<b>Bulgaria – Sofia</b> (Belarus, Romania, Ukraine)	+359 (0) 2 969 95 99	<b>Canada – Etobicoke, ON</b>	+1 416 213 9444
<b>Croatia – Zagreb</b> (Albania, Bosnia and Herzegovina, Macedonia, Serbia, Montenegro)	+385 (0) 1 24 56 387	<b>Canada East – Montreal, QC</b>	+1 514 284 1114
<b>Czech Republic – Rakovník</b> (Slovakia)	+420 313 529 111	<b>Canada West – Langley, BC</b>	+1 604 539 0098
<b>Denmark – Copenhagen</b>	+45 48 22 80 80	<b>Mexico – Mexico City</b>	+52 55 57 19 50 05
<b>Finland – Vantaa</b> (Estonia, Latvia)	+385 (0) 207 12 13 50	<b>USA, Great Lakes – Fort Wayne, IN</b>	+1 260 482 4050
<b>France – Maisons-Laffitte</b>	+33 (0) 1 30 86 56 00	<b>USA, Midsouth – Mt. Juliet, TN</b>	+1 615 800 8340
<b>Germany – Stuttgart</b>	+49 (0) 711 7864 0	<b>USA, Midwest – Hanover Park, IL</b>	+1 630 539 5500
<b>Greece</b>	+41 (0) 21 631 41 11	<b>USA, Northern California – Fresno, CA</b>	+1 559 449 6070
<b>Hungary – Budaörs</b>	+36 (06) 23 50 21 21	<b>USA, Northwest – Portland, OR</b>	+1 503 595 6565
<b>Italy – Livorno</b>	+39 0586 22 6111	<b>USA, Southwest – Houston, TX</b>	+1 713 461 3495
<b>The Netherlands – Barendrecht</b>	+31 (0) 10 29 22 111		
<b>Norway – Oslo</b>	+47 22 64 60 80	<b>Asia Pacific</b>	<b>Telephone</b>
<b>Poland – Warsaw</b> (Lithuania)	+48 (0) 22 863 30 11	<b>Asia Pacific Regional</b>	+65 6 577 1778
<b>Russia – Moscow</b>	+7 495 982 39 21	<b>China – Hong Kong</b>	+852 2366 9165
<b>Spain – Madrid</b> (Portugal)	+34 (0) 91 71057 30	<b>China – Shanghai</b>	+86 (0) 21 6145 1830
<b>Sweden – Jönköping</b>	+46 (0) 36 34 15 00	<b>India – Bangalore</b>	+91 (0) 80 3372 9000
<b>Switzerland – Crissier</b>	+41 (0) 21 631 41 11	<b>Japan – Tokyo</b>	+81 (0) 3 5633 8008
<b>Turkey – Istanbul</b>	+90 216 569 80 84	<b>Korea – Seoul</b>	+82 (0) 2 761 3471
<b>United Kingdom – Solihull</b> (Eire)	+44 (0) 121 744 1221	<b>Malaysia – Kuala Lumpur</b>	+60 (0) 3 9059 6388
<b>Africa Regional</b>	+41 (0) 21 631 41 11	<b>Taiwan – Taichung</b>	+886 4 2382 8886
		<b>Thailand – Bangkok</b>	+66 (0) 2732 2861
		<b>Singapore</b>	
		<b>and all other countries in Asia</b>	+65 6 577 1778
		<b>Middle East Regional</b>	+41 (0) 21 631 41 11
		(Without GCC Region)	
		<b>Middle East GCC Region</b>	+91 (0) 80 2245 5157
		(Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates)	



Trelleborg is a world leader in engineered polymer solutions that seal, damp and protect critical applications in demanding environments. Its innovative engineered solutions accelerate performance for customers in a sustainable way. The Trelleborg Group has local presence in over 40 countries around the world.