



## Simrit Product Summary Vibration Control

The information in this product catalogue is based on the experience gained in decades of research on the development and manufacture of seals and components for vibration control in the Freudenberg group. It represents the current status of our knowledge.

The sealing effect of many products in the catalogue is, however, not provided solely by the component. Indeed, in the specific application this effect depends on other parameters such as installation position and contact area, the pressure applied, operating temperature, media to be sealed, lubrication, vibration control-related effects and any ingress of dirt from the outside. This and other, unknown, factors in practical use can have a significant effect on the seals.

Against this background, general statements on the function of the products in the catalogue are not possible. Information in this catalogue only represents recommended values that are not correct in every application. We therefore recommend you to discuss your specific application with our advisory service. In cases with high or special loads, for example due to aggressive media, the seal should be selected in collaboration with us; here trials on reliability are often indispensable. In the context of product optimisation we reserve the right to change, without prior notice, the product range, production sites, products and their manufacturing process as well as the information in this catalogue.

All previous issues become invalid on publication of this issue of the catalogue.

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# Simrit, Your Technology Specialist for Seals and Vibration Control



Simmerring®



Fluid Power



Hydraulic Accumulator



O-Rings



Liquid Silicone Products



Special Sealing Products



Vibration Control

## Our unique service package sets standards in quality, functionality and cost effectiveness throughout the industry.

With its comprehensive product range and large number of services, Simrit provides a service package unique in the market for almost every application. Simrit employs its leading technological expertise so that you benefit: We analyse your entire system and fine-tune the individual components to each other in an optimum way. This means you get exactly the solution that best fulfils your requirements – cost effective and dependable. Reinforced by single sourcing, saving time and cost, you will find that Simrit is your ideal partner for all sealing- and vibration-related applications when it comes to complex systems.

We have been the leading experts in materials for decades, and this is a significant factor for success, exceptional performance and continuous technological advancement of our products. Famous product names such as Simmerring®, Fluid

Power, Hydraulic Accumulator, O-Rings or Liquid Silicone Products underpin this. Together with the fields of Special Sealing Products and Vibration Control, they are intrinsically connected with the Simrit brand name and constitute the world's largest product range for all applications throughout industry.

As part of the Freudenberg Group, we draw upon established research, development and production expertise within the Group to continuously extend our technological lead through innovative solutions for the purposes of – and in the service of – our global customers with their local market requirements. The close international cooperation of Simrit in Europe and America with our Japanese partner, NOK, in Asia provides you with consistent quality standards wherever our solutions are required. With Simrit Service Centres in all industrial markets, our global sales network supports you and more than 100,000 other customers dependably and on a basis of mutual trust and cooperation at sites on every continent.

## The Simrit service package at a glance:

- **World's largest product range**  
Comprehensive solutions from a single source
- **Continuous innovations**  
Technological prominence for the competitive advantage of our customers
- **Unique expertise in materials and high quality standards**  
Leading know-how for safe and cost-effective applications
- **A huge number of integrated services**  
Support from development to continuous product deployment
- **Globality**  
Global expertise with the knowledge of local market requirements



## Elastomers with excellent characteristics – the Basis of innovative solutions

### **Thorough know-how about materials for more than 60 years**

Simrit has now been developing innovative branded products at the highest level for more than 60 years. With in-depth experience on materials, well-founded knowledge of processing and extensive product know-how, again and again we create ideal pre-conditions for your success. However, the quality of the elastomer material is decisive for the optimum operation of seals and components used in vibration control. Therefore, we are particularly proud of our pioneering role worldwide in this sector.

### **Deliberately targeted development of materials guarantees the highest possible quality and long life**

More than 500 engineers and chemists worldwide are developing new materials every day for the highest possible functional requirements in joint development ventures with various research institutions plus leading manufacturers of polymers and chemicals. The materials we develop must fulfil the respective customer-specific requirements and withstand all the loadings feasible in their branch of industry – both with regard to temperature, pressure and resistance to media and in the presence of static or dynamic loadings.

The length of life of our products is constantly being improved by optimising our materials. Constant monitoring on the road to these products becoming mass production materials also guarantees you the highest possible quality.



The individual materials we have developed  
are leaders worldwide

#### **Uniquely wide range of standard materials**

We produce more than a billion seals annually from a production volume of more than 15,000 tons. When considered as a whole, a range of material, which is unique in its quality and quantity, is available to you with more than 1,700 mixtures of 850 raw materials for your individual applications in seals and vibration control. A large proportion of these are standardised mixtures. Of course, our competent team of experts will advise and assist you fully – from the selection of the right materials via the test phase to the start of production.

#### **Comprehensive performance package and much more**

Materials manufactured individually to your wishes and requirements are unusually important in the comprehensive performance package from Simrit. The use of polymers, based on our own raw materials and tailored to your requirements, enables Simrit to develop high performance materials which satisfy the highest functional demands. We use our global materials database for the selection of application-specific materials, which groups together the know-how of our experts, working worldwide, to form a network of top technological services which we can call on at any time.

Finally, the appropriate material with the optimum characteristics for your application is manufactured using computer-controlled procedures, from the selection of the raw material to the compounding process. Of course, always adhering to the highest standards in quality and processing and complying with ecological guidelines – in the interests of your success and the environment.

# Vibration Control

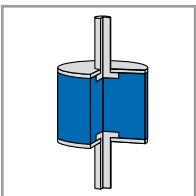
## Standard product range



### Ultra Bush

Ultra bushings can be used as maintenance-free joints to dampen or insulate radial and axial vibrations and to balance torsional and cardanic displacements.

<b>T</b>	-45 ... +80 °C
<b>Radial: <math>F_{r \max}</math></b>	350 ... 460000 N
<b>Radial: <math>s_{r \max}</math></b>	0,2 ... 2,9 mm
<b>Available materials</b>	AEM 23, AEM 33, NBR 68, NR 11, NR 39, NR 91, NR 97
<b>Application</b>	Shafts, Axles, Couplings



### Circular Mount

Round mounts are common construction elements for balancing stress and manufacturing tolerances. They act as shock-absorbers. Round mounts with waisted rubber contour reduce high edge loading on the rubber in radial deflection, thus increasing the lifespan of the component. Simple round mounts with a cylindrical contour are also available.

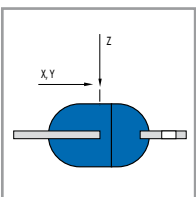
<b>T</b>	-45 ... +80 °C
<b>Radial: <math>F_{r \max}</math></b>	14 ... 24000 N
<b>Radial: <math>s_{r \max}</math></b>	0,6 ... 36 mm
<b>Available materials</b>	AEM 23, AEM 33, CR 56, CR 57, NR 11
<b>Application</b>	Units in general industry, Compressors, Motors, Pumps



### Spherical Mount

These spherical bushings can balance axial, radial, and torsional motion as well as cardanic deflections. They are thus an ideal vibration-damping component for maintenance-free joints which are torsionally stressed on all sides.

<b>T</b>	-45 ... +80 °C
<b>Radial: <math>F_{r \max}</math></b>	1200 ... 46000 N
<b>Radial: <math>s_{r \max}</math></b>	0,3 ... 0,8 mm
<b>Available materials</b>	NR 11, NR 13
<b>Application</b>	General industry, Commercial vehicles

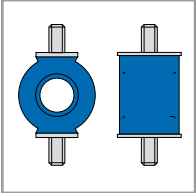


### Instrument Mount

The mounts protect sensitive instruments against impact and dynamic excitation.

<b>T</b>	-45 ... +80 °C
<b>Pressure: <math>F_{z \max}</math></b>	80 ... 260 N
<b>Pressure: <math>s_{z \max}</math></b>	0,5 ... 2 mm
<b>Available materials</b>	NR 11
<b>Application</b>	Electronic components, Instrument and apparatus construction

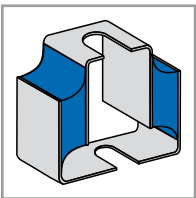
## Standard product range



### O-Shaped Mount

Also known as low-frequency mounts because of their relatively soft spring characteristics, O-shaped mounts serve as low-shock mounts for instruments, electrical or electronic components, and for fastening light assemblies and precision machinery.

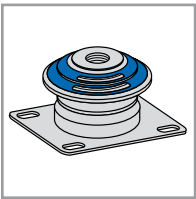
<b>T</b>	-45 ... +80 °C
<b>Pressure: <math>F_z</math> max</b>	20 ... 215 N
<b>Pressure: <math>s_z</math> max</b>	4 ... 12 mm
<b>Available materials</b>	EPDM 22, NBR 68, NR 11
<b>Application</b>	Instrument and apparatus construction



### Double U-Shear Mount

The mounts are especially suited for insulation. Thanks to their differing stiffness in three load directions, they can be aligned to the forces emitted by the assembly.

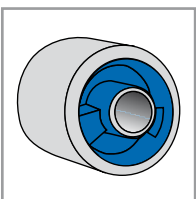
<b>T</b>	-45 ... +80 °C
<b>Shear: <math>F_z</math> max</b>	120 ... 2000 N
<b>Shear: <math>s_z</math> max</b>	2,8 ... 7 mm
<b>Available materials</b>	NR 11



### Conical Mount

Conical mounts damp vertical vibrations, isolate against structure-borne noise and can simultaneously accept large horizontal forces (e.g. deceleration forces under braking). Conical mounts are delivered without washers as standard. The suitable washers and stops can be found in the section on Washers and Centering Washers as well as in Rubberised Stop Washers.

<b>T</b>	-45 ... +80 °C
<b>Axial: <math>F_z</math> max</b>	550 ... 40800 N
<b>Axial: <math>s_z</math> max</b>	2 ... 11 mm
<b>Available materials</b>	AEM 33, NBR 68, NR 11, NR 39
<b>Application</b>	Units in general industry, Motors, Ship building

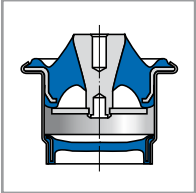


### Hydro Bushes

Hydro bushings are elastomer springs with integrated hydraulic damping. They are especially suitable in mounting systems where low frequencies appear as excitation frequencies.

<b>T</b>	-45 ... +80 °C
<b><math>F_z</math> max</b>	1100 ... 4200 N
<b><math>s_z</math> max</b>	5 ... 5 mm
<b>Available materials</b>	NR 11
<b>Application</b>	Vehicle cabs, Compressors, Agricultural and construction machinery, Motors, Pumps

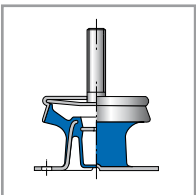
## Standard product range



### Hydro Mount VL

The mount design, the chosen fluid and the hydraulic mechanism provide the characteristic wide-band damping. In cases with remote excitation frequencies in the lower frequency range, the use of this hydro mount permits an optimal mounting. By precise reduction of the fluid chamber stiffness of one of the chambers, a significantly improved compromise of effective vibration reduction and structure-borne sound isolation is achieved as opposed to the hydro mounts without this design.

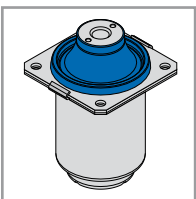
<b>T</b>	-45 ... +80 °C
<b>Axial: <math>F_{z \max}</math></b>	2100 ... 8800 N
<b>Axial: <math>s_{z \max}</math></b>	10 ... 10 mm
<b>Available materials</b>	NR 11
<b>Application</b>	Vehicle cabs, Agricultural and construction machinery, Motors



### Hydro Mount DL

The hydro mount, as a hydraulically damping rubber mount, solved the designer's conflict of how to mount a mass that is excited by wide frequency spectrum. Particularly if low frequencies – between 5 Hz and 15 Hz – can occur as the excitation frequency, on the one hand high damping in the natural frequency range of the system, and on the other, a good isolation property above this natural frequency (supercritical mounting) is necessary.

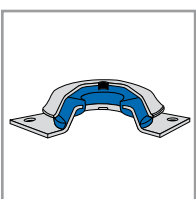
<b>T</b>	-45 ... +80 °C
<b>Axial: <math>F_{z \max}</math></b>	700 ... 1700 N
<b>Axial: <math>s_{z \max}</math></b>	5 ... 5,6 mm
<b>Available materials</b>	NR 11
<b>Application</b>	Vehicle cabs, Motors, Commercial vehicles, Pumps, Ship building



### Hydro Mount KL

The new Hydro Mount KL is ideally suited for mounting systems with the highest comfort and acoustic demands. The mount configuration can be individually adjusted to suit the specific customer application.

<b>T</b>	-45 ... +80 °C
<b>Available materials</b>	NR 11
<b>Application</b>	Vehicle cabs, Agricultural and construction machinery, Motors

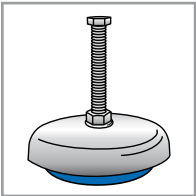


### V Mount

V mounts are ideal for a multiplicity of applications in vibration control and structure-borne sound insulation.

<b>T</b>	-45 ... +80 °C
<b>Axial: <math>F_{z \max}</math></b>	500 ... 32000 N
<b>Axial: <math>s_{z \max}</math></b>	5 ... 5 mm
<b>Available materials</b>	NR 11
<b>Application</b>	Compressors, Motors, Machine tools, Pumps

## Standard product range



### M Mount

M mounts combine a low-line compact design with good insulation capabilities and the possibility of levelling load.

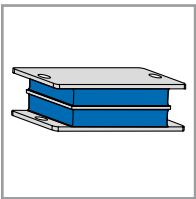
<b>T</b>	-20 ... +110 °C
<b>Pressure: <math>F_z</math> max</b>	1200 ... 55000 N
<b>Pressure: <math>s_z</math> max</b>	3,5 ... 4 mm
<b>Available materials</b>	NBR 68
<b>Application</b>	Heavy machinery manufacture



### Machine Mount

The special shape of the machine mount protects the built-in flat mount against mechanical damage and oil attack.

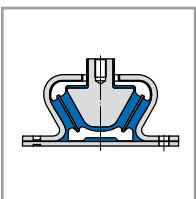
<b>T</b>	-45 ... +80 °C
<b><math>F_z</math> max</b>	1400 ... 16000 N
<b><math>s_z</math> max</b>	5,8 ... 11 mm
<b>Available materials</b>	NR 11
<b>Application</b>	Heavy machinery manufacture



### Flat Mount

These mounting elements are suitable for custom applications. Depending on the mounting orientation and desired vibration insulation, they can be pressurised, sheared, or both.

<b>T</b>	-45 ... +80 °C
<b>Pressure: <math>F_z</math> max</b>	1200 ... 98000 N
<b>Pressure: <math>s_z</math> max</b>	2 ... 3,5 mm
<b>Available materials</b>	NR 11
<b>Application</b>	Machine and vehicle manufacturing, Motors

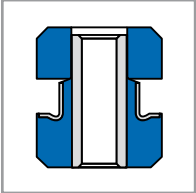


### Tapered Mount

Tapered mounts are suitable for light, medium, and heavy engines in mobile and stationary applications. The high temperature-resistant natural rubber mixture is also stable under extreme temperature loads.

<b>T</b>	-45 ... +100 °C
<b><math>F_z</math> max</b>	1750 ... 14000 N
<b><math>s_z</math> max</b>	5 ... 5 mm
<b>Available materials</b>	NR 39
<b>Application</b>	Agricultural and construction machinery, Ship building

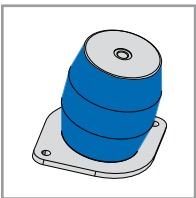
## Standard product range



### MO Mount

MO bearings consist of a rubber part and a rubber-metal part. They are suitable for use as elastic connecting elements.

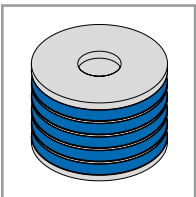
<b>T</b>	-30 ... +130 °C
<b>F<sub>z max</sub></b>	420 ... 5700 N
<b>s<sub>z max</sub></b>	1,55 ... 3,7 mm
<b>Available materials</b>	CR 57
<b>Application</b>	Vehicle cabs, Machine and vehicle manufacturing



### Spherical Roller Bearing

Spherical roller bearings are ideal for their vertical loading and insulation against low-amplitude vibrations.

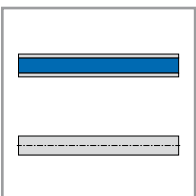
<b>T</b>	-45 ... +80 °C
<b>Pressure: F<sub>z max</sub></b>	9000 ... 20000 N
<b>Pressure: s<sub>z max</sub></b>	50 ... 50 mm
<b>Available materials</b>	NR 11
<b>Application</b>	Units in general industry, Compressors, Motors, Heavy measurement and control systems



### Layered Springs

Layered springs are specifically used for the decoupling of horizontal vibrations. These mounts remain very stiff at the same time.

<b>T</b>	-45 ... +100 °C
<b>Pressure: F<sub>a max</sub></b>	29000 ... 800000 N
<b>Pressure: s<sub>a max</sub></b>	2,5 ... 9 mm
<b>Available materials</b>	CR 57, NR 11, NR 39, NR 97
<b>Application</b>	Motor and transmission applications

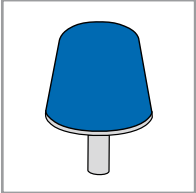


### Rails

Rails are often used when space is at a premium or if loads are too high to permit the use of buffers.

<b>L</b>	2000 ... 2000 mm
<b>D</b>	25 ... 150 mm
<b>H</b>	30 ... 80 mm
<b>Available materials</b>	NR
<b>Application</b>	Construction machinery, Foundations, Ship building, Heavy machinery manufacture

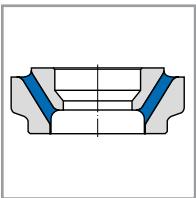
## Standard product range



### Buffer

Buffers feature a very robust design. The wide selection of sizes allows for a universal use.

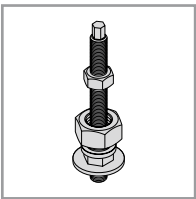
<b>T</b>	-45 ... +80 °C
<b>Pressure: <math>F_{D \max}</math></b>	90 ... 10000 N
<b>Pressure: <math>s_{D \max}</math></b>	1,5 ... 20 mm
<b>Available materials</b>	NR 11
<b>Application</b>	Units in general industry, Machine and vehicle manufacturing, Path limitation and impact damping



### Top Mount

Top mounts can permit radial, axial and angular movements.

<b>T</b>	-45 ... +80 °C
<b>Radial: <math>F_r \max</math></b>	10500 ... 25300 N
<b>Radial: <math>s_r \max</math></b>	2,3 ... 2,3 mm
<b>Available materials</b>	NR 11
<b>Application</b>	Motor and transmission applications



### Height Adjustments, Washers, centering Washers and rubberised Washers

These are additional components for height adjustment or as stop elements. They effectively restrict load movements in moving and stationary units, machines and stops.

<b>Available materials</b>	NBR 68, NR 11, Steel
<b>Application</b>	Stop element, Engine and transmission applications

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