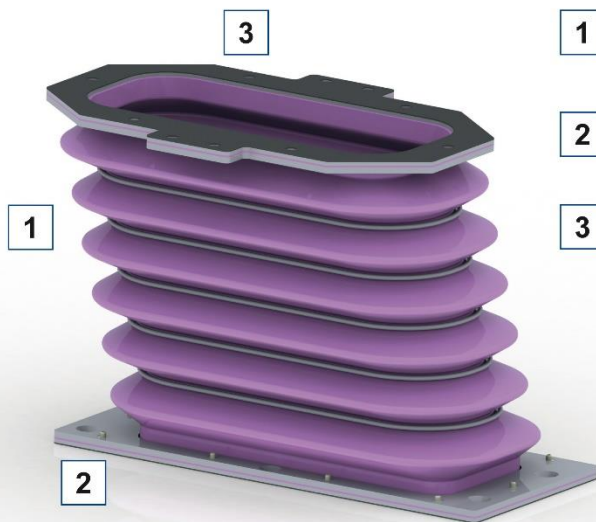


PRODUCT INFORMATION

Traction motor boots for rail vehicles



HIGHLIGHTS



- 1** Specific fold geometry, tailored to the movement profile
- 2** Individual mounting and installation systems
- 3** Ultra durable and field-proven

DESCRIPTION OF THE TECHNOLOGY

Traction motor boots are customised products that adapt to the individual movement profile of the particular vehicle. The connections are designed according to the installation situation on the wagon body or the bogie. The connections (flanges) of the folding bellows have circumferential sealing surfaces. Vulcanised flanges attached to the folding bellows ensure a self-sealing connection. The design of the bellow is customised and developed based on the assembly dimensions and movement requirements. Furthermore, the required air flow and pressure loss are taken into account during the design phase of the product. The defined geometries are moulded on specially designed tools and tested as required. Moreover, the folding bellows can be stabilised with wire rings if necessary according to the operating requirements.

TECHNICAL DATA AND PRODUCT DESIGN

Customised fold geometry

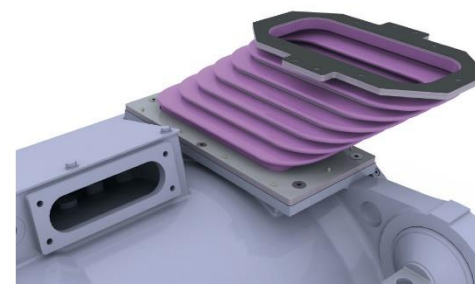
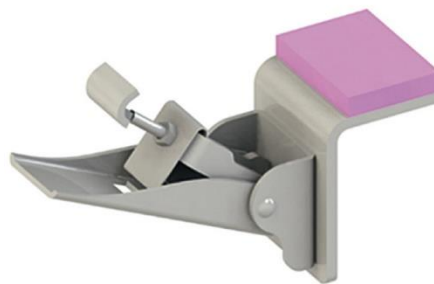
- Optimal movement performance even at extreme deflection
- Individual product geometry, tailored to the movement profile of the vehicle
- Application specific stability improvement via wire rings
- Collision protection against wearing of the bellow at unavoidable counter contours

Individual mounting and installation systems

- Specific mounting systems for various installation requirements available
- Individual design according to customer requirements
- Special solutions such as self-centric, mounting free and sealing system upon request
- System integration into existing applications possible (upgrade)

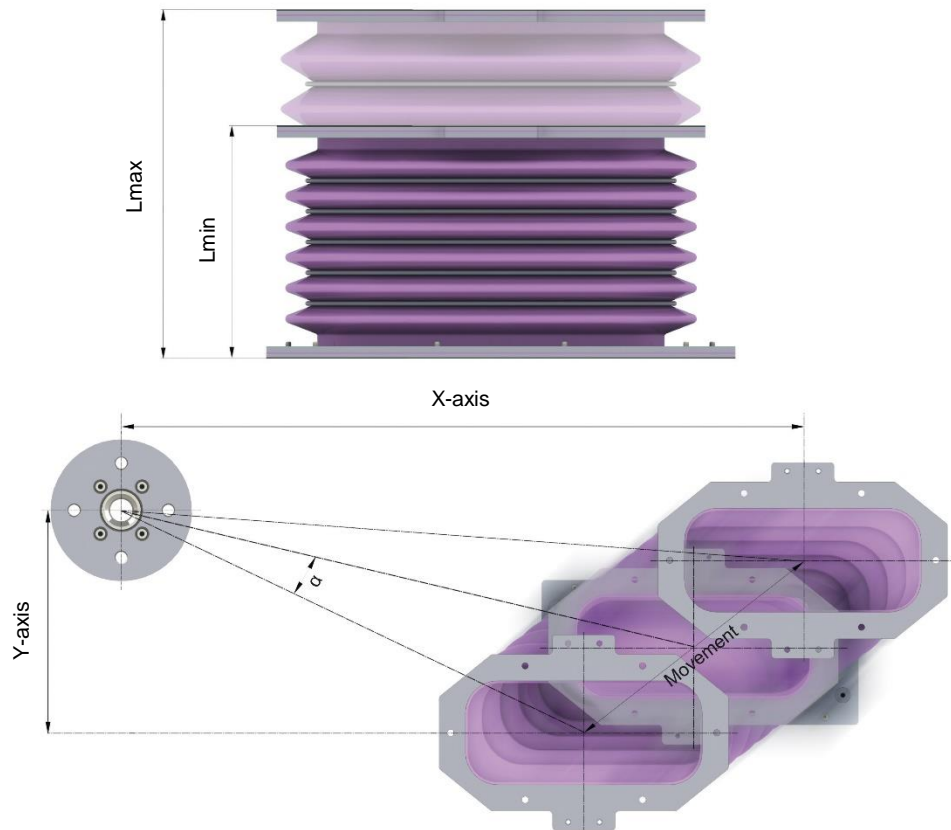
Durable through material and product setup

- Specially developed, robust silicon-aramid fabric
- Certification according to national and international fire and smoke protection norms for railway bellows
- Optimised abrasion-resistance for railway industry
- High resistance against environmental conditions and stress



PRODUCT QUALIFICATION

The maximum stipulated movement of a bellow for a new project is simulated with testing facilities. The long-term durability of the traction motor boot can be tested before the start of serial production by calculation in testing facilities with pre-defined movement matrix over a defined period of time. Thereby the wear behaviour with various installation lengths and deformation sequences can be tested as well.



NORMS AND PARAMETERS

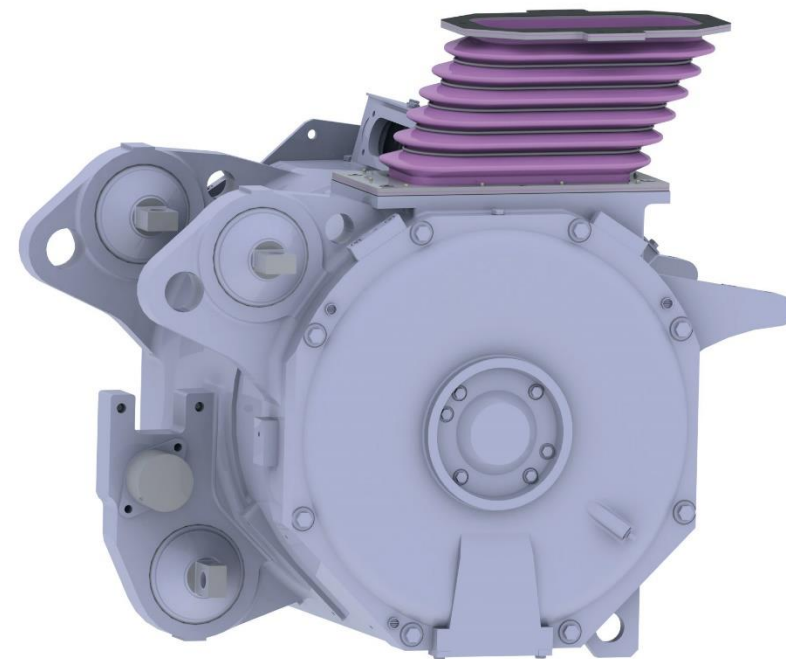
Fire protection classifications

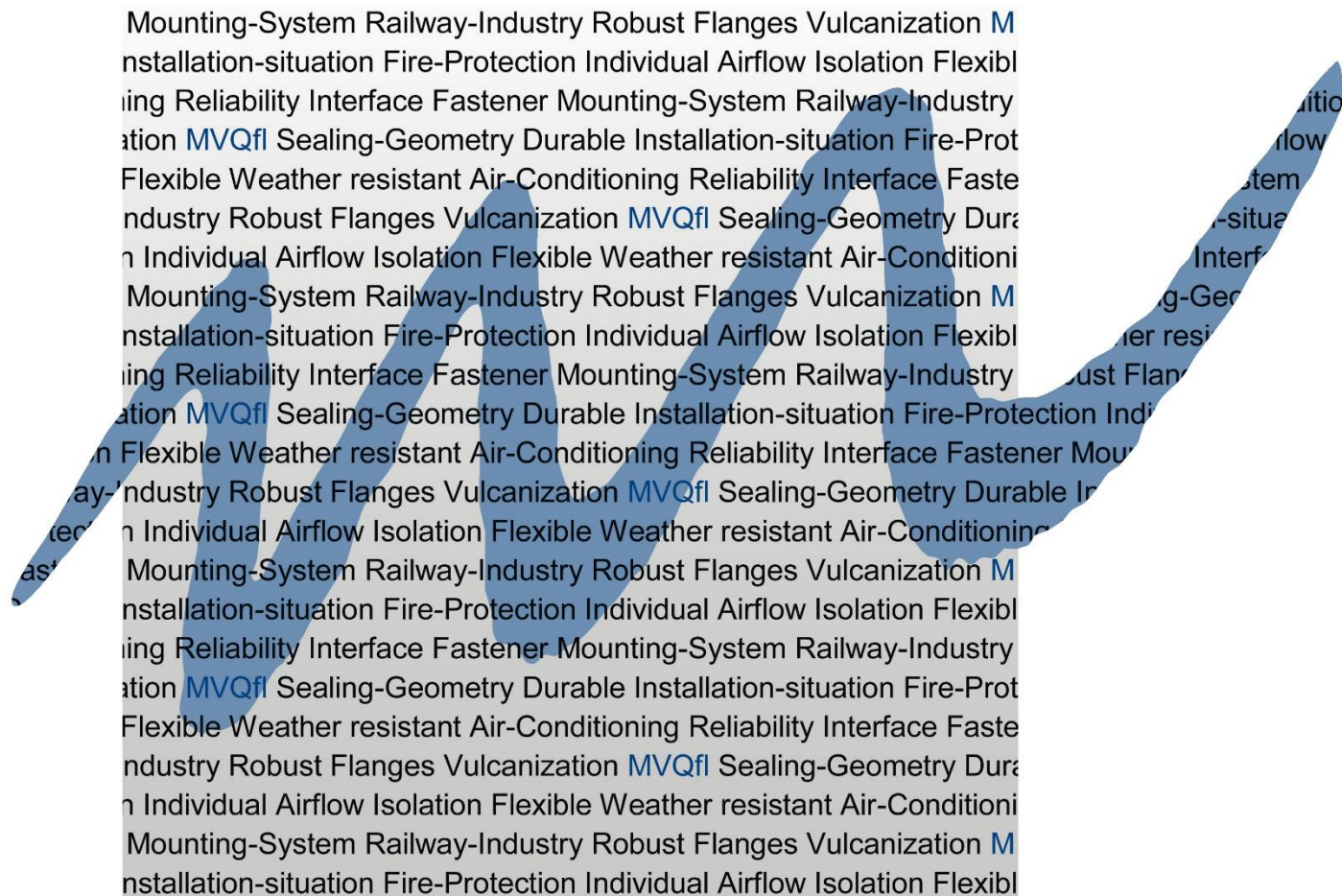
- DIN EN 45545-2
- NF F 16-101
- DIN 5510-2
- NFPA 130
- GOST 12.1.04-89

Resistance

- Cold resistance - 50 °C
- Cold crack temperature - 60 °C
- Max. thermal stability + 180 °C

PRODUCT EXAMPLE





TRACTION MOTOR BOOTS