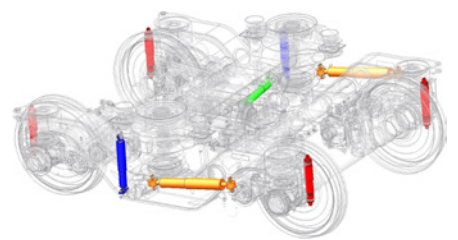


SHOCKEASE

Shock Absorbers

The hydraulic shock absorbers (dampers) **ShockEase** offered by Knorr-Bremse are suitable for a wide range of applications. Their robust design ensures that they are suitable for harsh environmental conditions and usage. The application is suitable for mounting conditions from vertical to horizontal. The damping forces and mountings are customizable to meet the requirements. The dampers are available in a damping force range from 1 kN @ 0.3 m/sec velocity to 25 kN @ 0.01 m/sec velocity.



Customer benefits

- Proven track record
- Worldwide pre-sales and after-sales support
- 1-to-1 replacement for all running applications and sizes available
- Stable damping characteristics even at high velocities
- Customizable for harsh environmental conditions
- Proven designs up to 50 g vibration level
- Long service life, no routine maintenance required
- Both serviceable and non-serviceable variants available
- Easy overhaul



Applications


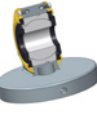



- Coaches
- Locomotives – electric and diesel
- Suburban multiple units, e.g. EMUs, DMUs, metros, light rail vehicles
- Special-purpose wagons
- Special-purpose vehicles, e.g. cranes, maintenance machinery



KNORR-BREMSE

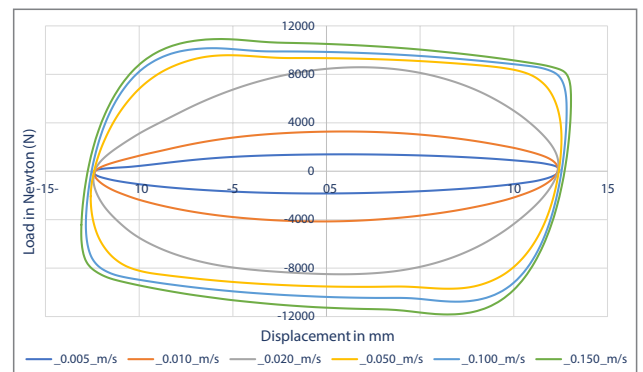
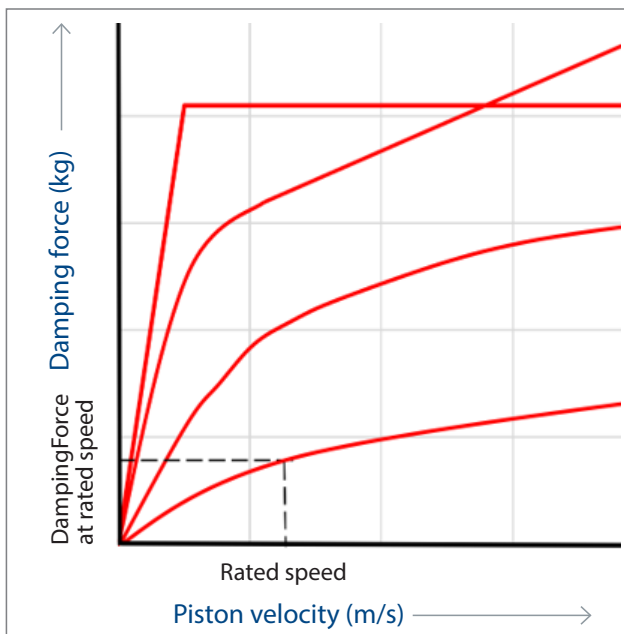


Overview

TYPE	FIELD OF APPLICATION	DESIGN SERIES P ROD/CYL/BODY/ DUST COVER	ATTACHMENT	DAMPING FORCE
SDLL	Primary and secondary Anti-Yaw	i) 22/50/72/82 ii) 28/50/89/100		up to 15 kN
SDL	Primary and secondary Vertical and horizontal	i) 28/40/75/82		up to 10 kN
SDS	Primary and secondary Vertical and horizontal	i) 36/51/100/108 ii) 36/51/89/102 iii) 45/64/108/121		up to 15 kN
SDY	Anti-yaw	i) 36/51/100/108 ii) 45/64/108/121		up to 25 kN
SDLK	Inter-car damper for light rail vehicles	i) 28/40/75/82 ii) 36/51/89/102		up to 10 kN



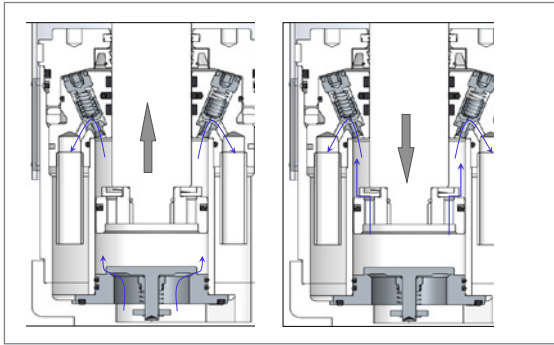
Customized Performance Curves



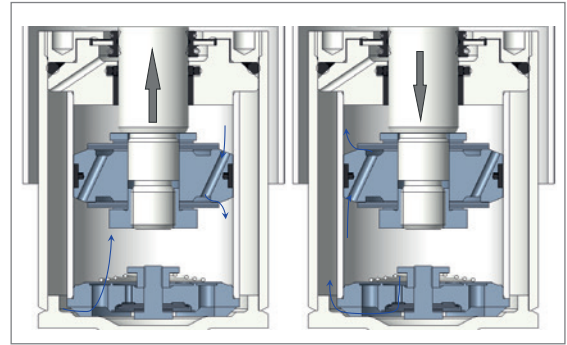


Working Principle

SDL, SDS, SDY & SDLK UNI-DIRECTIONAL



SDLL BI-DIRECTIONAL



Performance cum Endurance Testing



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