

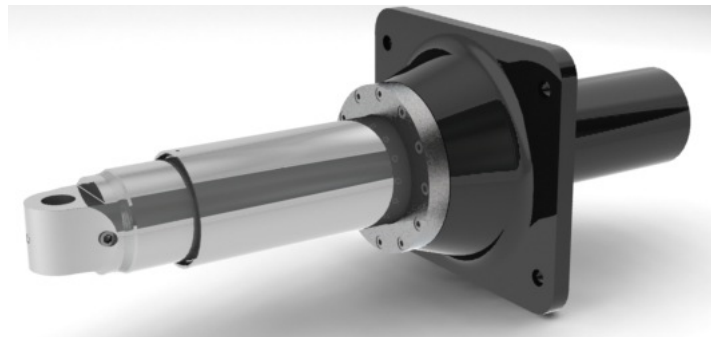


HYDRAULIC AND MECHANICAL BUFFERS

The buffer will be used for controlling the impact energy dissipation, which is essential to minimize damage to rolling stock. The buffer will dissipate the impact energy during its working stroke.

Dellner Dampers AB has developed buffers which can be used by controlling the impact energy. The buffers are available in different force levels and can be designed with different dimensions according to the specification of the customer.

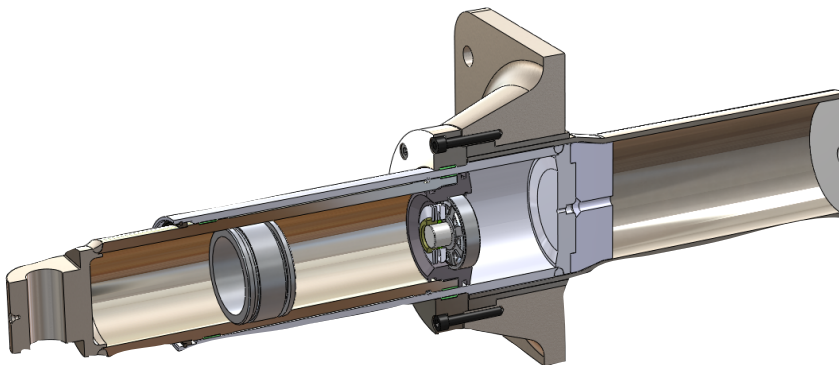
The novel modular design provides extraordinary energy absorption. A compact design allows for maximum stroke length for the given built in dimension, thereby reducing forces to meet the required energy absorption.



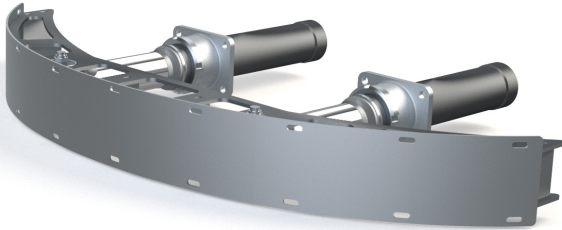
DELLNER DAMPERS HAS DEVELOPED

- Hydraulic buffers (up to 1500 kN)
- Hydraulic/mechanical (with deformation tube) buffers, also possible with a 2 stage characteristics.
- Mechanical buffer (complete deformation tubes).

CROSS SECTION OF SIDE IMPACT BUFFER

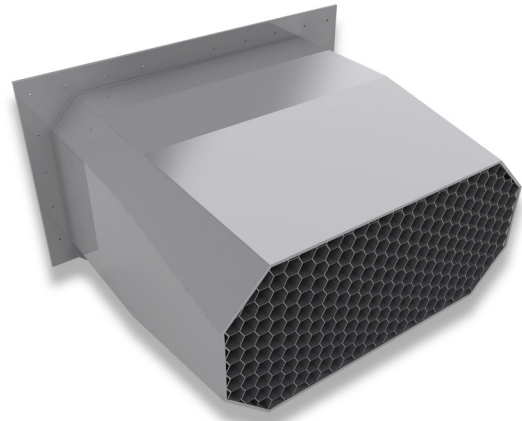


LRV SIDE BUFFER



- Gas hydraulic buffer in combination with deformation tube
- 250 kN – 400 kN
- Assembly with front bumper

LRV CRASH BUFFER



- Honeycomb design
- 100 – 200 kN
- Short built in length
- Vertical load 50 kN
- Optional with anti-climber plate

FORCE VS STROKE DIAGRAMS (EXAMPLE)

The interaction between the different elements in each crash scenario results in the different Force vs Stroke characteristics.

