

WILLBRANDT Rubber Compensators Tie Bars / Restraints

Under pressure, rubber compensators develop a reaction force in positive axial direction (effective surface x working pressure) which for unrestrained compensators - Design A - must be absorbed by the nearest anchor points or roller bearings. When used for the absorption of vibrations, lateral and angular expansion as well as noise, it is possible by the arrangement of restraints to create a controlled installation situation (controlled expansion absorption, see installation information).

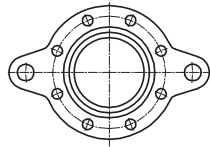
Our B-M limiter types can be used for all types (except H - only for type 49).

The diagrams show the various types.

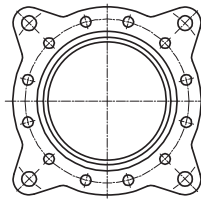


Example of the application of a flange design as a universal joint DN 300 (design G)

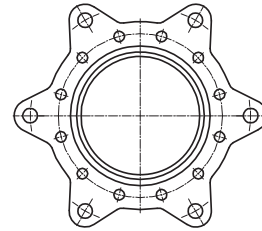
Flange shapes for tie bars as per designs B-E (10 bar)



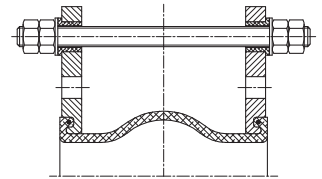
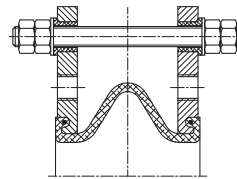
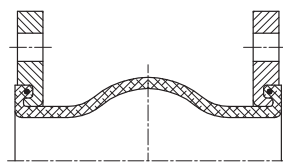
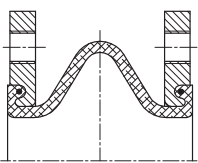
DN 25 - 200



DN 250 - 900 (1000)



DN 1000

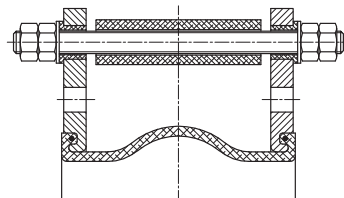
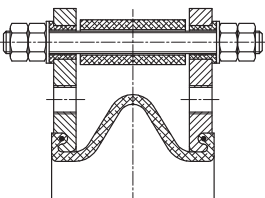


Design A

Rubber compensator without restraint with swivel flanges, suitable for all-round movement absorption.

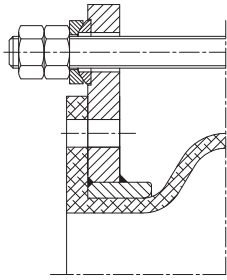
Design B

Rubber compensator with tie bar for the absorption of reaction force. Tie-rods fitted in rubber bushes. Suitable for absorbing noise, vibrations and lateral (radial) movement (+/-10 / - 15 mm).



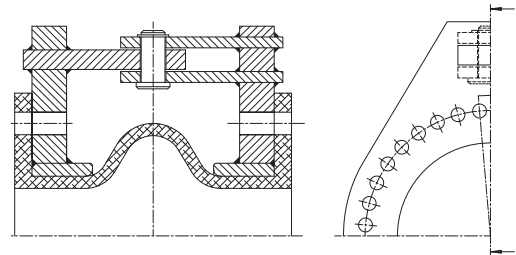
Design C

Rubber compensator with tie bar for absorption of reaction force. Tie-rods fitted in rubber bushes including thrust limiters for bellow retention. Suitable for absorbing noise, vibrations and lateral (radial) movement (+/-10 / - 15 mm).



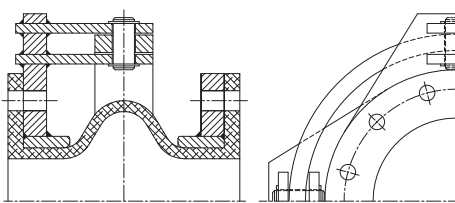
Design E

Rubber compensator with tie bar for absorbing the reaction force. Tie-rods are fitted with c-shaped washer and ball disc. Suitable for lateral movement (radial).



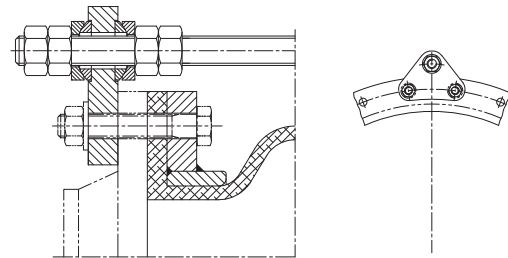
Design F

Rubber compensator with hinged arrangement for absorbing the reaction force. Suitable for angular movement in one plane; two hinged compensators with an intermediate pipe can absorb very large lateral movements (see installation examples).



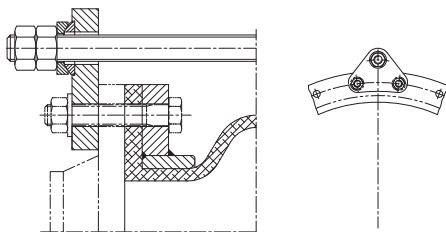
Design G

Rubber compensator with universal restraint for absorbing the reaction force. Suitable for absorbing angular movement in a circular plane. Three universal joints in an angular arrangement can absorb very large axial and lateral movement (see installation examples).



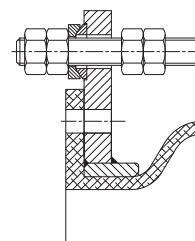
Design L

Rubber compensators with segment restraint supported in spherical discs/conical sockets for absorbing thrust and tensile forces. Suitable for absorbing lateral movement in pressurised and vacuum applications.



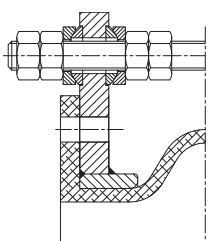
Design K

Rubber compensator with external tie bars fitted with c-shaped washer for absorbing the reaction forces. Suitable for absorbing large lateral (radial) expansion.



Design H

Rubber compensator with external tie-rod restraint for absorbing the reaction force. External tie-rods are supported in spherical discs and ball cups with internal hexagon nuts for thrust limitation.



Design M

Rubber compensator with internal restraint and tie rods supported in spherical discs/conical sockets for absorbing thrust and tensile forces. Suitable for absorbing lateral movement in pressurised and vacuum applications.

Note:

In normal cases, the design of the restraints is based on the reaction/friction force. Please contact us should additional pipe forces need to be absorbed!