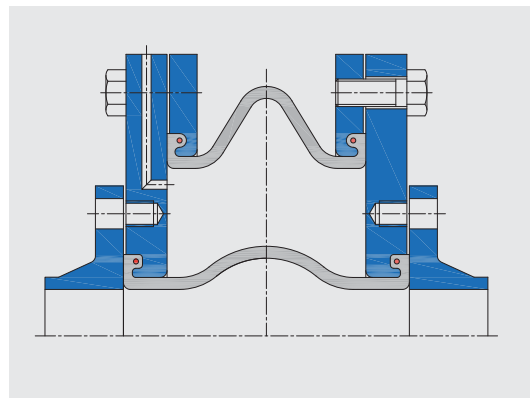


WILLBRANDT Special Designs

Safety expansion joint

Safety expansion joints are used wherever very aggressive media are transported and human lives or production plants are in danger if the expansion joint fails. A safety expansion joint comprises two pressure-resistant expansion joints selected according to the medium. The bellows are mounted so that there is a sealed intermediate space that can be monitored by manometer, pressure gauges or pressure sensor. This expansion joint can be produced with or without length limiters and for axial, lateral or angular movement absorption.

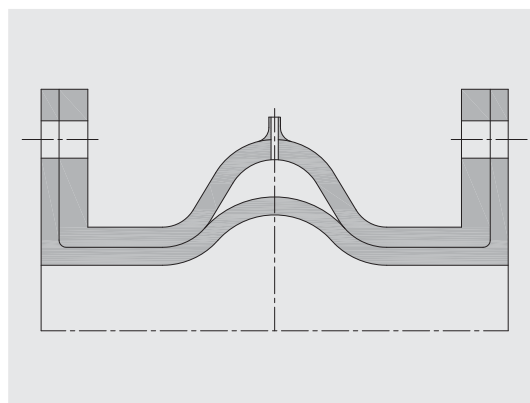
Both expansion joints are designed for full operating pressure. If the inner expansion joint is damaged, the outer expansion joint cover is still fully operational.



Safety bellow

Rubber expansion joints with a safety bellow are used wherever very aggressive media are transported and human lives or production plants are in danger if the expansion joint fails.

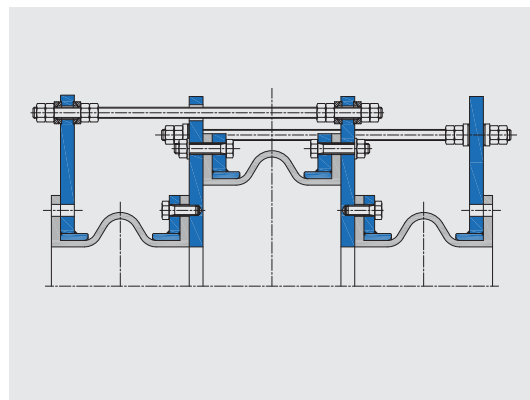
The safety bellow is a two-stage bellow with an intermediate layer and an outlet integrated into the external bellow. This outlet can be fitted with a probe, pressure gauge or drainage point so that the appropriate alarm can be sounded in the event of wear to the inner layer.



Axial balanced expansion joint

The axial balanced rubber expansion joint is used if axial movement occurs in the pipe system and cannot be absorbed by fixed points, e.g. turbine nozzle, pump housing and container nozzles.

The principle of this expansion joint is to neutralise any reaction expansion forces that occur as a result of the two small work expansion joints (DN pipes) using a expansion joint that is twice as large. This means it is only necessary to take account into the axial stiffness rate when the nozzles are loaded.



Pressure-balanced expansion joint

This expansion joint is used wherever there is axial movement but high loading is not permitted on the nozzles, e.g. nozzles for turbines or containers, which are very sensitive to axial shear forces.

The function of the pressure-balanced expansion joint is to deflect the medium at a 90° angle between the bellows, while a expansion joint with a blind flange absorbs the reaction force of the expansion joint that absorbs the movement.

The connecting rod between the two expansion joints should be regarded as a cardan cage that absorbs the reaction force. The stiffness rates from axial and lateral movement will continue to be transmitted to the fixed points or nozzles.

