INSTALLATION INSTRUCTIONS
PROSPERO EXPANSION JOINTS

General

These instructions refer to the installation of standard expansion joints. For special joints particular instructions are needed. In case of doubt, please contact Prospero Oy. Instruction for bellows element joining on page 4.

Before Installation

Inspect the expansion joint for transport damages. Especially in the bellows part of the joint any damage may shorten the service life and reduce the pressure resistance of the joint.

Inspect the bellows corrugations, inside and outside, for foreign matter.

The bellows part must be protected against welding spatter with a nonconductive, heat-resistant cover.

Take care that the welding cables or electrode do not touch the bellows part. An arc or short circuit would destroy the bellows.

Do not start the installation of the joint before all work on the piping is completed and all anchors and guides are mounted. An expansion joint cannot serve as a pipe guide or any kind of support.

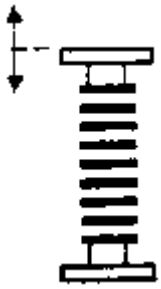
The expansion joint must not be subjected to torsion through piping stresses, neither during installation nor in operation.

During Installation

The bellows must be protected against mechanical stresses like hard knocks etc. Never let an expansion joint drop.

Lifting belts or chains must not be fixed to the bellows part.

Movements

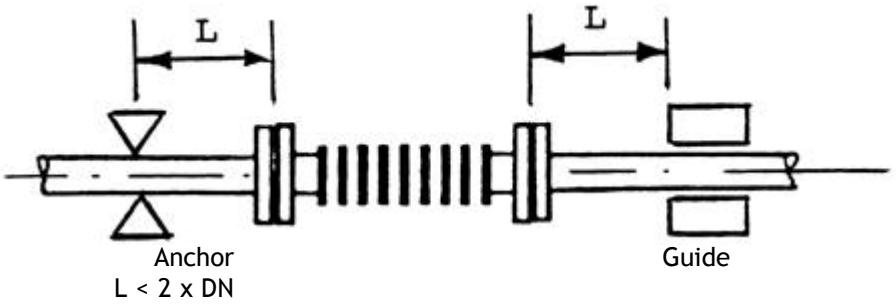


Axial Movement

Angular Movement

Lateral Movement

Compensation of Axial Movement



Pipe supports and guides are to be fitted in suitable intervals in such a way that the moving pipe sections are in line.

The pipe is to be provided with anchors that absorb at least the forces produced by test pressure. The axial pressure thrust consists of the reacting force of the expansion joint produced by pressure, the spring force, and, the friction produced in the pipe guides.

Only one expansion joint can be installed between two anchors. When several expansion joints are needed, the straight section must be subdivided by intermediate anchors.

A protective or guide sleeve of an expansion joint does not replace pipe guides or supports.

Correct presetting must be ensured, taking into account the installation temperature.

Angular and Lateral Movements

The pipe is to be provided with anchors that absorb at least the forces produced by test pressure.

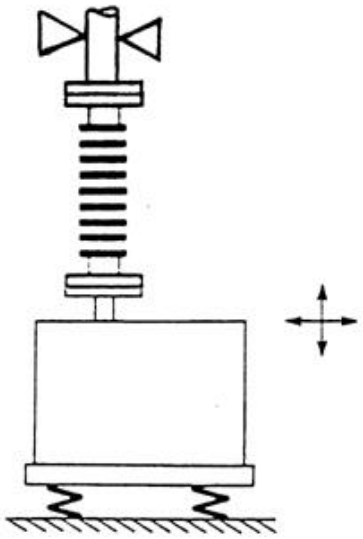
Only one expansion joint can be installed between two anchors. When several expansion joints are needed, the straight section must be subdivided by intermediate anchors.

The angular rotation or lateral deflection as well as maximum pressure stress must be cleared up with the joint manufacturer before installation.

Inner or outer sleeves are not used with angular and lateral expansion joints, as a rule.

Correct presetting must be ensured, taking into account the installation temperature.

Absorption of Vibration



The pipe is to be provided with an anchor that absorbs at least the forces produced by test pressure.

The anchor must be located immediately behind the expansion joint. See figure.

Make sure that the vibrating component itself is stable enough to absorb the axial pressure thrust resulting from pressure and spring force.

Inner or outer sleeves are not normally used with expansion joints intended for absorbing of vibration.

After Installation

Remove presetting or transport supports, if any.

See that the joint is undamaged and that there is no foreign matter between the corrugations.

Before pressure test, make sure that the pipe supports are OK.

Do not exceed the maximum permissible test pressure.

If you insulate the pipeline, see that no insulation material comes between the corrugations of expansion joint.

During Operation

The operating pressure and the movement to be absorbed must keep within the permitted limits. Avoid pressure chocks that may result from defective equipment or misuse.

If the working conditions, pressure etc. are changed, the suitability of the expansion joint for the new conditions must be reconsidered.

The expansion joints need no maintenance.

Welding of bellows elements

In case the bellows are joined to fittings by customer, the following is to be observed:

At the end of longitudinal joint of each bellows layer might be max. 3 mm unwelded. This has to be observed during welding by melting the end of bellows element to sufficient extent, otherwise leaks occur.

Prospero Oy doesn't take any responsibility for welding carried out by the customer.

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