

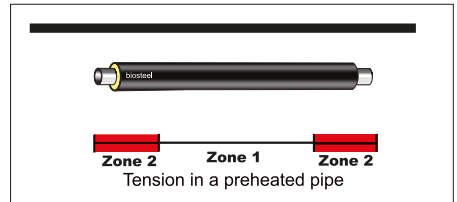
# Design - Guidelines

## Forces, movements and expansion types

### PREHEATING

To limit tensions and movements, it is common that the pipes are loaded preheated.

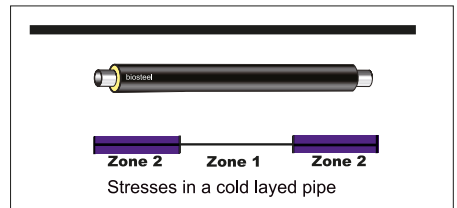
This means that you get compressive stresses in the pipe at high temperatures and tensile stresses at low temperatures.



### COLD LAYING

Small and medium-sized dimensions can be layed cold. This means that you may get extremely high (but in terms of norms acceptable) axial stresses.

The movement in zone 2 of a pipe can be up to four times larger than in the case of pre-heated laying.



### TABLE OF FRICTION LENGTHS AND MOVEMENTS

Table of friction lengths and movements are shown on the next page. The values shown are based on a number of conditions, as indicated. When conditions change, the specified data will also change.

**biosteel a/s**

Algade 35, Grønbjerg · DK-6971 Spjald, Denmark  
+45 4027 8099 · info@biosteel.dk · [www.biosteel.dk](http://www.biosteel.dk)