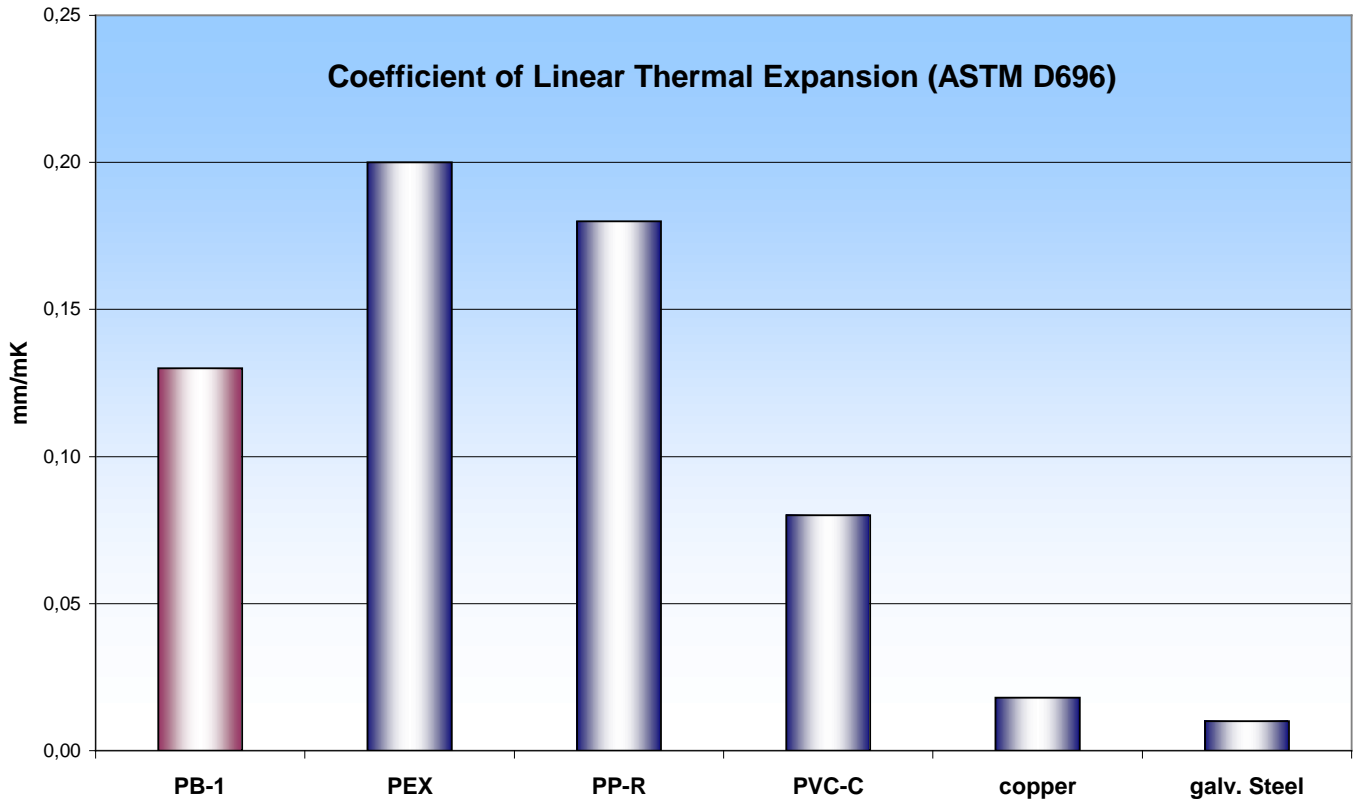


Thermal expansion

1) Basic Information

The coefficient of linear Thermal Expansion is a material property related to the expansion of the material when heated up. It is measured in mm/mK.

2) Grafic overview



3) Results

Metal pipes have a much lower expansion, compared to plastic pipes. At the same time the expansion forces are app. 25 times higher e.g. with steel pipes.

For **indoor applications** the Thermal expansion needs to be covered by the design of the installation. For **outdoor applications** – pipes embedded into sand/soil – the expansion is restricted and can be fully absorbed by the flexible plastic pipes (PB-1, PEX, PP-R) – the only fix-point is necessary when entering a building.

For metal pipes static calculations have to be carried out in order to allow for the necessary expansion compensation measures (Elbows, U-loops, Fix-points, Compensators, pre-heating measures etc.).

4) References/Standards

For District Heating pipes the following standards are applicable

Pre-insulated steel pipes – EN253

Flexible pre-insulated plastic pipes – BRL5609/KIWA (this is the first complete Standard for plastic systems according to new ISO Draft).

Technical data are subject to alteration.

