Klick - klack
Lowering the pressure in district heating and cooling networks by alternating the connection of the expansion vessel
Low temperature network
Expansion vessel in warm line

(a) Pressure (bar) vs Time (minutes)

Variable connection of the expansion vessel

(b) Time (minutes)

Variable connection of the expansion vessel after pressure reduction

(c) Time (minutes)
Expansion vessel in warm line

Variable connection of the expansion vessel

Variable connection of the expansion vessel after pressure reduction
Pressure reduction

Pressure in the low temperature network of ETH Zurich can be lowered by 0.5 bar.

Savings

PN10 pipe is 30 % cheaper than a PN16 pipe.

Operation

Cavitation free operation without previous knowledge of pump activities.

Simple realisation

Work arounds are all more complicated (adjustable system pressure, motor driven three way valve)
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