

Insulation of heating and hot water pipes prevents major heat losses

Make sure that all hot pipes are properly wrapped up! That's because large quantities of valuable heat are lost from uninsulated heating and hot water pipes and fittings (manual and slide valves, pumps, etc.).

Action

Insulate all heating and hot water pipes that pass through unheated rooms and spaces. Industrial facilities must also insulate steam pipes (> 90 °C) in heated rooms.

Requirement

To search for heat losses from heating pipes, the outdoor temperature needs to be below 5 °C.

What to do

- Check pipes in unheated rooms (basements, garages, staircases, etc.) by feeling them with your hand. This will enable you to find hot pipes that are losing heat unnecessarily.
- Also check whether the existing pipe insulation is incomplete or defective. Was the insulation:
 - Not added after a repair?
 - Cut open to take a measurement?
 - Mechanically damaged?
- Have hot pipes insulated by an insulation specialist. If you insulate the pipes yourself, measure their diameter and purchase the right insulating shells from a DIY/hardware store.



Costs – effort

- Pipe insulation (shells) with a length of 1 metre and a 90° bend cost CHF 10 to CHF 25 each, depending on their size. There are also additional small items such as PE adhesive tape and aluminium end sleeves.
- Your own labour per metre is about 10 to 20 minutes – depending on how many bends and branches need insulation.
- With heat insulation, CHF 6 to CHF 10 can be saved on energy costs per metre of pipe and per year.

Please note!

- With a little manual dexterity, you can make a good job of insulating straight pipes yourself. However, pipe systems with angled joints, many branches and various fittings are more complex. In these cases, consider calling in an insulation specialist.
- Insulating steam pipes is a challenging task that should be undertaken by an expert.

Additional explanations

Insulation thicknesses

Cantonal energy legislation defines the insulation thicknesses for heat-conducting pipes (from 30 °C to 90 °C) in new buildings (see the specimen regulations of the cantons in the energy sector). These depend on the pipe material and its diameter (see the table).

Inside pipe diameter		Outside pipe diameter	Minimum insulation thickness ¹	
		As the inner pipe diameter is standardised, the outer diameter can vary slightly depending on the material.	Thermal conductivity (λ) $\lambda > 0,03$ to $\leq 0,05$ W/(m·K)	Thermal conductivity (λ) $\lambda \leq 0,03$ W/(m·K)
			(e.g. synthetic rubber, cellular glass or mineral wool)	(e.g. polyurethane (PUR) or polyisocyanurate (PIR))
DN	inches	mm (approx.)	mm	mm
10	3/8	16 (16–19)	40	30
15	1/2	20 (20–24)	40	30
20	3/4	26 (25–29)	50	40
25	1	33 (30–35)	50	40
32	5/4	42 (36–43)	50	40
40	1 1/2	47 (44–49)	60	50
50	2	59 (50–62)	60	50

¹ Assistance with execution, EN-103, Heating and hot water systems, EnDK (Conference of Cantonal Energy Directors), May 2020 edition

Insulation of pumps and fittings

Special moulded shells are available to insulate pumps and fittings. These must be obtained from specialised trade outlets. Alternatively, have the work carried out by an insulation specialist.

Special case: insulation of steam pipes

Steam pipes with temperatures of over 90 °C are still to be found in many industrial premises. Even in heated rooms, these still need to be insulated. Because of the high temperatures, not all insulation materials are suitable for insulating steam pipes. It is therefore worthwhile to have steam pipes insulated by a specialist.



Repair defective heat insulation.

Additional information

- [Technical insulation in building technology suissetec, 2020](#)
- [Assistance with execution, EN-103 Heating and hot water systems, EnDK \(Conference of Cantonal Energy Directors\)](#)
- You can find insulation specialists on the [Isolsuisse website](#)