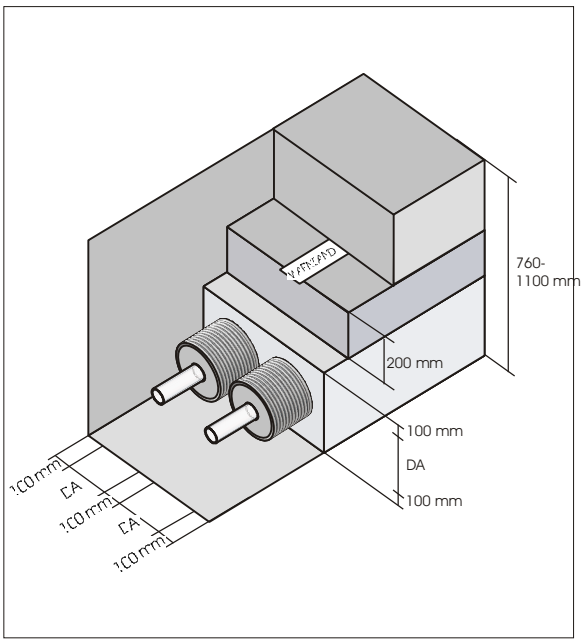
Structure of the pipe trench for long-distance heating pipes

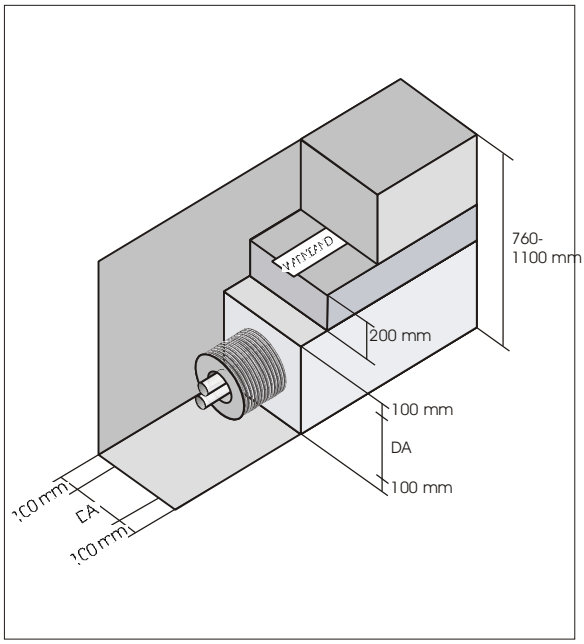
The structure of a long-distance heating pipe is determined by the designer on the basis of the instructions supplied by the pipe manufacturer, the valid standards and the individual circumstances in the building.

A sand bed of at least 10 cm in any direction must surround the pipeline after the sand has been compressed. The granulation of the sand (=riddle line) is determined by the pipe manufacturer. There must be no coarse grains. After the back filling, the sand is compressed. Thus some small air holes remain in the sand which are only connected by narrow channels (high flow resistance - no air convection in the sand).

Further back filling is normally undertaken using spoil from the trench. Coarse-grain gravel or road metal with or without a small soil portion are not suitable for the filling as they produce air channels with relatively big cross-sections and thus encourage the convection of the encircled air or the water which has invaded the trench. The filling must have a portion of fine-grained material, which prevents the developement of continous air channels. After the filling has been poured in, it must be compressed to produce a compact packing of the material.

The covering depends on the location of the ditch. In roads it is formed by the building profile of the road, in meadows and fields it is formed by a „humus layer“. In no case the filling may reach the surface. A clear layering of the materials represents an additional barrier for the heat transportation in transitional areas between the different layer.





The ditch must be prepared in accordance with the above pictures. For those areas that must bear transport loads, the law provides a minimum cover of 0.8 m (load class SLW 60); in areas without transport load a minimum cover of 0.5 m is required.

Please consider the corresponding standards and regulations regarding the pipeline course of long-distance heating pipes.

During construction, the trench must be kept dry. For very damp soil, drainage of the trench is recommended to improve the heat insulation effect of the distributing network.

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