Overground laying of preinsulated, rigid pipes

General

When planning a preinsulated, overground, rigid pipe system, one must consider voltages that arise in the medium pipe and the insulation.

It must be possible to incorporate temperature-dependent expansions and returns of the pipes in bends and compensators during construction.

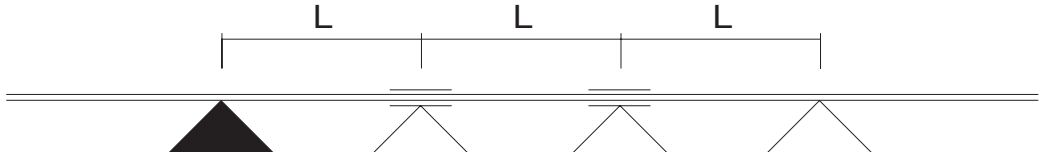
To always ensure functional safety, the pressure loads, friction forces and the permanent deformation of the pipes between the pipe fixtures must be limited.

For this purpose, it is necessary to determine the maximum distance between the pipe fixtures. For a pipe system working under normal operating and safety conditions, this distance is defined in such a way that the pipe system doesn't bend more than 1/60 of the medium pipe outer diameter.
Although insulation and outer jacket also help absorb this load, they were not included in the calculation, i.e. the medium pipe bears the entire load.

Based on the above basic conditions, the maximum pipe fixture distances for insulated steel pipes are stipulated in table **???17.200???**.

To counteract additional loads such as snow or wind, the calculated maximum pipe fixture distances were shortened for larger sizes. In the smaller sizes, the insulation and the outer jacket provides this additional stability.

Pipe fixture principle



The distance "L" between fixed points and the sliding pipe fixtures, as well as between two sliding pipe fixtures, is always equal.

Distances of pipe fixtures in free pipe systems

Distances of pipe fixtures in steel pipes

Nominal diameter DN	Primary pipe **Outer Ø** mm	Primary pipe **Wall thickness** mm	Jacket pipe **Outer Ø** mm	Max. permissible distances of fixtures mm	Permnent deformation mm	Recommended distance of fixtures mm
15	21.3	2.3	90	1400	0.4	1400
20	26.9	2.3	90	1700	0.4	1700
25	33.7	2.6	90	2100	0.6	2100
32	42.4	2.6	110	2400	0.7	2400
40	48.3	2.6	110	2700	0.8	2700
50	60.3	2.9	125	3200	1.0	3000
65	76.1	2.9	140	3700	1.2	3000
80	88.9	3.2	160	4200	1.4	3000
100	114.3	3.6	200	5000	1.9	4000
125	139.7	3.6	225	5700	2.2	4000
150	168.3	4.0	250	6500	2.6	6000
175	193.7	4.5	280	7300	3.2	6000
200	219.1	4.5	315	7800	3.5	6000
250	273.0	5.0	400	8500	3.5	8000
300	323.9	5.6	450	10300	5.4	8000
350	355.6	5.6	500	10800	5.8	8000
400	406.4	6.3	560	12000	6.8	8000
500	508.0	6.3	710	13600	8.4	8000
600	609.6	7.1	800	15500	10.1	8000
700	711.0	8.0	900	17300	11.7	8000
800	813.0	8.8	1000	19100	13.7	8000