Leak Test Extracted from BS EN 1610:1989

7. Leak Test

The water tightness of underground waste water pipelines must be proven as per EN 1610. The test is prescribed after filling the pipe trench; an additional test before filling is however recommendable, together with a thorough visual inspection of the pipeline.

The leak test can on principle be carried out with air or with water. Should a test with air fail, a test with water can be done instead. However, we recommend to test with water from the start.

Leak test with water

The test can be carried out on the complete pipeline or on defined pipeline sections.

At first, the length of the pipeline must be determined, in order to calculate the inner surface and the admissible quantity of water to be added.

The test pressure is to be calculated as per the pressure of a water column from the pipe crest of the section to be tested up to the ground level, e.g. 2.5 m = 25 kPa (250 mbar). The test pressure is minimum 10 kPa, maximum 50 kPa.

The pipeline is slowly filled with water at the lowest point so the air contained in it is expelled at the highest points. Upon reaching the test pressure, the pipeline must remain completely filled for one hour in order to compensate for temperature differences.

After that begins the test period of 30 minutes. The pressure is to be kept permanently on the level of the pre-defined test pressure within a tolerance of 1kPa, by refilling water to

compensate for any water leakage. The height of the water column above ground level must not surpass 10 cm in order to prevent increasing the pressure by more than 1 kPa.

The quantity of refilled water is to be reported. Within the test period it may not surpass

- 0.15 l/m² interior surface for pipelines
- 0.20 l/m² interior surface for pipelines including shafts
- 0.40 l/m² interior surface for shafts and inspection openings

Securing against slipping

During the recommended leak test in the open trench, the connections must be secured against slipping.

As the test is carried out at a maximum of 0.5 bar, we recommend using couplings such as Rapid-Inox, which are axially restrained up to 0.5 bar.

Should higher pressures occur, it is possible to use Connect-G-Inox. Grip collars (e.g. Kombi grip collar) can also be combined with metallic couplings; however these grip collars must either be removed before filling the trench or they must be given an additional corrosion protection.

Connections can also be secured with abutments, particularly at changes of direction, such as poles driven into the ground, concrete abutments, cones of filled-on material etc.