

pipeline testing

Even if not clearly required by the contract terms or from customer, before starting the final filling-up of the pipeline it is always advisable to carry out a tightness jointing inspection and pressure test of the complete network. Generally the testings are performed by sectioning parts of suitable length which must be closed by special systems, such as blank flanges with connection for pressure gauges, pumps, breathers, etc.

gas distribution

The standards **UNI 9165**, **UNI 9860** and **UNI 7129** states the pressure tests for gas distribution pipelines.

The pressure test must be performed after the pipe laying according to DM 16.11.1999.

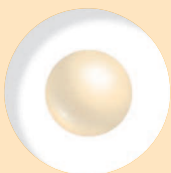
distribution networks and branch connections

The standards UNI 9165 and UNI 9860 report the same directions:

- according to the network length, diameters, testing pressure and transported fluid the testing is carried out on sections of different length or on the complete pipeline. The sections must be buried except their ends which must be uncovered for inspection during testing;
- branch connections on working distribution pipeline must be tested at first before boring operation. The branch connection must be closed with the special device;
- for new networks it is possible to check simultaneously the distribution pipeline and the branch connection once done the pipe boring and filling-up (UNI 9860);
- the use of air or inert gas is allowed only if all precautions necessary to work in safety conditions are adopted;
- test pressures depends on pipeline type as below:

type	max pressure [bar]	testing pressure [bar]
4 th	Pmax = 5	1,5 times working pressure
5 th	Pmax = 1,5	1,5 times working pressure
6 th	Pmax = 0,5	1 bar
7 th	Pmax = 0.04	1 bar

- the testing result is positive if there are no pressure drops caused by leakages after stabilization of testing conditions and for at **least 24 hours**;



- a report must be drawn up for each pressure test and containing the characteristic data of the testing together with the test registration diagram;
- it is compulsory that the check of the connection points between the various sections is also included in the check of subsequent section;
- when the distribution network is made of several segments, a final testing must be carried out applying the same above-mentioned procedures on the complete system and the connection joints tightness is verified between the various segments.

gas plant for domestic use supplied from main distribution network

The standard UNI 7129 (under revision) states the following test procedure:

- testing must be carried out before the connection to the gas meter and is performed before the pipeline covering;
- after pressurization of at least **100 mbar** with air or inert gas it is necessary to wait the pressure stabilization time which must be of minimum **15 minutes**;
- the first reading must be performed by using a pressure gauge with sensitivity not lower than 0,1 mbar. The second reading will be done after **15 minutes** from first one;
- testing gives **positive result** if both readings do not show any pressure drop;
- if there are leakages, these must be investigated and removed; then it will be necessary to perform a new tightness testing of the network.