

Art. 5.16.3.3. Air-conditioning and cooling installation

Definitions:

Relative loss of refrigerant: the fraction of nominal refrigerant charge which has been lost over a period of 1 year in relation to the total nominal refrigerant charge. Calculation of the relative loss of refrigerant is based on the amounts of recharged refrigerant as noted in the logbook. For the calculation, the amounts lost or charged over a period of 2 years can be taken into account.

§ 1. The use of refrigerants

1° Without prejudice to the provisions of the Royal Decision of 7 March 1991 concerning the regulation of the use of specific chlorofluorocarbon compounds in cooling installations, the use of the chlorofluorocarbons (CFCs), bromofluorocarbons (BFCs or halons) and mixtures of them specified in appendix 5.7. is prohibited both in new plants as well as in existing plants of which the refrigerant is replaced after the date of the present decision coming into force;

2° as of 1 January 1995, the use of the CFCs and halons referred to in point 1° is prohibited, except if it concerns liquids originating from recycling;

3° as of 1 January 1998, the use and possession - even for the purpose of recycling - of the CFCs and halons referred to in point 1° is prohibited;

For the implementation of aforementioned provisions, "use" should be understood as the sum of the refrigerant contents and the topping up.

§ 2. Construction and installation of air-conditioning and cooling installations working with CFCs, halons, ammonia or any other refrigerant

1° The operator must keep at the disposal of the supervisory official a certificate that is prepared by the manufacturer or by an environmental expert accredited in the discipline appliances and installations under pressure and/or in the discipline containers for gases or hazardous substances. This certificate is to prove that:

a) any installation working under a gas pressure of over 100 kPa has passed the following tests:

p must here be understood as the maximum operating pressure - being the pressure that must not be exceeded, whether the installation is running or otherwise - taking into account the quantity of non-condensable gases, the thawing method used, the highest possible temperature that may occur in the system both during operation and when the system is not working, etc.;

b) the construction of the pressurised appliances must be compliant with a recognised standard such as CEN, ASME, CODAP, AD merckblatt BS5500, Kema or any other equivalent standard;

c) the installations - including the pipes, couplings, and all other parts containing refrigerant - must be built according to a recognised code of good practice such as for example draft standard NBN E 35001" Cooling installations - safety regulations;

d) for the compound parts of the installation that have been pre-assembled at the manufacturer's (monobloc systems) a certificate is to be drawn up by authorised experts, by order of the manufacturer, to certify that these parts fulfil the conditions referred to above or that they are compliant with a code or standard recognised in one of the EC Member States.

2° The certificate referred to in the first paragraph is not required for small installations, these being installations of which the refrigerant capacity is less than:

a) for installations using a refrigerant which is both not combustible as well as not toxic or only to a small degree, such as CFCs, halons and CO₂:

- with a thermostatic or electronic expansion valve: 10 kg;

- with a capillary expansion system: 3 kg;

b) for installations using a refrigerant which may endanger health (danger symbol Xn) in the event of a serious leak in the refrigerant system or which is combustible or explosive when mixed with air - with a lower explosive limit of 3.5 % (V/V) or higher - such as dichloroethene, chloroethane, chloromethane, dichloromethane and methyl formate: 2.5 kg;

c) for installations using a refrigerant which may result in serious poisoning (danger symbol T) in the event of a serious leak in the refrigerant system or which is combustible or explosive when mixed with air - with a lower explosive limit of 3.5 % (V/V) or higher - such as butane, ethane, ethene, isobutane, propane, propene and sulphur dioxide: 1 kg.

§ 3. Operation and maintenance.

1° The installations and accessories are used in such a way that no danger or nuisance results for the surrounding area.

2° The necessary precautions must be taken to ensure that - in the event of repairs having to be made or when a leak occurs or if a safety valve is triggered - the escaping refrigerant does not cause a nuisance for the surrounding area and cannot pollute the soil, surface water or groundwater.

When the installation is put out of operation or when repairs have to be made, the refrigerant must be drained by expert cooling engineers using appropriate equipment. The refrigerant must be collected in marked bottles specifically intended for the purpose.

After approval, the refrigerant may be used in the original installation again. If it is not approved, it must be returned to the importer, bottler or wholesaler for cleaning or disposal by specialised accredited firms.

3° The installations and accessories must be well maintained according to a code of good practice and - depending on their nature and the way they are used - must also be examined regularly by an authorised expert, to ensure a maximum safeguarding of the surrounding area. These conditions shall be deemed to be fulfilled when the maintenance and inspection is effected in accordance with the Belgian (draft) standard NBN E35-001 "Cooling installations - safety regulations".

The results of these inspections are recorded in a register that must be kept available for inspection by the supervisory official.

The modalities as well as the frequency of the inspections can be further specified in the environmental licence.

§5 The requirements in following paragraphs of this article are applicable for cooling installations with a nominal refrigerant charge of more than 3kg which are ozone depleting substances and/or fluorinated greenhouse gasses. De stipulations of following paragraphs are not applicable on hermetic closed cooling systems.

§6 Maximal relative loss of refrigerant

1° all measures, in accordance with best available techniques have to be taken in order to reduce the relative loss of refrigerant to maximum 5%

2° If this relative loss of refrigerant is more than 5%, then immediate measures have to be taken to detect the leak and to repair it. New refrigerant may only be charged once the leak has been completely repaired and an expert cooling engineer has inspected the installation. A new tightness inspection has to be performed within 3 months after repair.

3° for cooling installations which have been put into operation after 01/01/2003

If the relative loss of refrigerant is higher than 10%:

As soon as possible and within 30 days, the installation has to be shut down or the refrigerant has to be removed and collected, or the refrigerant has to be pumped down to a part of the cooling installation which can be shut off.

The leak has to be detected and repaired. The refrigerant may only be charged again after repair of the leak and complete inspection of the system by an expert cooling engineer. A new tightness inspection has to be performed within 3 months after repair.

If during tightness inspections and/or from log book noted amounts of refills there can be decided that after repair the leaks can not be reduced to less than 5%, then the installation has to put out of service within 12 months.

4° for cooling installations which have been put into operation before 01/01/2003

If the relative loss of refrigerant is higher than 15% after 1/1/2004:

As soon as possible and within 30 days, the installation has to be shut down or the refrigerant has to be removed and collected, or the refrigerant has to be pumped down to a part of the cooling installation which can be shut off.

The leak has to be detected and repaired. The refrigerant may only be charged again after repair of the leak and complete inspection of the system by an expert cooling engineer. A new tightness inspection has to be performed within 3 months after repair.

If after 1/1/2004 during tightness inspections and/or from log book noted amounts of refrigerant refills there can be decided that after repair the leaks can not be reduced to less than 15%, then the installation has to put out of service within 12 months. If for technical reasons, the installation can not be replaced within 12 months, then time for replacement has to be reduced as much as possible and this has to be notified to the environmental inspection.

If the relative loss of refrigerant is higher than 10% after 1/1/2005:

As soon as possible and within 30 days, the installation has to be shut down or the refrigerant has to be removed and collected, or the refrigerant has to be pumped down to a part of the cooling installation which can be shut off.

The leak has to be detected and repaired. The refrigerant may only be charged again after repair of the leak and complete inspection of the system by an expert cooling engineer. A new tightness inspection has to be performed within 3 months after repair.

If after 1/1/2005 during tightness inspections and/or from log book noted amounts of refrigerant refills there can be decided that after repair the leaks can not be reduced to less than 10%, then the installation has to put out of service within 12 months. If for technical reasons, the installation can not be replaced within 12 months, then time for replacement has to be reduced as much as possible and this has to be notified to the environmental inspection.

If after 1/1/2006 during tightness inspections and/or from log book noted amounts of refrigerant refills there can be decided that after repair the leaks can not be reduced to less than 5%, then the installation has to put out of service within 12 months. If for technical reasons, the installation can not be replaced within 12 months, then time for replacement has to be reduced as much as possible and this has to be notified to the environmental inspection.

§7 periodic tightness inspection

1° cooling installations have to be inspected at least once a year on good functioning of the installation and with the viewpoint of preventive control of possible causes of leaks

For installations with a nominal refrigerant charge above 30kg, frequency of inspection is once every 6 months

For installations with a nominal refrigerant charge above 300kg, frequency of inspection is once every 3 months

2° If, during the inspections as described in 1° the suspicion of a leak exists, then the inspection has to be done with detection equipment, suitable for the refrigerant type having a sensitivity of at least 5ppm or 5g/year, at a pressure slightly higher than the normal working pressure of the installation.

3° the results and remarks and a clear description of these inspections have to be registered in the log book with mentioning the date of inspection.

§8 documentation

1° the user of the installation has to provide the installation with a clearly readable and accessible instruction card which mentions the following

- Name, address, phone number of the installer and repair service
- Type of refrigerant used
- Maximum working pressures (low, high side)
- Instructions for putting the installation in and out of service
- Instructions to put the installation out of service in case of emergencies.

2° the user of the installation has to keep a logbook near the installation. This logbook may be maintained completely or partly with a computer-system. Following has to be registered in the log book:

- a). Date of putting into service of the installation, type of refrigerant and nominal charge.
- b). Description of the maintenance, repair and installation work done on the installation
- c). All kinds of problems, defects, alarms which can be a possible cause for leaks
- d). Amount and type (new, re-used, recycled, regenerated) of refrigerant charged, refilled
- e). Amount of refrigerant drained from the installation
- f). Description and results of the tightness inspections.
- g). The person who has performed the actions mentioned from a⇒e and if applicable the name of the company he's working for.
- h). If applicable, the attest of the in f) mentioned person.
- i). Significant periods of the installation being out of service.

3° to make it possible to control/inspect charged and removed amounts of refrigerant, the user of the installation has to keep following documents available for the inspection officer:

- invoices related to purchased amounts of refrigerants
- the in §4 indicated register and certificates
- the logbook