

F-gas regulation EC No 842/2006

The obligations in the new regulation for stationary refrigeration plants with more than 3kg of F-gas HFC refrigerant came into force on July 4th 2007 and are as follows:

- **General obligations to prevent leakage.** Using all measures which are technically feasible and do not entail disproportionate cost operators must: (a) prevent leakage of HFC refrigerants and (b) as soon as possible repair any detected leakage.
- **Regular leak testing.** Plants must be checked for leakage by certified personnel on a regular basis. "Checked for leakage" means that the equipment or system is examined for leakage using direct or indirect measuring methods, focusing on the parts of the equipment or system most likely to leak. The frequency of testing depends on the refrigerant charge:
 - Plants with 3kg to 30kg must be checked annually.
 - Plants with 30kg to 300kg must be checked once every six months.
 - Plants with more than 300kg must be tested once every six months.
 - Plants must be rechecked within one month after a leak has been repaired to ensure the repair has been effective.

Plants with more than 300kg must be fitted with a F-gas leak detection system, which is defined as: "a calibrated mechanical, electrical or electronic device for detecting leakage of refrigerants which, on detection alerts the operator". The detection system must be checked at least once a year to ensure proper functionality.

For any plant fitted with a leakage detection system, the frequency of leak checking can be halved, although an annual check remains the minimum frequency.

- **Maintaining records.**
 - Records must be kept about each system with more than 3kg of F-gas HFC refrigerant. The records must include:
 - The quantity and type of HFC refrigerants installed in each system.
 - The quantity of refrigerant added.
 - The quantity of refrigerant recovered during servicing, maintenance and final disposal.
 - Other relevant information including the identification of the company or technician who performed the servicing or maintenance, as well as the dates and results of leakage checks and leakage detection checks.
 - These records shall be made available on request to the competent authority and to the commission.
- **Gas recovery.** If F-gas refrigerant needs to be removed from a system (e.g. to gain access to part of a system for maintenance or during system de-commissioning at the end of life) it must be properly recovered by certified personnel. After recovery the refrigerant can be reused or sent for reclamation or destruction.
- **Use of adequately qualified staff.** Personnel carrying out leak testing, gas recovery, installation and maintenance must have a suitable refrigerant handling qualification.
- **Labelling.** Any new system placed on the market must clearly state the type and quantity of refrigerant used.

Stationary HFC refrigeration systems with less than 3kg of F-gas refrigerant and mobile systems (car air conditioning and transport refrigeration) do not need to comply with (b) and (c) above, but do have to comply with all other items.

Hermetically sealed systems

Definition of a hermetically sealed system:

"in a hermetically sealed system all refrigerant parts are made tight by by welding, brazing or a similar permanent connection which may include capped valves and capped service ports that allow proper repair or disposal and which have a tested leakage rate of less than 3grams per year under a pressure of at least a quarter of the maximum allowable pressure."

Details of the obligation in the new regulation

The guidance for hermetically sealed systems is the same as above, except for the following points:

- Hermetically sealed systems with 3kg to 6kg of HFC refrigerant are exempt from the obligation to carry out regular F-gas leak tests.
- Systems with 6kg to 30kg must be checked annually.

Rule of thumb:

Small hermetic systems fitted with a "domestic" 240v 13 amp plug will be well below the 6kg limit. This is a very important rule as it applies to millions of small systems. All domestic refrigerators and freezers fall into this category. So do many systems used in small shops (e.g. ice cream display cabinets, bottle coolers, small chilled or frozen food cabinets etc.) in pubs/restaurants, in offices and in other types of building.