



From January 2015, the existing F-Gas regulations have been strengthened to encourage movement to a HFC free market and the use of low Global Warning Potential (GWP) refrigerants.

Two key areas where F-Gas emissions can be reduced are by reducing the use of high GWP refrigerants and to reduce any leakage by employing an effective leak detection programme.

### **High GWP refrigerants**

Industry are being encouraged more and more to use refrigerants which are HFC free and with a very low GWP. Refrigerants with a GWP of 10 or below can be used however there can be issues with flammability.

### **Effective leak detection programme.**

Refrigerant gas leakage to the atmosphere can result in product loss, causing systems to operate inefficiently and is detrimental to the environment, therefore breaching F-Gas Regulations. The F-Gas Regulations now have a greater emphasis on gas leak detection therefore it is important to understand how the new GWP concept affects leak detection.

### **What is the GWP concept?**

The EU has now agreed to ban the use of HFC's in new equipment in a number of sectors, most notably in commercial refrigeration by 2022. In addition, from 2020 very high GWP HFC's above 2500 will no longer be used to service and maintain refrigeration equipment.

The intention is to put all greenhouse gases onto a common scale and GWP, however remains the recommended metric to compare future climate impacts of emissions of long-lived gases. Under the new proposal, sites now have to factor in the GWP and make a calculation relative to CO2 equivalent emissions.

### **So how does this affect refrigerant leak detection?**

Under the former F-Gas revision, customers simply had to know what Kg charge they had to dictate what leak detection frequencies/requirements applied, but they now have to factor in the GWP and make a calculation relative to CO2 equivalent emissions (or use the table over).

The table allows anyone using the most common refrigerant charges to evaluate frequency of leak checks plus if there is a requirement for fixed leak detection equipment.

The new requirements will take effect from 1<sup>st</sup> January 2015, except for systems with a charge below 3kg (6kg for hermetic systems) where it will apply from 1<sup>st</sup> January 2017.

### Kensa Heat Pumps

The only equipment from Kensa Heat Pumps where leak detection is now required are within the commercial plantroom range and are :-

20kW Plantroom P200-X  
45kW Plantroom P500-X  
60kW Plantroom P600-X  
75kW Plantroom P750-X

X— H Heating only  
R Reverse Cycle  
C Cooling only

The requirement is that a mandatory leak check is required every 12 months.

HFC	GWP	Mandatory leak check is required every 12 months if refrigerant system charge greater than this figure	Mandatory leak check is required every 6 months if refrigerant system charge greater than this figure	Mandatory leak check is required every 3 months plus MUST have fixed leak detection system if refrigerant system charge greater than this figure
		(GWP is equivalent to between 5-49 tonnes of CO2)	(GWP is equivalent to between 50-499 tonnes of CO2)	(GWP is equivalent to 500 tonnes or more of CO2)
R404a	3920	1.27Kg >	12.7Kg >	127Kg >
R507	3298	1.5Kg >	15Kg >	150Kg >
R422d	2624	1.9Kg >	19Kg >	190Kg >
R407a	1990	2.5Kg >	25Kg >	250Kg >
R417a	1950	2.55Kg >	255Kg	255Kg >
R407f	1705	2.9Kg >	29Kg >	290Kg >
R410a	1610	3.1Kg >	31Kg >	310Kg >
R407c	1600	3Kg >	30Kg >	300Kg >
R134a	1430	3.49Kg >	34Kg >	349Kg >