

Specialist technology for specific needs: Evacuation facility from SEG for the loss-free recovery of CFCs

SEG's innovative CFC evacuation equipment is available either built into a container for use outdoors or as an open processing station for use within factory buildings or workshops. The unit can be supplied as a one- or two-operator model for convenient on-site CFC evacuation.



The CFC evacuation facility: Step 1 in SEG's environmentally benign demanufacturing system for refrigerators and freezer appliances

Older refrigerators and freezers cool by using CFC refrigerants and these substances are one of the greatest hazards to the Earth's stratospheric ozone layer. Only recently have appliances been made which are CFC-free. Older appliances must therefore be treated particularly carefully in order to be able to remove and then destroy as much of the CFC refrigerant as possible. In the SEG system, recovery takes place in two stages. In Step 1, the CFC refrigerant R 12 is removed from the oil-CFC medium in the cooling circuit. In Step 2, the CFC blowing agent R 11 is recovered from the appliance's foam insulation.

On-site refrigerant recovery: The efficient way of removing CFCs

The CFC evacuation facility from SEG has been specially developed to retrieve CFCs from the appliance's cooling circuit. The compact plant design means that SEG's innovative demanufacturing technology can be made available locally, either as a container for use out of doors or as an open unit for installation within a factory building, workshop etc. Using this technology, loss-free recovery of CFCs from the cooling circuits of end-of-life appliances becomes possible at or close to the collection point. This greatly reduces the chances of appliance damage – a highly significant factor, since every metre that an obsolete refrigerator has to be transported can turn out to be one metre too many.

The CFC evacuation facility is typical of the SEG approach: innovative recycling and recovery technology designed and manufactured to satisfy real customer needs.



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SEG environmental services The solution you've been looking for ...

Are you looking for an ecologically benign way of disposing of CFC-containing products or appliances, or of a means of removing CFC replacements? As a provider of advanced recycling technology and services, SEG would be pleased to help. Contact us today and learn how we can assist in developing the solution you need.

For more information, please contact:



Saarland State Environmental Award for Industrial Waste Management



TUV (Technical Control Board) certificate of quality management in refrigerator recycling



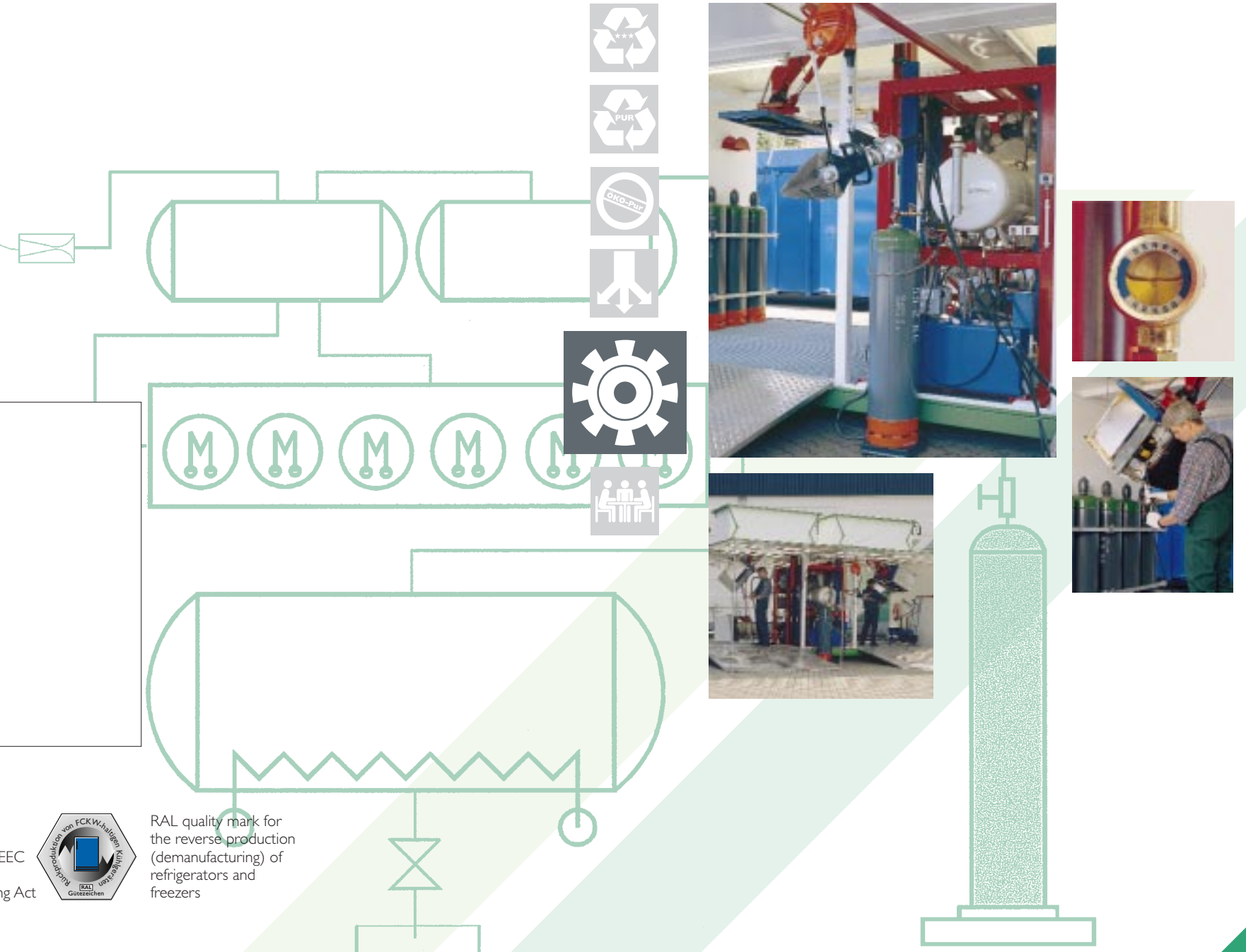
Certified specialist disposal company EU directive 75/442/EEC Sec. 52, Art. 1 Waste Disposal and Recycling Act



RAL quality mark for the reverse production (demanufacturing) of refrigerators and freezers



SEG Environmental Services: CFC evacuation facility for demanufacturing refrigerator and freezer appliances



Plant engineering technology



Innovative design, tried and tested functionality: CFC evacuation equipment from SEG

Using a specially designed evacuation tool, the mixture of compressor oil and refrigerant is drawn-off under vacuum into a collecting vessel. The CFC is then separated from the compressor oil, pumped into an interim storage vessel, liquefied and then transferred to a compressed-gas cylinder. To ensure the complete recovery of the CFC, the compressor oil is fed through a series of heated chambers. The CFC refrigerant separates from the oil and is then transferred to the collecting vessel and from there to the gas cylinder. The compressor oil that has been recovered is transferred to a separate storage tank.

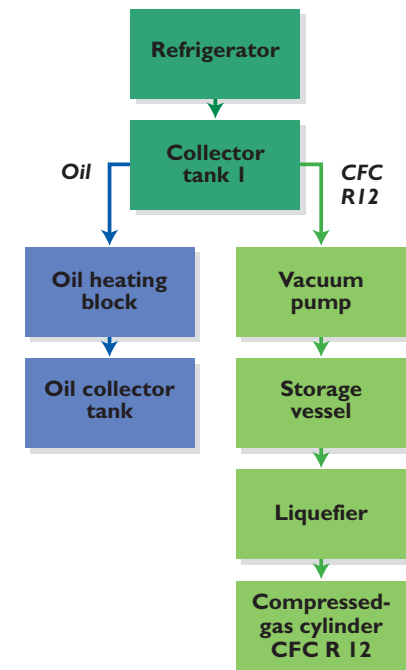
SEG's CFC evacuation facility: Features

● **Practical, flexible design**
The CFC evacuation facility is available either as a single or a dual-operator model and can be supplied in a closed container or as an open-access processing station for interior use. The unit has been designed for mobility and can be transported to its point of use by a fork lift truck – a feature which helps not only to reduce transport costs, but also to make the recycling and recovery process more transparent. Floor-level leakproof drip pans keep the unit's operating area clean.

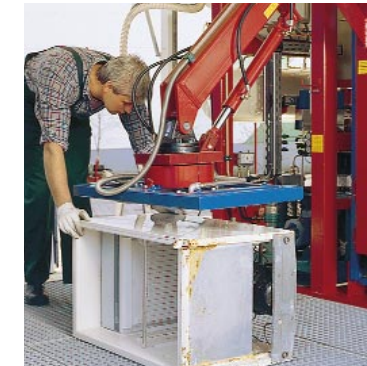
● **Trouble-free, safe operation**
The facility is essentially automatic. The few operator manipulations that are required can be performed by a person who has received appropriate training. The filling of the CFC collection cylinder proceeds via an electronically controlled weighing machine. When the cylinder is full, the recovery unit switches off automatically.

● **Around-the-clock operations throughout the year**
The SEG CFC evacuation facility has been designed for continuous duty and can be used in three-shift operations. A powerful hot-air blower is included so that an appliance can be warmed locally, thereby ensuring complete CFC recovery even at temperatures below freezing.

● **Efficient evacuation of CFCs and comprehensive material recycling**
The hoist lifts the appliance placing it into the best position for complete evacuation. The SEG universal evacuation tool in combination with a high-performance vacuum pump guarantees the complete recovery of the refrigerant. Compressors are removed from the appliance with the help of the integrated hydraulic shears.



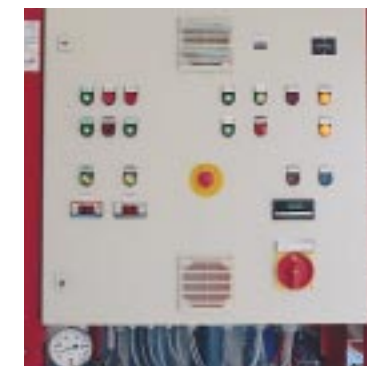
Hot-air blower



Suction pad and hoist



Universal evacuation tool



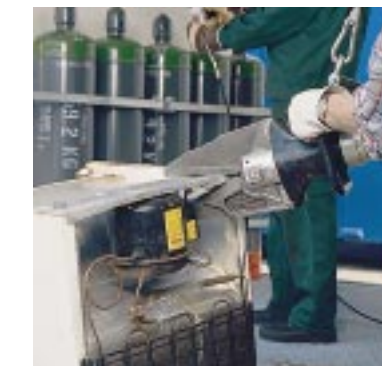
Process control unit



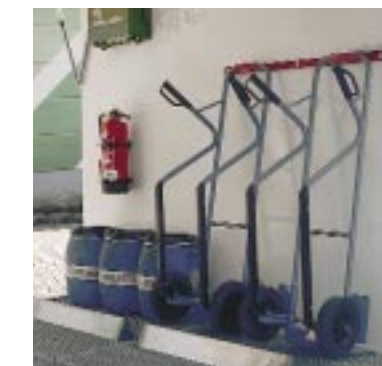
Compressed-gas cylinders containing the CFC R 12



Oil collector tank



Hydraulic shears



SEG: systematic down to the last detail

SEG's CFC evacuation facility: Modules

- Base frame with floor protection system
- Suction lifting gear
- Hydraulic system with hydraulic shears
- Electrical switch gear with PLC controller
- Suction removal unit with collector vessel, heating chambers, vacuum pump and liquefier
- Hot-air blower
- Weighing machine for gas cylinder

SEG's CFC evacuation facility: Technical specifications

Suitable for: Refrigerant media containing the CFCs: R 502, R 22, R 12, R 134a.
A special evacuation module is available for the CFC replacement R 600a.

Total weight of a single-operator unit:	approx. 1500 kg
Power consumption:	400 V, 16 kW
Capacity:	
single-operator unit	approx. 12 appliances per hour
dual-operator unit	approx. 24 appliances per hour
Refrigerant recovery:	~ 99% (~115-135 g/appliance)
Compressor oil recovery:	~ 99% (~240 g/appliance)
Residual refrigerant in compressor oil:	< 0.1% w/w
Volume of oil collector vessel:	200 l