

ATN Engineering B.V.

Fast, easy and safe way to recycle refrigerators!



ATN Engineering products



ATN can supply a wide range of specialised equipment for the recycling of domestic and industrial WEEE products.

Date: March 2015

Foreword

ATN Engineering BV is the world leading supplier of refrigerator degassing and deoiling equipment. It is located in the north of Holland and we supply plants throughout the world. We are always innovating, and expanding our experiences that makes it possible to build machines that have the highest efficiency for the lowest possible costs.

The machines of ATN are customized and are able to meet the customers specifications.

- ◆ Refrigerator recycling
 - * Refrigerant recovery
 - * Refrigerant and oil recovery
- ◆ Degassing machines
- ◆ Television recycling
- ◆ Air-conditioning recycling
- ◆ Catalytic converter
- ◆ Data collecting systems
- ◆ Second-hand machines
- ◆ Rental machines

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Introduction



We are able to supply stage one degassing plants and degassing/ deoiling plants. With a capacity starting at 20 refrigerators per hour up to 200 refrigerators per hour. But only with a sufficient logistic system you will be able to use this capacity efficiently. With our logistic solutions you will be able to operate our stage one degassing machines at maximum capacity.

All plants are engineered in accordance with the EN 35 421/ARI 740-98 regulations and of course all other relevant legislations.

1. Refrigerator Recycling



ATN-BK MOB

Mobile degassing/deoiling machine

The ATN-BK MOB is a mobile degassing/deoiling machine. This machine can be supplied on a trailer that can be towed by a car or van.

Average capacity:	28 refrigerators per hour
Draining time:	1.5 minutes average
Budget price:	On quotation
Expanding opportunities:	None



ATN-BK1

Single drill-head machine.

Perfect for a small recycling plant.

The ATN-BK 1 is a single drill-head machine for degassing/deoiling domestic refrigerators.

Average capacity:	up to 42 refrigerators per hour
Draining time:	within 1 minute
Average costs:	On quotation
Expanding opportunities:	None



ATN-PT6

Piercing-pliers machine.



Based on the same machine as the ATN-BK1, this unit can be supplied as a piercing-pliers machine.

Average capacity:

38 refrigerators per hour

Average costs:

On quotation

Expanding opportunities:

None

**ATN-BK2/3**

Degassing/deoiling machine with 2 or 3 drill-heads.

Degassing machine for degassing and deoiling of domestic refrigerators with 2 or 3 drill-heads. This machine can degas and deoil every domestic fridge within one minute per drill-head. The machine can handle all common gases from domestic refrigerators except NH₃. The machine runs fully automatically. The operator only has to connect the compressor and complete the compressor penetration.

Average capacity:

84 (2 drill-heads)

126 (3 drill-heads)

per hour

Draining time:

Within 1 minute

Average costs:

On quotation

Expanding opportunities:

Yes





ATN-PT16/24

Degassing/deoiling machine with 16 or 24 piercing-pliers.

Combination piercing-pliers and drill-head is possible.

Degassing machine for degassing and deoiling of domestic refrigerators with 16 or 24 piercing-pliers. This machine is able to degas all common gases from domestic refrigerators except NH3. Except for the connection of the piercing-pliers to the copper lines of the refrigerator, the machine runs fully automatic.

Average capacity:	67 till 100 refrigerators per hour
Average costs:	On quotation
Expanding opportunities:	None

Degassing/deoiling time:

Drill-head 1 minute

Piercing-pliers 10 minutes



[Download: Information about drill-head and Piercing-pliers.](#)

**New
Product!**

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Telephone: (+31) 599 652524



ATN CC

Catalytic Converter can be installed into existing and new machines.

The ATN Catalytic Converter composes refrigerants and oil directly in the machine into harmless substances. The first picture of the following page shows the current situation. The second picture shows the new situation.

The new unit will start by draining a cooling unit. The oil and refrigerants will be conveyed into the vacuum unit. The oil and refrigerants will be separated in the vacuum unit.

Then the oil and refrigerants will be carefully injected into the catalytic converter. In the catalytic converter the flammable refrigerant and oil is converted into energy, non-flammable refrigerant, like CFC is, converted in CO₂ and Salt.

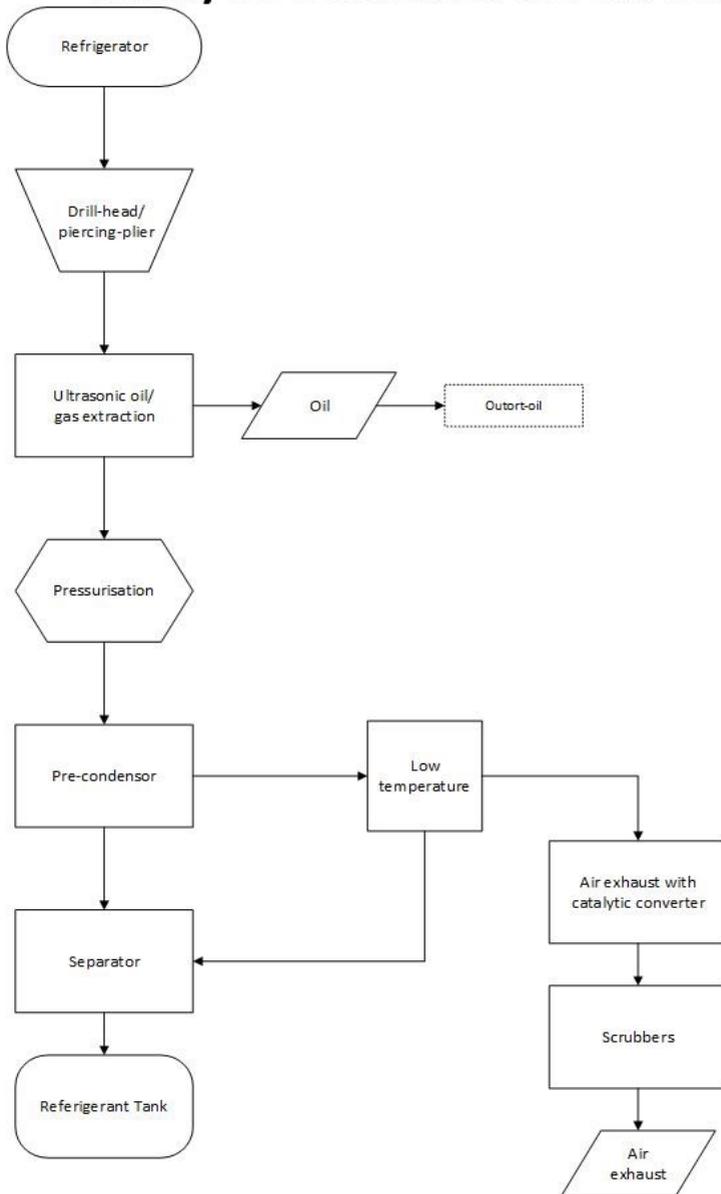


The new and existing ATN machines can be extended for the use of the condensing of stage 2. This is also possible for other existing machines.

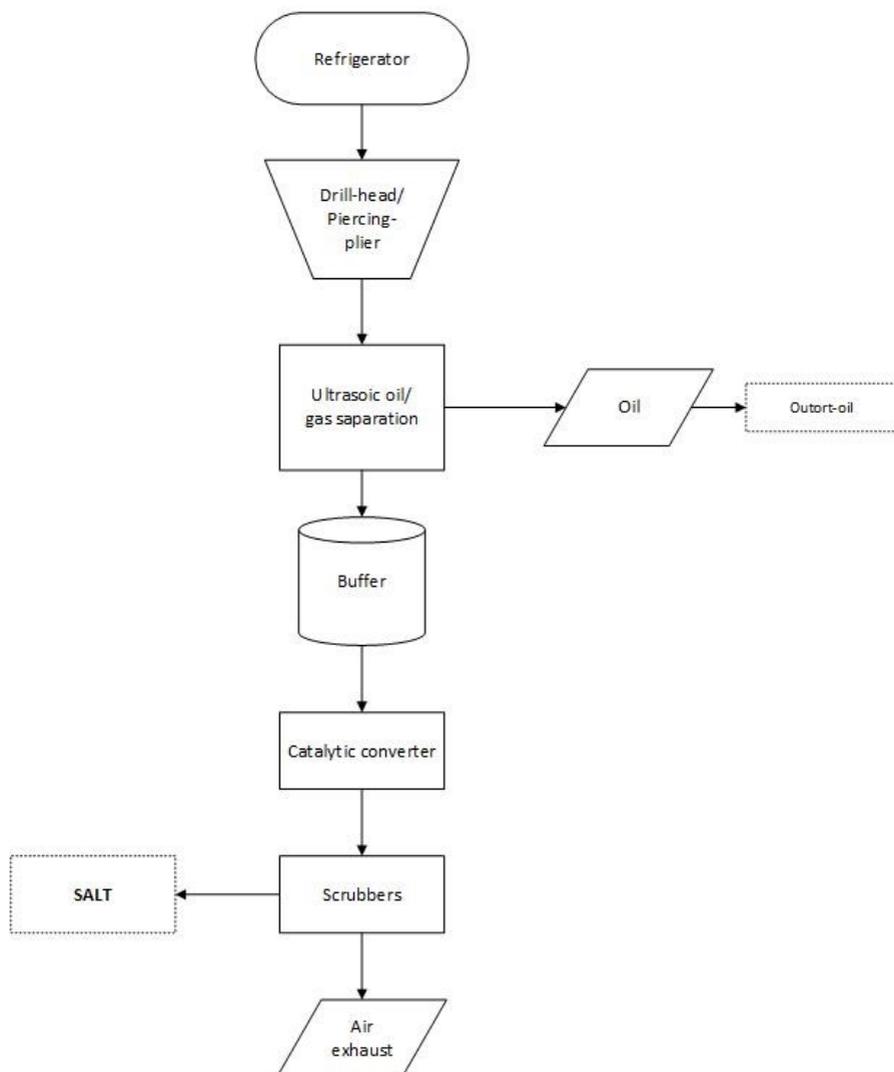
The energy that will be produced by this unit can be used for heating the factory. The salt can be sold.

The CO₂ emission will be reduced by 12000 times.

Low temperature condensor with Catalytic Converter for air outlet



Catalytic Converter without condensing



2. Data collecting

ATN DC



The **ATN-DC** enables you to collect data from both the inputs and outputs of the degassing machine. All data is logged and sends a daily or weekly report to your PC. The automatically logged data helps you to run a perfect bookkeeping system, producing accountable reports for your environmental agency.

The following data is automatically stored and sent to a computer in your office:

- Size
- Pressure or no pressure
- Type of filled gas (only with SEP)
- Filling weight
- Average weight of collected refrigerant per refrigerator.
- Total weight of refrigerant.
- Average weight of oil collected.
- Total weight of oil collected.
- When an ATN SEP is installed, even the weight per refrigerant.

The list on the next page is an example of what the records could look like.



ATN STAGE 1
WEEK REPORT

Operator
name:

Date	2-mrt-15	3-mrt-15	4-mrt-15	5-mrt-15	6-mrt-15	7-mrt-15	8-mrt-15
	MONDAY	TEUSDAY	WENSDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
Total							
Low Pressure							
R12 HIGH PRESS							
R134a HIGH PRESS							
R600A HIGH PRESS							
KG R12							
KG R134a							
KG R600A							
AVERAGE R12							
AVERAGE R134a							
AVERAGE R600a							
KG OIL							
AVERAGE GRAM OIL							
SMALL							
MEDIUM							
LARGE							
NO COMPRESSOR							

This system is used to monitor stage one degassing activities, every day. The results gives you perfect feedback and figures that prove to your contract partners that you are doing the agreed works to a very high standard.



3. Combination Recycling Air-conditioning and refrigerator



ATN-16 PT HD

Degassing/deoiling machine with 16 piercing-pliers.

This machine is designed for degassing refrigerators and air-conditioning units, with 16 piercing-pliers for the refrigerators and one clamp for the AC-unit. This machine can degas refrigerators as well as air-conditioning units.

The 16 piercing-pliers are able to degas 67 refrigerators per hour. At the same time, the machine is able to degas up to 15 kg of refrigerant gas per hour. All common gases from refrigerators and air-conditioning units can be degassed, except NH₃. The machine is supplied with extended operator training. Degassing air-conditioning units requires more skill and knowledge than refrigerator degassing. Safety is a very important issue during training.

Average capacity:

67 refrigerators per hour

Average costs:

15kg refrigerants gas per hour

Expanding opportunities:

On quotation

None



ATN 2BK HD

Degassing/deoiling machine with 2-drillheads for the domestic refrigerators and 2 drill-head and 1

Degassing machine for degassing refrigerators and air-conditioning units. A capacity of 84 refrigerators and up to 15 Kg of refrigerant gas per hour can be achieved with this machine. All common refrigerants except NH₃ can be degassed. Using the drill head to remove the oil from the compressor of an air-conditioning unit, you are able to empty the compressor completely. The large amount of gas from an AC-unit is stored in a 2m³ buffer-tank. The programmable-logic-controller (PLC) regulates the gas into the condensation part of the machine. This guarantees that the gas from the refrigerators is condensed first, in order to ensure the maximum capacity of the refrigerator recycling.

Average capacity:

**84 refrigerators per hour
15kg refrigerant gas per hour**

Average costs:

On quotation

Expanding opportunities:

None

4. Air-conditioning units



ATN 4 BK-PT

Degassing/deoiling
machine for industrial

**Specially designed for fending machines
and other industrial cooling and freezing
equipment.**

60kg refrigerant per hour

ATN 4 BK-PT is designed for the degassing and deoiling of all types of industrial cooling devices. With a condensing capacity of 60kg refrigerant per hour it is the biggest machine of his kind. Large scale degassing of air-conditioning units, all kinds of fending machines and other industrial cooling and freezing equipment is demanded more and more. With this new ATN 4 BK-PT it is possible to degas even quicker than the gas is able to evaporate. Extra heating units speed up the process of evaporation.

The condensing capacity of the ATN 4 BK-PT is with 60 KG per Hour enough to maximize the capacity of your degassing facility. It is also possible to degas the units in badges in order to reclaim the refrigerant as a mono-stream for reuse. By pushing a button on the display of the machine you can change the tank after the machine has emptied itself. Up to four tanks on four weight scales can be connected to the machine. Each for a specific type of refrigerant. Four drill-heads enables the operator to de-oil the compressor in the fastest possible way.



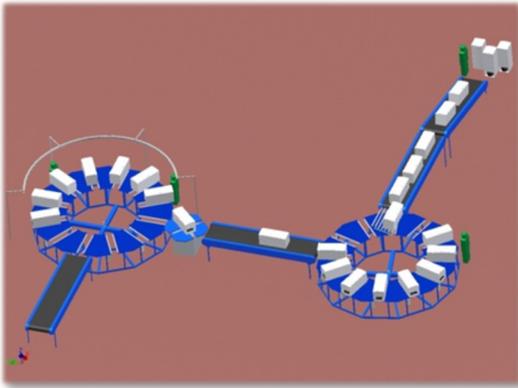


An operator is required to make the connection between the cooling device and the ATN 4 BK-PT. After the connection is established the machine takes over the control of the degassing cycle. The liquefied gas is conveyed into the designated tank. The cooling device will be vacuumed in order to reach the highest possible efficiency for the degassing. For safety reasons the drill-head can only be used in combination with the piercing device or the service connections of the cooling device.

The machine is designed for all types of refrigerant (NH3 excluded).



5. Logistics



Logistics

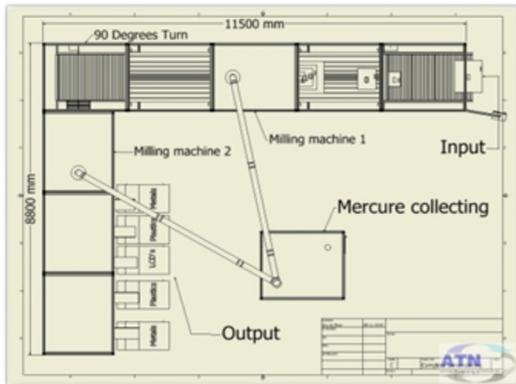
From a small conveyor up to a complete carousel system for processing more than 150 refrigerators per hour. Everything you need to make your refrigerator recycling as efficient as possible. Combined with our degassing machines, it is even possible to create semi-automatic degassing systems. Custom-made logistics systems for stage one degassing units and all kinds of systems for the manual and automatic disassembly of CRT-televisions and flat screens are also available.

6. Television recycling



ATN-CRT/FS

Recycling systems for the disassembly of televisions as well as CRT recycling systems with capacities up to 300 CRTs per hour. We also can help you with glass recycling. For instance, among the many options it can be used for water filtration.



For instance, flat screen monitor and CRT recycling is increasingly becoming an issue. Collecting the mercury and other harmful materials in an environmentally friendly way and separating the materials has to be done in a machine, in order to avoid polluting the operators' work area. A capacity of up to 50 per hour is possible.

7. Second-hand machines

Second-hand machines

For example; BK1, BK2/3 and television recycling machines.



ATN Engineering is also more and more able to supply second hand machines. Completely refurbished, updated and with a warranty. Installed by our own technicians.

8. Financing your projects



Financing your projects

In cooperation with a number of financial institutes, ATN Engineering is able to help the customer with financing the machines. Rental or lease contracts and several other financial solutions are available.

ATN Engineering B.V.

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**Fast, easy and safe way to
recycle refrigerators!**

Contact us for more information!

