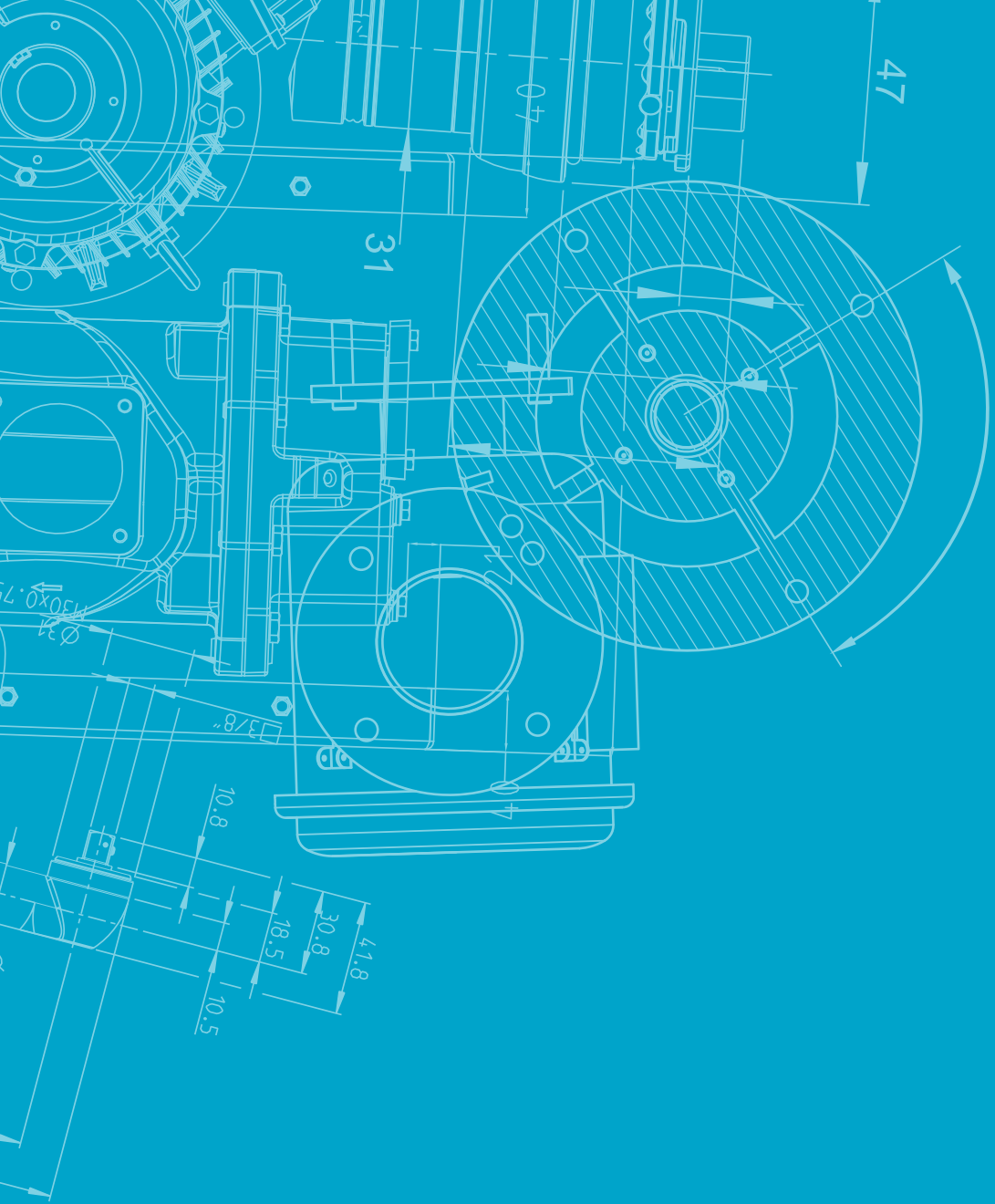

Instruction book

Oil-free scroll compressors

SF Essence 2, SF Essence 4, SF Essence 5.5

Atlas Copco

Oil-free scroll compressors

SF Essence 2, SF Essence 4, SF Essence 5.5

Instruction book

Original instructions

WARNING

Read all safety warnings, instructions, illustrations and specifications provided with this product. Failure to follow all instructions listed in this instruction book may result in personal injury, death and/or property damage.

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Table of contents

1 Safety precautions

1.1 Safety signal words

DANGER

Indicates a hazard with a high level of risk, which, if not avoided, will result in death, serious personal injury and/or property damage.

WARNING

Indicates a hazard with a medium level of risk, which, if not avoided, could result in death, serious personal injury and/or property damage.

CAUTION

Indicates a hazard with a low level of risk, which, if not avoided, may result in serious personal injury and/or property damage.

NOTICE

Indicates that a mandatory action shall be taken to avoid a hazard.

NOTE

Indicates important information.

1.2 General safety precautions

- The operator must employ safe working practices and observe all related work safety requirements and regulations.
- If any of the following statements does not comply with the applicable legislation, the stricter of the two shall apply.
- Installation, operation, maintenance and repair work must be performed only by authorized, trained and specialized personnel. The personnel should apply safe working practices by use of personal protection equipment, appropriate tools and defined procedures.
- The compressor is not considered capable of producing air of breathing quality. For air of breathing quality, the compressed air must be adequately purified according to the applicable legislation and standards.
- Never play with compressed air. Do not apply the air to your skin or direct an air stream at people. Never use the air to clean dirt from your clothes. When using the air to clean equipment, do so with extreme caution and wear eye protection.
- The owner is responsible for maintaining the unit in safe operating condition. Parts and accessories shall be replaced if unsuitable for safe operation.
- It is not allowed to walk or stand on the unit or on its components.
- If compressed air is used in the food industry and more specifically for direct food contact, it is recommended, for optimal safety, to use certified Class 0 compressors in combination with

appropriate filtration depending on the application. Please contact your customer center for advice on specific filtration.

- The service switch should be operated by a trained service specialist from the manufacturer.

1.3 Safety precautions during installation

WARNING

All responsibility for any damage or injury resulting from neglecting these precautions, or non-observance of the normal caution and care required for installation, operation, maintenance and repair, even if not expressly stated, will be disclaimed by the manufacturer.

- The machine must only be lifted using suitable equipment in accordance with the applicable safety regulations. Loose or pivoting parts must be securely fastened before lifting. It is strictly forbidden to dwell or stay in the risk zone under a lifted load. Lifting acceleration and deceleration must be kept within safe limits. Wear a safety helmet when working in the area of overhead or lifting equipment.
- The unit is designed for indoor use. If the unit is installed outdoors, special precautions must be taken. Consult your supplier.
- Place the machine where the ambient air is as cool and clean as possible. If necessary, install a suction duct. Never obstruct the air inlet. Care must be taken to minimize the entry of moisture via the inlet air.
- Any blanking flanges, plugs, caps and desiccant bags must be removed before connecting the pipes.
- Air hoses must have the correct size and be suitable for the working pressure. Never use frayed, damaged or worn hoses. Distribution pipes and connections must have the correct size and be suitable for the working pressure.
- The aspirated air must be free of flammable fumes, vapors and particles, e.g. paint solvents, that can lead to internal fire or explosion.
- Arrange the air intake so that loose clothing worn by people cannot be drawn in.
- Ensure that the discharge pipe from the compressor to the air cooler or air net is free to expand under heat and that it is not in contact with or close to flammable materials.
- No external force may be exerted on the air outlet valve; the connected pipe must be free of strain.
- If remote control is installed, the machine must bear a clear sign stating: "DANGER: This machine is remotely controlled and may start without warning".

  Before any maintenance or repair, the operator has to make sure that the machine is stopped and depressurized as well as that the electrical isolating switch is open, locked and labelled with a temporary warning. As a further safeguard, persons switching on or off remotely controlled machines shall take adequate precautions to ensure that there is no one checking or working on the machine. To this end, a suitable notice shall be affixed to the start equipment.
- Air-cooled machines must be installed in such a way that an adequate flow of cooling air is available and that the exhausted air does not recirculate to the compressor air inlet or cooling air inlet.
- The electrical connections must correspond to the applicable codes. The machines must be earthed and protected against short circuits by fuses in all phases. A lockable power isolating switch must be installed near the compressor.

- On machines with an automatic start/stop system or if the automatic restart after voltage failure (ARAVF) function is activated, a sign stating "This machine may start without warning" must be affixed near the instrument panel.
- In multiple compressor systems, manual valves must be installed to isolate each compressor. Non-return valves (check valves) must not be relied upon for isolating pressure systems.
- Never remove or tamper with the safety devices, guards or insulation fitted on the machine. Every pressure vessel or auxiliary installed outside the machine to contain air above atmospheric pressure must be protected by a pressure relieving device or devices as required.
- Piping or other parts with a temperature higher than 70 ˚C (158 ˚F) that can be touched accidentally by personnel in normal operation must be guarded or insulated. Other high temperature piping must be clearly marked.
- If the ground is not level or can be subject to variable inclination, consult the manufacturer.
- In an installation with multiple compressors, the outlet piping must be installed in such a way that condensate cannot flow back into the compressor. See section *Installation proposal*.

NOTE

Also consult the following safety precautions: *Safety precautions during operation* and *Safety precautions during maintenance or repair*.

These precautions apply to machinery processing or consuming air or inert gas. Processing of any other gas requires additional safety precautions typical to the application which are not included herein.

Some precautions are general and cover several machine types and equipment; hence some statements may not apply to your machine.

1.4 Safety precautions during operation

WARNING

All responsibility for any damage or injury resulting from neglecting these precautions, or non-observance of the normal caution and care required for installation, operation, maintenance and repair, even if not expressly stated, will be disclaimed by the manufacturer.

- Never touch any piping or components of the machine during operation.
- Use only the correct type and size of hose end fittings and connections. When blowing through a hose or air line, ensure that the open end is held securely. A free end will whip and may cause injury. Make sure that a hose is fully depressurized before disconnecting it.
- Persons switching on remotely controlled machines shall take adequate precautions to ensure that there is no one checking or working on the machine. To this end, a suitable notice shall be affixed to the remote start equipment.
- Never operate the machine when there is a possibility of taking in flammable or toxic fumes, vapors or particles.
- Never operate the machine below or in excess of its limit ratings.
- Keep all bodywork doors shut during operation. The doors may be opened for short periods only, e.g. to carry out routine checks. Wear ear and eye protection when opening a door.

  On machines without bodywork, wear ear protection in the vicinity of the machine.

- People staying in environments or rooms where the sound pressure level reaches or exceeds 80 dB(A) shall wear ear protectors.
- Periodically check that:
  - All guards are in place and securely fastened
  - All hoses and/or pipes inside the machine are in good condition, secure and not rubbing
  - No leaks occur
  - All fasteners are tight
  - All electrical leads are secure and in good order
  - Safety valves and other pressure relief devices are not obstructed by dirt or paint
  - Air outlet valve and air net, i.e. pipes, couplings, manifolds, valves, hoses, etc. are in good repair, free of wear or abuse
  - All pre-filters are not clogged
- If warm cooling air from compressors is used in air heating systems, e.g. to warm up a workroom, take precautions against air pollution and possible contamination of the breathing air.
- Do not remove any of, or tamper with, the sound-damping material.
- Never remove or tamper with the safety devices, guards or insulations fitted on the machine. Every pressure vessel or auxiliary installed outside the machine to contain air above atmospheric pressure shall be protected by a pressure relieving device or devices as required.
- Yearly inspect the air receiver. Minimum wall thickness as specified in the instruction book must be respected. Local regulations remain applicable if they are more strict.

NOTE

Also consult the following safety precautions: *Safety precautions during operation* and *Safety precautions during maintenance or repair*.

These precautions apply to machinery processing or consuming air or inert gas. Processing of any other gas requires additional safety precautions typical to the application which are not included herein.

Some precautions are general and cover several machine types and equipment; hence some statements may not apply to your machine.

1.5 Safety precautions during maintenance or repair

WARNING

All responsibility for any damage or injury resulting from neglecting these precautions, or non-observance of the normal caution and care required for installation, operation, maintenance and repair, even if not expressly stated, will be disclaimed by the manufacturer.

- Always use the correct safety equipment (such as safety glasses, gloves, safety shoes, etc.).
- Use only the correct tools for maintenance and repair work.
- Use only genuine spare parts for maintenance or repair. The manufacturer will disclaim all damage or injuries caused by the use of non-genuine spare parts.
- All maintenance work shall only be undertaken when the machine has cooled down.
- A warning sign bearing a legend such as "Work in progress; do not start" shall be attached to the starting equipment.

- Persons switching on remotely controlled machines shall take adequate precautions to ensure that there is no one checking or working on the machine. To this end, a suitable notice shall be affixed to the remote start equipment.
- Close the compressor air outlet valve and depressurize the compressor before connecting or disconnecting a pipe.
- Before removing any pressurized component, effectively isolate the machine from all sources of pressure and relieve the entire system of pressure. See section *Maintenance*.
- Never use flammable solvents or carbon tetrachloride for cleaning parts. Take safety precautions against toxic vapors of cleaning liquids.
- Scrupulously observe cleanliness during maintenance and repair. Keep dirt away by covering the parts and exposed openings with a clean cloth, paper or tape.
- Never weld or perform any operation involving heat near the oil system. Oil tanks must be completely purged, e.g. by steam cleaning, before carrying out such operations. Never weld on, or in any way modify, pressure vessels.
- Whenever there is an indication or any suspicion that an internal part of a machine is overheated, the machine shall be stopped but no inspection covers shall be opened before sufficient cooling time has elapsed; this to avoid the risk of spontaneous ignition of the oil vapor when air is admitted.
- Never use a light source with open flame for inspecting the interior of a machine, pressure vessel, etc.
- Make sure that no tools, loose parts or rags are left in or on the machine.
- When replacing the air filter, make sure no dirt, dust, rags, tools or loose parts can fall in the air inlet.
- All regulating and safety devices shall be maintained with due care to ensure that they function properly. They may not be put out of action.
- Before clearing the machine for use after maintenance or overhaul, check that operating pressures, temperatures and time settings are correct. Check that all control and shut-down devices are fitted and that they function correctly. If removed, check that the coupling guard of the compressor drive shaft has been reinstalled.
- Every time the separator element is renewed, examine the discharge pipe and the inside of the oil separator vessel for carbon deposits; if excessive, the deposits should be removed.
- Protect the motor, air filter, electrical and regulating components, etc. to prevent moisture from entering them, e.g. when steam cleaning.
- Make sure that all sound-damping material and vibration dampers, e.g. damping material on the bodywork and in the air inlet and outlet systems of the compressor, is in good condition. If damaged, replace it by genuine material from the manufacturer to prevent the sound pressure level from increasing.
- Never use caustic solvents which can damage materials of the air net, e.g. polycarbonate bowls.
- **Only if applicable, the following safety precautions are stressed when handling refrigerant:**
    - Never inhale refrigerant vapors. Check that the working area is adequately ventilated; if required, use breathing protection.
    - Always wear special gloves. In case of refrigerant contact with the skin, rinse the skin with water. If liquid refrigerant contacts the skin through clothing, never tear off or remove the latter; flush abundantly with fresh water over the clothing until all refrigerant is flushed away; then seek medical first aid.
- Protect hands to avoid injury from hot machine parts, e.g. during draining of oil.
- Be aware of eventual sharp edges on certain parts of the machine.

- Only authorized, trained, specialized personnel should perform repairs and/or maintenance related activities.

NOTE

Also consult the following safety precautions: *Safety precautions during operation* and *Safety precautions during maintenance or repair*.

These precautions apply to machinery processing or consuming air or inert gas. Processing of any other gas requires additional safety precautions typical to the application which are not included herein.

Some precautions are general and cover several machine types and equipment; hence some statements may not apply to your machine.

1.6 Dismantling and disposal

The device must be disposed of according to local regulations. The product is not designed for refurbishing after the finished lifecycle.

Dismantling

Dismantling should only be performed by trained personnel familiar with the equipment and the safety requirements.

Once the end of life of the equipment is reached, please follow the next steps:

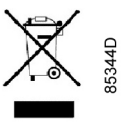
1. Stop the machine.
2. Check all safety precautions mentioned in the previous chapters to guarantee safe handling (e.g. LOTO, cool-down, depressurize, discharge, etc.).
3. Separate the components for disposal, such as oil-containing parts, in accordance with the local regulations.
4. Refer to the information below or contact your local representative for further details on specific materials and disposal procedures.

Disposal

- Always adhere to local regulations when disposing of the equipment. These regulations may require specific procedures or designated facilities for handling electrical waste (e-waste) and specific materials or components.
- Many parts are recyclable including metals like steel, aluminium, copper and precious metals. Plastics, rubber, cardboard and other packaging material can be used in energy recovery.
- Contact your local waste management company or recycling facility for detailed information on how to properly dispose of different components in your region.

Disposal of electrical and electronic appliances (WEEE)

This equipment falls under the provisions of the European Directive 2012/19/EU on waste electrical and electronic appliances (WEEE) as well as under the UKCA Waste Electrical and Electronic Equipment regulations 2013 and may not be disposed of as unsorted waste.



The equipment is labelled in accordance with the European Directive 2012/19/EU and the UKCA Waste Electrical and Electronic Equipment regulations 2013 with the crossed-out wheelie bin symbol.

At the end of life of the electric and electronic equipment (EEE) it must be taken to separate collection.

For more information check with your local waste authority, customer center or distributor.

Disposal of other used material

Used filters or any other used material (e.g. filter bags, filter media, desiccant, lubricants, cleaning rags, machine parts, etc.) must be disposed of in an environmentally friendly and safe manner, and in line with the local recommendations and environmental legislation.

2 General description

2.1 Introduction

General

The compressors are stationary, oil-free, single-stage units, belt-driven by an electric motor. The compressors are air-cooled and feature a horizontal open-frame design without sound enclosure.

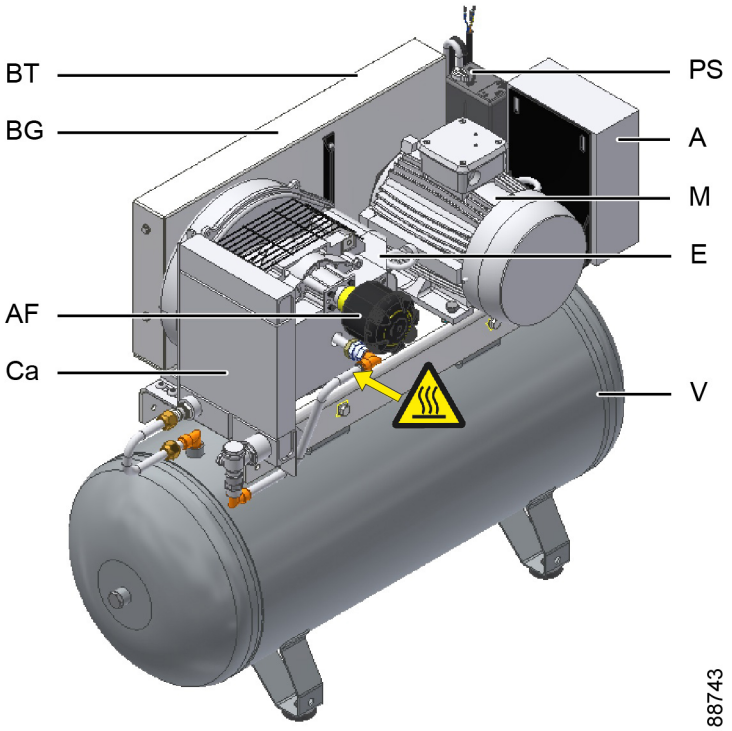


Figure 1: Tank-mounted unit, 90 l air receiver

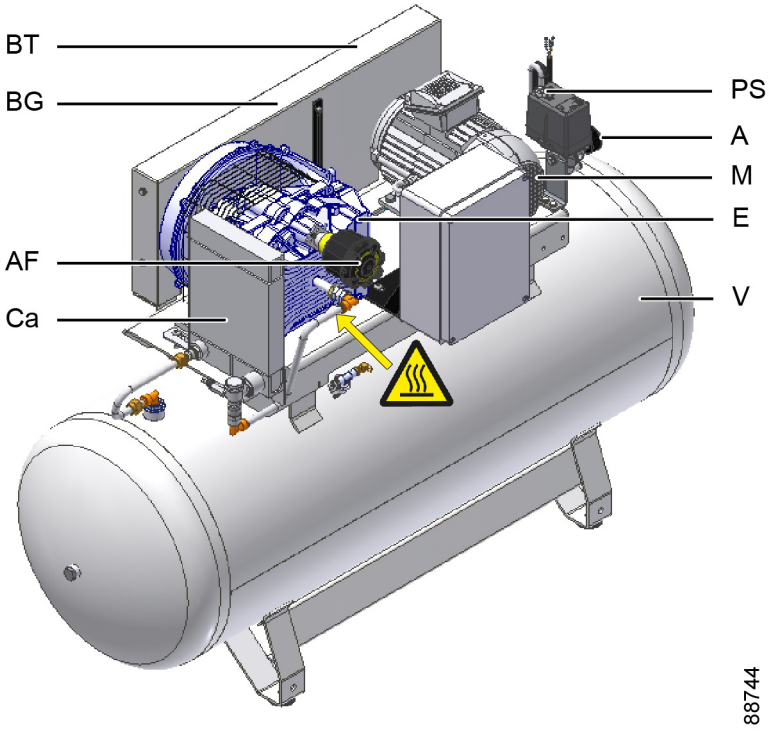


Figure 2: Tank-mounted unit, 270 l air receiver

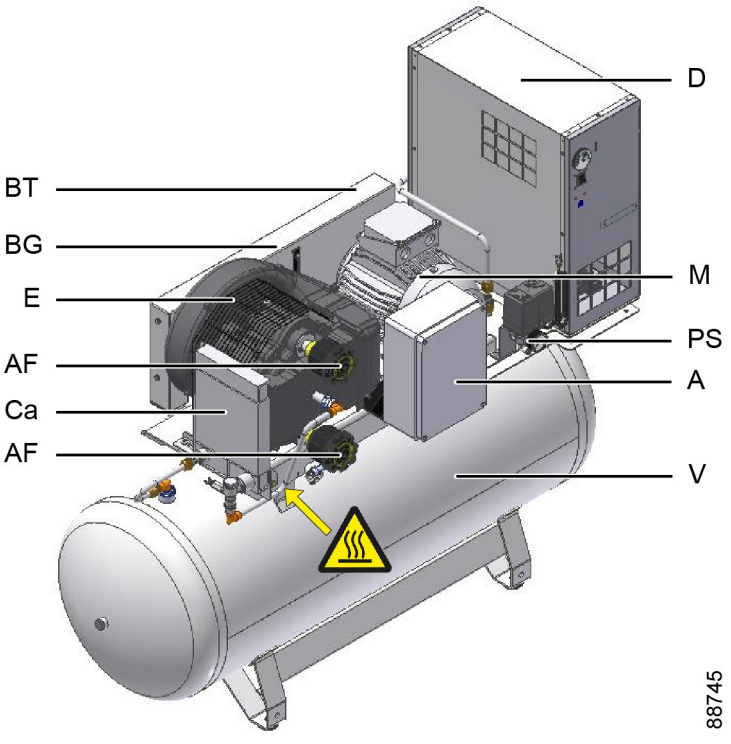


Figure 3: Tank-mounted unit, 270 l air receiver, with dryer

Reference	Description
BT	Belt transmission

Reference	Description
BG	Belt guard
AF	Air filter
Ca	Air cooler
V	Vessel
E	Scroll element
M	Electric motor
A	Accessory for temperature switch or cubicle box
PS	Pressure switch
D	Dryer

Available versions

- Base-mounted (BM)

  The base-mounted (BM) version includes a compressor element, motor and cooler, as well as protection components.
- Tank-mounted (TM)

  The tank-mounted ™ version is a base-mounted (BM) unit mounted on a 90 l or 270 l air receiver.
- Full-Feature (FF)

  The Full-Feature (FF) version is a tank-mounted (TM) unit completed with an integrated refrigerant dryer (C3).

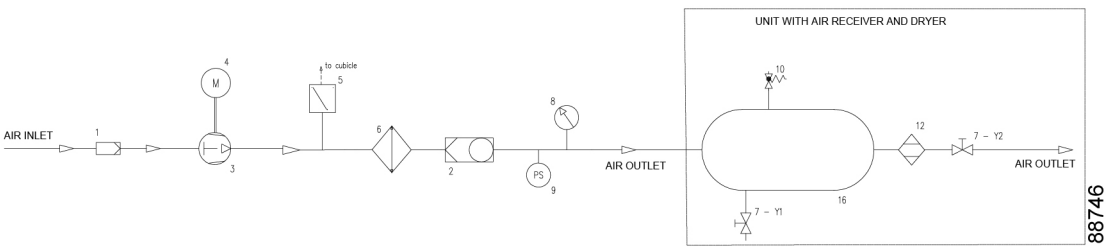
Available options

- 90 l or 270 l air receiver
- YD cubicle (for 3.7 kW and 5.5 kW)
- Timer drain (EWD)
- Reverse rotation control

Functionality

A temperature switch and safety valve protect the compressor element. A check valve prevents air loss when the unit stops. The cooling system includes an air cooler. The units are equipped with IE3 motors, which offer high energy efficiency and comply with international standards.

2.2 Flow diagram



Air flow description

Ambient air enters the system through the air filter (1) to remove dust and impurities. The filtered air enters the compressor (3), which increases the air pressure, and is then directed through a check valve (2) to prevent backflow.

The compressor is driven by an electric motor (4). A temperature switch (5) is installed on the air flow line of the outlet pump to monitor thermal conditions and ensure safe operation.

After compression, the hot air flows through the aftercooler (6), which lowers its temperature to facilitate the condensation and removal of moisture. The system pressure is monitored and regulated by the pressure switch (9), while the manometer (8) provides a visual indication of the current air pressure.

At this stage, air can be routed either directly to the outlet or, in Full-Feature and tank-mounted configurations, into the air receiver (11) for storage.

Inside the tank:

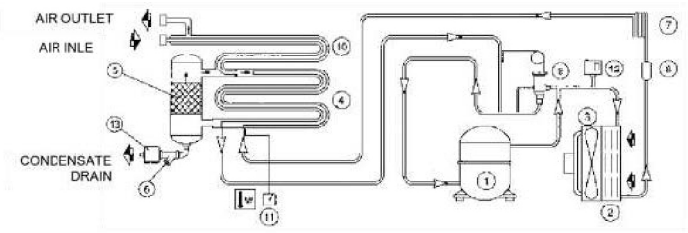
- Ball valve Y1 (7) is used to drain condensate
- Ball valve Y2 (7) acts as the outlet valve
- The safety valve (10) ensures the pressure does not exceed 10.4 bar

In Full-Feature versions, the stored compressed air is processed by a dryer (12) located downstream of the tank to remove moisture.

This configuration supports both base-mounted and tank-mounted variants, ensuring a clean and dry compressed air delivery for downstream applications.

2.3 Refrigerant dryer

Operation



During operation, compressed air flows from the air receiver to the dryer, where it is dehumidified before being delivered to the distribution network.

The dryer functions as follows:

The refrigerant vapor exiting the evaporator (4) is drawn in by the refrigerant compressor (1) and is then discharged into the condenser (2). Here, the refrigerant condenses into a liquid state with the assistance of the cooling fan (3) (if necessary).

The condensed refrigerant passes through the dehydrating filter (8) to remove moisture and impurities, then expands through the capillary tube (7) and re-enters the evaporator (4). In the evaporator, it absorbs heat from the incoming compressed air via counterflow heat exchange, evaporating back into a gas and completing the cycle.

To match the cooling capacity to the actual demand, the system is equipped with a refrigerant bypass circuit. This circuit regulates the performance by injecting hot gas, controlled by a valve (9). The valve maintains a constant pressure in the evaporator, ensuring that the dew point does not fall below 0 °C (32 °F). This prevents the formation of ice in the evaporator and ensures a stable, efficient operation.

3 Installation

3.1 Dimension drawings

The dimension drawings can be found in the technical documentation supplied with the compressor.

Model	Dimension drawing number
SFE 2-5, base-mounted	1837 0682 68
SFE 2-5, tank-mounted (90l)	1837 0682 69
SFE 2-5, tank-mounted (270l)	1837 0682 70
SFE 2-5,Full-Feature (FF), tank-mounted (270l)	1837 0682 71

Hereby a list of commonly used terms with their translation:

Text on drawings	Translation or Explanation
COOLING AIR OUTLET	Cooling air outlet
COMPRESSED AIR OUTLET	Compressed air outlet
COOLING AIR INLET	Cooling air inlet
POWER SUPPLY CABLE	Power supply cable
DRYER MANUAL DRAIN	Manual drain valve of the dryer
AUTOMATIC DRAIN	Automatic drain outlet
CENTER OF GRAVITY	Location of center of gravity
DRYER SERVICE PANEL	Service panel for the dryer
DOOR FULLY OPEN	Dimensions with fully open door
COOLING AIR INLET OF DRYER	Cooling air inlet for the dryer
ANCHOR POINTS	Location of anchoring points
AIR RECEIVER MANUAL DRAIN	Manual drain of the air receiver
THE DIMENSIONS FOR 500 L VESSEL...	Dimensions of the 500 l vessel are indicated between ( ) where they are different from the dimensions of the 270 l vessel.
THE DIMENSIONS FOR FULL-FEATURE UNIT...	Dimensions of the Full-Feature units are indicated between ( )

3.2 Installation proposal

Install the compressor in an area where the noise levels do not cause inconvenience and where adequate ventilation is available for cooling purposes.

WARNING

Before connecting the compressor, check that the electrical data on the compressor data plates are in accordance with the local power supply. Before connecting the electricity, ensure that the power supply is off and correctly isolated.

The electrical power supplied to the compressor must be connected by a qualified electrician in accordance with the wiring diagram supplied

with the machine. All wiring must be in accordance with the applicable regulations.

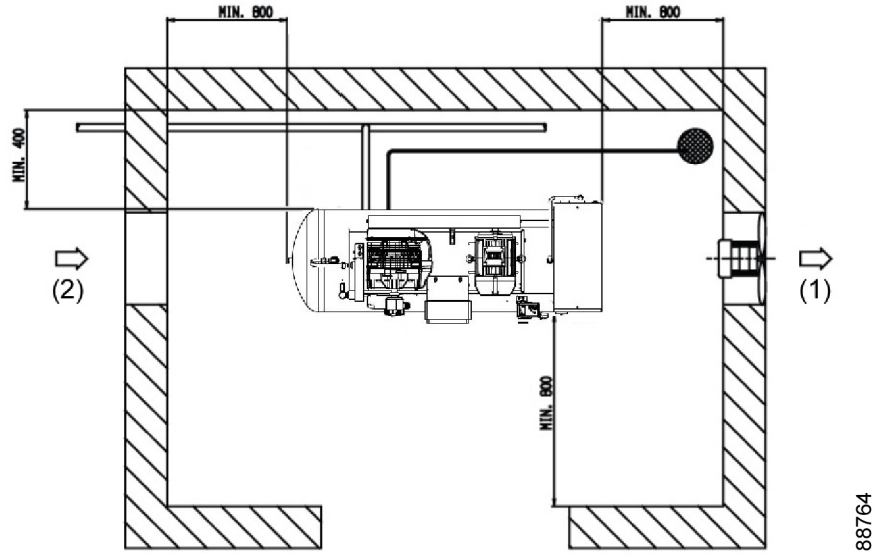


Figure 4: Installation proposal for tank-mounted unit (90 l receiver)

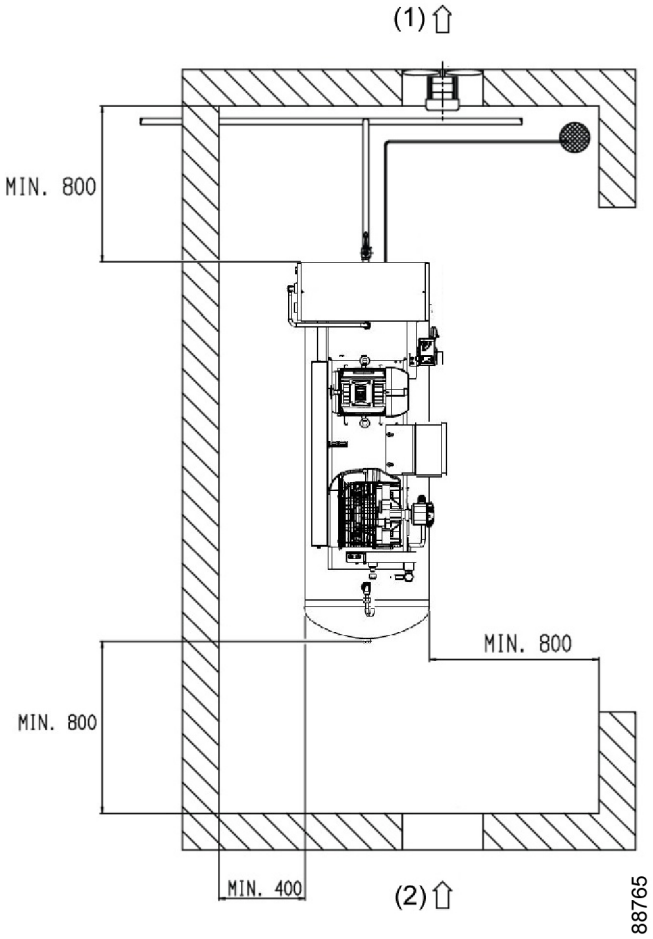


Figure 5: Installation proposal for tank-mounted unit (270 l receiver)

Recommendations

1. The compressor must be installed in a clean, frost-free indoor location. The ambient temperature in the compressor room should remain between 5 °C (41 °F) and 40 °C (104 °F). The installation site must meet the following conditions:

   - No direct exposure to sunlight
   - No direct exposure to rain
   - No direct exposure to snow or other adverse weather conditions

   Additional considerations:

   - Corrosive cleaning agents

     In areas where such agents are used, metal parts exposed to them may corrode. Ensure adequate protection or separation.
   - Tropical environments

     For installations in tropical regions, make sure ambient conditions do not exceed the specified temperature limits.

2. **Delivery pipe:**

   The pressure drop in the delivery pipe can be calculated from:

   $\Delta p = (L \times 450 \times Q_c^{1.85}) / (d^5 \times P)$

d = inner diameter of the pipe in mm.

Δp = pressure drop in bar (recommended maximum: 0.1 bar (1.5 psi)).

L = length of the pipe in m.

P = absolute pressure at the compressor outlet in bar.

Q_c = free air delivery of the compressor in l/s.

3. **Ventilation:**

The inlet grids and ventilation fan should be installed in such a way that any recirculation of cooling air to the compressor is avoided. The maximum air velocity through the grids is 5 m/s (16.5 ft/s). The maximum allowable pressure drop over the cooling air ducts is 30 Pa (0.12 in wc). The maximum air temperature at the compressor intake opening is 40 ˚C (104 ˚F).

Take care that the temperature of the ambient air and the cooling air never drops below 0 °C (32 °F) to avoid the freezing of the condensate.

The required ventilation capacity to limit the compressor room temperature can be calculated from:

- Q_v = 1.06 N/Δt for Pack units.
- Q_v = (1.06 N + 0.2)/Δt for Full-Feature units.

Q_v = required ventilation capacity in m^3/s.

N = shaft input of the compressor in kW.

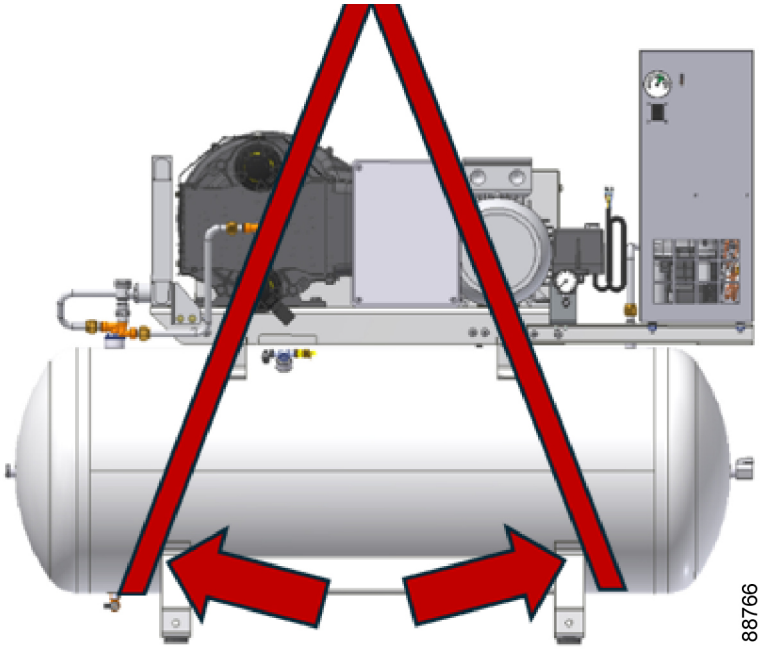
Δt = temperature increase in the compressor room in °C.

Moving and lifting

When moving a machine equipped with an air receiver, always use lifting belts rated for the total weight of the unit. The belts must be positioned as shown in the image below, which serves as a demonstrative reference only.

Please note:

- The image does not indicate the required belt length.
- Belt selection must be based on proper lifting conditions and manufacturer specifications.
- The belts must be arranged to ensure that no load is applied to the compressor components.
- The entire weight of the machine must be supported via contact with the vessel (tank).
- Belts must be placed to guarantee the stability and balance of the machine, thereby eliminating the risk of tipping or falling during lifting.



3.3 Electrical connections

Each compressor is delivered with a dedicated power cable and comes pre-wired from the factory. No rewiring is required.

Please carefully check the machine's electrical specifications before connecting it to the power supply.

3.4 Pictographs

Reference	Description
1	Read and understand the instruction manual before operating, maintaining, or servicing the equipment. Follow all procedures carefully to ensure correct use and avoid accidents or damage.
2	Avoid direct contact with hot surfaces. Wear protective gloves if intervention is necessary. Allow the machine to cool down before touching heated components.
3	Wear safety goggles when working near the equipment to protect your eyes from flying debris, pressurized fluids, sparks, or chemical splashes.
4	Keep hands, hair, clothing, and tools away from rotating parts. Do not wear loose clothing or jewelry. Make sure all guards are correctly in place during operation.
5	Disconnect power before performing any work on electrical components. Use proper insulation and protective equipment. Only qualified personnel should access live parts.

4 Operation

4.1 Initial start-up

Safety

DANGER

The belt guard is designed to protect the operator from moving mechanical parts. It must remain closed and securely fastened at all times during normal operation.

Opening the belt guard is strictly permitted only to qualified maintenance personnel, and only when the machine is completely disconnected from the electrical power supply.

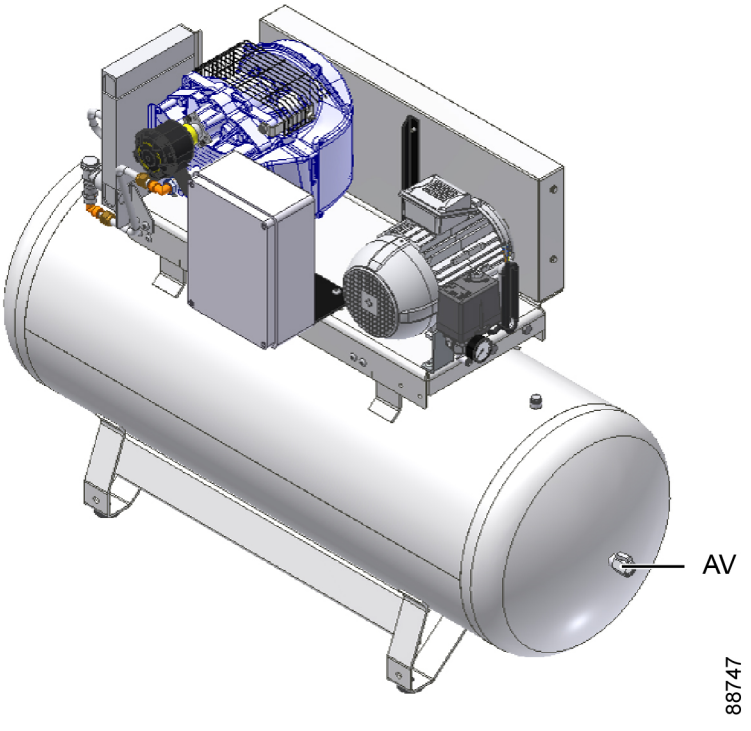
Failure to comply with these safety instructions may result in serious injury or damage to the equipment.

WARNING

The operator must apply all relevant safety precautions.

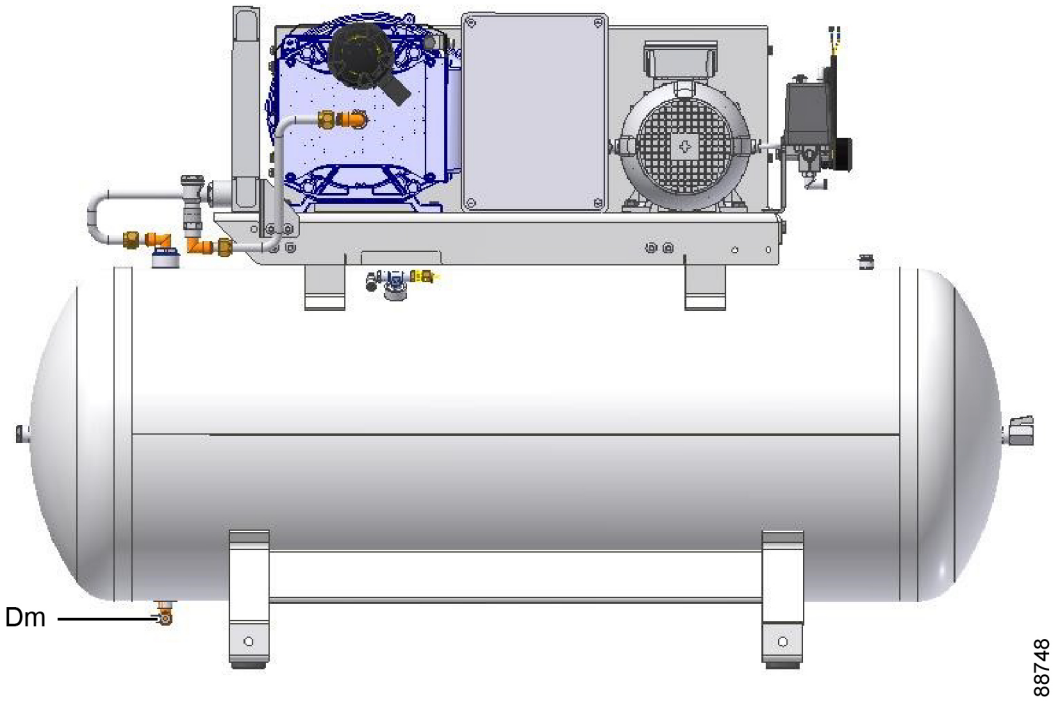
Procedure

1. Remove the transport bracket painted in red.
2. Close the air outlet valve (AV).

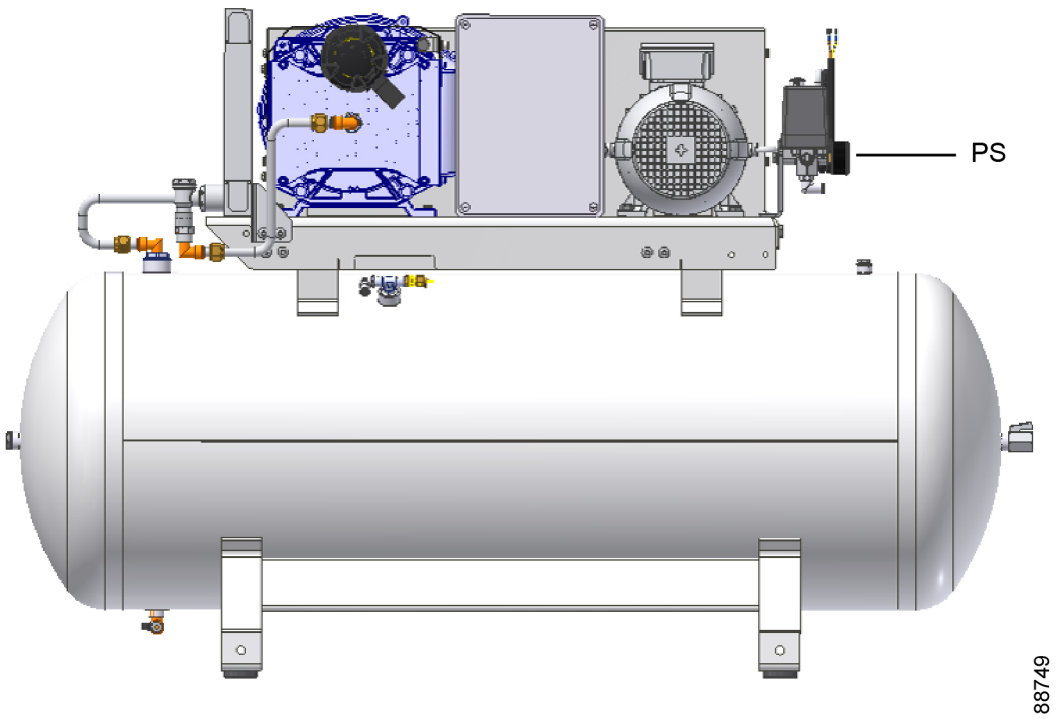


3. Check the drive motor connections. Connect the compressor to the electricity net.

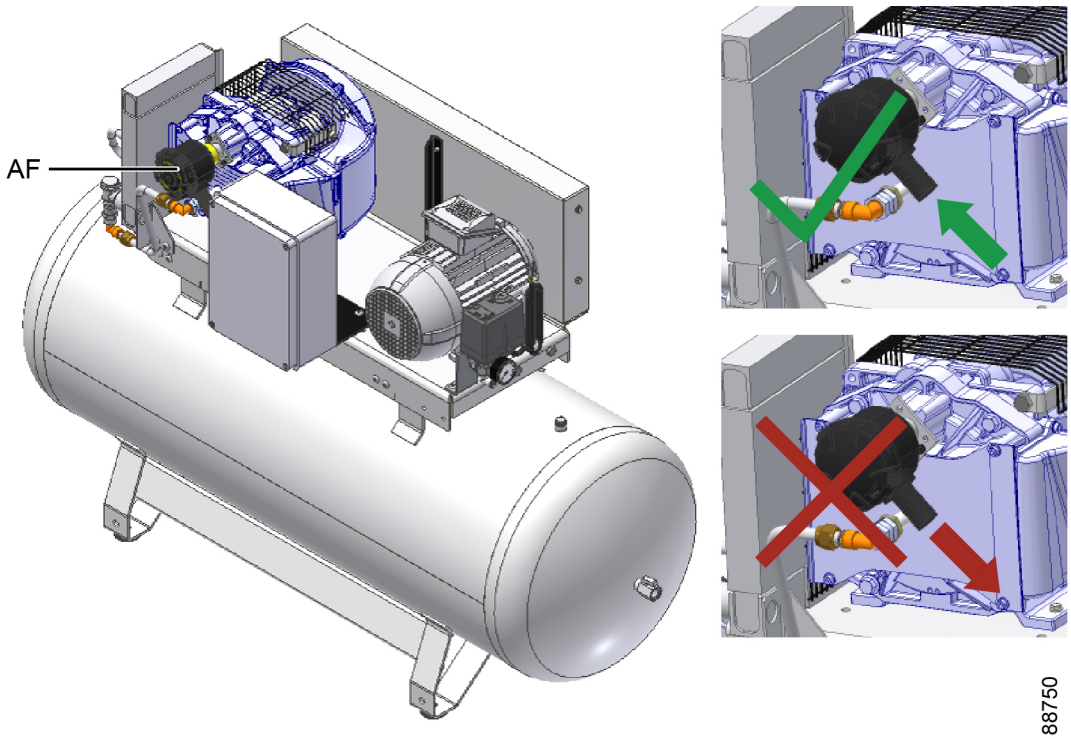
4. Close the condensate drain valve(s) (Dm).



5. Switch on the voltage.
6. Turn on the machine using the pressure switch (PS).



7. On 3-phase units, check the rotation direction of the drive motor. To do so, place a sheet of paper close to the inlet filter (AF) for about 1 second.



- If the suction direction of the pump element is correct, the paper will be pulled toward the filter.
- If not, immediately stop the compressor and reverse two of the incoming electrical phases to correct the rotation.

Alternatively, check the rotation direction of the motor fan at start-up. Let the motor run for 1 second, if it matches the direction indicated by the arrow on the belt guard, the rotation is correct.

A compressor equipped with the rotation check option will not start if the phase sequence is incorrect. In that case, reverse two of the incoming electric lines to resolve the issue.

4.2 Starting

Procedure

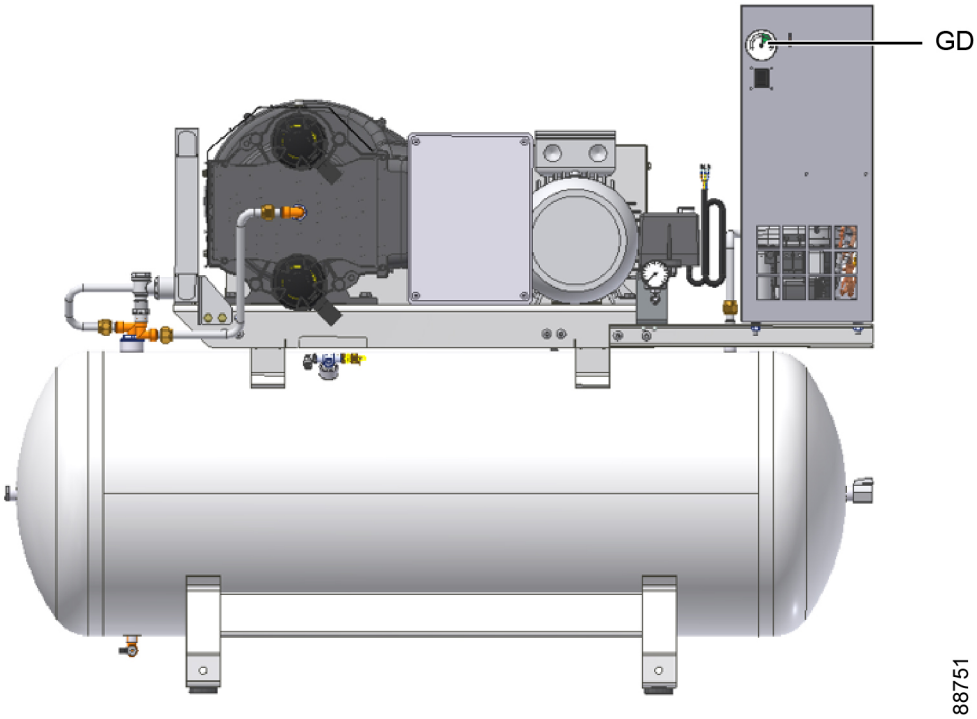
1. Close the manual condensate drain valve(s).
2. Open the air outlet valve (AV).
3. Switch on the voltage.
4. Turn on the machine using the pressure switch (PS).
5. The motor starts and stops automatically depending on the air pressure.
6. On Full-Feature units, the dewpoint of the refrigerant dryer will be reached after a few minutes.

4.3 During operation

Procedure

1. Check the pressure using the manometer to ensure the correct value has been reached.

2. On Full-Feature units, check the dewpoint on the display or via the temperature gauge (GD) on the control panel.



3. Ensure that condensate is discharged regularly by the automatic drain of the dryer. The amount of condensate depends on the operating conditions of the unit and the ambient humidity.
4. Periodically open the manual drain valve to remove any impurities.
5. On tank-mounted compressors, regularly open the manual drain valve of the air receiver to discharge the water (especially in case of Pack units). See section *Preventive maintenance schedule*.

NOTE

The dew point will deviate from nominal when the nominal conditions are exceeded. If the dew point remains too high or unstable, consult section *Problem solving*.

4.4 Stopping

Procedure

To stop the machine:

1. Use the selector switch located on the pressure switch.
2. Disconnect the incoming power supply.
3. Close the air outlet valve (AV).

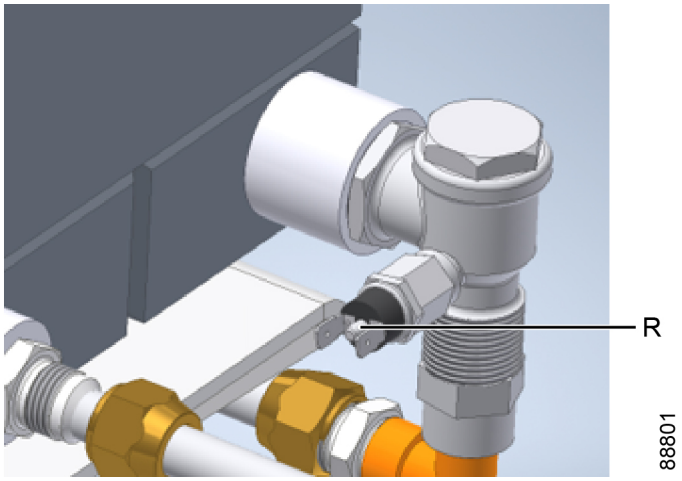
Automatic shutdown due to high temperature

If the machine stops automatically before reaching the pressure limit indicated on the pressure gauge (8 or 10 bar (116 or 145 psi), depending on the machine type), it means that the temperature switch has detected an excessively high outlet temperature.

- For 2.2 kW machines:

  Wait until the machine cools down and the temperature returns to the normal operating range. Then, restart the unit using the pressure switch.
- For 3.7 kW or 5.5 kW machines:

  Reset the temperature switch by pressing the dedicated reset button (R).



Once the temperature has returned to a safe level, restart the unit through the pressure switch.

The machine will not restart until the outlet temperature has returned to safe operating conditions.

4.5 Taking out of operation

Procedure

1. Stop the compressor and close the air outlet valve.
2. Switch off the voltage and disconnect the compressor from the mains.
3. Depressurize the compressor.
4. On Full-Feature units and on compressors with an air receiver, open the manual drain valve(s) (Dm / Dm1).
5. If provided, shut off and depressurize the part of the air net that is connected to the outlet valve. Disconnect the compressor from the air net.
6. If provided, disconnect the compressor condensate piping from the local condensate drain system.

5 Maintenance

5.1 Preventive maintenance schedule

WARNING

Before carrying out any maintenance, repair work or adjustments, proceed as follows:

- **Stop the compressor.**
- **Switch off the voltage and open the isolating switch.**
- **Close the air outlet valve and open the manual condensate drain valves.**
- **Depressurize the compressor.**

For detailed instructions, see the next sections.

The operator must apply all relevant *Safety precautions during maintenance or repair*.

WARNING

The longer interval service actions must also include the shorter interval actions.

Warranty - Product Liability

Use only authorized parts.

Any damage or malfunction caused by bad maintenance is not covered by Warranty or Product Liability.

General

When servicing, replace all removed gaskets, O-rings and washers. Clean parts when reused.

Intervals

The local Customer Center may overrule the specified maintenance schedule, especially the service intervals, depending on the environmental and working conditions of the compressor.

Preventive maintenance schedule

The following maintenance activities must be carried out exclusively by a qualified and experienced technician, due to the specific nature of the scroll technology:

- Belt tension and alignment check
- Replacement of the belt
- Replacement of the dust seal and tip seal
- Greasing of the orbit and pin crank bearings of the scroll element

This section outlines the service plan, which defines the lifespan or service intervals for both consumables and preventive maintenance components specific to the product.

The timing of the preventive maintenance is directly related to the combination of scroll element type, outlet pressure, and machine power.

The tables below elaborate on each configuration.

- Maintenance must be carried out either according to the number of running hours or the elapsed time, whichever comes first.
- In dusty environments, maintenance operations should be performed more frequently.
- Greasing of the compressor element bearings must be performed using special grease, a dedicated grease gun, and according to a specific procedure. In high ambient temperature conditions, the bearings must be greased more frequently: for every 5 °C (9 °F) increase above 30 °C (86 °F), the maintenance interval should be reduced by 30%. For further details, please contact your supplier.
- In extremely dry environments (relative humidity below 15%), tip seals and dust seals must also be replaced more frequently.

Operation	Daily	Every 3 months	Every 6 months	Every 2500 hours	Every 5000 hours	Every 7500 hours	Every 10,000 hours
Drain the condensate	x	x	x	x	x	x	x
Inspect the air inlet filter		x	x	x	x	x	x
Clean the compressor and check the air cooler and the belt tension.		x	x	x	x	x	x
Manually operate the safety valve.			x	x	x	x	x
Check for any damaged wiring or loose connections.			x	x	x	x	x
Check for air leaks.			x	x	x	x	x
Replace the air inlet filter.				x	x	x	x
Test the safety valve.				x	x	x	x
Have the temperature protection and motor overload tested if present.				x	x	x	x
Check the tension and condition of the belt(s)				x	x	x	x
Replace the belt(s).					x		x
Replace the check valve.			x	x	x	x	x
Have the orbiting and pin crank scroll bearing greased.							x
Replace the element outlet pipe and the plastic insert.							x
Clean the fan, fan duct and element cooling fins.							x
Replace the tip seals and dust seal.							x

Table 1: ATSL-140E 8 bar – 2.2 kW

Operation	Daily	Every 3 months	Every 6 months	Every 2500 hours	Every 5000 hours	Every 7500 hours	Every 10,000 hours
Drain the condensate	x	x	x	x	x	x	x
Inspect the air inlet filter		x	x	x	x	x	x

Operation	Daily	Every 3 months	Every 6 months	Every 2500 hours	Every 5000 hours	Every 7500 hours	Every 10,000 hours
Clean the compressor and check the air cooler and the belt tension.		x	x	x	x	x	x
Manually operate the safety valve.			x	x	x	x	x
Check for any damaged wiring or loose connections.			x	x	x	x	x
Check for air leaks.			x	x	x	x	x
Replace the air inlet filter.				x	x	x	x
Test the safety valve.				x	x	x	x
Have the temperature protection and motor overload tested if present.				x	x	x	x
Check the tension and condition of the belt(s)				x	x	x	x
Replace the belt(s).					x		x
Replace the check valve.			x	x	x	x	x
Have the orbiting and pin crank scroll bearing greased.					x		x
Replace the element outlet pipe and the plastic insert.					x		x
Clean the fan, fan duct and element cooling fins.					x		x
Replace the tip seals and dust seal.					x		x

Table 2: ATSL-140E 10 bar – 2.2 kW

Operation	Daily	Every 3 months	Every 6 months	Every 2500 hours	Every 5000 hours	Every 7500 hours	Every 10,000 hours
Drain the condensate	x	x	x	x	x	x	x
Inspect the air inlet filter		x	x	x	x	x	x
Clean the compressor and check the air cooler and the belt tension.		x	x	x	x	x	x
Manually operate the safety valve.			x	x	x	x	x
Check for any damaged wiring or loose connections.			x	x	x	x	x
Check for air leaks.			x	x	x	x	x
Replace the air inlet filter.				x	x	x	x
Test the safety valve.				x	x	x	x
Have the temperature protection and motor overload tested if present.				x	x	x	x
Check the tension and condition of the belt(s)				x	x	x	x
Replace the belt(s).					x		x
Replace the check valve.			x	x	x	x	x

Operation	Daily	Every 3 months	Every 6 months	Every 2500 hours	Every 5000 hours	Every 7500 hours	Every 10,000 hours
Have the orbiting bearing greased.					x		x
Clean the fan, fan duct and element cooling fins.					x		x
Have the pin crank scroll bearing greased.							x
Replace the tip seals and dust seal.							x

Table 3: OFSL D-02 8bar – 3.7 kW

Operation	Daily	Every 3 months	Every 6 months	Every 2500 hours	Every 5000 hours	Every 7500 hours	Every 10,000 hours
Drain the condensate	x	x	x	x	x	x	x
Inspect the air inlet filter		x	x	x	x	x	x
Clean the compressor and check the air cooler and the belt tension.		x	x	x	x	x	x
Manually operate the safety valve.			x	x	x	x	x
Check for any damaged wiring or loose connections.			x	x	x	x	x
Check for air leaks.			x	x	x	x	x
Replace the air inlet filter.				x	x	x	x
Test the safety valve.				x	x	x	x
Have the temperature protection and motor overload tested if present.				x	x	x	x
Check the tension and condition of the belt(s)				x	x	x	x
Replace the belt(s).					x		x
Replace the check valve.			x	x	x	x	x
Have the orbiting and pin crank scroll bearing greased.					x		x
Clean the fan, fan duct and element cooling fins.					x		x
Replace the tip seals and dust seal.					x		x

Table 4: OFSL D-02 10 bar – 3.7 kW and OFSL E-02 10 bar – 5.5kW

Operation	Daily	Every 3 months	Every 6 months	Every 2500 hours	Every 5000 hours	Every 7500 hours	Every 10,000 hours
Drain the condensate	x	x	x	x	x	x	x
Inspect the air inlet filter		x	x	x	x	x	x
Clean the compressor and check the air cooler and the belt tension.		x	x	x	x	x	x

Operation	Daily	Every 3 months	Every 6 months	Every 2500 hours	Every 5000 hours	Every 7500 hours	Every 10,000 hours
Manually operate the safety valve.			x	x	x	x	x
Check for any damaged wiring or loose connections.			x	x	x	x	x
Check for air leaks.			x	x	x	x	x
Replace the air inlet filter.				x	x	x	x
Test the safety valve.				x	x	x	x
Have the temperature protection and motor overload tested if present.				x	x	x	x
Check the tension and condition of the belt(s)				x	x	x	x
Replace the belt(s).					x		x
Replace the check valve.			x	x	x	x	x
Have the orbiting and pin crank scroll bearing greased.					x		x
Clean the fan, fan duct and element cooling fins.					x		x
Replace the tip seals and dust seal.					x		x
Have the pin crank rotor scroll bearing greased.							x

Table 5: OFSL E-03 8 bar – 5.5 kW

5.2 Service kits

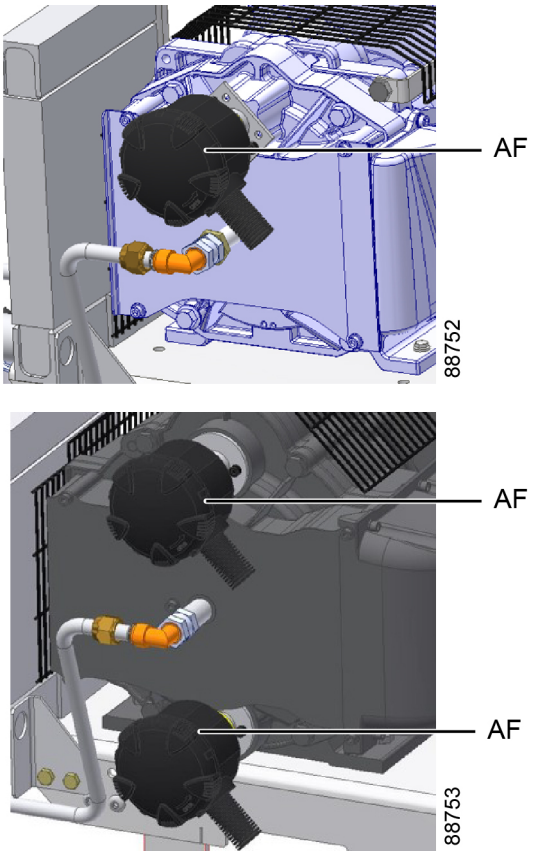
For overhaul and preventive maintenance, a wide range of service kits is available. Service kits comprise all parts required to service the component and offer the benefits of genuine parts while keeping the maintenance budget low.

A full range of extensively tested lubricants, suitable for your specific needs is also available to keep the compressor in excellent condition.

Consult the Spare Parts List for part numbers.

6 Adjustments and servicing procedures

6.1 Air filter



Procedure

1. Stop the compressor, close the air outlet valve and disconnect the power supply.
2. Remove the filter cover and take out the filter element. Discard damaged or clogged elements. Clean the cover thoroughly.
3. Fit the new filter element and reinstall the filter cover.

6.2 Air cooler

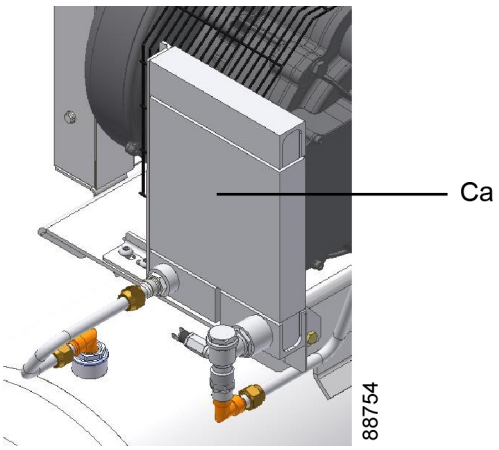


Figure 6: Air cooler (Ca)

Procedure

1. Keep the cooler clean to maintain optimal cooling efficiency. If necessary, remove any dirt with a soft fiber brush. Never use a wire brush or metal objects, as they may damage the cooler.
2. Blow compressed air through the cooler in the opposite direction of the normal flow to remove any remaining debris. While performing this operation, cover the compression element with a cloth to prevent residues from falling onto it.
3. If it is necessary to wash the cooler with a cleansing agent, consult your supplier.

6.3 Drive motor

Instructions

The motor bearings are greased for life and do not require special attention.

Keep the motor free from dust for optimal cooling.

6.4 Safety valve

DANGER

No adjustments are allowed. Never run the compressor without safety valve.

WARNING

The safety valve (SV) test can only be performed by authorized personnel and is protected by a security code.

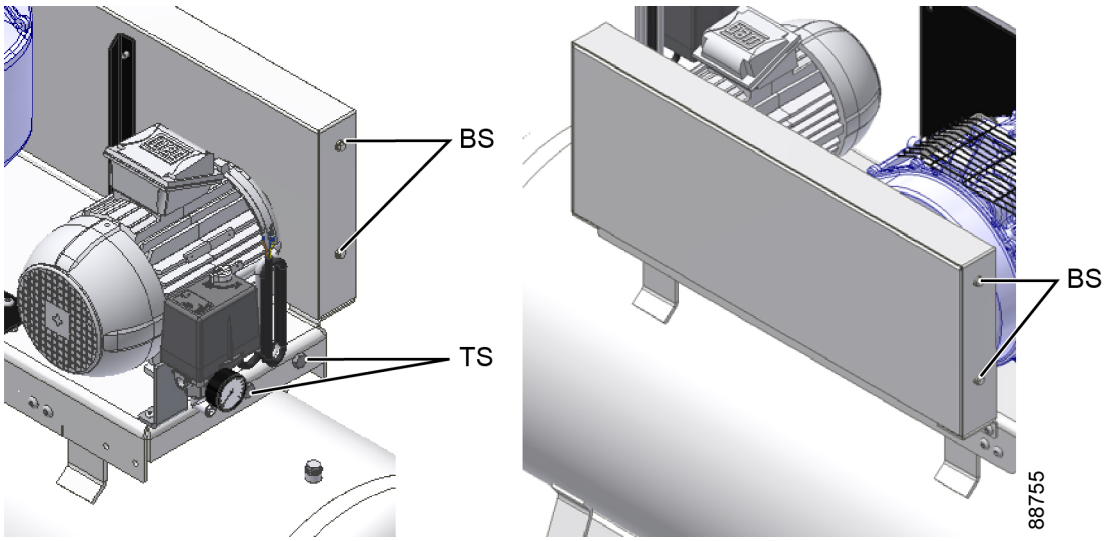
6.5 Belt replacement

Procedure

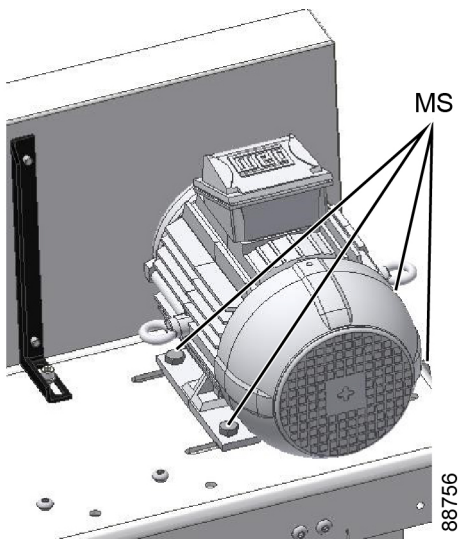
NOTE

Only use genuine belts.

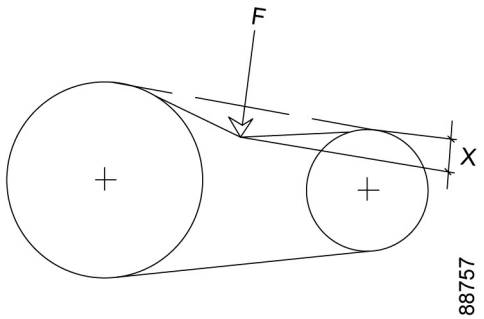
1. Stop the compressor, close the air outlet valve, and disconnect the power supply.
2. Remove the screws on the belt guard (BS) to access the drive system.



3. Carefully loosen the tensioner screws (TS) to gradually release the belt tension.
4. Gently loosen the four motor screws (MS) just enough to allow belt removal, without fully unscrewing them.



5. Move the motor closer to the pump until there is enough slack to easily remove and replace the belt.
6. Re-tension the belts using the tensioner. Refer to the table below for the correct tensioning values.



Power	New belt			Used belt		
	Force		Frequency	Force		Frequency
kW (HP)	X=6mm [N]	X=8mm [N]	[Hz]	X=6mm [N]	X=8mm [N]	[Hz]
2.2 (3)	14	/	83	9.9	/	77
3.7 (5)	/	17.5	71	/	12.8	68
5.5 (7.5)	/	25.2	87	/	18.1	82

7. Re-tighten the motor base screws to lock the motor in position.
8. Check the alignment of the pulleys using the appropriate alignment tool.
9. Inspect the belt tension after the first 500 operating hours and adjust if necessary.

6.6 Temperature protection

Description

The compressor element is protected by a temperature switch located at the element outlet. The switch is connected to the controller.

If the maximum temperature threshold is exceeded, the compressor stops automatically. It can be restarted manually through the pressure switch once the temperature has returned within the safe operating range. For 3.7 kW and 5.5 kW versions, this can only be done after the temperature switch has been reset accordingly (see section *Stopping*).

WARNING

When the compressor is stopped due to overheating, the compressor will not restart until the failure is acknowledged and the compressor is restarted manually.

6.7 Cleaning the compressor element

WARNING

Compressor element cooling channels can be hot when the compressor has just been turned off.

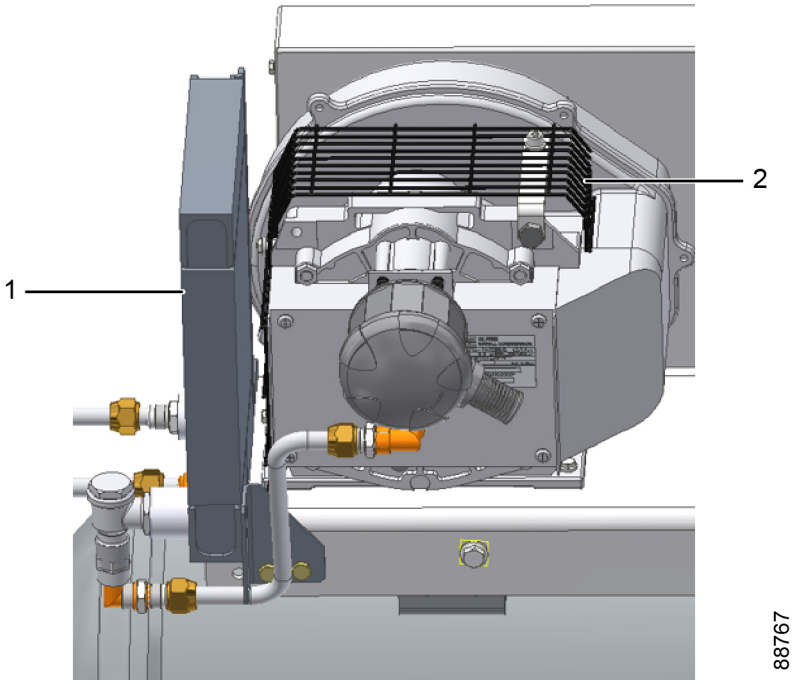
WARNING

Do not clean the cooling channels with organic solvent since this will damage the surface treatment.

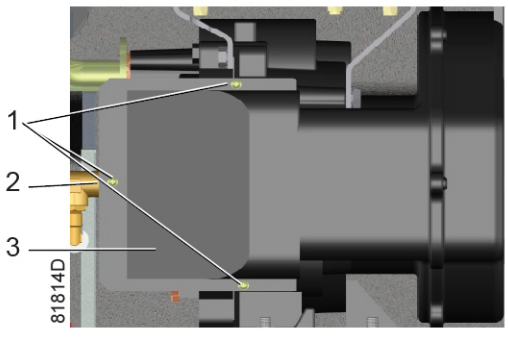
The purpose of cleaning the cooling channels of a scroll element is to prevent the cooling channels from silting up and as such reducing the cooling efficiency. A reduced cooling efficiency can lead to a premature compressor element failure.

Procedure

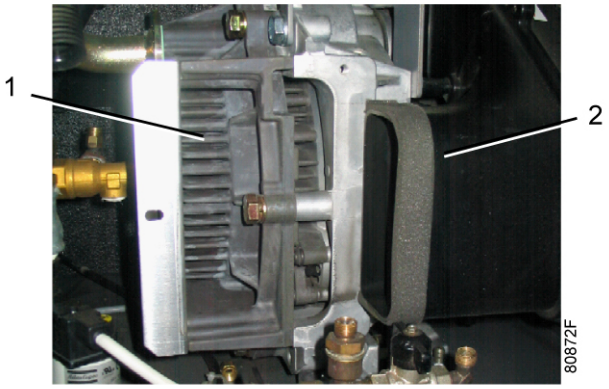
1. Stop the compressor and disconnect the power supply.
2. Close the air outlet valve and depressurize the system.
3. Disconnect all energy sources connected to the machine.
4. Remove the cooler (1) and the protective grid (2) covering the scroll element (see next figure).



5. Remove the fan duct (see next figure):
   - Unscrew the 3 bolts (1).
   - Remove the clip (2), if present.
   - Remove the fan duct (3).



6. Clean the cooling channels (see next figure):
   - Use compressed air to remove dust from the cooling channels (1).
   - Clean the fan duct (2) as well.



7. Reassemble the fan duct:
   - Reposition the duct.
   - Reinstall the 3 bolts and the clip.
8. Reinstall the cooler and all the safety guards on the unit.
9. The unit is again ready for use.

6.8 Replacement of the outlet pipe

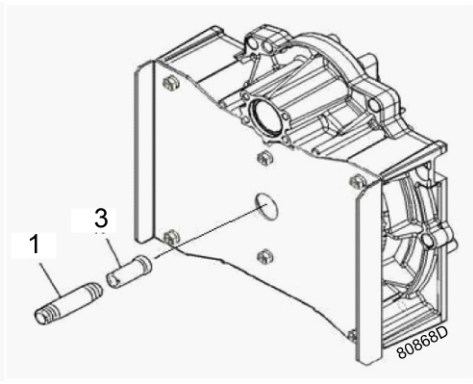
Description

The outlet pipe (1) of the 2.2 kW and 3.7 kW element contains a plastic insert (3) that may become brittle over time due to heat.

It is recommended to replace the outlet pipe along with the insert when such deterioration is observed. Both parts are available as a kit (outlet pipe set). Consult the Spare Parts List for part numbers.

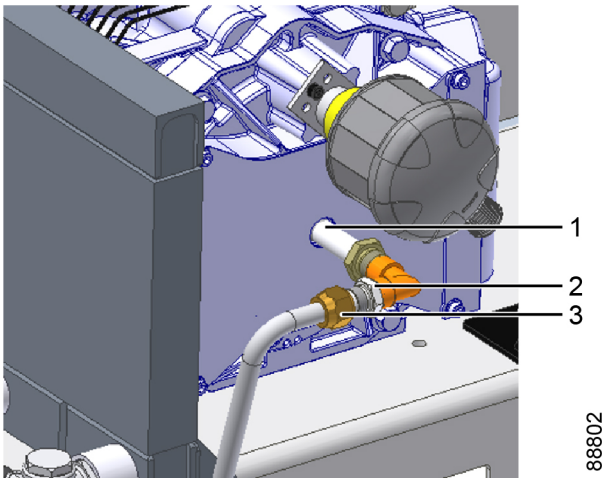
The outlet pipe set contains two parts:

- The plastic insert (3)
- The metal outlet pipe (1)



Replacement procedure

1. Stop the compressor, depressurize the system and switch off the voltage.
2. Loosen the coupling (3) while holding the nipple (2) with a wrench.



3. Remove the outlet pipe together with the nipple.
4. Attach the nipple to the new outlet pipe and tighten it.
5. Use PTFE tape only.
6. Install the plastic insert as indicated in the drawing.
7. Assemble the outlet pipe with a maximum torque of 5 Nm (3.7 lbf.ft).
8. Allow no more than one extra rotation (360 °) to position the elbow.
9. Make sure you end up turning clockwise to avoid leaks.
10. Use PTFE tape only.
11. Tighten the coupling (3) while holding the nipple (2) in place with a wrench.

WARNING

If the outlet pipe is tightened too hard, the thread of the element can get damaged or the insert can break, resulting in overheating of the compressor element! The maximum torque is 40 Nm (29.5 lbf.ft).

Remark:

Some newer versions of the 3.7 kW and the 5.5 kW elements do not contain a plastic insert.

In case of disassembly, please apply the same assembly procedure as described above.

Maximum torque: 15 Nm (11.1 lbf.ft) (hand tight plus maximum 2 revolutions).

6.9 Refrigerant dryer maintenance

DANGER

The dryer circuit contains refrigerant. When handling refrigerant, all applicable *Safety precautions during maintenance or repair* must be observed. Specifically be aware of following points:

- **Contact of liquid refrigerant with the skin can cause freezing. Wear special gloves. If contacted with the skin, the skin should be rinsed with water. On no account may clothing be removed.**
- **Fluid refrigerant can also cause freezing of the eyes. Wear safety glasses.**

- **Avoid inhalation of refrigerant vapors. Check that the working area is adequately ventilated.**

DANGER

Be aware that internal components of the dryer such as the pipes can reach a temperature of up to 110˚C (230˚F). Therefore, wait until the dryer has cooled down before removing the side panels.

DANGER

Before starting any maintenance or repair work, switch off the voltage and close the air outlet valve.

DANGER

Local legislation may stipulate that:

1. **Work on the refrigerant circuit of the cooling dryer or on any equipment which influences its function must be undertaken by an authorized control body.**
2. **The installation should be checked once a year by an authorized control body.**

General

The following remarks should be kept in mind:

- Keep the dryer clean.
- Brush or blow off the finned surface of the condenser regularly.
- Inspect and clean the electronic condensate drain regularly.

1. Check the operation of the drain by pushing the Test button, consult section *Air dryer*.
2. Clean the drain filter by opening the manual drain valve for a few seconds.

Device settings

The regulating and safety devices are factory adjusted to obtain optimum performance of the dryer. Do not alter the setting of any of the devices.

WARNING

Connecting pressure measuring devices in the refrigerant circuit can change the amount of refrigerant in the system. This results in a less optimal working of the dryer.

7 Problem solving

Compressor

WARNING

Before carrying out any maintenance, repair work or adjustments, proceed as follows:

- **Stop the compressor.**
- **Switch off the voltage and open the isolating switch.**
- **Close the air outlet valve and open the manual condensate drain valves.**
- **Depressurize the compressor.**

For detailed instructions, see the next sections.

The operator must apply all relevant *Safety precautions during maintenance or repair*.

Condition	Fault	Remedy
The compressor does not start.	Pressure too high.	Compressor will start again when the pressure drops to the starting pressure.
	Loose connection.	Check all electrical connections.
Safety valve blows.	Pressure too high.	Check settings and correct.
	Safety valve opens too soon.	Replace valve.
Compressor capacity or pressure below normal.	Air consumption exceeds capacity of compressor.	Check equipment connected.
	Choked air inlet filter.	Remove and check filter. Replace if necessary.
	Safety valve leaking.	Replace valve.
	Compressor element out of order.	Consult your supplier.
Compressor module overheating or compressor shutdown on high air temperature.	Insufficient compressor cooling.	Improve ventilation of compressor room. Clean compressor element fins and fan.
	Cooling fan out of order.	Check and correct.
Condensate trap continuously discharging air and water.	Automatic drain out of order.	Have the drain checked. Replace as necessary.

Dryer

WARNING

All work must be carried out by qualified personnel. The machine must be stopped and disconnected from the mains before any maintenance work is carried out.

Please refer to the dryer manual for further information about its troubleshooting.

Condition	Fault	Remedy
No compressed air passes through the dryer outlet	The pipes are frozen inside.	• The bypass valve of the hot gas is broken or out of calibration. • The room temperature is too low and the evaporator piping is obstructed with ice.
Presence of condensate in the piping	The condensate separator does not work correctly.	• Check the solenoid exhaust valve. • Check the drainage timer.
	The dryer is working outside its rating.	• Check the flow rate of treated air. • Check the room temperature. • Check the air temperature at the dryer inlet.
	The dryer is working under bad conditions of condensation.	• Clean the condenser. • Check the proper operation of the fan.
The compressor head is very hot (> 55 °C (131 °F))	The dryer is working outside its rating.	• Check the flow rate of treated air. • Check the room temperature. • Check the air temperature at the dryer inlet.
	The dryer is working under bad conditions of condensation.	• Clean the condenser. • Check the proper operation of the fan.
	The cooling circuit is not working with the right gas charge	• Check if refrigerant gas is leaking. • Charge it again.
The motor cuts out on overload	The dryer is working outside its rating.	• Check the flow rate of treated air. • Check the room temperature. • Check the air temperature at the dryer inlet.
	The dryer is working under bad conditions of condensation.	• Clean the condenser. • Check the proper operation of the fan.
	The cooling circuit is not working with the right gas charge	• Check if refrigerant gas is leaking. • Charge it again.
The motor hums and does not start	The line voltage is too low.	• Contact the electric power company. • Wait for few minutes before starting the compressor again.
	The machine was switched off and on again without leaving enough time for the pressure balancing.	• Check the running and starting relays and condensers (if any).
	The starting system of the motor is defective.	
The compressor is very noisy	Troubles with the internal mechanical parts or with the valves.	

8 Technical data

8.1 Readings on control panel

Description

The dewpoint can be checked via the gauge (Gd) on the control panel.

8.2 Electric cable size

DANGER

Local regulations remain applicable if they are stricter than the values proposed below.

The voltage drop must not exceed 5 % of the nominal voltage. It may be necessary to use cables of a larger size than those stated to comply with this requirement.

Cable size

Power		Voltage	Frequency	Phases	Power cable size
kW	HP	V	Hz		
2.2	3	230	50	1	3G1.5
		230	60	1	3G1.5
		400	50	3	5G1.5
		460	60	3	4G1.5
3.7	5	400	50	3	5G1.5
		230	60	3	4G2.5
		460	60	3	4G2.5
5.5	7.5	400	50	3	5G1.5
		230	60	3	4G2.5
		460	60	3	4G2.5

8.3 Settings for overload relay and fuses

DANGER

The indicated fuse value is the maximum value for the short circuit protection of the starter. The cable size used may specify fuses of a lower value.

Fuse specifications IEC: gL/gG

Fuse specifications CSA: HRC Form II - UL: Class 5

WARNING

This machine is not supplied with an electrical disconnecting device. The user must provide and install a supply disconnection device for the machine's power circuit, in compliance with section 5.3 of EN 60204-1:2006.

The disconnecting device must be:

- **Suitable for the rated electrical values of the machine.**

  For example: 400 V – 3 phase – 50 Hz – 16 A (adjust according to your specs).
- **Clearly identifiable and easily accessible.**
- **Capable of isolating the machine from all active power conductors.**
- **Equipped with a locking mechanism to prevent unintentional reactivation during maintenance.**

Failure to provide such a device may result in electrical hazards and non-compliance with applicable safety standards.

Settings

Power		Voltage	Frequency	Phases	Overload relay	Fuse	Circuit breaker (type D)	Starter type
kW	HP	V	Hz		A	aM	A	
2.2	3	230	50	1	14	-	20	DOL
		230	60	1	14.5	-	20	DOL
		400	50	3	5.5	-	10	DOL
		460	60	3	4.5	10	10	DOL
3.7	5	400	50	3	8.5	-	10	DOL
		230	60	3	9	16	16	YD
		460	60	3	4.5	16	16	YD
5.5	7.5	400	50	3	13	-	16	DOL
		230	60	3	14	25	25	YD
		460	60	3	7	16	16	YD

*Maximum fuses according to IEC class gL/gG for Pack and Full-Feature units, respectively.

**Maximum fuses according to HRCII-C and according to Class CC for Pack and Full-Feature units, respectively.

8.4 Temperature protection and safety valve settings

Temperature sensor settings (TSHH)

Compressor	Shutdown temperature
SF Essence 2 (8 bar / 116 psi)	70 °C (158 °F)
SF Essence 2 (10 bar / 145 psi)	80 °C (176 °F)
SF Essence 4 (8 bar / 116 psi)	165 °C (329 °F)
SF Essence 4 (10 bar / 145 psi)	165 °C (329 °F)
SF Essence 5.5 (8 bar / 116 psi)	165 °C (329 °F)

Compressor	Shutdown temperature
SF Essence 5.5 (10 bar / 145 psi)	165 °C (329 °F)

Safety valve (SV)

Pressure version	Set pressure	Unit
8 bar compressors	8.8	bar(e)
116 psi compressors	135	psi(g)
10 bar compressors	11	bar(e)
145 psi compressors	160	psi(g)

8.5 Reference conditions and limitations

Reference conditions

Characteristic	Unit	Data
Ambient pressure (absolute)	bar	1
Ambient pressure (absolute)	psi	14.5
Ambient temperature	°C	20
Ambient temperature	°F	68
Relative humidity (at maximum temperature)	%	0
Working pressure		See section *Compressor data*

Limitations

Characteristic	Unit	Data
Minimum altitude	m	0
Maximum altitude	m	1000
Maximum ambient temperature	°C	40
Maximum ambient temperature	°F	104
Minimum ambient temperature	°C	5
Minimum ambient temperature	°F	41
Relative humidity (at maximum temperature)	%	100
Maximum working pressure		See section *Compressor data*

8.6 Compressor data

NOTE

The data is valid under the reference conditions. See section *Reference conditions and limitations*.

	Unit	SF Essence 2	SF Essence 4	SF Essence 5.5
Maximum outlet pressure	bar(e)	10		
Maximum outlet pressure	psi(g)	145		
Reference outlet pressure	bar(e)	7		
Reference outlet pressure	psi(g)	100		
Minimum outlet pressure	bar(e)	4		

	Unit	SF Essence 2	SF Essence 4	SF Essence 5.5
Minimum outlet pressure	psi(g)	58		
Maximum outlet temperature	°C	Ambient + 20 °C		
Maximum outlet temperature	°F	Ambient + 36 °F		
Nominal motor power	kW	2.2	3.7	5.5
Nominal motor power	hp	3	5	7.5
Free air delivery (8 bar)	l/s	4.2	6.7	9.8
Free air delivery (10 bar)	l/s	3.4	5.9	7.6
Specific energy requirement (8 bar)	J/l	738	672	657
Specific energy requirement (10 bar)	J/l	912	695	763
Sound pressure level (Lp @ 4m)	dB(A)	74	74	74
Pressure dewpoint (Full-Feature)	°C	7		
Pressure dewpoint (Full-Feature)	°F	45		

9 Instructions for use

Air receiver (on tank-mounted units)

1. **Corrosion must be prevented: depending on the conditions of use, condensate may accumulate inside the tank and must be drained every day.** This may be done manually by opening the drain valve, or by means of the automatic drain, if fitted to the tank. Nevertheless, a weekly check of correct functioning of the automatic valve is needed. This has to be done by opening the manual drain valve and checking for condensate. Verify that no rust obstructions affect the drain system.
2. **Yearly service inspection of the air receiver is needed, as internal corrosion can reduce the steel wall thickness with the consequent risk of bursting**. Local rules need to be respected, if applicable. The use of the air receiver is forbidden once the wall thickness reaches the minimum value as indicated in the service manual of the air receiver (part of the documentation delivered with the unit).
3. The lifetime of the air receiver mainly depends on the working environment. Installing the compressor in a dirty and corrosive environment is not allowed, as this can reduce the vessel lifetime dramatically.
4. Do not anchor the vessel or its attached components directly to the ground or fixed structures. Fit the pressure vessel with vibration dampers to avoid possible fatigue failure caused by vibration of the vessel during use.
5. Use the vessel within the pressure and temperature limits stated on the nameplate and the testing report.
6. No alterations must be made to this vessel by welding, drilling or other mechanical methods.

10 Guidelines for inspection

Guidelines

On the Declaration of Conformity / Declaration by the Manufacturer, the harmonised and/or other standards that have been used for the design are shown and/or referred to.

The Declaration of Conformity / Declaration by the Manufacturer is part of the documentation that is supplied with this compressor.

Local legal requirements and/or use outside the limits and/or conditions as specified by the manufacturer may require other inspection periods.

11 Pressure equipment directives

Components subject to 2014/68/EU Pressure Equipment Directive

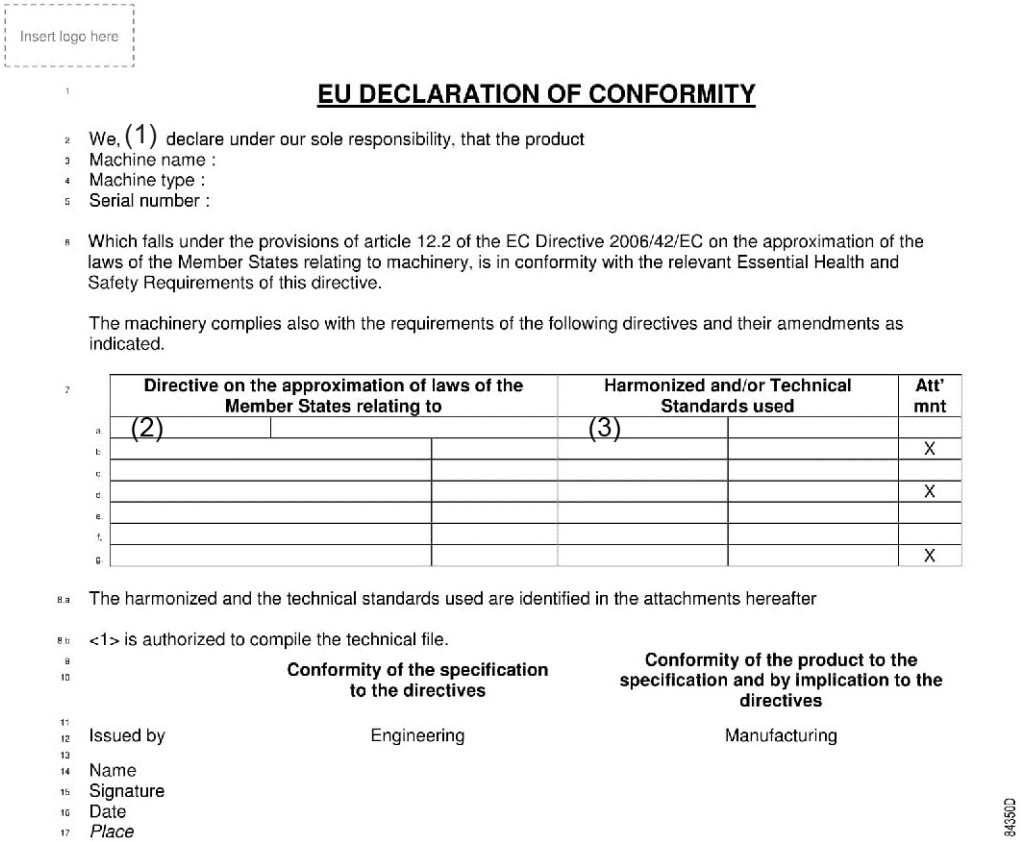
Components subject to 2014/68/EU Pressure Equipment Directive greater than or equal to category II.

Pressure version	Part number	Description	PED Class
8 bar	0830 1008 54	Safety valve	IV
116 psi	0830 1008 49	Safety valve	IV
10 bar	0830 1007 68	Safety valve	IV
145 psi	0830 1008 35	Safety valve	IV

Overall rating

The compressors conform to PED smaller than category I.

12 Declaration of conformity



Insert logo here

EU DECLARATION OF CONFORMITY

We, (1) declare under our sole responsibility, that the product
Machine name :
Machine type :
Serial number :

Which falls under the provisions of article 12.2 of the EC Directive 2006/42/EC on the approximation of the laws of the Member States relating to machinery, is in conformity with the relevant Essential Health and Safety Requirements of this directive.

The machinery complies also with the requirements of the following directives and their amendments as indicated.

	Directive on the approximation of laws of the Member States relating to		Harmonized and/or Technical Standards used		Att' mnt
a.	(2)		(3)		
b.					X
c.					
d.					X
e.					
f.					
g.					X

The harmonized and the technical standards used are identified in the attachments hereafter

<1> is authorized to compile the technical file.

	Conformity of the specification to the directives	Conformity of the product to the specification and by implication to the directives
Issued by	Engineering	Manufacturing
Name		
Signature		
Date		
Place		

8435DD

Figure 7: Typical example of a Declaration of Conformity document

(1)	Contact address: Atlas Copco Airpower n.v. P.O. Box 100 B-2610 Wilrijk (Antwerp) Belgium
(2)	Applicable directives
(3)	Standards used

On the Declaration of Conformity / Declaration by the Manufacturer, the harmonized and/or other standards that have been used for the design are shown and/or referred to.

The Declaration of Conformity / Declaration by the Manufacturer is part of the documentation that is supplied with this device.

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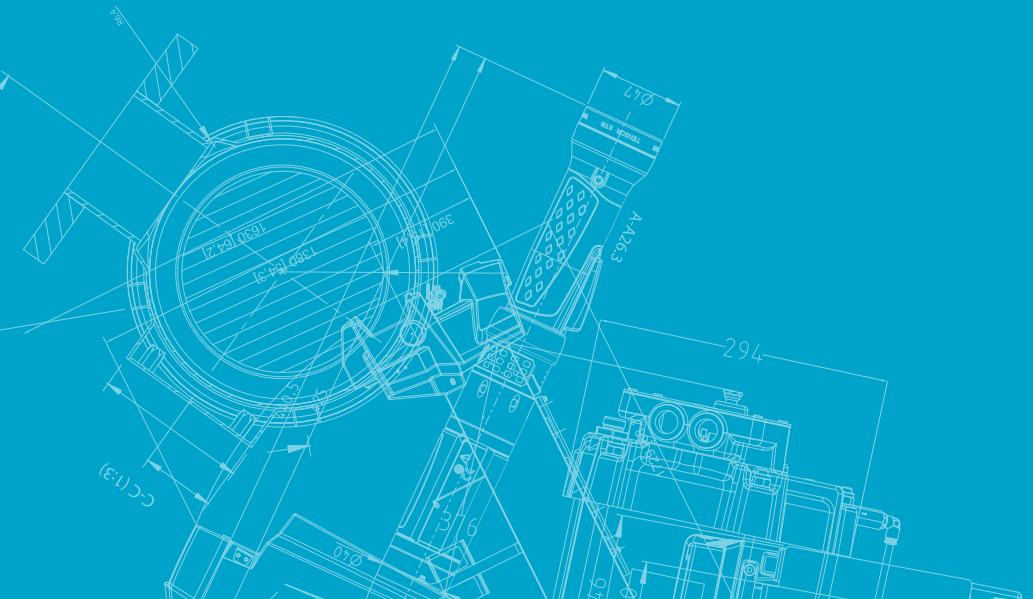

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