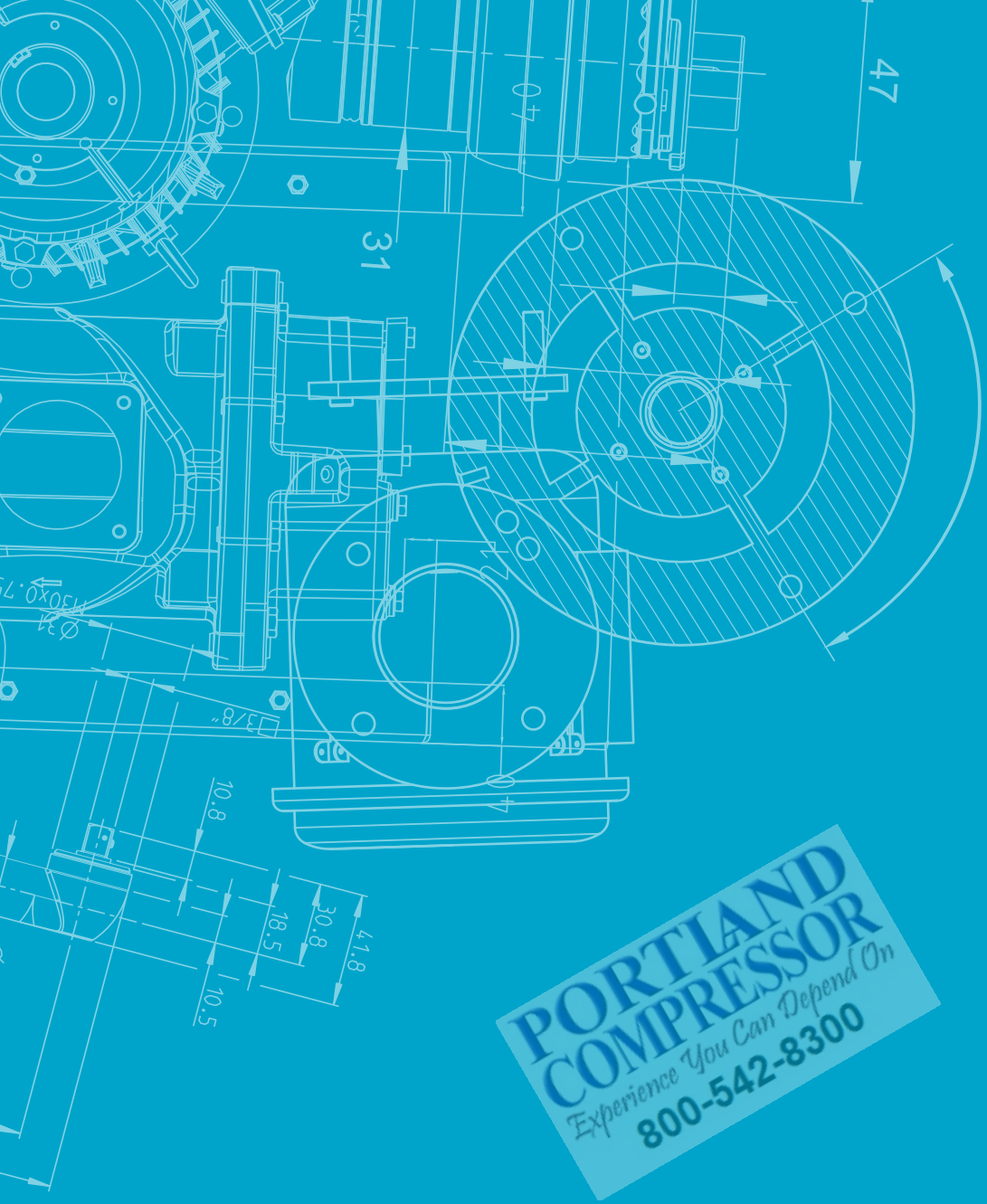

Instruction book

Oil-injected screw compressors

GA 5, GA 7, GA 11


PORTLAND
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Oil-injected screw compressors

GA 5, GA 7, GA 11

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.

This instruction book is valid for CE, non-CE as well as UKCA labelled machines. It meets the requirements for instructions specified by the applicable European directives or UK statutory instruments as identified in the Declaration of Conformity.

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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 injury and/or property damage.

WARNING

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

CAUTION

Indicates a hazard with a low level of risk, which, if not avoided, could result in minor or moderate injury.

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 only be performed by authorized, trained, 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.
- Before any maintenance, repair work, adjustment or any other non-routine checks, switch the controller in service mode (see section *Service mode*), stop the compressor, press the emergency stop button, switch off the voltage and depressurize the compressor. In addition, the power isolating switch must be opened and locked. The process of locking, tagging and trying to turn on the equipment to confirm it cannot operate is called Lock Out, Tag Out (LOTO).

  On units powered by a frequency converter, wait 10 minutes after switching off the voltage, before starting any electrical repair.

WARNING

In a domestic environment, this product may cause conducted and irradiated interference, in which case supplementary mitigation measures are required.

DANGER

If the machine is equipped with an automatic restart after voltage failure function and if this function is active, be aware that the machine will restart automatically when the power is restored if it was running when the power was interrupted!

- 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 only be operated by a trained service specialist from the manufacturer.

Safety precautions for the connectivity module

It is important to follow all regulations regarding the use of radio equipment, in particular regarding the possibility of radio frequency (RF) interference. Please follow the safety advice given below carefully.

- Respect restrictions on the use of radio equipment in fuel depots, chemical plants or other explosive environments.
- Avoid operation close to inadequately protected personal medical devices such as hearing aids and pacemakers. Consult the manufacturers of the medical device to determine if it is adequately protected.
- Avoid operation close to other electronic equipment which may also cause interference if the equipment is inadequately protected. Observe any warning signs and manufacturer recommendations.
- Respect a distance from the human body of at least 20 cm (8 inch) during operation.
- Do not operate the device in areas where cellular modems without proper device certifications are not advised. These areas include environments where cellular radio can interfere, such as atmospheres with explosives, medical equipment, or any other equipment which may be susceptible to any form of radio interference. The modem can transmit signals that could interfere with this equipment.

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 according to local regulations. The product is not designed for refurbishing after finished lifecycle.

Dismantling

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

1. Stop the machine.
2. Check all safety precautions mentioned in the previous chapters to secure safe handling (e.g. LOTO, cool-down, depressurize, discharge, etc.).
3. Have trained personnel dismantle the installation.
4. Separate the harmful from the safe components (e.g. drain oil from parts containing oil).
5. Refer to the disposal topic below.

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 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 lifetime 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

GA 5, GA 7 and GA 11 are single-stage, oil-injected screw compressors driven by an electric motor. The compressors are air-cooled and are enclosed in sound insulating bodywork.

The basic version of GA 5 up to GA 11 is equipped with an Elektronikon™ Swipe controller. The Elektronikon™ Touch controller is available as option.

Pack compressors have no dryer, while Full-Feature compressors are provided with an integrated air dryer.

GA 5 up to GA 11 are available with an air receiver (tank-mounted version) as well as without an air receiver (floor-mounted version).

Floor-mounted version

The compressors are installed directly on the floor.

Figure 1: Floor-mounted Pack compressor, Front view

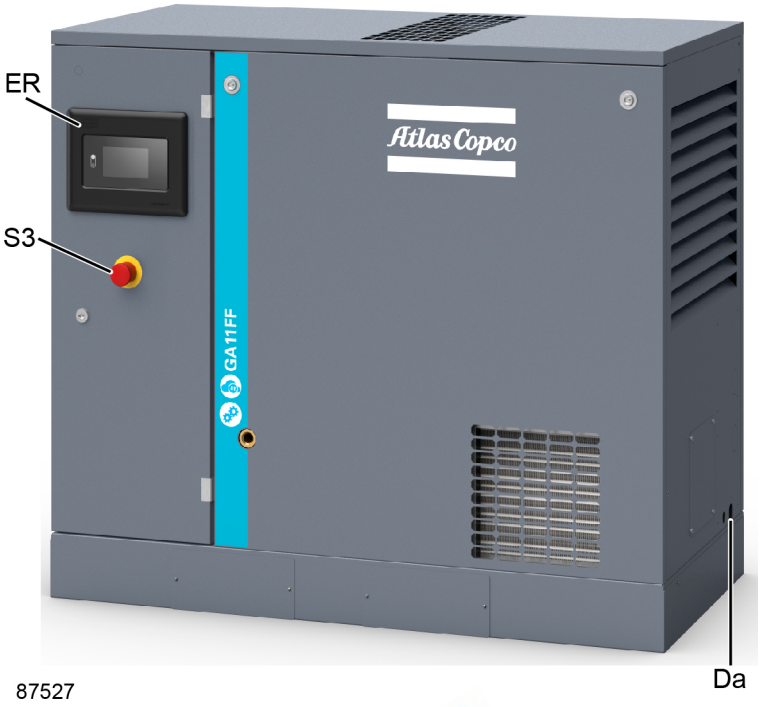


Figure 2: Floor-mounted Full-Feature compressor, Front view

Reference	Description
ER	Elektronikon™ controller
S3	Emergency stop button
Da	Automatic condensate outlet

Figure 3: Floor-mounted Pack compressor, Rear view

Reference	Description
AF	Air filter
AV	Air outlet valve
C	Combicooler
FN	Fan
M1	Drive motor

Tank-mounted version

The compressors are mounted on an air receiver.

Figure 4: Tank-mounted Pack compressor with Elektronikon™ controller, Front view

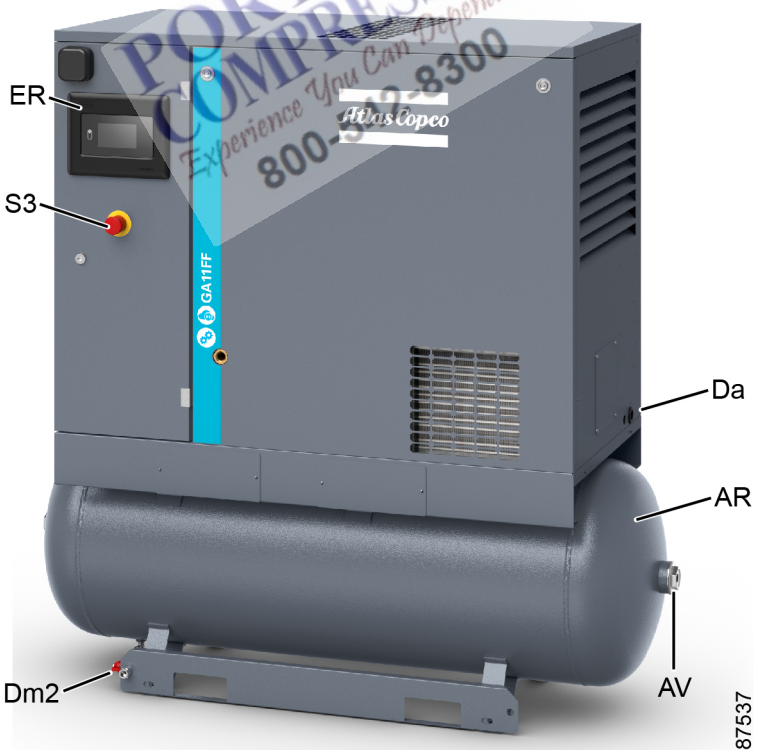


Figure 5: Tank-mounted Full-Feature compressor with Elektronikon™ controller, Front view

Reference	Description
AR	Air receiver
AV	Air outlet valve
Da	Automatic condensate outlet
Dm2	Manual condensate drain valve
ER	Elektronikon™ controller
S3	Emergency stop button
1	Electrical cable entry

2.2 Air flow

Flow diagrams

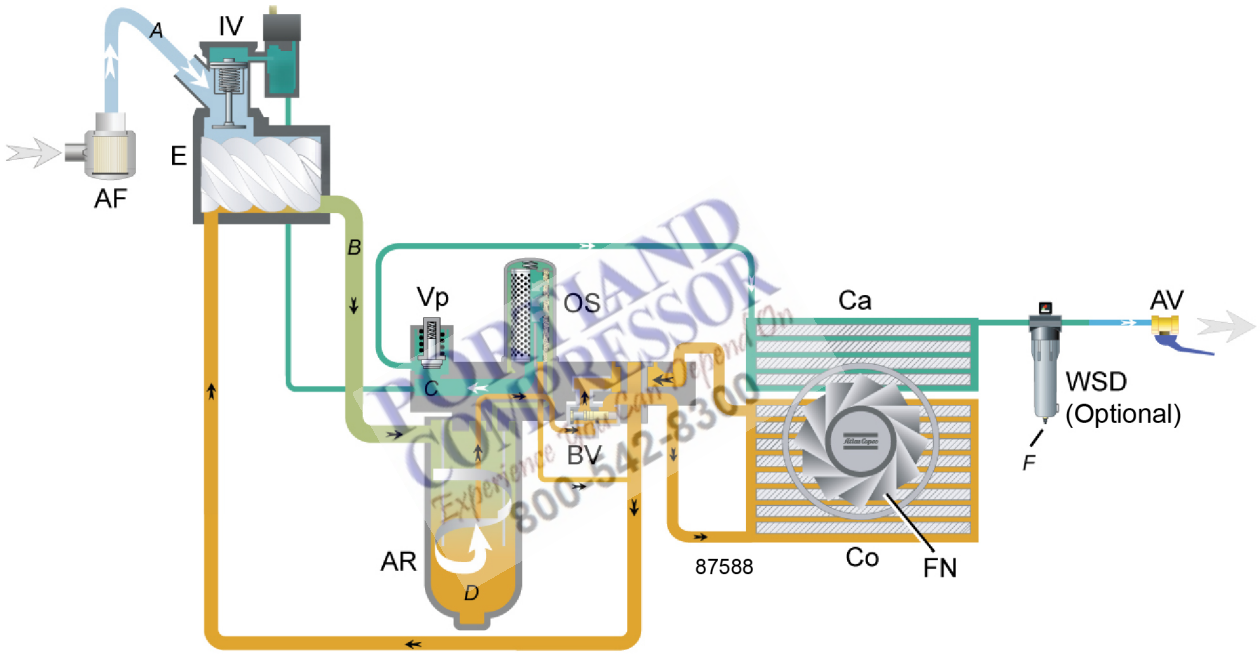


Figure 6: For Workplace Pack units

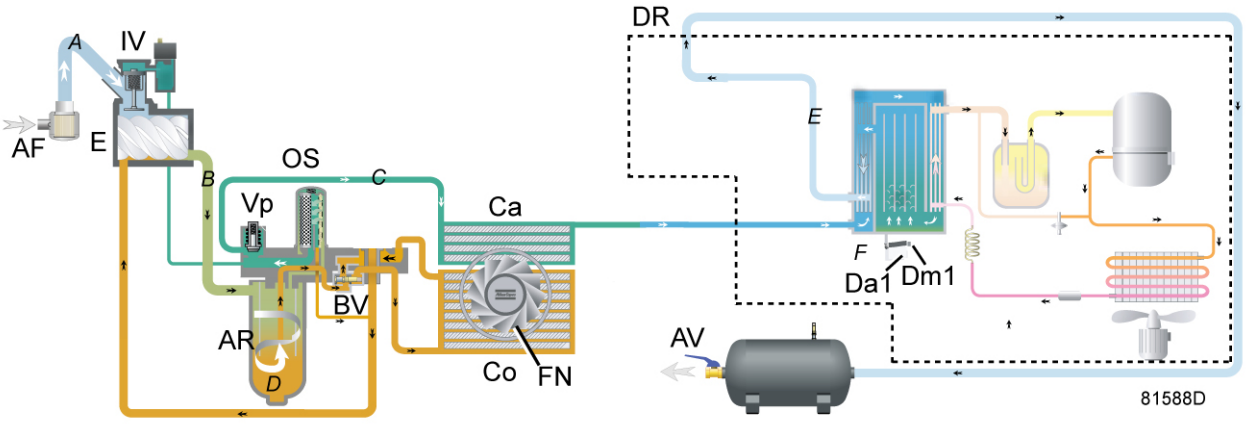


Figure 7: For Workplace Full-Feature units

Reference	Description
A	Intake air
B	Air/oil mixture
C	Hot compressed air
D	Oil
E	Dry air
F	Condensate

Description

Air drawn through the filter (AF) and open inlet valve (IV) into the compressor element (E) is compressed. Compressed air and oil flow into the air receiver/oil separator (AR). Next, the compressed air flows through the minimum pressure valve (Vp) and the air cooler (Ca) towards the outlet valve (AV).

The minimum pressure valve (Vp) prevents the receiver pressure from dropping below a minimum pressure and includes a check valve which prevents blow-back of compressed air from the net when air delivery is stopped.

On compressors without an integrated dryer, condensate is discharged via the moisture trap (WSD (optional)).

On Full-Feature compressors, the air flows through the air dryer (DR) before reaching the outlet valve.

Finally, the compressed air is discharged through the outlet valve (AV).

2.3 Oil system

Flow diagram

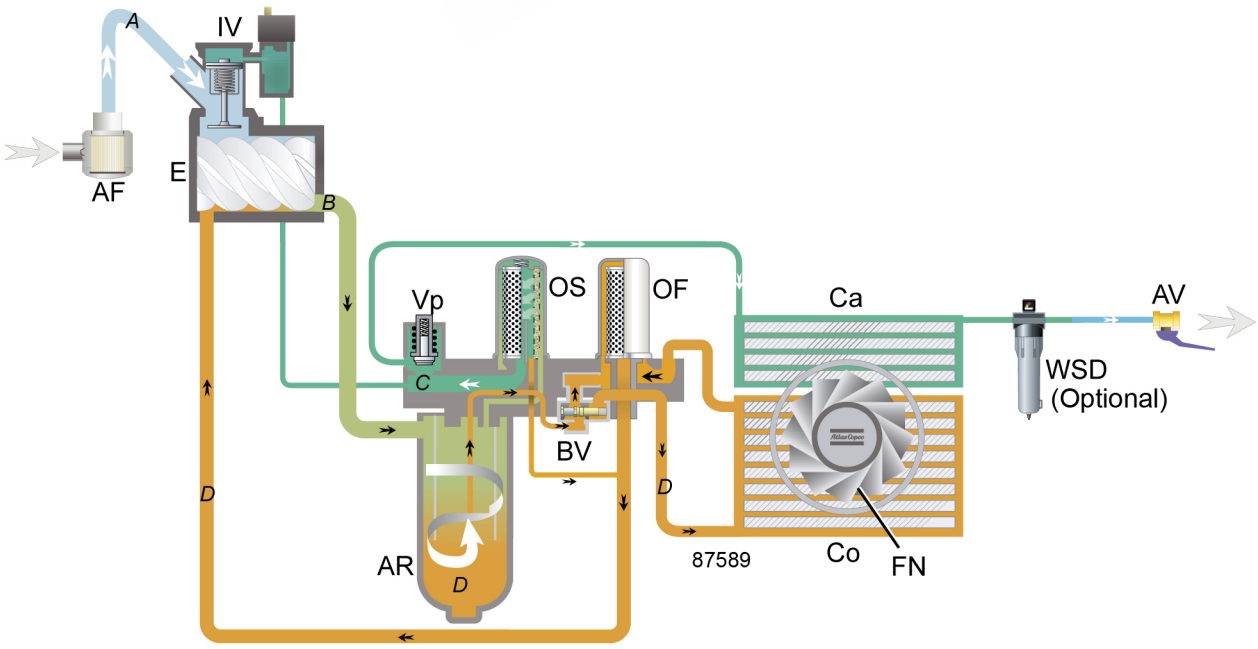


Figure 8: Oil system

Reference	Description
A	Intake air
B	Air/oil mixture
C	Compressed air
D	Oil

Description

The air/oil mixture coming from the compressor element flows into the oil separator/tank, where most of the oil is separated by centrifugal action. The oil collects in the lower part of air receiver/oil separator (AR) which serves as oil tank. The remaining oil is removed by oil separator (OS). A small pipe returns the separated oil towards the compressor element.

Air pressure forces the oil from oil separator/tank (AR) through oil cooler (Co) and filter (OF) towards compressor element (E).

The system comprises a thermostatic bypass valve (BV). Only when the oil is warm, the valve allows the oil to pass through the oil cooler.

2.4 Cooling system

Flow diagram

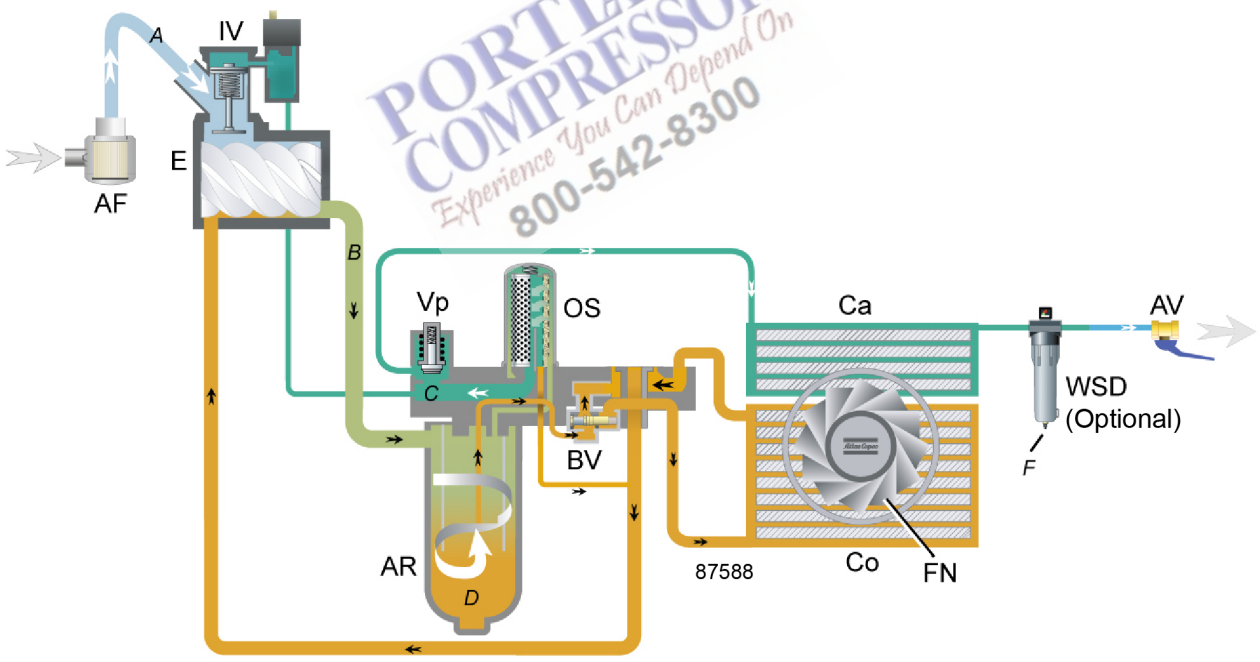


Figure 9: Cooling circuit

Reference	Description
A	Intake air
B	Compressed air/oil
C	Compressed air
D	Oil

Description

The cooling system comprises an air cooler (Ca) and oil cooler (Co). The cooling air is generated by a fan (FN), fitted to the motor shaft.

2.5 Condensate system

Condensate drains

Figure 10: Condensate drain connections on a floor-mounted Pack compressor

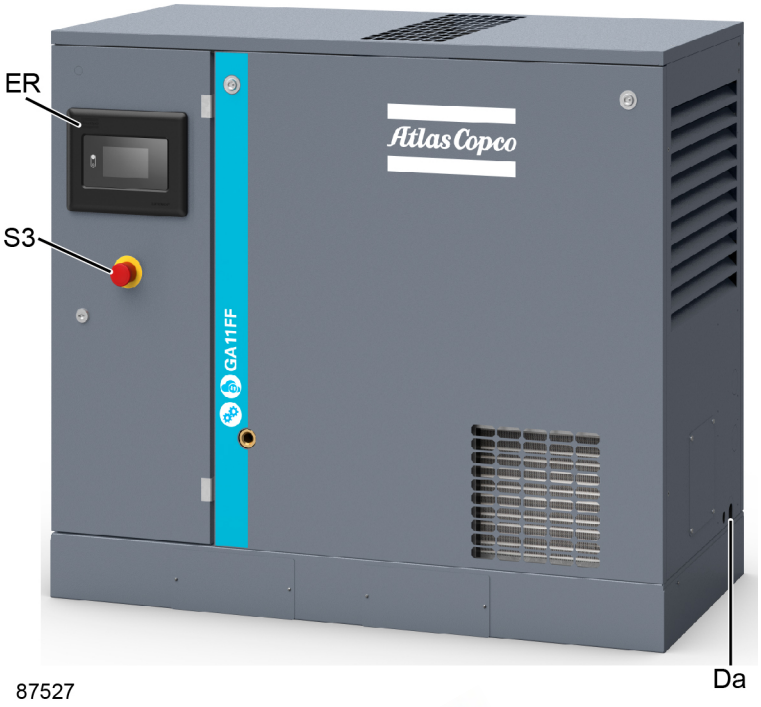


Figure 11: Condensate drain connections on a floor-mounted Full-Feature compressor

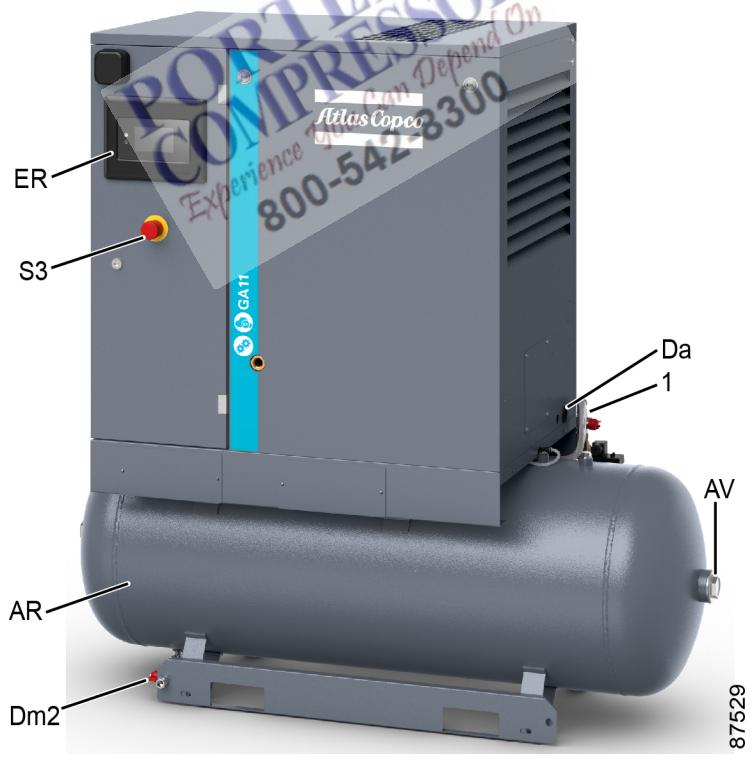


Figure 12: Condensate drains on a tank-mounted Pack compressor

Figure 13: Condensate drains on a tank-mounted Full-Feature compressor

The Pack versions are equipped with a condensate trap in the air outlet system. The condensate trap is equipped with a valve for automatic draining during operation. It is connected to the automatic drain outlet (Da) and to a manually operated valve (Dm1) for draining after stopping the compressor.

The Full-Feature versions are equipped with an electronic water drain in the dryer (DR) for automatic draining of the condensate during operation. The electronic drain is connected to the automatic drain outlet (Da) and to a manually operated valve (Dm1) for draining after stopping the compressor.

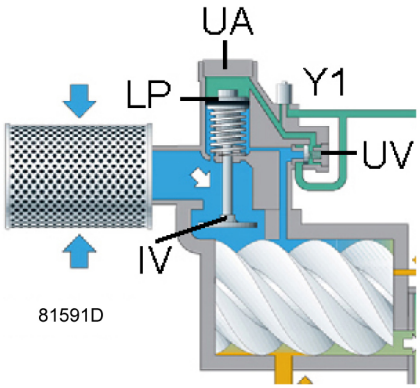
The tank-mounted compressors also have a manual condensate drain valve (Dm2) for draining the condensate trapped in the receiver.

NOTE

For tank-mounted compressors: drain the air receiver every day to reduce the risk of internal corrosion.

2.6 Regulating system

Flow diagram



Unloading

If the air consumption is less than the air output of the compressor, the net pressure increases. When the net pressure reaches the unloading pressure, solenoid valve (Y1) is de-energised.

- The control pressure present in the chambers of loading plunger (LP) and unloading valve (UV) is vented to atmosphere via solenoid valve (Y1).
- Loading plunger (LP) moves upwards and causes inlet valve (IV) to close the air inlet opening.
- Unloading valve (UV) is opened by the pressure in the oil separator vessel. The pressure from the oil separator vessel is released into atmosphere through the unloader (UA).
- The pressure in the oil separator vessel stabilises at low value. A reduced amount of air is compressed to guarantee a minimal pressure, required for lubrication during unloaded operation.

Air output is stopped (0%), the compressor runs unloaded.

Loading

When the net pressure decreases to the loading pressure, solenoid valve (Y1) is energised.

- Control pressure is fed from the oil separator vessel via solenoid valve (Y1) to loading plunger (LP) and unloading valve (UV).
- Unloading valve (UV) closes the air blow-off opening. Loading plunger (LP) moves downwards and causes inlet valve (IV) to open fully.

Air delivery is resumed (100%), the compressor runs loaded.

2.7 Electrical system

General

Consult sections *Electrical diagrams* and *Electrical connections*.

The electrical system comprises the following components:

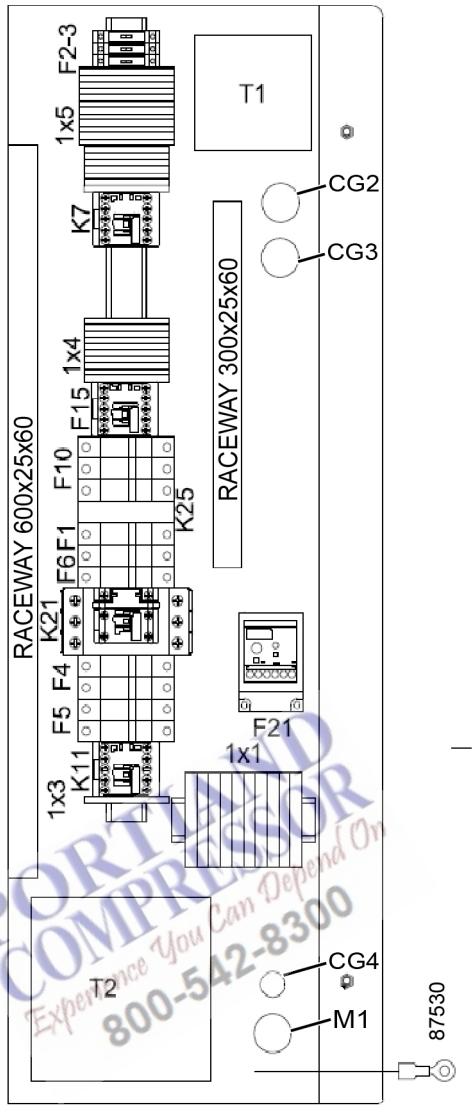


Figure 14: Electrical cabinet (typical)

Reference	Description
F4, F5	Fuses
F2, F3	Fuses
F15	Overload relay, fan motor
F21	Overload relay, compressor motor
K21	Line contactor
K11	Dryer contactor
T1, T2	Transformer

2.8 Electrical diagrams

NOTE

The service diagram and the explanatory designations below are given as typical example only. Some of the texts may not be applicable to a specific case.

The applicable service diagram is located in the electric cubicle of the compressor.

Diagram number	Model description
2205 0187 00	Service Diagram IEC Swipe
2205 0187 50	Service Diagram IEC Touch
2205 0369 00	Service Diagram UL Touch
2205 0369 50	Service Diagram CSA Touch

2.9 Air dryer

Flow diagram

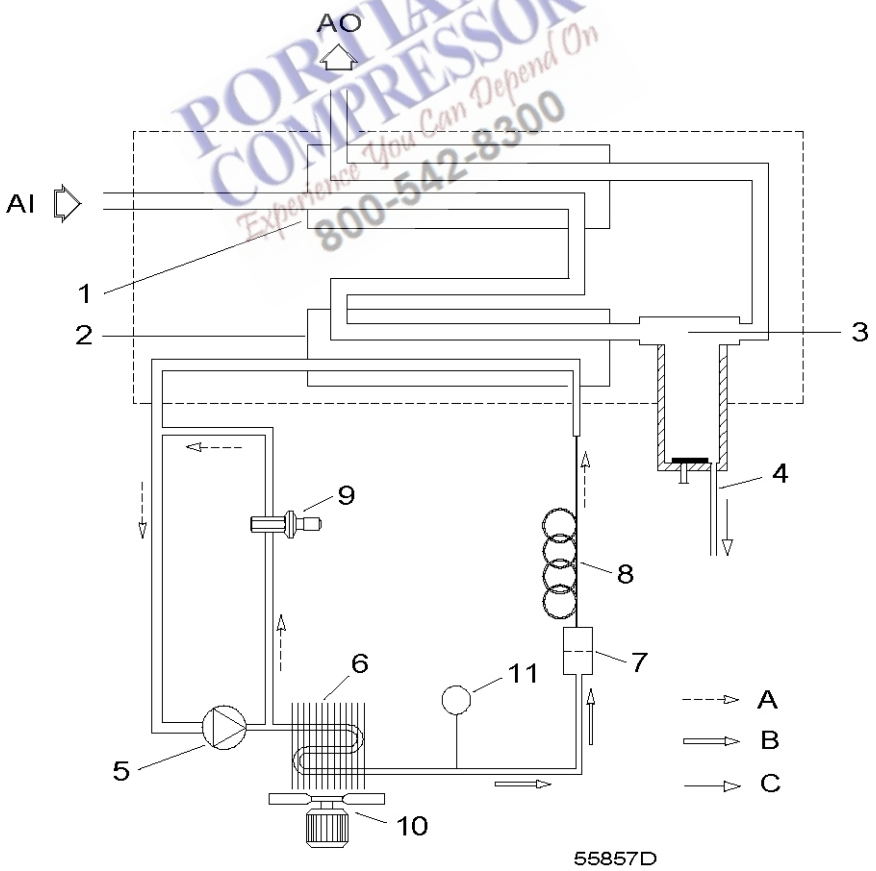


Figure 15: Air dryer

Reference	Description
AI	Air inlet
AO	Air outlet
1	Air/air heat exchanger
2	Air/refrigerant heat exchanger/evaporator
3	Condensate separator
4	Automatic drain / condensate outlet
5	Refrigerant compressor
6	Refrigerant condenser
7	Liquid refrigerant dryer/filter
8	Capillary
9	Bypass valve
10	Condenser cooling fan
11	Pressure switch, fan control

Compressed air circuit

Compressed air enters heat exchanger (1) and is cooled by the outgoing, cold, dried air. Water in the incoming air starts to condense. The air then flows through heat exchanger/evaporator (2), where the refrigerant evaporates, causing the air to be cooled further to close to the evaporating temperature of the refrigerant. More water in the air condenses. The cold air then flows through separator (3) where all the condensate is separated from the air. The condensate is automatically drained through outlet (4).

The cold, dried air flows through heat exchanger (1) where it is warmed up by the incoming air.

Refrigerant circuit

Compressor (5) delivers hot, high-pressure refrigerant gas which flows through condenser (6) where most of the refrigerant condenses.

The liquid refrigerant flows through liquid refrigerant dryer/filter (7) to capillary tube (8). The refrigerant leaves the capillary tube at evaporating pressure.

The refrigerant enters evaporator (2) where it withdraws heat from the compressed air by further evaporation at constant pressure. The heated refrigerant leaves the evaporator and is sucked in by the compressor (5).

By-pass valve (9) regulates the refrigerant flow. Fan (10) is switched on or off by switch (11) depending on the loading degree of the refrigerant circuit.

NOTE

The refrigerant compressor motor has a built-in thermic protection. If the motor stops after tripping of the thermic protection, it may take up to 2 hours for the motor windings to cool down and before the motor can restart.

4 Elektronikon™ Touch controller

4.1 Controller functions

85199D

Figure 20: Elektronikon™ Touch controller

Introduction

The controller has the following functions:

- Controlling the unit.
- Protecting the unit.
- Monitoring components subject to service.
- Automatic restart after voltage failure (ARAVF).

  This function can only be activated by a service technician.

Automatic control of the unit

The controller maintains the net pressure between programmable limits by automatically loading and unloading the unit (fixed speed units) or by adapting the motor speed (units with frequency converter).

A number of programmable settings, e.g. the unloading and loading pressures (for fixed speed units), the setpoint (for units with frequency converter), the minimum stop time, the maximum number of motor starts and several other parameters are taken into account.

The controller stops the unit whenever possible to reduce the power consumption and restarts it automatically when the net pressure decreases. If the expected unloading period is too short, the unit is kept running to prevent too short standstill periods.

WARNING

A number of time-based automatic start/stop commands may be programmed. Take into account that a start command will be executed (if programmed and activated), even after manually stopping the unit.

Shutdown

Several sensors are provided on the unit. If one of the measured signals exceeds the programmed shutdown level, the unit will be stopped.

Example: If the outlet pressure exceeds the programmed shutdown level, the unit will be stopped. This will be indicated on the display of the controller.

The unit will also be stopped in case of overload of the drive motor or fan motor.

WARNING

Before remedying, consult the safety precautions.

Before resetting a warning or shutdown message, an authorized technician should solve the problem. If a warning or alarm persists to occur, consult your supplier. Frequently resetting these messages without remedying may damage the unit.

Shutdown warning

A shutdown warning level is a programmable level below the shutdown level.

If one of the measurements exceeds the programmed shutdown warning level, a message will appear on the display and the general alarm LED will light up to warn the operator before the shutdown level is reached.

The message disappears as soon as the warning condition disappears.

When the shutdown warning is shown, press the stop button to stop the unit and wait until the unit has stopped. Consult an authorized technician to solve the problem.

A warning will also appear if the dew point temperature is too high (on units with integrated dryer).

Service warning

A number of service operations are grouped as a Service Plan. Each Service Plan has a programmed time interval. If the service timer exceeds a programmed value, this will be indicated on the display to warn the operator to carry out the service actions belonging to that Service Plan.

When the service warning is shown, stop the unit, switch off the voltage and carry out the required service actions.

WARNING

Ignoring this service warning could severely damage your machine in the long term. The supplier is not liable for failures caused by neglecting service interval timings.

Automatic restart after voltage failure (ARAVF)

The controller has a built-in function to automatically restart the unit when the voltage is restored after voltage failure.

For units leaving the factory, this function is made inactive. If desired, the function can be activated. Consult your supplier.

WARNING

If the function is activated and the controller was in the automatic operation mode before the supply voltage was interrupted, the unit will automatically restart once the supply voltage to the unit is restored. The ARAVF label shall be attached near to the controller.

4.2 Control panel

Figure 21: Control panel

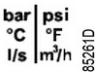
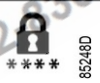
Reference	Designation	Function
1	Touch screen	Shows the unit operating condition and several icons to navigate through the menu. The screen can be operated by touch.
2	Warning sign	Flashes in case of a shut-down, is lit in case of a warning condition.
3	Service sign	Lit when service is needed.
4	Operation sign	Lit when the unit is running in automatic operation.
5	Voltage sign	Indicates that the voltage is switched on.
6	Stop button	Stops the unit.

Reference	Designation	Function
7	Start button	This button starts the unit. The operation sign lights up. The controller is operative.

4.3 Icons used

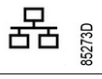
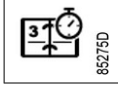
Menu icons

Menu	Icon	Menu	Icon	Menu	Icon
Data	 85233D	Status	 85239D		
		Inputs	 85240D		
		Outputs	 85241D		
		Counters	 85242D		
		Auxiliary Equipment Parameters	 85249D	Converters	 85251D
Service	 85234D	Service		Overview	 85252D
				Service Plan	 85253D
				Service History	 85254D
		Service Functions	 85244D		
		Clean Screen	 85302D		
Week Timer	 85235D			Week	 85303D
				Remaining Running Time	 85304D
Event History	 85236D	Saved Data	 85245D		
Machine Settings	 85237D	Alarms	 85239D		
		Regulation	 85346D		

Menu	Icon	Menu	Icon	Menu	Icon
		Control Parameters			
		Auxiliary Equipment Parameters		Converters	
				Fan	
				Internal SmartBox	
		Auto Restart			
Controller Settings		Network Settings		Ethernet Settings	
				CAN Settings	
		Localisation		Language	
				Date/Time	
				Units	
		User Password			
		Help			
		Information			

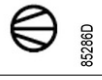
Status icons

Icon	Description
	Motor Stopped
	Motor Stopped Wait
	Running Unloaded
	Manual Unload
	Running Unloaded Wait

Icon	Description
	Running Loaded
	Failed to Load
	Running Loaded Wait
	Manual Stop
	Machine Control Mode, Local
	Machine Control Mode, Remote
	Machine Control Mode, LAN
	Automatic Restart After Voltage Failure
	Week Timer Active

System icons

Icon	Description
	Basic User
	Advanced User
	Service User
	Antenna 25%
	Antenna 50%
	Antenna 75%
	Antenna 100%
	Change between screens (indication)
	Energy recovery

Icon	Description
 85285D	Dryer
 85286D	Element
 85287D	Drain(s)
 4-20mA 85288D	Analogue Output
 85289D	Menu
 85290D	Reset
 85291D	Auto Restart
 85292D	Filter(s)
 85293D	Cooler
 85294D	Valve(s)
 85295D	Power Meter

Input icons

Icon	Description
 85296D	Pressure
 85297D	Temperature
 85298D	Special Protection
 85299D	Open
85300D	Closed

NOTE

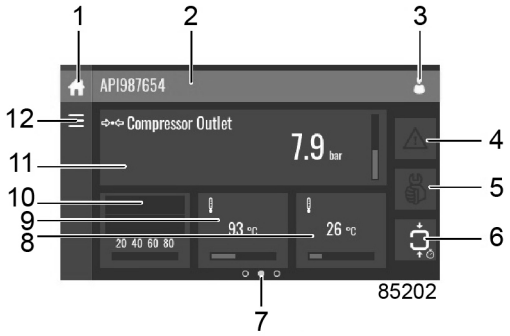
This chapter gives a general survey of available icons. Not all icons mentioned in this chapter are applicable to every machine.

4.4 Main screen

Function

The main screen is the screen that is shown automatically when the voltage is switched on. It is switched off automatically after a few minutes when there is no touch input.

Description



Reference	Designation	Function
1	Home button	The home button is always shown and can be tapped to return to the main screen.
2	Screen information	On the main screen, the screen information bar shows the serial number of the machine. When scrolling through menus, the name of the current menu is shown.
3	Access level button	The access level button is always shown and can be tapped to change the current user access level.
4	Alarm button	The alarm button can be tapped to show the current alarms. If an alarm occurs, the icon on the button will be red.
5	Service button	The service button can be tapped to show the service information.
6	Status	This icon shows the current status of the unit.
7	Page indicator	Indicates which page you currently see. The middle indication is the main screen, left is the menu screen and at the right the quick access screen. Swipe left or right to go to another screen.
8, 9, 10, 11	These fields can contain a certain value, depending on the type of the unit.	Tap the field to view the type of measurement. This will be shown in the screen information bar. Examples of values shown: • Temperature • Pressure • Purity level
12	Menu button	The menu button is always shown and can be tapped to go to the menu.

4.5 Quick access screen

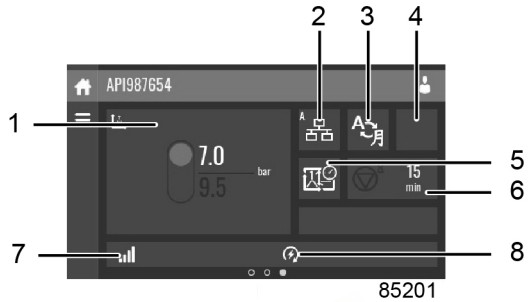
Function

The screen is used to directly access some frequently used functions.

Procedure

The quick access screen can be viewed by swiping left, starting from the main screen.

Description



Through this screen, several important settings can be viewed and modified.

Reference	Function	Description
1	Setpoints	Several setpoints can be modified by tapping this icon.
2	Control mode	The control mode can be changed by tapping this icon. • Local control via start/stop buttons • Remote control via digital input(s) • LAN control via the network. When in remote or LAN control, the start/stop buttons on the controller will not work.
3	Display language	The display language of the controller can be changed by tapping this icon.
4	Operation mode	When tapped, the operation mode can be chosen between manual and automatic. When manual mode is selected, the controller will switch to automatic mode automatically after 24 hours.
5	Week timer	Week timers can be set by tapping this icon.
6	Remaining running time	The remaining running time can be set and modified by tapping this icon.
7	Internal SmartBox	The reception quality of the internal antenna can be monitored. Each bar represents 25% reception strength. If the four bars are filled, the reception strength is 100%. If only one bar is filled, the reception strength is just 25%.
8	Auto Restart	Auto restart can be activated by tapping this icon.

4.6 Menu screen

Function

This screen is used to display the different menus where settings can be viewed or changed.

Procedure

The menu screen can be viewed by tapping the menu button or by swiping right, starting from the main screen.

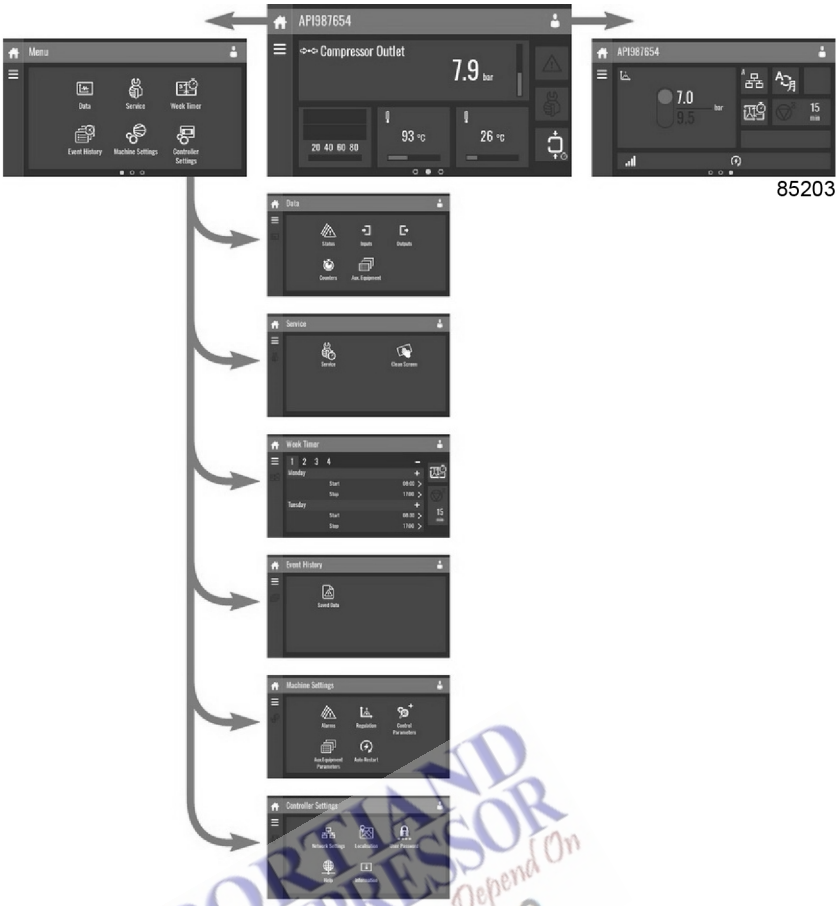
Description

85204

Reference	Designation	Function
(1)	Data	The data menu contains the status of the unit, information about the inputs, outputs and counters. The auxiliary equipment can also be viewed through this menu.
(2)	Service	The service menu contains the service information. The "clean screen" function can be used to clean the touchscreen.
(3)	Week timer	Multiple week timers and a remaining running time can be set through this menu.
(4)	Event history	In case of an alarm, the status information of the unit is saved and can be viewed through this menu.
(5)	Machine settings	Alarms settings, regulation settings and control parameters can be changed through this menu. Auxiliary equipment parameters can also be changed. The automatic restart function can be set through this menu. This function is password-protected.
(6)	Controller settings	Network settings, localisation settings and a user password can be set through this menu. There is also a help page available and the controller information can be shown.

Menu structure

Operating the controller can be done by swiping through screens and tapping icons or menu items.



This is the main structure. It can differ depending on the configuration of the unit.

4.7 Data menu

Function

This screen is used to display the following submenus:

- **Status**
- **Inputs**
- **Outputs**
- **Counters**
- **Auxiliary Equipment**

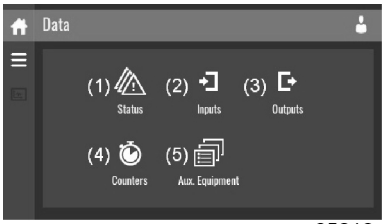
These submenus can be entered by tapping the icons.

Procedure

To enter the **Data** menu screen:

1. Tap the Menu button.
2. Tap the **Data** icon.

Description



85210

Reference	Description
(1)	**Status** menu
(2)	**Inputs** menu
(3)	**Outputs** menu
(4)	**Counters**
(5)	**Auxiliary equipment** menu

Status menu

Tap the **Status** icon to enter the **Status** menu.

86370

This menu shows the current status of the unit.

If an alarm is active, it can be viewed by tapping the alarm message. To reset an alarm, tap the reset button.

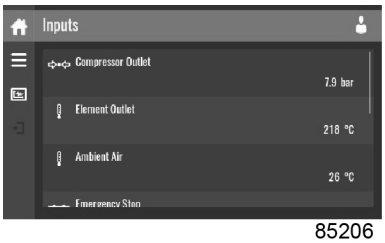
WARNING

Before remedying, consult the safety precautions.

Before resetting a warning or shutdown message, an authorized technician should solve the problem. If a warning or alarm persists to occur, consult your supplier. Frequently resetting these messages without remedying may damage the unit.

Inputs menu

Tap the **Inputs** icon to enter the **Inputs** menu.

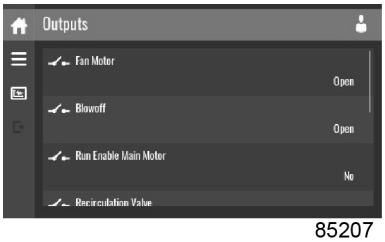


85206

This menu shows information about all the inputs.

Outputs menu

Tap the **Outputs** icon to enter the **Outputs** menu.



85207

This menu shows information about all the outputs.

DANGER

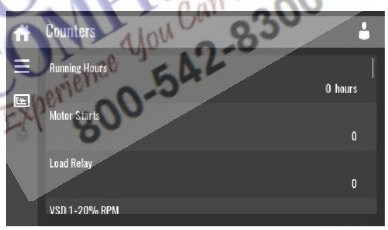
Voltage-free outputs may only be used to control or monitor functional systems. They should NOT be used to control, switch or interrupt safety related circuits. Check the maximum allowed load on the label.

WARNING

Stop the unit and switch off the supply before connecting external equipment. Consult the safety precautions.

Counters menu

Tap the **Counters** icon to enter the **Counters** menu.

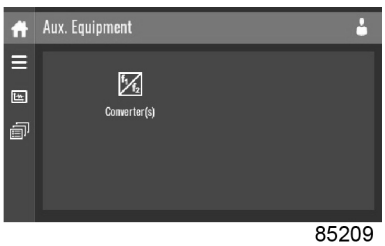


85208

This menu shows an overview of all actual hours and counters of the unit and controller.

Auxiliary Equipment menu

Tap the **Auxiliary Equipment** icon to enter the **Auxiliary Equipment** menu.



85209

This menu shows an overview of all auxiliary equipment fitted.

4.8 Service menu

Function

This screen is used to display the following submenus:

- **Service**
- **Service Functions** (visible as advanced user)
- **Clean Screen**

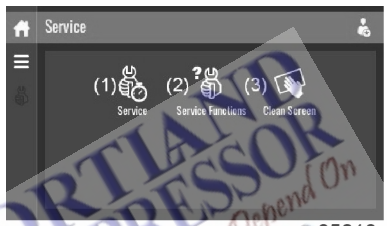
These submenus can be entered by tapping the icons.

Procedure

To enter the **Service** menu screen:

1. Tap the Menu button.
2. Tap the **Service** icon.

Description



85213

Reference	Description
(1)	**Service**
(2)	**Service Functions** (only visible as advanced user)
(3)	**Clean Screen**

Service menu

Tap the **Service** icon to enter the **Service** menu.

85211

This menu shows the remaining **Running Hours** and the remaining **Real Time Hours** until the next service. The first row (A) shows the **Running Hours** when the first service is needed (green), the second row shows the **Real Time Hours** (blue)

A service overview can be viewed by tapping icon (1).

The service plan can be viewed by tapping icon (2). Through this menu, the service plan can be modified:

1. Tap the desired service plan. A selection screen will pop up.

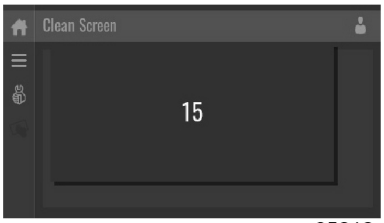
2. Change the Running Hours by tapping '–' or '+'.
3. Confirm by tapping 'V' or decline by tapping 'X'.

The service history can be viewed by tapping icon (3).

When a service plan interval is reached, a message will appear on the screen. When service has been performed, the service timer can be reset by tapping the reset button (4).

Clean screen

Tap the **Clean Screen** icon to start the 15 seconds countdown to perform cleaning of the touch screen.



85212

The touch screen and the start and stop button become inactive for 15 seconds.

4.9 Week timer menu

Function

This screen is used to set up to 4 different timers with each up to 8 settings per day.

The week timers can be activated through this screen.

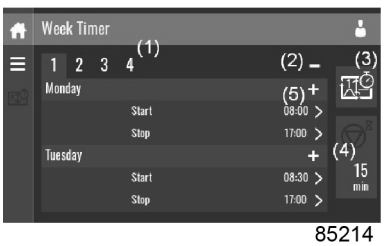
A **Remaining Running Time** can be set from 5 up to 240 minutes.

Procedure

To enter the **Week Timer** menu screen:

1. Tap the Menu button.
2. Tap the **Week Timer** icon.

Description



85214

Reference	Designation	Function
(1)	Add or select week	If less than 4 weeks are programmed, tap the '+' button to add a week.
(2)	Remove week	Tap to remove a programmed week timer.

Reference	Designation	Function
(3)	Activate week timer	A selection screen pops up. The user can choose the correct week by tapping '–' or '+' and can confirm by tapping 'V' or decline by tapping 'X'.
(4)	Remaining running time	A selection screen pops up. The user can change the remaining time by tapping '–' or '+' and can confirm by tapping 'V' or decline by tapping 'X'.
(5)	Add setting	A selection screen pops up. The user can change the setting by swiping up or down and confirm by tapping 'V' or decline by tapping 'X'.

4.10 Event history menu

Function

This screen is used to display the saved data in case of an alarm.

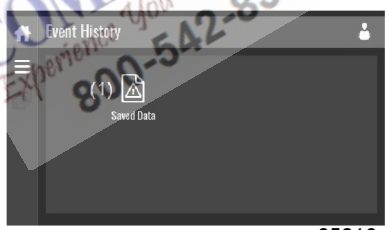
These submenus can be entered by tapping the icons.

Procedure

To enter the **Event History** menu screen:

1. Tap the Menu button.
2. Tap the **Event History** icon.

Description



85216

Reference	Description
(1)	**Saved Data**

Saved data

Tap the **Saved Data** icon to enter the **Saved Data** menu.

Scroll through the items swiping up and down in this list. The event date and time is shown at the right side of the screen.

Press on one of the items in the list for more information reflecting the status of the unit when the shutdown occurred.

4.11 Machine settings menu

Function

This screen is used to display the following submenus:

- **Alarms**
- **Regulation**
- **Control Parameters**

  Only visible if the machine has adaptable parameters.
- **Aux. Equipment Parameters**
- **Auto Restart**

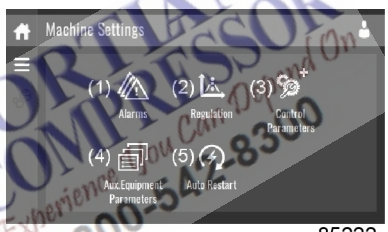
These submenus can be entered by tapping the icons.

Procedure

To enter the **Machine Settings** menu screen:

1. Tap the Menu button.
2. Tap the **Machine Settings** icon.

Description

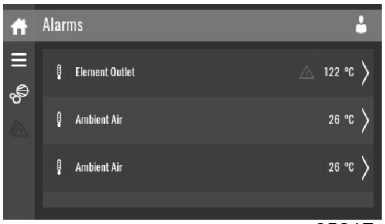


85222

Reference	Description
(1)	**Alarms** menu
(2)	**Regulation** menu
(3)	**Control Parameters** menu
(4)	**Aux. Equipment Parameters** menu
(5)	**Auto Restart** menu

Alarms menu

Tap the **Alarms** icon to enter the **Alarms** menu.



85217

A list of all alarms is shown.

When pressing on one of the items in the underlying list, the warning and/or shutdown levels are shown for this alarm.

Regulation menu

Tap the **Regulation** icon to enter the **Regulation** menu.

85218

Setpoints can be modified and capacity control can be consulted through this menu.

Modify a setting

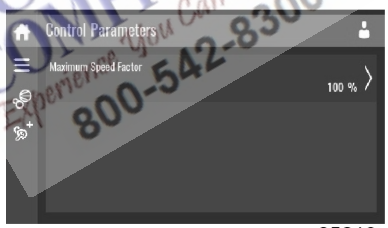
When tapping a list item, a selection screen pops up. The user can modify the setting by tapping '–' or '+' and can confirm by tapping 'V' or decline by tapping 'X'.

Change a selection

When tapping a list item, a selection screen pops up. The user can change the selection by swiping up or down and confirm by tapping 'V' or decline by tapping 'X'.

Control parameters menu

Tap the **Control Parameters** icon to enter the **Control Parameters** menu.



85219

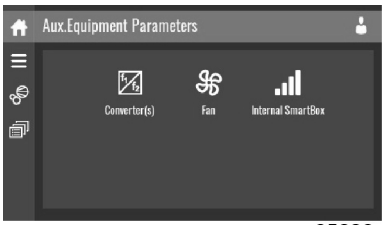
This menu shows information about the **Control Parameters**.

Modify a setting

When tapping a list item, a selection screen pops up. The user can modify the setting by tapping '–' or '+' and can confirm by tapping 'V' or decline by tapping 'X'.

Auxiliary equipment parameters menu

Tap the **Aux. Equipment Parameters** icon to enter the **Aux. Equipment Parameters** menu.



85220

This menu shows an overview of all the auxiliary equipment fitted.

Through this menu, the parameters of the auxiliary equipment can be changed.

Modify a setting

When tapping a list item, a selection screen pops up. The user can modify the setting by tapping '–' or '+' and can confirm by tapping 'V' or decline by tapping 'X'.

Auto restart menu

Tap the **Auto Restart** icon to enter the **Auto Restart** menu.

85221

Through this menu, the automatic restart can be activated. The activation is password protected.

The automatic restart settings can also be changed.

Enter a password

When tapping a password protected item, a selection screen pops up. The user can enter the password by swiping up or down to select the desired number. Once the 4 digits are entered, the user can confirm by tapping 'V' or decline by tapping 'X'.

Modify a setting

When tapping a list item, a selection screen pops up. The user can modify the setting by tapping '–' or '+' and can confirm by tapping 'V' or decline by tapping 'X'.

4.12 Controller settings menu

Function

This screen is used to display the following submenus:

- **Network Settings**
- **Localisation**
- **User Password**
- **Help**
- **Information**

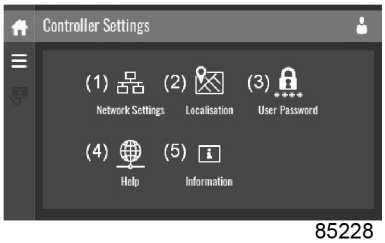
These submenus can be entered by tapping the icons.

Procedure

To enter the **Controller Settings** menu screen:

1. Tap the Menu button.
2. Tap the **Controller Settings** icon.

Description

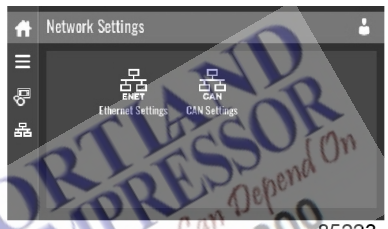


85228

Reference	Description
(1)	**Network Settings** menu
(2)	**Localisation** menu
(3)	**User Password** menu
(4)	**Help** menu
(5)	**Information** menu

Network settings menu

Tap the **Network Settings** icon to enter the **Network Settings** menu.



85223

Ethernet Settings

The list of **Ethernet Settings** is shown. When ethernet is turned off, the settings can be modified.

CAN Settings

The list of **CAN Settings** is shown. When CAN is turned off, the settings can be modified.

Modify a setting

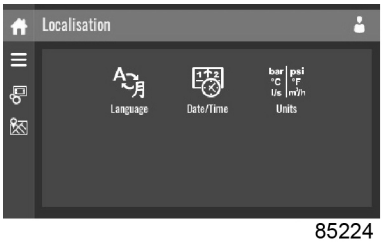
When tapping a list item, a selection screen pops up. The user can modify the setting by tapping ‘–’ or ‘+’ and can confirm by tapping ‘V’ or decline by tapping ‘X’.

Change a selection

When tapping a list item, a selection screen pops up. The user can change the selection by swiping up or down and confirm by tapping ‘V’ or decline by tapping ‘X’.

Localisation menu

Tap the **Localisation** icon to enter the **Localisation** menu.



85224

Language

The language setting of the controller can be modified through this menu.

Date/Time

The date and time settings of the controller can be modified through this menu.

Units

The units displayed can be modified through this menu.

Modify a setting

When tapping a list item, a selection screen pops up. The user can modify the setting by tapping '–' or '+' and can confirm by tapping 'V' or decline by tapping 'X'.

Change a selection

When tapping a list item, a selection screen pops up. The user can change the selection by swiping up or down and confirm by tapping 'V' or decline by tapping 'X'.

User password menu

Tap the **User Password** icon to enter the **User Password** menu.

85225

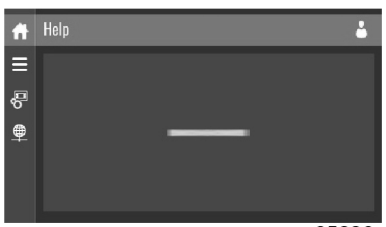
The user password can be activated or deactivated through this menu. Enter and confirm a user password to activate, repeat to deactivate.

Enter a password

When tapping a password protected item, a selection screen pops up. The user can enter the password by swiping up or down to select the desired number. Once the 4 digits are entered, the user can confirm by tapping 'V' or decline by tapping 'X'.

Help menu

Tap the **Help** icon to enter the **Help** menu.

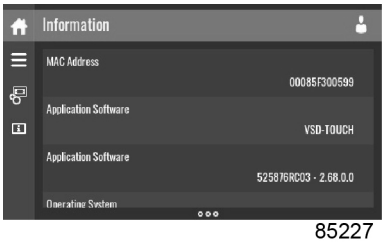


85226

This menu can show a link to the web page of your supplier, a helpdesk phone number or other helpful information.

Information menu

Tap the **Information** icon to enter the **Information** menu.



85227

This menu shows information about the controller.

4.13 Access level

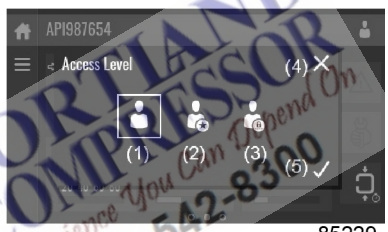
Function

Through this pop-up screen, the access level settings can be viewed or changed.

Procedure

The **Access Level** screen can be viewed or changed by tapping the **Access Level** button at the upper right corner of the screen.

Description



85229

Reference	Designation	Function
(1)	User	A basic set of parameters is visualized, no password required.
(2)	Service	A basic set of parameters can be modified, no password required.
(3)	Full	This access level is not accessible to end users.
(4)	Decline	Tap to decline the selected user level.
(5)	Confirm	Tap to confirm the selected user level.

Service access level

85230

Tap the **Service** access level icon (1) and confirm (2).

The screen information bar (1) now shows the current status of the unit instead of the machine serial number.

The Received Signal Strength Indicator (RSSI) value is now shown in the Internal SmartBox menu. See section *Quick access screen*.

In the service menu, an extra menu item is now available. See section *Service menu*.

5 Installation

5.1 Dimension drawings

Dimension drawings can be found in the technical documentation supplied with the unit.

Drawing number	Model description
9828 0849 71-01	GA 5-11 Pack, Floor-mounted
9828 0849 72-01	GA 5-11 Pack, 270 L air receiver
9828 0849 73-01	GA 5-11 Full-Feature, floor-mounted
9828 0849 74-01	GA 5-11 Full-Feature, 270 L air receiver
9828 0849 75-01	GA 5-11 Pack, 80 US GAL air receiver
9828 0849 76-01	GA 5-11 Full-Feature, 80 US GAL air receiver

5.2 Installation proposal

Outdoor/altitude operation

If the compressor is installed where the ambient temperature can drop below 0 ˚C (32 ˚F), precautions must be taken. In this case as well as when operating above 1000 m (3300 ft), consult your supplier.

Moving/lifting

WARNING

To transport a receiver-mounted compressor with a forklift truck, use the openings in the frame.

Move the compressor smoothly.

Installation proposal

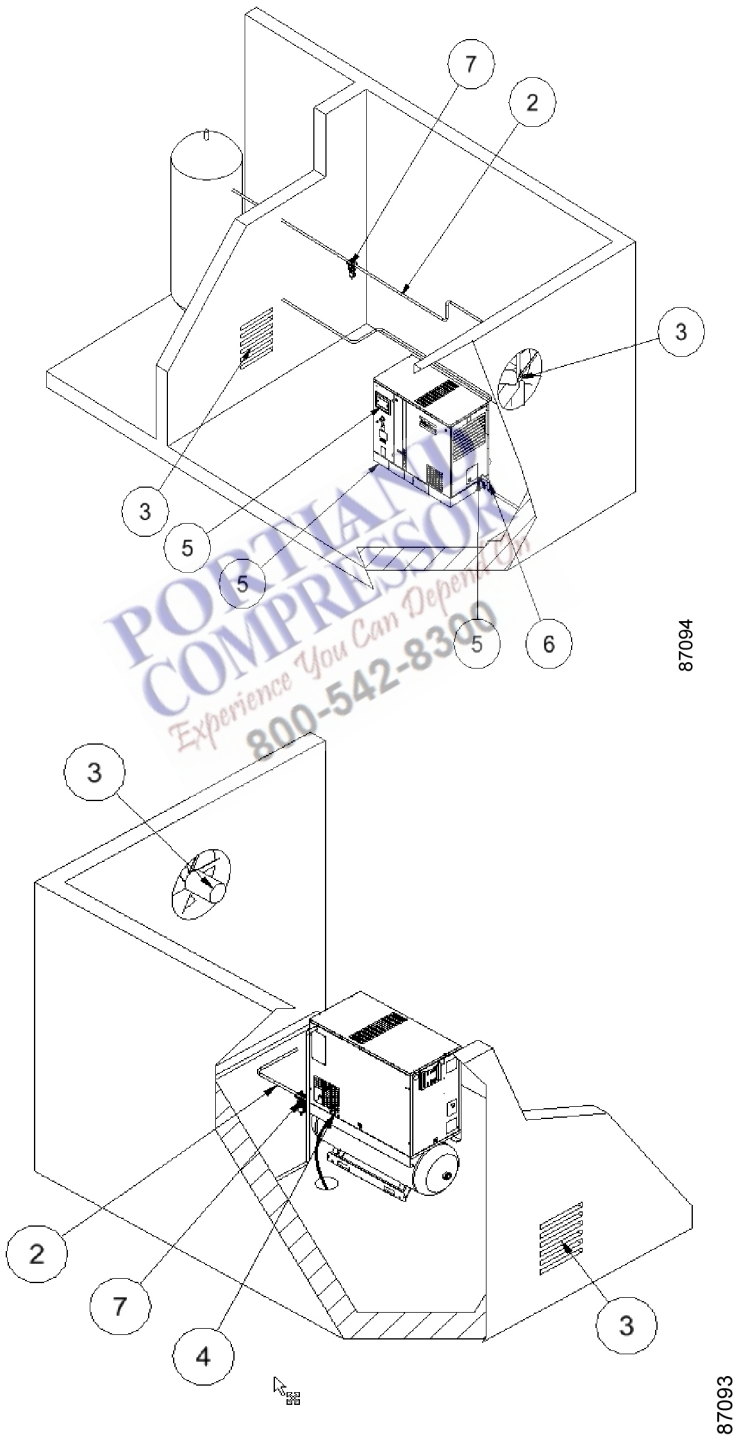


Figure 22: Typical installation proposal

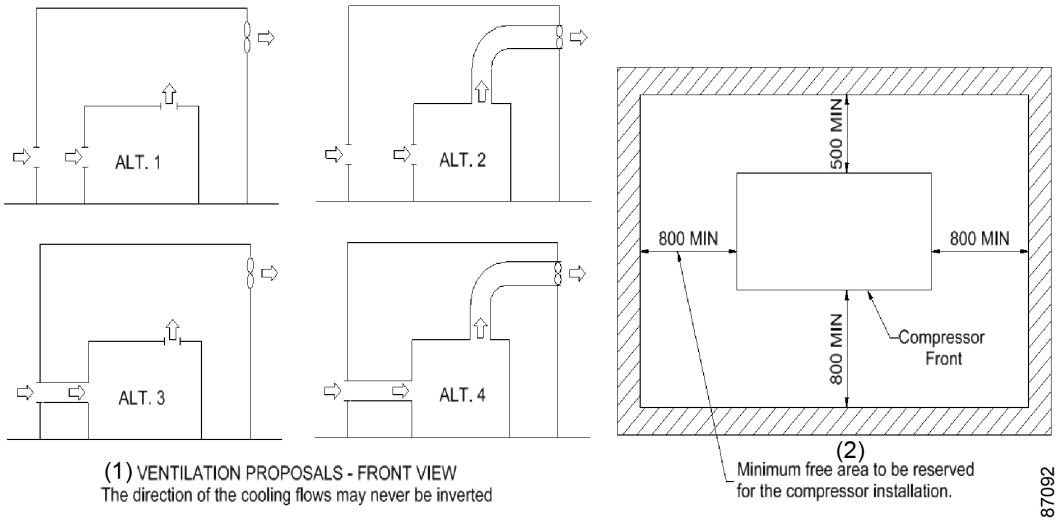


Figure 23: Compressor room example

Reference	Designation
(1)	Ventilation proposals
(2)	Minimum free area to be reserved for the compressor installation

Table 1: Text on drawing

NOTE

All piping to be connected stress free to the compressor.

Installation guidelines

1. Install the compressor unit on a solid, level floor suitable for taking its weight. The recommended minimum distance between the top of the unit and the ceiling is 900 mm (35 in). The air receiver must not be bolted to the floor. The minimum distance between the wall and the back of the compressor must be 500 mm (19.5 in).
2. Position of the compressed air outlet valve.

   To facilitate the access to the dryer during maintenance operations, provide a flexible connection between the air outlet valve and the air net.

   Close the valve.

   Connect to the air net.
3. The pressure drop over the air delivery pipe can be calculated from:

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

   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

It is recommended that the connection of the compressor air outlet pipe is made on top of the main air net pipe in order to minimize carry-over of possible condensate residue.

4. Ventilation: the inlet grids and ventilation fan should be installed in such a way that any recirculation of cooling air to the compressor or dryer 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 water column).

   If it is greater than this value, a fan is needed at the outlet of the ducts. Consult your supplier.

   For alternatives 1 and 3, the required ventilation capacity to limit the compressor room temperature can be calculated as follows:

   - Q_v= 1.16 N / ΔT for units without optional dryer
   - Q_v = (1.16 N + 0.6) / ΔT for units with optional dryer

   Q_v = Required ventilation capacity in m^3/s

   N = Shaft input of compressor in kW

   ΔT = Temperature increase in the compressor room in °C

   For alternatives 2 and 4: the fan capacity should match the compressor fan capacity at a pressure head equal to the pressure drop across the air ducts.

5. Position of control panel.
6. Mains cable

NOTE

To preserve the protection degree of the electrical cubicle and to protect its components from dust from the environment, it is mandatory to use the supply cable and cable gland delivered with the compressor.

7. Filter type DD for general purposes (optional):

   The filter traps solid particles down to 1 micron with a maximum oil carry-over of 0.5 mg/m^3. A high-efficiency filter type PD (optional) may be installed downstream of a DD filter. This filter traps solid particles down to 0.01 micron with a maximum oil carry-over of 0.01 mg/m^3. If oil vapors and odors are undesirable, a QD type filter should be installed downstream of the PD filter.

   It is recommended to provide bypass pipes and valves across the filters in order to isolate the filters during maintenance without disturbing the compressor.

5.3 Electrical connections

Important remark

NOTE

To preserve the protection degree of the electrical cubicle and to protect its components from dust from the environment, it is mandatory to use a proper cable gland when connecting the supply cable to the compressor.

General instructions

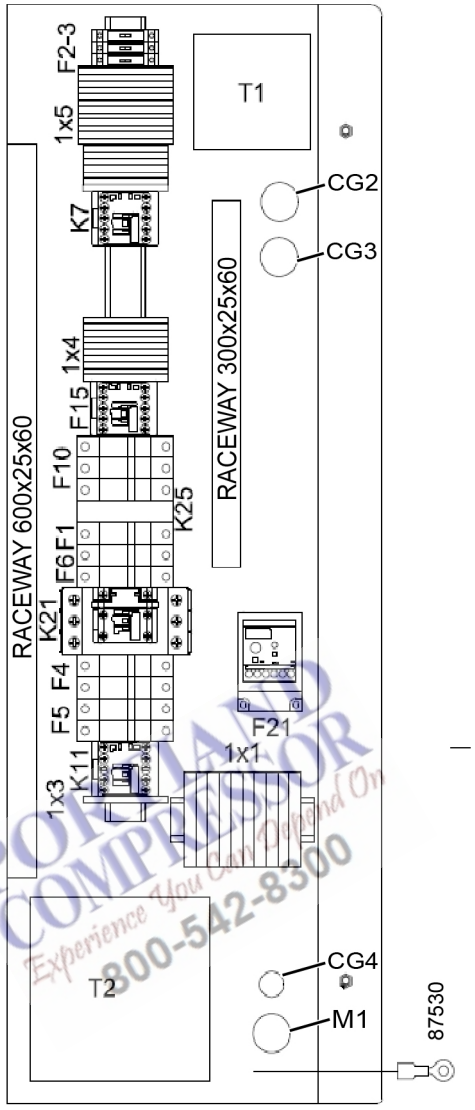


Figure 24: IEC cubicle

Step	Action
1	Install an isolating switch near the compressor.
2	Check the fuses and setting of the overload relay. See section *Settings of overload relay and fuses.*
3	If fitted, check transformers for connection.
4	Connect the power supply cables to terminals L1, L2 and L3 and the neutral conductor (if applicable) to terminal (N). Connect the earth conductor.

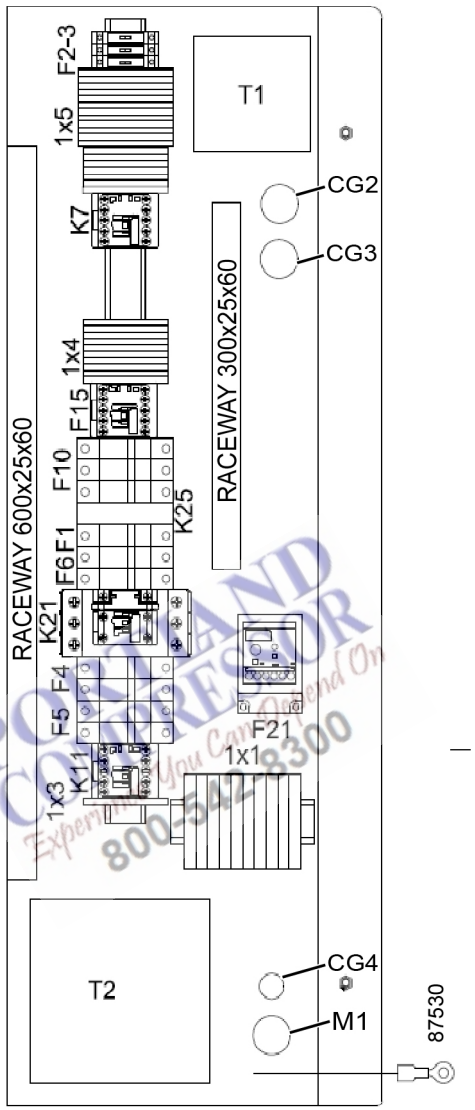
Specific instructions for GA 5 up to GA 11 with 208 V/ 230 V/ 460 V cubicle

DANGER

Always disconnect the power supply before working on the electrical circuit.

The standard voltage configuration for the compressor is mentioned on the data plate of the machine. When the compressors leave the factory, the units are connected for 230 V / 3 phase.

To modify the wiring for an operating voltage of 208 V or 460 V, the compressor's main cubicle and the transformer of the dryer cubicle should be rewired as described below:



Required modifications in the compressor cubicle:

Step	Action
1	Adjust the motor overload (F21) setting.
2	Adjust the fan motor overload (F15) setting.
3	Rewire the control transformer (T1).
4	Replace the fan fuses (F10) with the CC type 1.5 A fuses provided (see further).
5	Replace the control fuses (F1) with the 10.3 x 38 mm 2 A fuses provided (see further).
6	Modify the M1 and M2 terminal bridge configuration (1x1 and 1x4) in the main cubicle for the desired voltage.
7	Replace the voltage sticker with the appropriate provided voltage sticker.
8	On Full-Feature units, replace the power fuses (F4 in the main cubicle) with the CC type 6 A fuses provided.

Step	Action
9	Modify the power transformer terminal bridge configuration in the transformer cubicle for the desired voltage.

To adjust the motor overload (F15 and F21) setting, simply rotate the adjustment screw (1) on the front of the overload relay to the required setting (see below table).

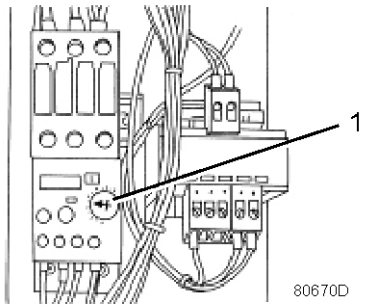
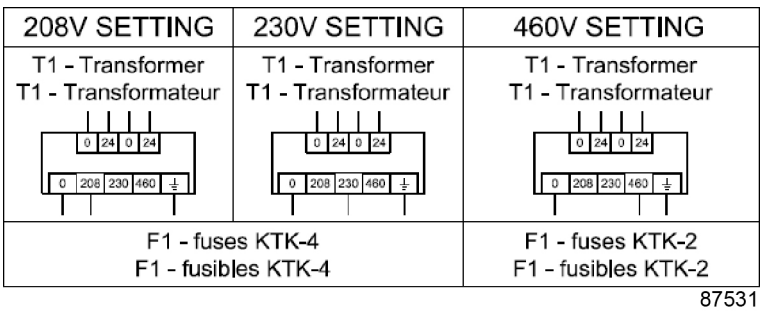


Figure 25: Adjustment screw of the motor overload

Motor overload (F21) setting (A)	GA 5	GA 7	GA 11
208 V	25.0	34.0	49.0
230 V (standard factory setting)	23.0	31.0	45.0
460 V	12.0	15.5	22.0

Fan motor overload adjustment (F15) (A)	GA 5/ GA7/ GA 11
208 V	1.15
230 V (standard factory setting)	1.10
460 V	0.65

To rewire the control transformer (T1), move the wire of the transformer to the terminal marked with the desired voltage (208 V, 230 V or 460 V).



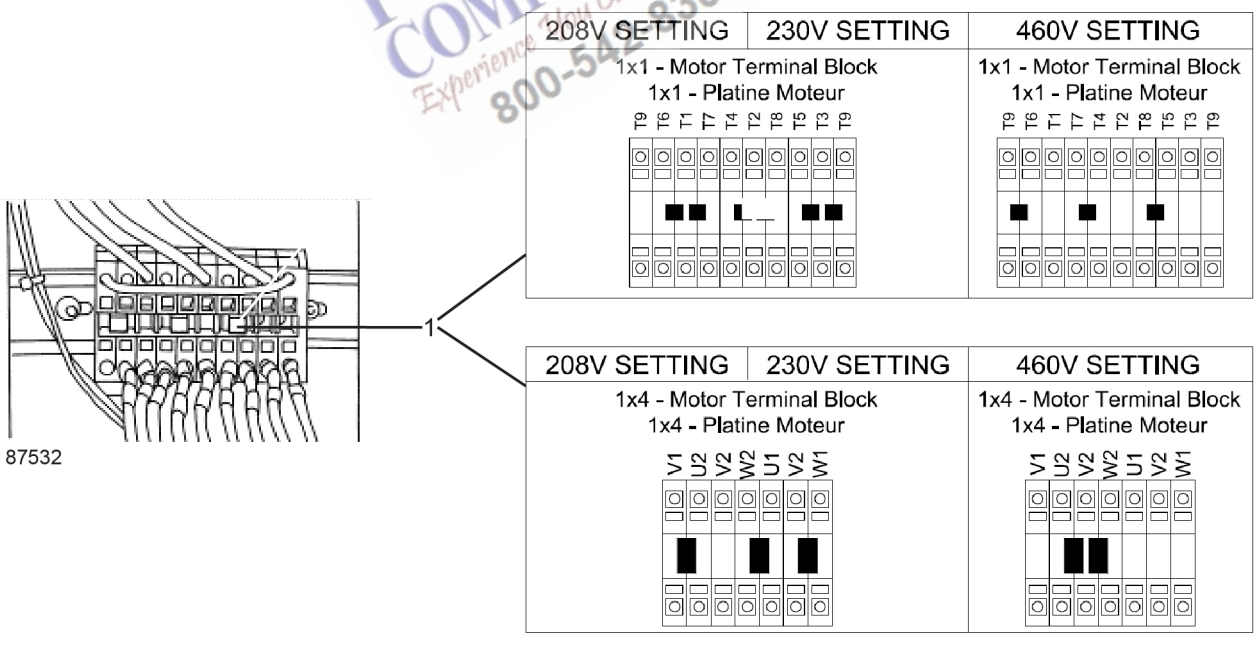
Replace the three fuses marked F10 by opening the fuse-holder. Use the fuses supplied with the compressor: the 3 A fuses for 208 - 230 V and the 1.5 A fuses for 460 V.

Fuses	Fuse rating V	208 V	230 V	460 V	Class
F1	600 V AC	4 A	4 A	2 A	UL: class CC time delay CSA: HRC-CC time delay
F2	250 V AC	3 A	3 A	3 A	UL: class CC time delay CSA: HRC-CC time delay
F3	250 V AC	1 A	1 A	1 A	UL: category JDYX or JDYX2 CSA: class 1422-01
F4	600 V AC	15 A	15 A	6 A	UL: class CC time delay CSA: HRC-CC time delay
F5	600 V AC	10 A	10 A	10 A	UL: class CC time delay CSA: HRC-CC time delay
F6	600 V AC	1 A	1 A	1 A	UL: category JDYX or JDYX2 CSA: class 1422-01
F10	600 V AC	3 A	3 A	1.5 A	UL: class CC time delay CSA: HRC-CC time delay

NOTE

Fuses F4 and F5 are only applicable to Full-Feature units. See section *Electrical diagrams*.

To modify the terminal bridge configuration to the motor, configure the terminal bridges for the desired voltage (208 V, 230 V or 460 V) according to the diagram below. The terminal bridges (1) can be easily removed using a pair of pliers. Additional terminal bridges are provided with the compressor. Both 1x1 and 1x4 terminal boards need to be adjusted according to the connection label for M1 and M2 motors. The connections for 230 V are the factory standard.



Locate the yellow voltage labels provided with the compressor. Replace the existing label with the appropriate voltage label (200 - 208 V, 230 V or 460 V).

Compressor control modes on compressors with an Elektronikon™ Swipe controller

Consult section *Controller settings menu* if it is desired to switch to another control mode.

The following control modes can be selected:

- **Local control:** the compressor will react to commands entered by means of the buttons on the control panel. Compressor start/stop commands via the Clock function are active, if programmed.
- **Remote control:** the compressor will react to commands from external switches. The emergency stop remains active. Compressor start/stop commands via the Clock function are still possible.

  Options:

  - Remote starting and stopping (switch S1')
  - Remote loading/unloading (manual switch S4')

  See section *Electrical system* to locate the connectors.

  NOTE

  Have the modifications checked by your supplier.

  Stop the compressor and switch off the voltage before connecting external equipment.

  Only potential free contacts are allowed.
- **LAN control:** the compressor is controlled via a local network. Consult your supplier.

Compressor control modes on compressors with an Elektronikon™ Touch controller

The following control modes can be selected:

- **Local control:** the compressor will react to commands entered by means of the buttons on the control panel. Compressor start/stop commands via the Clock function are active, if programmed.
- **LAN control:** the compressor is controlled via a local network. Consult your supplier.

Compressor status indication on compressors equipped with an Elektronikon™ Swipe controller

The Elektronikon™ controller is provided with an auxiliary relay (K05) for remote indication of a shutdown. This NO contact (NO = normally open) will be closed if all conditions are normal and will open in case of power failure or shutdown.

Maximum contact load: 10 A / 250 V AC.

Stop the compressor and switch off the voltage before connecting external equipment. Consult your supplier.

Compressor status indication on compressors equipped with an Elektronikon™ Touch controller

The Elektronikon™ controller is provided with potential free auxiliary NO contacts (NO = normally open) (K05, K07 and K08) for remote indication of:

- Automatic operation (K07)
- Warning condition (K08)
- Shut-down condition (K05)

Example: K05 is a NO (NO = normally open) contact. It will be closed if all conditions are normal and will open in case of power failure or shutdown.

Maximum contact load: 10 A / 250 V AC.

Stop the compressor and switch off the voltage before connecting external equipment. Consult your supplier.

5.4 Pictographs

Description

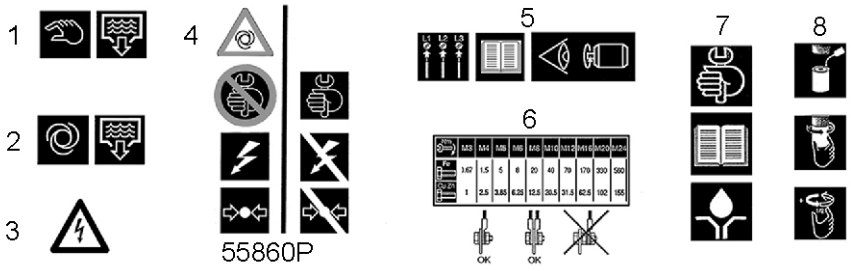


Figure 26: Pictographs

Reference	Description
1	Manual condensate drain.
2	Automatic condensate drain.
3	Warning: voltage.
4	Warning: switch off the voltage and depressurize compressor before repairing.
5	Warning: before connecting the compressor electrically, consult the instruction book for the rotation direction of the motor.
6	Torques for steel (Fe) or brass (CuZn) bolts.
7	Consult instruction book before greasing.
8	Lightly oil the gasket of the oil filter, screw it on and tighten by hand (approx. half a turn).

6 Operating instructions

6.1 Initial start up

WARNING

The operator must apply all relevant safety precautions.

Procedure

NOTE

For the position of the air outlet valve and the drain connections, see sections *Introduction* and *Condensate system*

1. Consult the sections *Electric cable size*, *Installation proposal* and *Dimension drawings.*
2. Check that the electrical connections correspond to the local codes and that all wires are clamped tight to their terminals.

   The installation must be earthed and protected against short circuits by fuses of the inert type in all phases. An isolating switch must be installed near the compressor.
3. Check the transformer (T1) for correct connection.

   Check the settings of the drive motor overload relay (F21).

   Check that the motor overload relay is set for manual resetting.

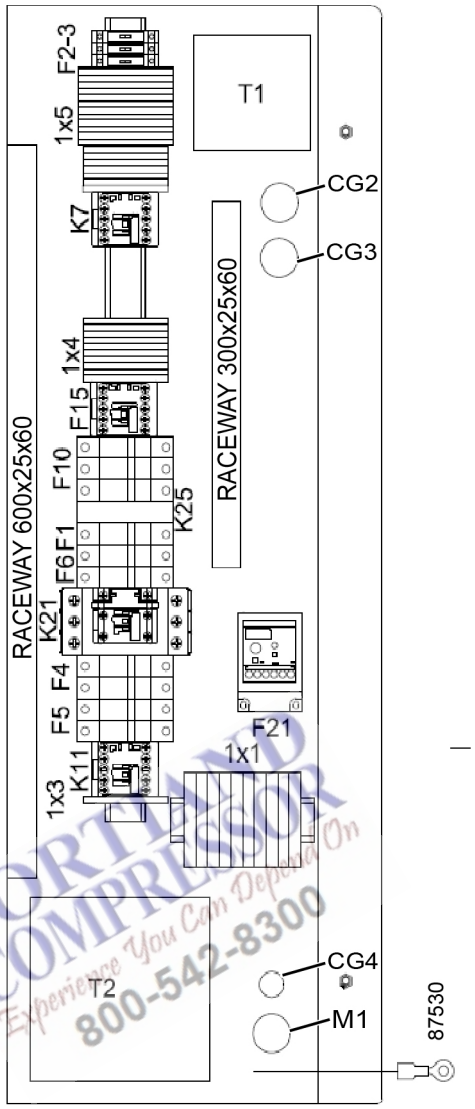


Figure 27: Electrical cubicle, typical example

4. Fit the air outlet valve (AV), see section *Introduction* for the position of the valve.

   Close the valve.

   Connect the air net to the valve.
5. Fit the manual condensate drain valve(s) (Dm). Close the valve. Connect the valve to the drain collector.
6. Connect the automatic drain outlet (Da) to the drain collector.

   The drain pipes to the drain collector must not dip into the water. If the pipes have been fitted outside the room where freezing is possible, they must be insulated.
7. Check the oil level.

   See section *During operation* for the correct procedure.

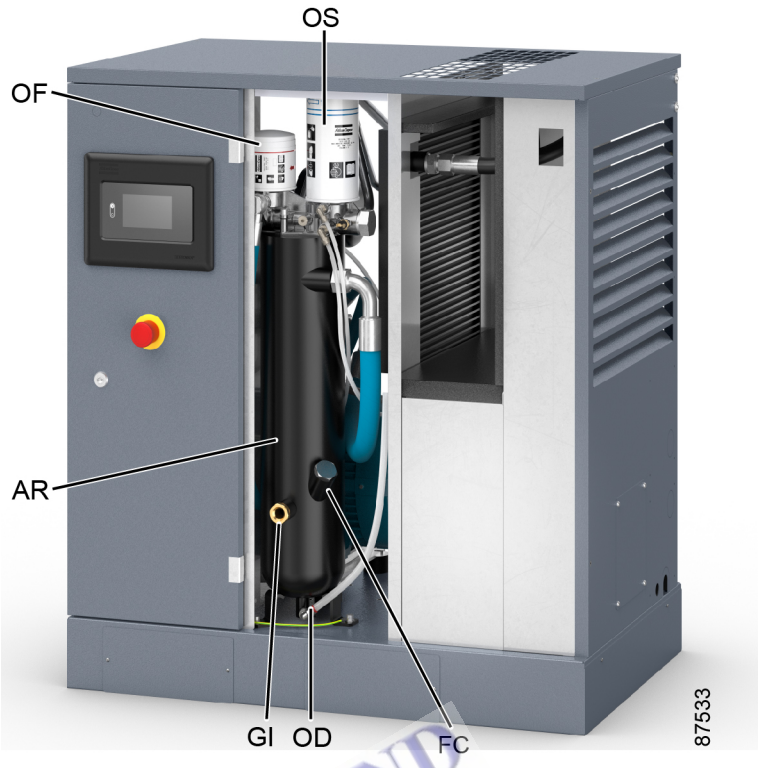


Figure 28: Position of the oil level sight-glass

8. **Provide labels warning the operator that:**
   - The compressor may automatically restart after voltage failure (if activated, consult your supplier).
   - The compressor is automatically controlled and may be restarted automatically.
   - If the rotation direction is incorrect, an alarm is generated in the Elektronikon™. Switch off the voltage, open the isolating switch and reverse the two incoming supply lines.
9. Start and run the compressor for a few minutes. Check that the compressor operates normally.
10. Stop and isolate the unit and check for leakages.

6.2 Before starting

Procedure

Check the oil level, top up if necessary. See section *Initial start-up.*

6.3 Starting

Procedure

NOTE

For the position of the air outlet valve and the drain connections, see sections *Introduction* and *Condensate system*.

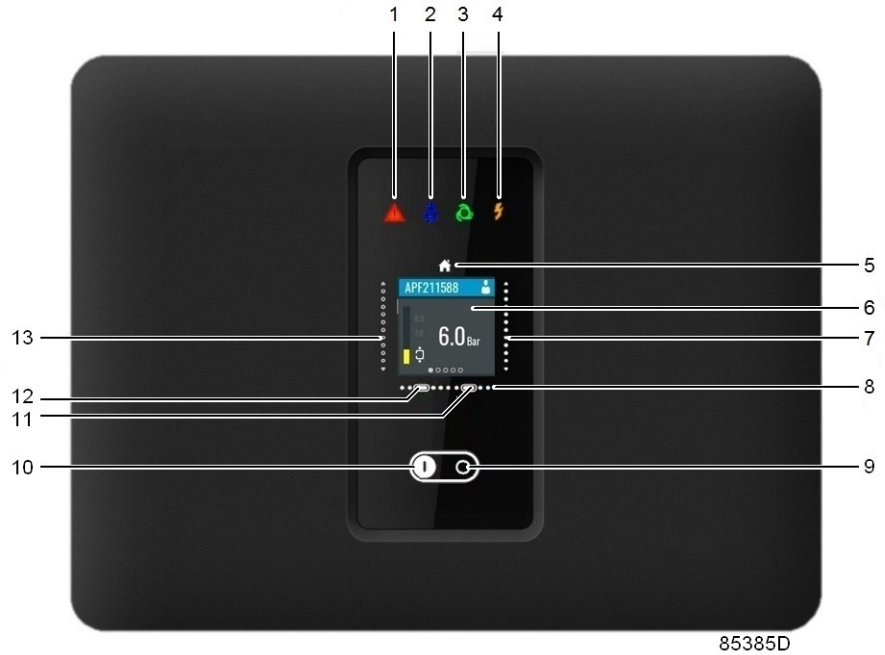


Figure 29: Control panel of the Elektronikon™ Swipe controller

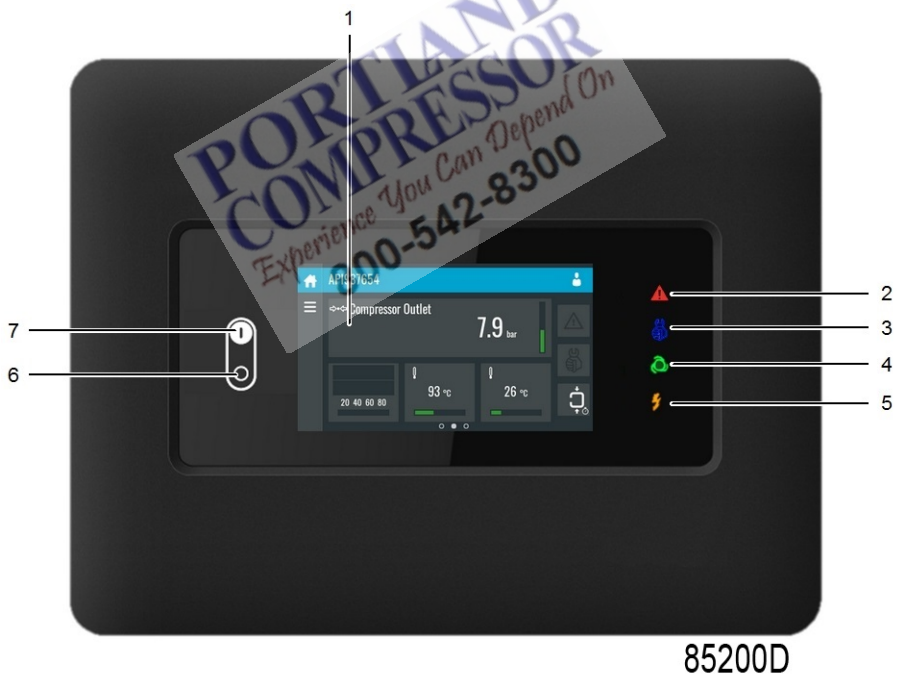


Figure 30: Control panel of the Elektronikon™ Touch controller

1. Switch on the voltage. Check that the voltage on LED lights up.
2. Open the air outlet valve.
3. Close the condensate drain valve(s) (Dm).
4. On units with the Elektronikon™ Swipe controller:
   - Press the start button (10) on the control panel. The compressor starts running and the automatic operation LED (3) lights up. When the motor running time in star (Y-time, see

Parameters in section *Programmable settings*) has elapsed, the drive motor switches over from star to delta and the compressor starts running loaded.

5. On units with the Elektronikon™ Touch controller:

   - Press the start button (7) on the control panel. The compressor starts running and the automatic operation LED (4) lights up. When the motor running time in star (Y-time, see Parameters in section *Programmable settings*) has elapsed, the drive motor switches over from star to delta and the compressor starts running loaded.

6.4 During operation

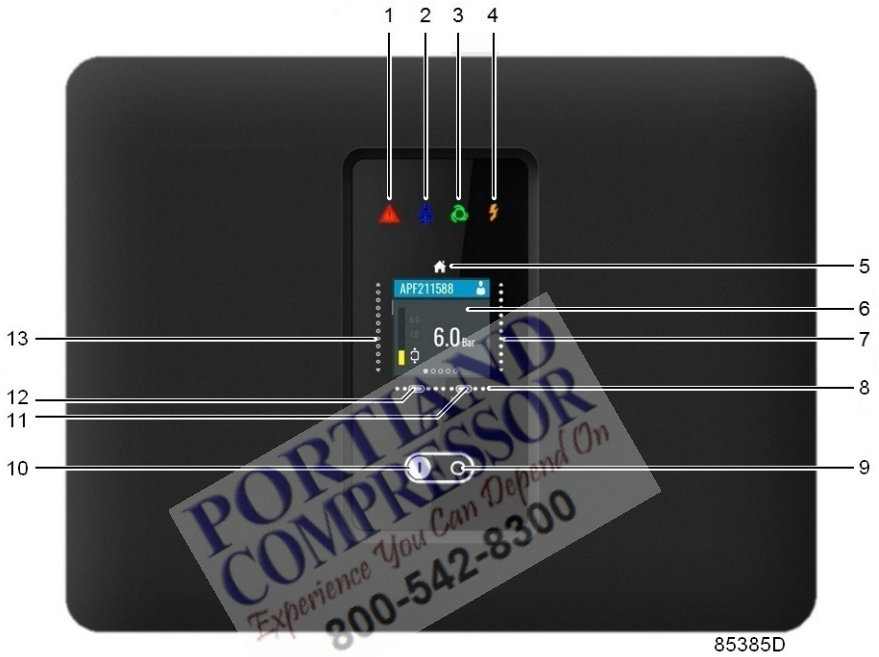


Figure 31: Control panel of the Elektronikon™ Swipe controller

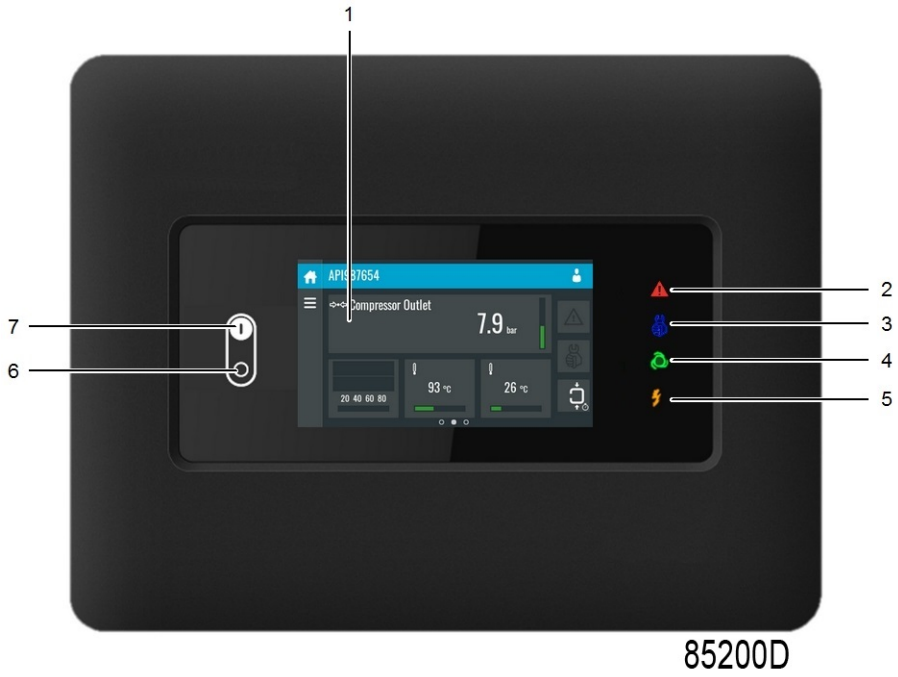


Figure 32: Control panel of the Elektronikon™ Touch controller

Figure 33: Position of the oil level sight-glass and service indicator

1. Regularly check the oil level:
   - On units with the Elektronikon™ Swipe controller: switch off the machine with the push button (10), this way the machine stops after 45 seconds of idle running.

On units with the Elektronikon™ Touch controller: switch off the machine with the push button (7), this way the machine stops after 45 seconds of idle running.

- Disconnect the power supply using the disconnector switch on the compressor and on the dryer, if fitted.
- Wait for 5 minutes for the foam in the oil collector to abate.
- If the oil level is not visible in the sight glass (GI), press the emergency stop button (S3), close the air outlet valve and open (if provided) the manual condensate drains.
- Next, depressurize the oil system by unscrewing the oil filler plug (FC) one turn and wait for a few minutes.
- Remove the plug and top up oil until the sight glass is full.
- Fit and tighten the filler plug.

2. On units with the Elektronikon™ Swipe controller: when the automatic operation LED (3) is lit, the regulator is automatically controlling the compressor, i.e. loading, unloading, stopping of the motors and restarting.
3. On units with the Elektronikon™ Touch controller: when the automatic operation LED (4) is lit, the regulator is automatically controlling the compressor, i.e. loading, unloading, stopping of the motors and restarting.
4. During operation, regularly check that condensate is discharged by the automatic drain(s) (if provided). See section *Condensate system*. The amount of condensate depends on environmental and working conditions.
5. If the compressor is installed in a dusty environment, inspect the air filter element regularly. Replace when necessary. See section *Preventive maintenance schedule* for periodic replacement instructions.

6.5 Checking the display

Procedure

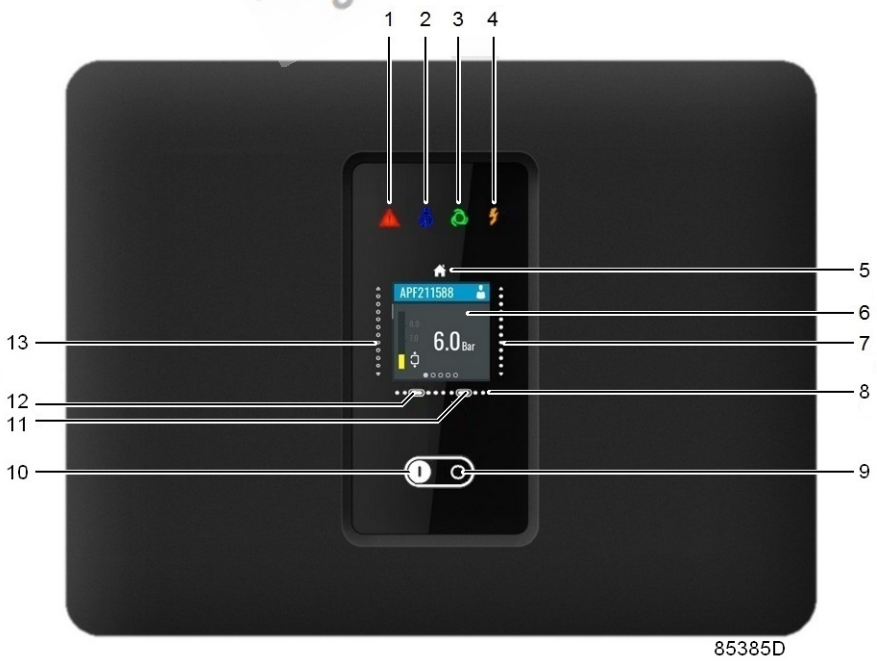


Figure 34: Control panel of the Elektronikon™ Swipe controller

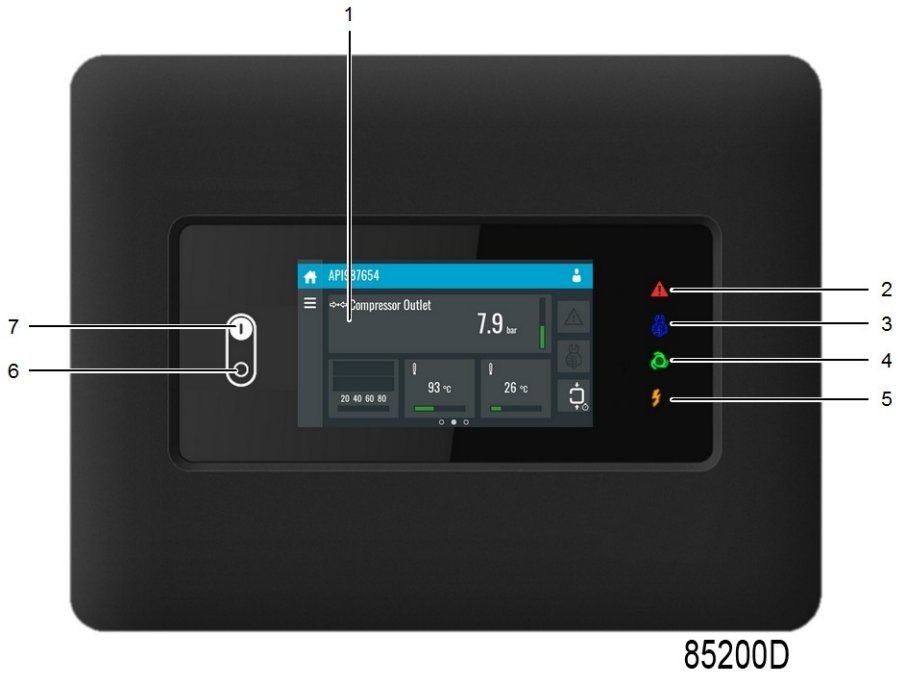


Figure 35: Control panel of the Elektronikon™ Touch controller

1. Compressors with the Elektronikon™ Swipe controller:

   Check the display (6) regularly for readings and messages. The display normally shows the compressor outlet pressure, while the status of the compressor is indicated by pictographs. Remedy the trouble if alarm LED (1) is lit or flashes.

   The display (6) will show a service message if a service plan interval has been exceeded or if a service level for a monitored component has been exceeded. The service LED is on. Carry out the service actions of the indicated plans or replace the component and reset the relevant timer.

2. Compressors with Elektronikon™ Touch controller:

   Check the display (1) regularly for readings and messages. The display normally shows the compressor outlet pressure, while the status of the compressor is indicated by pictographs. Remedy the trouble if alarm LED (2) is lit or flashes.

   The display (1) will show a service message if a service plan interval has been exceeded or if a service level for a monitored component has been exceeded. The service LED is on. Carry out the service actions of the indicated plans or replace the component and reset the relevant timer.

6.6 Stopping

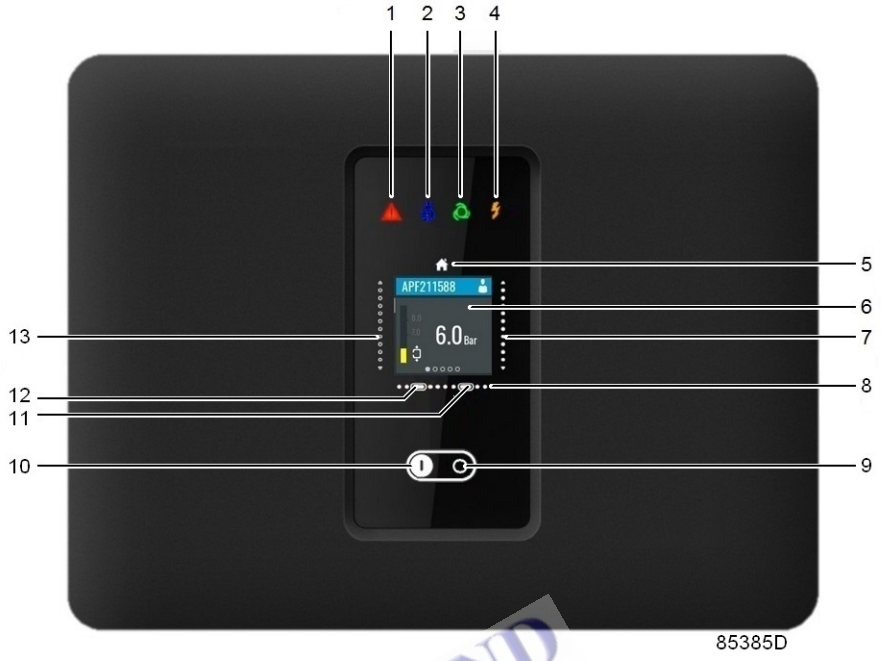


Figure 36: Control panel of the Elektronikon™ Swipe controller

Figure 37: Control panel of the Elektronikon™ Touch controller

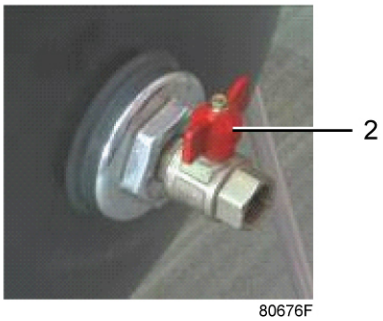


Figure 38: Air outlet valve on air receiver

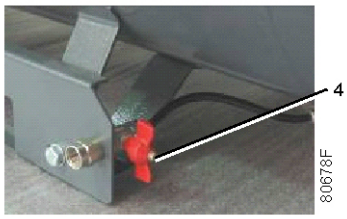


Figure 39: Condensate drain valve, Tank-mounted GA 5 up to GA 11

Procedure

1. If Remote Control or LAN Control is selected, change the setting to Local Control. See section *Machine settings menu.*
2. On units with the Elektronikon™ Swipe controller:

   Press stop button (9) on the control panel. The automatic operation LED (3) goes out and the compressor stops after 45 seconds of unloaded operation.
3. On units with the Elektronikon™ Touch controller:

   Press stop button (6) on the control panel. The automatic operation LED (4) goes out and the compressor stops after 45 seconds of unloaded operation.
4. On units with the Elektronikon™ Swipe controller:

   To stop the compressor in the event of an emergency, press emergency stop push button on the control panel. The alarm LED (1) flashes.
5. On units with the Elektronikon™ Touch controller:

   To stop the compressor in the event of an emergency, press emergency stop push button on the control panel. The alarm LED (2) flashes.

   Do not use emergency stop push button for normal stopping!
6. Close the air outlet valve (AV).
7. Open the condensate drain valve of the compressor (Dm) to drain the water trap completely. See section *Condensate system*.

The air dryer and air receiver (on tank-mounted units) remain under pressure.

The DD and PD filters (if installed) remain under pressure.

If maintenance or repair work is necessary, consult *Problem solving* for all relevant safety precautions.

6.7 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 by opening the plug (FC). Consult section *Oil and oil filter change* to locate the filler plug.
4. Open the condensate drain valve(s) (Dm). Consult section *Condensate system* to locate the drain valve.
5. Shut off and depressurize the part of the air net which is connected to the outlet valve. Disconnect the compressor air outlet pipe from the air net.
6. Drain the oil.
7. Drain the condensate circuit and disconnect the condensate piping from the condensate net.

Figure 40: Air outlet valve on the air receiver

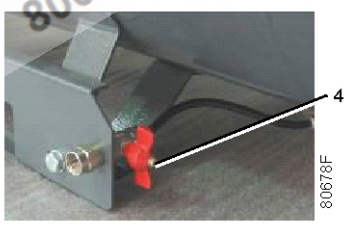


Figure 41: Condensate drain valve on the air receiver

7 Maintenance

7.1 Preventive maintenance schedule

WARNING

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

- **Stop the compressor.**
- **Press the emergency stop button.**
- **Switch off the voltage.**
- **Close the air outlet valve and open, if provided, the manual condensate drain valve.**
- **Depressurize the compressor.**

For detailed instructions, see section *Problem solving*.

The operator must apply all relevant *Safety precautions*.

Failure to adhere to these maintenance recommendations can result in damage (fire, explosion) or injury.

Warranty - Product Liability

Use only authorized parts. Any damage or malfunction caused by the use of unauthorized parts is not covered by Warranty or Product Liability.

Service kits

For overhauling or carrying out preventive maintenance, service kits are available (see section *Service kits*).

Service contracts

Atlas Copco offers several types of service contracts, relieving you of all preventive maintenance work. Consult your Atlas Copco Customer Centre.

General

When servicing, replace all removed gaskets, O-rings and washers.

Intervals

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

The longer interval actions and checks must also include the shorter interval actions and checks.

Preventive maintenance schedule

NOTE

Tank-mounted compressors: drain the air receiver every day to reduce the risk for internal corrosion.

Period	Action
Daily	Check the oil level. Check readings on display. Check that condensate is discharged during loaded operation of the compressor. Check and drain condensate from the compressed air receiver (tank-mounted compressors). Check and drain condensate from the oil tank. Check the pressure dew-point temperature (compressors with an integrated dryer).
Monthly	For units with an integrated dryer: inspect the condenser of the dryer and clean if necessary. Press the test button on top of the electronic water drain (EWD). Open the manual drain valve(s) (Dm, Dm1) to clean the filter inside the EWD.  **Figure 42: Test button on the EWD**
3-monthly(1)	Check coolers, clean if necessary. On Full-Feature units: check the condenser of the dryer and clean if necessary. Check and clean the filter mesh. Remove the air filter element and inspect it. If necessary, clean using an air jet. Replace damaged or heavily contaminated elements. Check the filter element of the electrical cabinet (if applicable). Replace if necessary.
Yearly	Inspect the air receiver (tank-mounted compressors). The air receiver must no longer be used and must be replaced if the wall thickness is less than the minimum value specified in the technical documentation of the air receiver.

Table 2: Checklist

(1)More frequently when operating in a dusty atmosphere.

Frequency (running hours)	Action
4000[1]	If Roto-Foodgrade Fluid is used, change the oil and oil filter. If Atlas Copco Roto-Inject Fluid is used, change the oil and oil filter. Replace the air filter element. Replace the oil separator element. Replace the filter element of the electrical cabinet (if applicable). Clean the coolers. Check the pressure and temperature readings. Check the Timing Belt tension and replace if necessary. Carry out a LED/display test. Check for leakages. If provided, remove, dismantle and clean the float valve of the condensate trap. See section *Condensate system*. Test the temperature shutdown function. Clean the condenser of the dryer and apply the wear kit (Full-Feature compressors).
Yearly	Test the temperature shutdown function. Test the safety valve(s).
8000[2]	If Roto-Xtend Duty Fluid is used, change the oil and oil filter. Replace the Timing Belt. Have the air inlet valve and minimum pressure valve inspected by Atlas Copco. Replace the non-return valve of the scavenge line. Replace the minimum pressure valve and the thermostatic valve. Remove carefully. Apply the wear kit. Apply the unloading valve kit. Test the safety valve.

Table 3: Programmed service intervals

[1]or yearly, whichever comes first

[2]or every 2 years, whichever comes first

The indicated oil exchange intervals are valid for standard operating conditions (see section *Reference conditions and limitations*) and nominal operating pressure (see section *Compressor data*). Exposure of the compressor to external pollutants, operation at high humidity combined with low duty cycles or operation at higher temperatures may require a shorter oil exchange interval. Contact Atlas Copco if in doubt.

DANGER

- **Always consult Atlas Copco if a service timer setting has to be changed.**
- **For the change interval of oil and oil filter in extreme conditions, consult your Atlas Copco Customer Centre.**
- **Any leakage should be attended to immediately. Damaged hoses or flexible joints must be replaced.**
- **Extending the use of the oil or exceeding the exchange intervals stated above may create a risk of fire hazard.**

7.2 Oil specifications

In order to achieve the best machine performance and guarantee the reliability, it is required to use genuine Atlas Copco Lubricants. Their tailor made formulation is the result of years of field experience, research and in-house development. Consult the Spare Parts list for part number information.

DANGER

Avoid mixing lubricants of different brands or types as they may not be compatible and the oil mix may have inferior properties. A label indicating the type of oil filled ex-factory is stuck on the air receiver/oil tank.

Ambient temperature	Humid	Dust	Duty type
Below 30 °C (86 °F)	No	No	Mild
Below 30 °C (86 °F)	Yes	No	Mild
Below 30 °C (86 °F)	No	Yes	Mild
Below 30 °C (86 °F)	Yes	Yes	Demanding
Between 30 °C (86 °F) and 40 °C (104 °F)	No	No	Demanding
Between 30 °C (86 °F) and 40 °C (104 °F)	Yes	No	Demanding
Between 30 °C (86 °F) and 40 °C (104 °F)	No	Yes	Demanding
Between 30 °C (86 °F) and 40 °C (104 °F)	Yes	Yes	Extreme
Above 40 °C (104 °F)	-	-	Extreme

Table 4: Relation between the operating conditions and the duty type

Roto-Inject Fluid NDURANCE

Atlas Copco's Roto-Inject Fluid NDURANCE is a premium mineral oil-based lubricant with a durability of 4000 working hours, specifically developed for use in single-stage oil-injected screw compressors running in **mild conditions**. Its specific formulation keeps the compressor in excellent condition. Roto-Inject Fluid NDURANCE can be used for compressors operating at ambient temperatures between 0 °C (32 °F) and 40 °C (104 °F). If the compressor is regularly operating in ambient temperatures above 35 °C (95 °F), it is recommended to use Roto Synthetic Fluid ULTRA or Roto Synthetic Fluid XTEND DUTY.

See the table below for the recommended oil exchange intervals:

Ambient temperature	Element outlet temperature	Exchange interval	Maximum time interval
up to 30 °C (86 °F)	up to 95 °C (203 °F)	4000	1 year
from 30 °C (86 °F) up to 35°C (95 °F) (see note)	from 95 °C (203 °F) up to 100 °C (212 °F)	3000	1 year
from 35 °C (95 °F) up to 40 °C (104 °F) (see note)	from 100 °C (212 °F) up to 105 °C (221 °F)	2000	1 year
above 40 °C (104 °F)	above 105 °C (221 °F)	use Roto Synthetic Fluid XTEND DUTY	use Roto Synthetic Fluid XTEND DUTY

NOTE

The presence of dust and/or high humidity may require a shorter exchange interval. Consult Atlas Copco.

Roto Synthetic Fluid XTEND DUTY

Atlas Copco's Roto Synthetic Fluid XTEND DUTY is a high-quality **synthetic lubricant with a durability of 8000 working hours** for oil-injected screw compressors which keeps the compressor in excellent condition. Because of its excellent oxidation stability, Roto Synthetic Fluid XTEND DUTY can be used for compressors operating at ambient temperatures between 0 °C (32 °F) and 46 °C (115 °F).

Roto Synthetic Fluid XTEND DUTY is the standard lubricant for oil-injected screw compressors equipped with freeze protection or energy recovery.

See the table below for the oil exchange intervals:

Ambient temperature	Element outlet temperature	Exchange interval	Maximum time interval
up to 35 °C (95 °F)	up to 100 °C (212 °F)	8000	2 years
from 35 °C (95 °F) up to 40 °C (104 °F) (see note)	from 100 °C (212 °F) up to 105 °C (221 °F)	6000	2 years
above 40 °C (104 °F)	above 105 °C (221 °F)	5000	2 years

NOTE

The presence of dust and/or high humidity may require a shorter exchange interval. Consult Atlas Copco.

Roto-Foodgrade Fluid

Special oil, delivered as an option.

Atlas Copco's Roto-Foodgrade Fluid is a unique high-quality synthetic lubricant, specifically created for oil-injected screw compressors that provide air for the food and beverage industry. This lubricant keeps the compressor in excellent condition. Roto-Foodgrade Fluid can be used for compressors operating at ambient temperatures between 0 °C (32 °F) and 40 °C (104 °F).

Roto-Foodgrade Fluid has all required certifications for use in food & beverage industry: like NSF-H1, Kosher, Halal and Allergen Free approvals.

See the table below for the oil exchange intervals:

Ambient temperature	Element outlet temperature	Exchange interval	Maximum time interval
up to 35 °C (95 °F) (see note)	up to 100 °C (212 °F)	4000	1 year
from 35 °C (95 °F) up to 40 °C (104 °F) (see note)	from 100 °C (212 °F) up to 105 °C (221 °F)	3000	1 year
from 40 °C (104 °F) up to 45 °C (113 °F) (see note)	from 105 °C (221 °F) up to 110 °C (230 °F)	2000	1 year
above 45 °C (113 °F)	above 110 °C (230 °F)	use not recommended	use not recommended

NOTE

The presence of dust and/or high humidity may require a shorter exchange interval. Consult your supplier.

7.3 Storage after installation

Procedure

Run the compressor regularly, e.g. twice a week, until warm. Load and unload the compressor a few times.

NOTE

If the compressor is going to be stored without running from time to time, protective measures must be taken. Consult your supplier.

7.4 Service kits

Service kits

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

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

Consult the Spare Parts List for part numbers.

8 Adjustments and servicing procedures

8.1 Drive motor

General

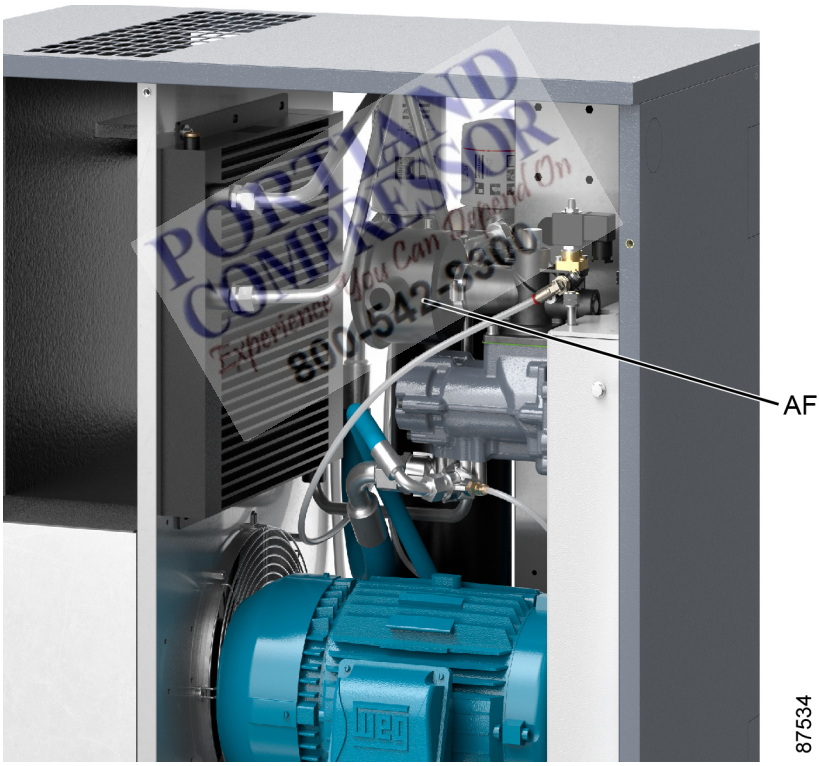
Keep the outside of the electric motor clean for efficient cooling. If necessary, remove dust with a brush and/or compressed air jet.

Bearing maintenance

The motor bearings do not need to be regreased during their normal service life.

8.2 Air filter

Location of the air filter



Recommendations

1. Never remove the filtration element while the compressor is running.
2. For minimum downtime, replace the dirty element by a new one.
3. Discard the element when damaged.

Procedure

1. Stop the compressor. Switch off the voltage.
2. Remove the cover of the air filter (AF) by turning it anti-clockwise. Remove the filter element. If necessary, clean the cover.

3. Fit the new element and the cover.
4. Reset the air filter service warning.

   For compressors equipped with an Elektronikon™ Swipe controller, see section *Service menu*.

   For compressors equipped with an Elektronikon™ Touch controller, see section *Service menu*.

8.3 Oil and oil filter change

WARNING

The operator must apply all relevant *Safety precautions*.

Always drain the compressor oil at all drain points. Used oil left in the compressor can contaminate the oil system and can shorten the lifetime of the new oil.

Never mix lubricants of different brands or types as they may not be compatible and the oil mix will have inferior properties. A label indicating the type of oil filled ex-factory is stuck on the air receiver/oil tank.

Figure 43: Oil system components

1. Run the compressor until warm. Stop the compressor. Close the air outlet valve and switch off the voltage. Depressurize the compressor by opening manual drain valve(s) (Dm, Dm1). Wait for few minutes and depressurize the air receiver/oil tank (AR) by unscrewing the oil filler plug (FC) just one turn to permit any pressure in the system to escape.
2. Drain the oil by opening valve (OD).
3. Collect the oil and deliver it to the local collection service. Refit and tighten the drain and vent plugs after draining.

4. Remove the oil filter (OF). Clean the seat on the manifold. Oil the gasket of the new filter and screw it into place. Tighten firmly by hand.
5. Remove filler plug (FC).

   Fill the air receiver/oil tank (AR) with oil until the level reaches the middle of sight-glass (GI).

   Ensure that no dirt drops into the system. Refit and tighten the filler plug (FC).
6. Run the compressor loaded for a few minutes. Stop the compressor and wait a few minutes to allow the oil to settle.
7. Depressurize the system by unscrewing the filler plug (FC) just one turn to permit any pressure in the system to escape. Remove the plug.

   Add oil until the sight-glass (GI) is 3/4 full.

   Ensure that no dirt enters the system. Tighten the filler plug.
8. Reset the service warning after carrying out all service actions in the relevant Service Plan:

   For compressors equipped with an Elektronikon™ Swipe controller, see section *Service menu*.

   For compressors equipped with an Elektronikon™ Touch controller, see section *Service menu*.

8.4 Oil separator change

WARNING

The operator must apply all relevant *Safety precautions*.

Procedure

Figure 44: Oil system components

1. Run the compressor until warm. Stop the compressor, close the air outlet valve and switch off the voltage. Wait for a few minutes and depressurize by unscrewing the oil filler plug (FC) just one turn to permit any pressure in the system to escape.
2. Wait for 5 minutes and remove the oil separator (OS). Clean the seat on the manifold. Oil the gasket of the new separator and screw it into place. Tighten firmly by hand.
3. Reset the service timer:

   For compressors equipped with an Elektronikon™ Swipe controller, see section *Service menu*.

   For compressors equipped with an Elektronikon™ Touch controller, see section *Service menu*.

8.5 Coolers

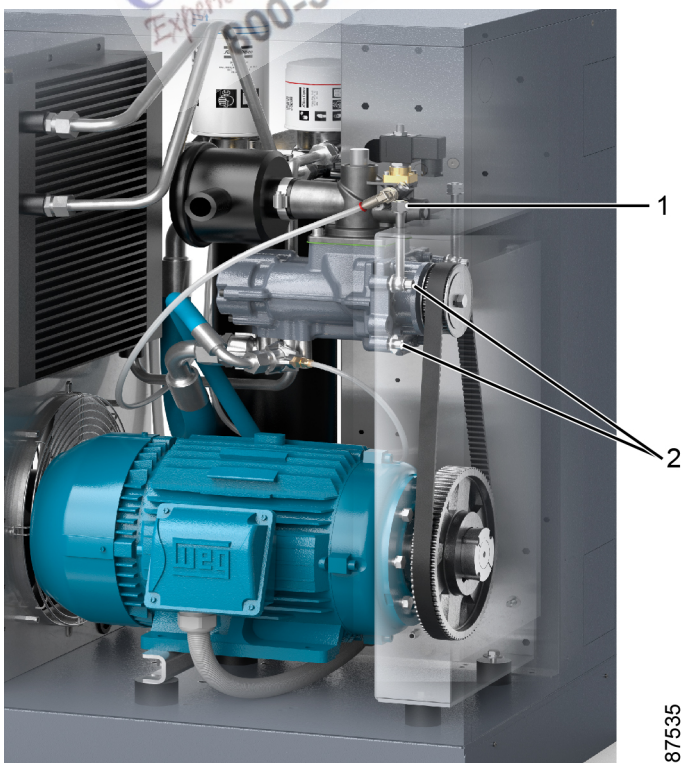
General

Keep the coolers clean to maintain their efficiency.

Instructions for air-cooled compressors

- Stop the compressor, close the air outlet valve and switch off the voltage.
- Cover all parts under the coolers.
- Remove any dirt from the coolers with a fiber brush. Never use a wire brush or metal objects.
- Next, clean with an air jet in the reverse direction to normal flow. Use low pressure air. If necessary, the pressure may be increased up to 6 bar(e) (87 psig).
- If it is necessary to wash the coolers with a cleaning agent, consult Atlas Copco.

8.6 Belt tensioning and replacement



Checking the belt tension

Procedure

1. Stop the compressor, close the air outlet valve and switch off the voltage.
2. Remove the left panel and the noise shield on the drive train bracket.
3. The belt tension is correct when the force (F) needed to create a deflection of 5 mm (0.2 in) corresponds to the data in the table below.
4. Refit the noise shield and the bodywork panel.

Model	Pressure	New belts			Belts in use		
		Force		Frequency	Force		Frequency
		N	lbf	Hz	N	lbf	Hz
GA 5	bar	27.4	6	76	22.3	5	64
GA 5	psi	28.8	6.5	77	22.9	5.2	64
GA 7	bar	28.7	6.5	82	23.7	5.3	69
GA 7	psi	31.8	7.0	82	24.9	5.5	69
GA 11	bar	33.0	7.4	88	25.7	5.8	75
GA 11	psi	32.8	7.4	86	25.3	5.7	73

Adjusting the belt tension

1. Stop the compressor, close the air outlet valve and switch off the voltage.
2. Remove the left panel and the noise shield on the drive train bracket.
3. Loosen the bolts (2) by one turn.
4. Adjust the belt tension by turning the nuts (1).
5. The tension is correct when the force (F) needed to create a deflection of 5 mm (0.2 in) corresponds to the data in the table above.
6. Tighten the bolts (2).
7. Refit the noise shield and the bodywork panel.

Replacing the belts

NOTE

The belts must always be replaced as a set, even if only one of the belts is worn. Only use genuine Atlas Copco belts.

Procedure

1. Stop the compressor, close the air outlet valve and switch off the voltage.
2. Remove the left panel and the noise shield on the drive train bracket.
3. Loosen the bolts (2) by one turn.
4. Release the belt tension by loosening the nuts (1).
5. Remove the belts.
6. Install the new belts.
7. Tension the belts as described above.
8. Refit the noise shield and the bodywork panel.
9. Check the belt tension after 50 running hours and adjust if necessary.

8.7 Safety valves

Testing

Before removing the valve, depressurize the compressor. See also section *Problem solving*.

The safety valve (SV) can be tested on a separate air line. If the valve does not open at the set pressure stamped on the valve, it needs to be replaced.

An additional safety valve is fitted on tank-mounted versions. The valve can be tested on a separate air line. If the valve does not open at the set pressure stamped on the valve, it needs to be replaced.

WARNING

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

8.8 Dryer maintenance instructions

Safety precautions

ID type refrigerant dryers contain an HFC refrigerant.

When handling refrigerant, all applicable safety precautions must be observed. Please be specifically aware of the following points:

- Contact of refrigerant with the skin will cause freezing. Special gloves must be worn. If contacted with the skin, the skin should be rinsed with water. On no account may clothing be removed.
- Fluid refrigerant will also cause freezing of the eyes, always wear safety glasses.
- Refrigerant is harmful. Do not inhale refrigerant vapors. Check that the working area is adequately ventilated.

Be aware that certain components such as the refrigerant compressor and the discharge pipe can become quite hot (up to 110 °C (230 °F)). Therefore, wait until the dryer has cooled down before removing the panels.

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

Local legislation

Local legislation may stipulate that:

- 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.
- The installation should be checked once a year by an authorized control body.

General

For all references see section *Introduction*.

The following remarks should be kept in mind:

- Keep the dryer clean.

- Brush or blow off the finned surface of the condenser monthly.
- Switch off the voltage and close the air outlet valve.
- Remove the panel where the condenser is situated (see the picture below).
- Clean the condenser fins with compressed air. Do not use water or solvents.
- Close the panel.
- Inspect and clean the electronic condensate drain monthly.
    - Functioning of the drains can be checked by pushing the TEST button of the drain.
    - Cleaning of the drain filter can be done by opening the manual drain valve for a few seconds.

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9 Options

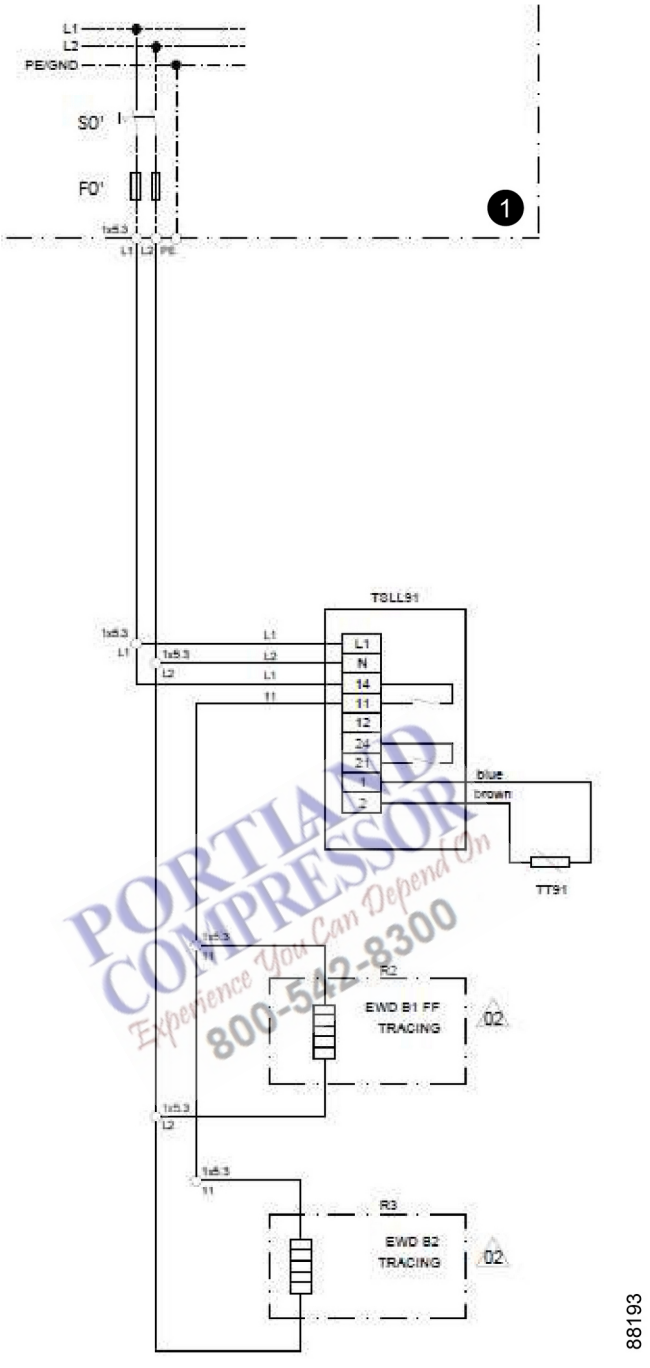
9.1 Freeze protection

Description

The freeze protection allows the unit to start up in ambient temperatures down to -20 °C (-4 °F). The unit can run continuously at -10 °C (14 °F). Typical applications are compressors installed in non-heated rooms outside the main factory building. After start-up, the room will heat up by the compressor cooling air flow. To prevent high viscosity at these temperatures Roto-Inject Fluid NDURANCE oil is replaced by the better performing Roto Synthetic Fluid XTEND DUTY, including the matching oil filter (to be replaced every 8000 running hours).

Components

The freeze protection system is completely integrated. The main switch (S0') and fuses (F0') have to be installed by the customer. A tracing cable is wrapped around the electronic water drain (EWD) in case of Full-Feature units, and/or around the electronic water drain (EWD) and the water separator drain (WSD) in case of units equipped with both options. An insulation foam covers the electronic water drain (EWD) and, if installed, the water separator drain (WSD) to keep them warm.



Reference	Description
1	Customer's installation
S0'	Main switch (customer's installation).
F0'	Main protection (customer's installation).
R2	Tracing for electronic water drain (EWD) on the dryer (for units with integrated dryer only).
R3	Tracing for electronic water drain (EWD) on the aftercooler.
TSLL91	Thermostat (CSA-UL/IEC) Factory setting: 5 °C (41 °F), contact closes below the setpoint.
TT91	Temperature sensor for the thermostat.
1X5.3	Terminals

9.2 Oil heater

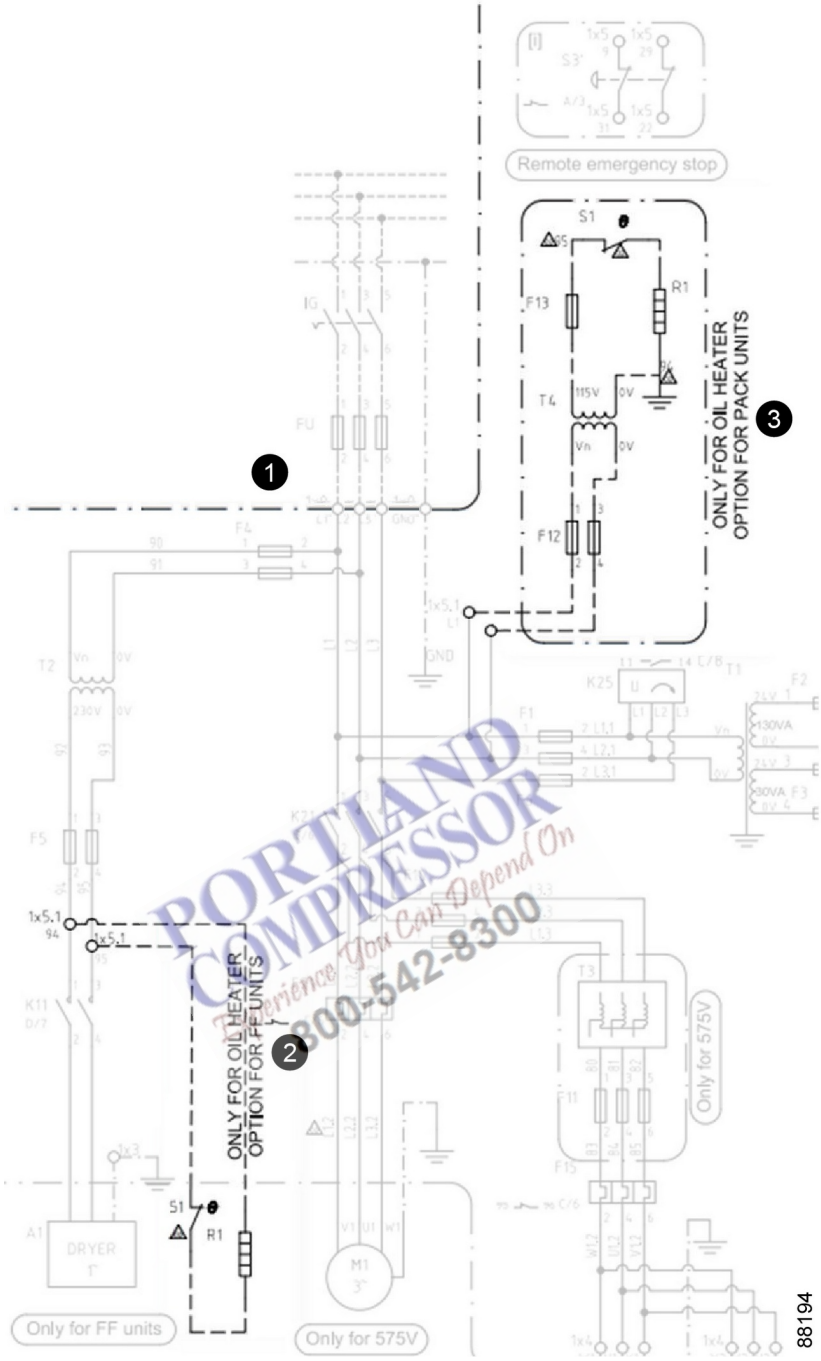
Description

The oil heater prevents condensation of water into the oil. Typical applications are compressors that are running at low load, especially in hot and humid environments.

Components

The oil heater is completely integrated and consists of a heating resistor, protected by a metal sheet wrapped around the oil vessel and fixed with a metal clip. Each oil heater is equipped with a temperature switch that switches the heater on or off based on the temperature. The temperature switch is mounted between the oil vessel and the oil heater on the end of the oil heater.

The power supply to the oil heater is derived from the main cubicle and the connection is different for Pack and Full-feature units.



Reference	Description
1	Customer's installation
2	Only for oil heater option for Full-feature units
3	Only for oil heater option for Pack units
IG	Disconnector switch (customer's installation)
FU	Protection fuses (customer's installation)
R1	Heating resistor
S1	Temperature switch (normally closed)
T4	Oil heater transformer (for Pack units only)
F13	Oil heater fuse (for Pack units only)
1X5.1	Terminals

10 Problem solving

WARNING

Before carrying out any maintenance, repair work or adjustment, press the stop button, wait until the compressor has stopped, press the emergency stop button and switch off the voltage. Close the air outlet valve and lock it if necessary.

If provided, open the manual condensate drain valves. Depressurize the compressor by opening the oil filler plug one turn.

For location of components, see sections: *Introduction*, *Condensate system* and *Initial start-up*.

WARNING

Open and lock the isolating switch.

The operator must apply all relevant *Safety precautions*.

Compressor

For compressors equipped with an Elektronikon™ Swipe controller: if the alarm LED is lit or flashes, consult sections *Main screen* and following.

For compressors equipped with an Elektronikon™ Touch controller: if the alarm LED is lit or flashes, consult sections *Main screen* and following.

Condition	Fault	Remedy
Compressor starts running, but does not load after a delay time	Solenoid valve out of order	Replace valve
	Inlet valve stuck in closed position	Have valve checked
	Leak in control air flexibles	Replace leaking flexible
	Minimum pressure valve leaking (when net is depressurized)	Have valve checked
Compressor does not unload, safety valve blows	Solenoid valve out of order	Replace valve
	Inlet valve does not close	Have valve checked
Condensate is not discharged from condensate separator during loaded operation	Discharge flexible clogged	Check and correct as necessary
	Automatic drain malfunctioning	Disassemble, clean and check
Compressor air output or pressure below normal	Air consumption exceeds air delivery of compressor	Check equipment connected
	Choked air filter element	Replace filter element
	Solenoid valve malfunctioning	Replace valve
	Leak in control air flexibles	Replace leaking flexibles
	Inlet valve does not fully open	Have valve checked
	Oil separator clogged	Have element replaced
	Air leakage	Have leaks repaired
	Safety valve leaking	Have valve replaced

Condition	Fault	Remedy
	Compressor element out of order	Consult Atlas Copco
Excessive oil consumption; oil carry-over through discharge line	Oil level too high	Check for overfilling. Release pressure and drain oil to correct level
	Incorrect oil causing foam	Change to correct oil
	Oil separator defective	Have element checked. Replace if necessary.
	Scavenge line clogged	Check and remedy
Safety valve blows after loading	Inlet valve malfunctioning	Have valve checked
	Minimum pressure valve malfunctioning	Have valve checked
	Safety valve out of order	Have valve replaced
	Compressor element out of order	Consult Atlas Copco
Compressor element outlet temperature or delivery air temperature above normal	Oil level too low	Check and correct
	On air-cooled compressors, insufficient cooling air or cooling air temperature too high	Check for cooling air restriction or improve ventilation of the compressor room. Avoid circulation of cooling air. If installed, check capacity of compressor room fan
	Oil cooler clogged	Clean cooler
	Thermostatic bypass valve malfunctioning	Have valve tested
	Air cooler clogged	Clean cooler
	Compressor element out of order	Consult Atlas Copco Customer Centre
	Oil filter clogged	Replace

Dryer (compressors with an integrated dryer)

For all references hereafter, consult section *Air dryer*.

	Condition	Fault	Remedy
1	Pressure dew point too high	Air inlet temperature too high	Check and correct; if necessary, clean the aftercooler of the compressor
		Ambient temperature too high	Check and correct; if necessary, draw cooling air via a duct from a cooler place or relocate the compressor
		Shortage of refrigerant	Have circuit checked for leaks and recharged
		Refrigerant compressor (M1) does not run	See 3
		Evaporator pressure too high	See 5
		Condenser pressure too high	See 2
2	Condenser pressure too high or too low	Fan control switch out of order	Replace
		Fan blades or fan motor out of order	Check fan/fan motor

	Condition	Fault	Remedy
		Ambient temperature too high	Check and correct; if necessary, draw cooling air via a duct from a cooler place or relocate the compressor
		Condenser externally clogged	Clean condenser
3	Compressor stops or does not start	Electric power supply to compressor is interrupted	Check and correct as necessary
		Thermal protection of refrigerant compressor motor has tripped	Motor will restart when motor windings have cooled down
4	Electronic condensate drain remains inoperative	Electronic drain system clogged	Have system inspected Clean the filter of the automatic drain by opening the manual drain valve. Check functioning of the drain by pushing the test button.
	Condensate trap continuously discharges air and water	Automatic drain out of order	Have system checked. If necessary, replace the automatic drain.
5	Evaporator pressure is too high or too low at unload	Hot gas bypass valve incorrectly set or out of order	Have hot gas bypass valve adjusted
		Condenser pressure too high or too low	See 2
		Shortage of refrigerant	Have circuit checked for leaks and recharged

11 Technical data

11.1 Readings on display

Elektronikon™

Figure 45: Control panel of the Elektronikon™ Swipe controller

Figure 46: Control panel of the Elektronikon™ Touch controller

NOTE

The readings mentioned below are valid under the reference conditions (see section *Reference conditions and limitations*).

Reference	Reading
Air outlet pressure	Modulates between programmed unloading and loading pressures.
Compressor element outlet temperature	Approx. 60 ˚C (108 ˚F) above cooling air temperature.
Dew point	See section *Compressor data*.

11.2 Electric cable size

Important

WARNING

The compressor is delivered with 3 m (10 ft.) cable and cable gland. This cable gland is necessary to ensure the protection degree of the electrical cubicle and to protect its components from dust from the environment. The supply line cable delivered with the compressor MUST be protected by raceway or by a suitable conduit system.

WARNING

- **The voltage on the compressor terminals must not deviate more than 10% of the nominal voltage.**

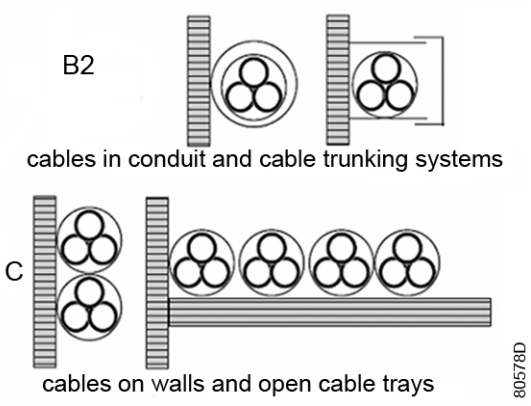
  It is however highly recommended to keep the voltage drop over the supply cables at nominal current below 5% of the nominal voltage (IEC 60204-1). If cables are grouped together with other power cables, it may be necessary to use cables of a larger size than those calculated for the standard operating conditions.
- **Use the original cable entry. See section *Dimension drawings*.**
- **Local regulations remain applicable if they are stricter than the values proposed below.**

IEC versions

For **IEC** designed control panels, the **cable sections** suggested below are calculated according to 60364-5-52 electrical installations of buildings, part 5: selection and erection equipment, section 52: current-carrying capacities in wiring systems.

Standard conditions refer to loose copper conductors or multicore cable with 70 °C (158 °F) PVC insulation in free air or on open cable trays (installation method C) at an ambient temperature of 30 °C (86 °F) and operating at nominal voltage. The cables may not be grouped with other power circuits or cables.

Worst case conditions refer to loose copper conductors or multicore cable with 70 °C (158 °F) PVC insulation at an ambient temperature above 30 °C (86 °F) and with cables in closed raceway, conduit or trunking system (installation method B2). The cables are grouped with other cables.



Fuse calculations for IEC are done according to 60364-4-43 electrical installations of buildings, part 4: protection for safety, section 43: protection against overcurrent. Fuse sizes are calculated in order to protect the cable against short circuit. Fuse type aM is recommended, but gG/gL is also allowed.

UL/cUL versions

For **UL** designed industrial control panels, calculations for **cable sections and fuses** are done according to UL508a.

For **cUL**, calculations for **cable sections and fuses** are done according to CSA22.2 (Canadian electrical code).

Standard conditions refer to a maximum of 3 copper conductors with 85-90 °C (185-194 °F) insulation in raceway or cable at an ambient temperature of 30 °C (86 °F) and operating at nominal voltage. The cables may not be grouped with other cables.

Worst case conditions refer to an ambient temperature above 30 °C (86 °F), a maximum of 3 copper conductors with 85-90 °C (185-194 °F) insulation in raceway or cable at an ambient temperature of 46 °C (115 °F) and operating at nominal voltage. The cables are grouped with other cables.

Fuse calculations for UL and cUL: the indicated fuse size is the maximum fuse size in order to protect the motor against short circuit. For UL, use class RK5 fuse. For cUL, use HRC form II fuse.

If the local conditions are more strict than the described standard conditions, the cables and fuses for worst case conditions should be used.

Cable size

Type	Supply voltage (V)	Frequency (Hz)	Approval	Recommended wire section (mm^2) Pack	Recommended wire section (mm^2) Full-Feature
GA 5	230	50-60	IEC	4 x 6	4 x 10
GA 5	380	60	IEC	4 x 2.5	4 x 4
GA 5	400	50	IEC	4 x 2.5	4 x 4
GA 5	400 + N	50	IEC	-	5 x 4
GA 5	460	60	IEC	4 x 2.5	4 x 4
GA 7	230	50-60	IEC	4 x 10	4 x 16

Type	Supply voltage (V)	Frequency (Hz)	Approval	Recommended wire section (mm^2) Pack	Recommended wire section (mm^2) Full-Feature
GA 7	380	60	IEC	4 x 4	4 x 6
GA 7	400	50	IEC	4 x 4	4 x 6
GA 7	400 + N	50	IEC	-	5 x 6
GA 7	460	60	IEC	4 x 4	4 x 6
GA 11	230	50-60	IEC	4 x 16	4 x 25
GA 11	380	60	IEC	4 x 6	4 x 10
GA 11	400	50	IEC	4 x 6	4 x 10
GA 11	400 + N	50	IEC	-	5 x 10
GA 11	460	60	IEC	4 x 6	4 x 10

Type	Supply voltage (V)	Frequency (Hz)	Approval	Recommended wire section (AWG) Pack	Recommended wire section (AWG) Full-Feature
GA 5	208/230/460	60	CSA/UL	8/8/14	8/8/14
GA 5	575	60	CSA/UL	12	12
GA 7	208/230/460	60	CSA/UL	8/8/12	8/8/12
GA 7	575	60	CSA/UL	12	12
GA 11	208/230/460	60	CSA/UL	6/6/10	6/6/10
GA 11	575	60	CSA/UL	10	10

11.3 Settings for overload relay and fuses

Overload relay and fuses

Type	Voltage (V)	Frequency (Hz)	Approval	Fuse rating gG (A) Pack	Fuse rating gG (A) Full-Feature
GA 5	230	50-60	IEC	32	40
GA 5	380	60	IEC	20	25
GA 5	400	50	IEC	20	25
GA 5	400 + N	50	IEC	-	25
GA 5	460	60	IEC	20	25
GA 7	230	50-60	IEC	40	50
GA 7	380	60	IEC	25	32
GA 7	400	50	IEC	25	32
GA 7	400 + N	50	IEC	-	32
GA 7	460	60	IEC	25	32
GA 11	230	50-60	IEC	50	63
GA 11	380	60	IEC	32	40
GA 11	400	50	IEC	32	40
GA 11	400 + N	50	IEC	-	40
GA 11	460	60	IEC	32	40

Type	Voltage (V)	Frequency (Hz)	Approval	Fuse rating (A) Type J or RK	Fuse rating (A) Type J or RK
				Pack	Full-Feature
GA 5	208	60	UL	40	40

Type	Voltage (V)	Frequency (Hz)	Approval	Fuse rating (A) Type J or RK	Fuse rating (A) Type J or RK
				Pack	Full-Feature
GA 5	230	60	UL	40	40
GA 5	460	60	UL	20	20
GA 7	208	60	UL	50	50
GA 7	230	60	UL	50	50
GA 7	460	60	UL	25	25
GA 11	208	60	UL	60	60
GA 11	230	60	UL	60	60
GA 11	460	60	UL	35	35

Type	Voltage (V)	Frequency (Hz)	Approval	Fuse rating (A) HRC form II	Fuse rating (A) HRC form II
				Pack	Full-Feature
GA 5	208	60	CSA	40	40
GA 5	230	60	CSA	40	40
GA 5	460	60	CSA	20	20
GA 5	575	60	CSA	15	15
GA 7	208	60	CSA	50	50
GA 7	230	60	CSA	50	50
GA 7	460	60	CSA	25	25
GA 7	575	60	CSA	20	20
GA 11	208	60	CSA	60	60
GA 11	230	60	CSA	60	60
GA 11	460	60	CSA	35	35
GA 11	575	60	CSA	30	30

Setting of overload relay compressor and fan motor:

Type	Voltage (V)	Frequency (Hz)	Approval	F21 Overload setting (A)	Q15 Overload setting (A)
GA 5	230	50	IEC	15.5	1.1
GA 5	230	60	IEC	14.0	1.2
GA 5	380	60	IEC	8.5	0.8
GA 5	400	50	IEC	9.0	0.6
GA 5	400+N	50	IEC	9.0	0.6
GA 5	460	60	IEC	8.0	0.65
GA 7	230	50	IEC	19.0	1.1
GA 7	230	60	IEC	17.0	1.2
GA 7	380	60	IEC	10.5	0.8
GA 7	400	50	IEC	11.0	0.6
GA 7	400+N	50	IEC	11.0	0.6
GA 11	230	50	IEC	27.0	1.1
GA 11	230	60	IEC	25.0	1.2
GA 11	380	60	IEC	15.0	0.8
GA 11	400	50	IEC	15.5	0.6
GA 11	400+N	50	IEC	15.5	0.6

Type	Voltage (V)	Frequency (Hz)	Approval	F21 Overload setting (A)	Q15 Overload setting (A)
GA 5	208	60	UL/CSA	25.0	1.15
GA 5	230	60	UL/CSA	23.0	1.10
GA 5	460	60	UL/CSA	12.0	0.65
GA 5	575	60	CSA	11.0	0.65
GA 7	208	60	UL/CSA	34.0	1.15
GA 7	230	60	UL/CSA	31	1.10
GA 7	460	60	UL/CSA	15.5	0.65
GA 7	575	60	CSA	12.5	0.65
GA 11	208	60	UL/CSA	49.0	1.15
GA 11	230	60	UL/CSA	45.0	1.10
GA 11	460	60	UL/CSA	22.0	0.65
GA 11	575	60	CSA	18.0	0.65

11.4 Dryer switches

General

The regulating and safety devices are factory-adjusted to give optimum performance of the dryer.

Do not alter the setting of any of the devices.

11.5 Reference conditions and limitations

Reference conditions

Characteristic	Unit	Data
Air inlet pressure (absolute)	bar	1
Air inlet pressure (absolute)	psi	14.5
Air inlet temperature	˚C	20
Air inlet temperature	˚F	68
Relative humidity	%	0
Working pressure		See section *Compressor data*

Limitations

Characteristic	Unit	Data
Maximum working pressure		See section *Compressor data*
Minimum working pressure	bar	4
Minimum working pressure	psi	58
Maximum ambient temperature	˚C	46
Maximum ambient temperature	˚F	115
Minimum ambient temperature	˚C	0
Minimum ambient temperature	˚F	32

11.6 Compressor data

Reference conditions

NOTE

All data specified below are valid at reference conditions, see section *Reference conditions and limitations*.

GA 5

	Units	7.5 bar	8.5 bar	10 bar	13 bar	100 psi	125 psi	150 psi	175 psi
Frequency	Hz	50	50	50	50	60	60	60	60
Maximum (unloading) pressure, units without dryer	bar(e)	7.5	8.5	10	13	7.4	9.1	10.8	12.5
Maximum (unloading) pressure, units without dryer	psig	109	123	145	189	107	132	157	181
Maximum (unloading) pressure, Full-Feature units	bar(e)	7.25	8.25	9.75	12.75	7.15	8.85	10.55	12.25
Maximum (unloading) pressure, Full-Feature units	psig	105	120	141	185	104	128	153	178
Nominal working pressure	bar(e)	7	8	9.5	12.5	6.9	8.6	10.3	12
Nominal working pressure	psig	102	116	138	181	100	125	150	175
Pressure drop over dryer, Full-Feature units	bar(e)	0.10	0.08	0.05	0.02	0.10	0.08	0.05	0.02
Pressure drop over dryer, Full-Feature units	psig	1.45	1.16	0.72	0.3	1.45	1.16	0.72	0.3
Motor shaft speed	r/min	2900	2900	2900	2900	3510	3510	3510	3510
Thermostatic valve (closing/opening temperature)	°C	71/84	71/84	71/84	71/84	71/84	71/84	71/84	71/84
Thermostatic valve (closing/opening temperature)	°F	160/183	160/183	160/183	160/183	160/183	160/183	160/183	160/183
Temperature of air leaving outlet valve (approx.), units without dryer	°C	35	35	35	35	35	35	35	35
Temperature of air leaving outlet valve (approx.), units without dryer	°F	95	95	95	95	95	95	95	95
Temperature of air leaving outlet valve (approx.), Full-Feature units	°C	24	24	24	24	24	24	24	24

	Units	7.5 bar	8.5 bar	10 bar	13 bar	100 psi	125 psi	150 psi	175 psi
Temperature of air leaving outlet valve (approx.), Full-Feature units	°F	75	75	75	75	75	75	75	75
Dew-point, Full-Feature units	°C	3	3	3	3	3	3	3	3
Dew-point, Full-Feature units	°F	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4
Nominal motor rating	kW	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Nominal motor rating	hp	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
Power consumption dryer at full load, Full-Feature units	kW	0.4	0.4	0.4	0.4	0.6	0.6	0.6	0.6
Power consumption dryer at full load, Full-Feature units	hp	0.54	0.54	0.54	0.54	0.80	0.80	0.80	0.80
Power consumption dryer at no load, Full-Feature units	kW	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4
Power consumption dryer at no load, Full-Feature units	hp	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Refrigerant type, Full-Feature units		R513a	R513a	R513a	R513a	R513a	R513a	R513a	R513a
Refrigerant quantity, Full-Feature units	kg	0.50	0.50	0.50	0.50	0.47	0.47	0.47	0.47
Refrigerant quantity, Full-Feature units	lb	1.10	1.10	1.10	1.10	1.03	1.03	1.03	1.03
Oil capacity	l	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Oil capacity	US gal	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Oil capacity	Imp gal	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Sound pressure level (according to ISO 2151 (2004))	dB(A)	63	63	63	63	63	63	63	63

GA 7

	Units	7.5 bar	8.5 bar	10 bar	13 bar	100 psi	125 psi	150 psi	175 psi
Frequency	Hz	50	50	50	50	60	60	60	60
Maximum (unloading) pressure, units without dryer	bar(e)	7.5	8.5	10	13	7.4	9.1	10.8	12.5
Maximum (unloading) pressure, units without dryer	psig	109	123	145	189	107	132	157	181
Maximum (unloading) pressure, Full-Feature units	bar(e)	7.25	8.25	9.75	12.75	7.15	8.85	10.55	12.25
Maximum (unloading) pressure, Full-Feature units	psig	105	120	141	185	104	128	153	178
Nominal working pressure	bar(e)	7	8	9.5	12.5	6.9	8.6	10.3	12

	Units	7.5 bar	8.5 bar	10 bar	13 bar	100 psi	125 psi	150 psi	175 psi
Nominal working pressure	psig	102	116	138	181	100	125	150	175
Pressure drop over dryer, Full-Feature units	bar(e)	0.12	0.1	0.08	0.05	0.12	0.1	0.08	0.05
Pressure drop over dryer, Full-Feature units	psig	1.74	1.45	1.16	0.72	1.74	1.45	1.16	0.72
Motor shaft speed	r/min	2940	2940	2940	2940	3540	3540	3540	3540
Thermostatic valve (closing/opening temperature)	°C	71/84	71/84	71/84	71/84	71/84	71/84	71/84	71/84
Thermostatic valve (closing/opening temperature)	°F	160/183	160/183	160/183	160/183	160/183	160/183	160/183	160/183
Temperature of air leaving outlet valve (approx.), units without dryer	°C	34	34	34	34	34	34	34	34
Temperature of air leaving outlet valve (approx.), units without dryer	°F	93	93	93	93	93	93	93	93
Temperature of air leaving outlet valve (approx.), Full-Feature units	°C	28	28	28	28	28	28	28	28
Temperature of air leaving outlet valve (approx.), Full-Feature units	°F	82	82	82	82	82	82	82	82
Dew-point, Full-Feature units	°C	3	3	3	3	3	3	3	3
Dew-point, Full-Feature units	°F	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4
Nominal motor rating	kW	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
Nominal motor rating	hp	10	10	10	10	10	10	10	10
Power consumption dryer at full load, Full-Feature units	kW	0.4	0.4	0.4	0.4	0.6	0.6	0.6	0.6
Power consumption dryer at full load, Full-Feature units	hp	0.54	0.54	0.54	0.54	0.80	0.80	0.80	0.80
Power consumption dryer at no load, Full-Feature units	kW	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4
Power consumption dryer at no load, Full-Feature units	hp	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Refrigerant type, Full-Feature units		R513a	R513a	R513a	R513a	R513a	R513a	R513a	R513a
Refrigerant quantity, Full-Feature units	kg	0.50	0.50	0.50	0.50	0.47	0.47	0.47	0.47

	Units	7.5 bar	8.5 bar	10 bar	13 bar	100 psi	125 psi	150 psi	175 psi
Refrigerant quantity, Full-Feature units	lb	1.10	1.10	1.10	1.10	1.03	1.03	1.03	1.03
Oil capacity	l	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Oil capacity	US gal	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Oil capacity	Imp gal	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Sound pressure level (according to ISO 2151 (2004))	dB(A)	64	64	64	64	64	64	64	64

GA 11

	Units	7.5 bar	8.5 bar	10 bar	13 bar	100 psi	125 psi	150 psi	175 psi
Frequency	Hz	50	50	50	50	60	60	60	60
Maximum (unloading) pressure, units without dryer	bar(e)	7.5	8.5	10	13	7.4	9.1	10.8	12.5
Maximum (unloading) pressure, units without dryer	psig	109	123	145	189	107	132	157	181
Maximum (unloading) pressure, Full-Feature units	bar(e)	7.25	8.25	9.75	12.75	7.15	8.85	10.55	12.25
Maximum (unloading) pressure, Full-Feature units	psig	105	120	141	185	104	128	153	178
Nominal working pressure	bar(e)	7	8	9.5	12.5	6.9	8.6	10.3	12
Nominal working pressure	psig	102	116	138	181	100	125	150	175
Pressure drop over dryer, Full-Feature units	bar(e)	0.12	0.08	0.04	0.02	0.12	0.08	0.04	0.02
Pressure drop over dryer, Full-Feature units	psig	1.74	1.16	0.6	0.3	1.74	1.16	0.6	0.3
Motor shaft speed	r/min	2935	2935	2935	2935	3535	3535	3535	3535
Thermostatic valve (closing/opening temperature)	°C	71/84	71/84	71/84	71/84	71/84	71/84	71/84	71/84
Thermostatic valve (closing/opening temperature)	°F	160/183	160/183	160/183	160/183	160/183	160/183	160/183	160/183
Temperature of air leaving outlet valve (approx.), units without dryer	°C	37	37	37	37	37	37	37	37
Temperature of air leaving outlet valve (approx.), units without dryer	°F	99	99	99	99	99	99	99	99

	Units	7.5 bar	8.5 bar	10 bar	13 bar	100 psi	125 psi	150 psi	175 psi
Temperature of air leaving outlet valve (approx.), Full-Feature units	°C	30	30	30	30	30	30	30	30
Temperature of air leaving outlet valve (approx.), Full-Feature units	°F	86	86	86	86	86	86	86	86
Dew-point, Full-Feature units	°C	3	3	3	3	3	3	3	3
Dew-point, Full-Feature units	°F	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4
Nominal motor rating	kW	11	11	11	11	11	11	11	11
Nominal motor rating	hp	14.75	14.75	14.75	14.75	14.75	14.75	14.75	14.75
Power consumption dryer at full load, Full-Feature units	kW	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
Power consumption dryer at full load, Full-Feature units	hp	0.80	0.80	0.80	0.80	0.94	0.94	0.94	0.94
Power consumption dryer at no load, Full-Feature units	kW	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Power consumption dryer at no load, Full-Feature units	hp	0.5	0.5	0.5	0.5	0.67	0.67	0.67	0.67
Refrigerant type, Full-Feature units		R513a	R513a	R513a	R513a	R513a	R513a	R513a	R513a
Refrigerant quantity, Full-Feature units	kg	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Refrigerant quantity, Full-Feature units	lb	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Oil capacity	l	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Oil capacity	US gal	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Oil capacity	Imp gal	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
Sound pressure level (according to ISO 2151 (2004))	dB(A)	65	65	65	65	65	65	65	65

11.7 Technical data controller

General

Supply voltage	24 V AC /16 VA 50/60 Hz (+40 %/-30 %) 24 V DC/0.7 A
Type of protection	IP54 (front) IP21 (back)
• Operating temperature range • Storage temperature range	• -10 °C to + 60 °C (14 °F to 140 °F) • -30 °C to +70 °C (-22 °F to 158 °F)

Permissible humidity	Relative humidity 90 % No condensation
Mounting	Cabinet door

Digital outputs

Number of outputs	9 (Elektronikon™ Touch controller) 6 (Elektronikon™ Swipe controller)
Type	Relay (voltage free contacts)
Rated voltage AC	250 V AC / 10 A max.
Rated voltage DC	30 V DC / 10 A max.

Digital inputs

Number of inputs	10 (Elektronikon™ Touch controller) 4 (Elektronikon™ Swipe controller)
Supply by controller	24 V DC
Supply protection	Short circuit protected to ground
Input protection	Not isolated

Analog inputs

Number of pressure inputs	2 (Elektronikon™ Touch controller) 1 (Elektronikon™ Swipe controller)
Number of temperature inputs	5 (Elektronikon™ Touch controller) 3 (Elektronikon™ Swipe controller)

12 Instructions for use

Oil separator vessel

This vessel can contain pressurized air. This can be potentially dangerous if the equipment is misused.
This vessel must only be used as a compressed air/oil separator tank and must be operated within the limits specified on the data plate.
No alterations must be made to this vessel by welding, drilling or other mechanical methods without the written permission of the manufacturer.
The pressure and temperature of this vessel must be clearly indicated.
The safety valve must correspond with pressure surges of 1.1 times the maximum allowable operating pressure. It should guarantee that the pressure will not permanently exceed the maximum allowable operating pressure of the vessel.
Use only oil as specified by the manufacturer.
In case of misuse of the units (very low oil temperature or long interval of shut down), a certain amount of condensate can gather in the oil separator vessel which must be properly drained. To do so, disconnect the unit from the power line, wait until it is cooled down and depressurized and drain the water via the oil drain valve, positioned at the bottom of the oil separator vessel. Local legislation may require an periodic inspection.

Air receiver (tank-mounted units)

Depending on the conditions of use, condensate may accumulate inside the air receiver. Drain the condensate every day in order to reduce the risk of corrosion. 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 check for condensate. Verify that no rust obstructions affect the drain system.
Yearly service inspection of the air receiver is needed, as internal corrosion can reduce the wall thickness with the consequent risk of bursting. 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) or in section *Pressure equipment directives*. Local regulations remain applicable if they are more strict.
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.
Do not anchor the vessel or 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.
Use the vessel within the pressure and temperature limits stated on the data plate and the testing report.
No alterations must be made to this vessel by welding, drilling or other mechanical methods.

13 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.

14 Pressure equipment directives

Components subject to 2014/68/EU Pressure Equipment Directive

The following table contains the necessary information for the inspection of all pressure equipment of category II and higher according to the Pressure Equipment Directive 2014/68/EU and all pressure equipment according to the Simple Pressure Vessel Directive 2014/29/EC as well as according to the Pressure Equipment (Safety) Regulations 2016 - S.I. 2016/1105.

Compressor type	Part number	Description	PED class
GA 5 up to GA 11	2204 2523 01	Safety valve	IV
	2204 2523 02	Safety valve	IV
	2204 2523 03	Safety valve	IV
	2204 2523 05	Safety valve	IV

Overall rating

The compressors conform to PED smaller than category I.

15 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
(2)		(3)		
				X
				X
				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 47: 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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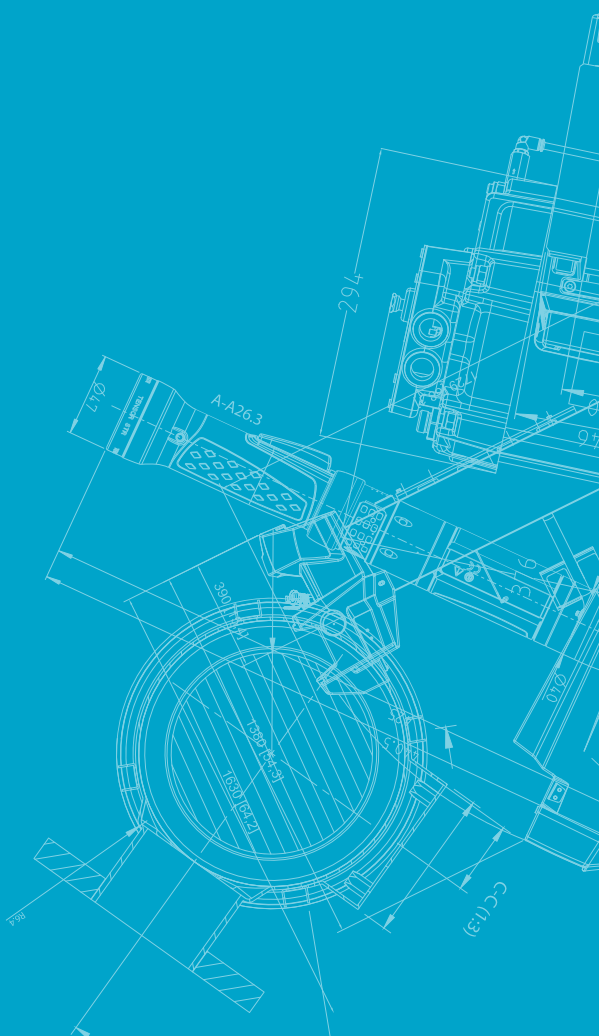

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