G 110, G 132, G 160, G 200, G 250, G 315, G 355

Instruction book

Atlas Copco

G 110, G 132, G 160, G 200, G 250, G 315, G 355

Instruction book

Original instructions

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

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Table of contents

1 Safety precautions

1.1 Safety icons

Explanation

	Danger for life
	Warning
	Important note

1.2 Safety precautions, general

General precautions

1. The operator must employ safe working practices and observe all related work safety requirements and regulations.
2. If any of the following statements does not comply with the applicable legislation, the stricter of the two shall apply.
3. 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.
4. 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.
5. Before any maintenance, repair work, adjustment or any other non-routine checks, 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.
   On units powered by a frequency converter, wait 10 minutes before starting any electrical repair.

	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!

6. 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.
7. The owner is responsible for maintaining the unit in safe operating condition. Parts and accessories shall be replaced if unsuitable for safe operation.
8. It is prohibited to walk or stand on the unit or on its components.

1.3 Safety precautions during installation

	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.

Precautions during installation

1. 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.
2. The unit is designed for indoor use. If the unit is installed outdoors, special precautions must be taken; consult your supplier.
3. In case the device is a compressor, 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 at the inlet air.
4. Any blanking flanges, plugs, caps and desiccant bags must be removed before connecting the pipes.
5. Air hoses must be of correct size and suitable for the working pressure. Never use frayed, damaged or worn hoses. Distribution pipes and connections must be of the correct size and suitable for the working pressure.
6. In case the device is a compressor, the aspirated air must be free of flammable fumes, vapors and particles, e.g. paint solvents, that can lead to internal fire or explosion.
7. In case the device is a compressor, arrange the air intake so that loose clothing worn by people cannot be drawn in.
8. Ensure that the discharge pipe from the compressor to the aftercooler or air net is free to expand under heat and that it is not in contact with or close to flammable materials.
9. No external force may be exerted on the air outlet valve; the connected pipe must be free of strain.
10. If remote control is installed, the machine must bear a clear sign stating: DANGER: This machine is remotely controlled and may start without warning.
    The operator has to make sure that the machine is stopped and depressurized and that the electrical isolating switch is open, locked and labelled with a temporary warning before any maintenance or repair. 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.
11. 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.
12. 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.
13. On machines with automatic start/stop system or if the automatic restart function after voltage failure is activated, a sign stating "This machine may start without warning" must be affixed near the instrument panel.
14. 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.
15. 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.

16. Piping or other parts with a temperature in excess of 70˚C (158˚F) and which may be accidentally touched by personnel in normal operation must be guarded or insulated. Other high temperature piping must be clearly marked.
17. For water-cooled machines, the cooling water system installed outside the machine has to be protected by a safety device with set pressure according to the maximum cooling water inlet pressure.
18. If the ground is not level or can be subject to variable inclination, consult the manufacturer.
19. If the device is a dryer and no free extinguishing system is present in the air net close to the dryer, safety valves must be installed in the vessels of the dryer.

	Also consult following safety precautions: Safety precautions during operation and Safety precautions during maintenance. 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

	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.

Precautions during operation

1. Never touch any piping or components of the compressor during operation.
2. 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.
3. 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.
4. Never operate the machine when there is a possibility of taking in flammable or toxic fumes, vapors or particles.
5. Never operate the machine below or in excess of its limit ratings.
6. 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 protectors when opening a door.
   On compressors without bodywork, wear ear protection in the vicinity of the machine.
7. People staying in environments or rooms where the sound pressure level reaches or exceeds 80 dB(A) shall wear ear protectors.
8. 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

- Air cooling filters of the electrical cabinet are not clogged

9. 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.
10. On water-cooled compressors using open circuit cooling towers, protective measures must be taken to avoid the growth of harmful bacteria such as Legionella pneumophila bacteria.
11. Do not remove any of, or tamper with, the sound-damping material.
12. 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.
13. 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.

	Also consult following safety precautions: Safety precautions during installation and Safety precautions during maintenance. 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

	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.

Precautions during maintenance or repair

1. Always use the correct safety equipment (such as safety glasses, gloves, safety shoes, etc.).
2. Use only the correct tools for maintenance and repair work.
3. Use only genuine spare parts.
4. All maintenance work shall only be undertaken when the machine has cooled down.
5. A warning sign bearing a legend such as "Work in progress; do not start" shall be attached to the starting equipment.
6. 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.
7. Close the compressor air outlet valve and depressurize the compressor before connecting or disconnecting a pipe.
8. Before removing any pressurized component, effectively isolate the machine from all sources of pressure and relieve the entire system of pressure.
9. Never use flammable solvents or carbon tetrachloride for cleaning parts. Take safety precautions against toxic vapours of cleaning liquids.
10. Scrupulously observe cleanliness during maintenance and repair. Keep dirt away by covering the parts and exposed openings with a clean cloth, paper or tape.
11. 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.

12. 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 vapour when air is admitted.
13. Never use a light source with open flame for inspecting the interior of a machine, pressure vessel, etc.
14. Make sure that no tools, loose parts or rags are left in or on the machine.
15. 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.
16. 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.
17. 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.
18. Protect the motor, air filter, electrical and regulating components, etc. to prevent moisture from entering them, e.g. when steam cleaning.
19. 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.
20. Never use caustic solvents which can damage materials of the air net, e.g. polycarbonate bowls.
21. **The following safety precautions are stressed when handling refrigerant:**
    - Never inhale refrigerant vapours. 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.

	Also consult following safety precautions: Safety precautions during installation and Safety precautions during operation. 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.

2 General description

2.1 Introduction

General

General view of G 110 up to G 160

General view of G 200 up to G 250

General view of G 315 up to G 355

G are oil-injected screw compressors, driven by an electric motor and enclosed in a sound-insulated bodywork.

G 110 up to G 355 are air-cooled compressors.

G 110 W up to G 355 W are water-cooled compressors.

G are single-stage compressors.

The following features are available as an option:

PT 1000 Thermal motor protection

The PT1000 thermal protection provides protection for the drive motor. Five sensors are installed in the motor, two to measure the temperature of the bearings and three to measure the temperature of the windings. The readings can be called up on the display of the Elektronikon regulator. A message will appear on the display and the general alarm LED will light up if one of the temperatures exceeds the shut-down warning setting.

SPM monitoring

A number of vibration sensors are provided on the drive motor and compressor elements. The readings can be called up on the display of the Elektronikon regulator.

Anti-condensation heater

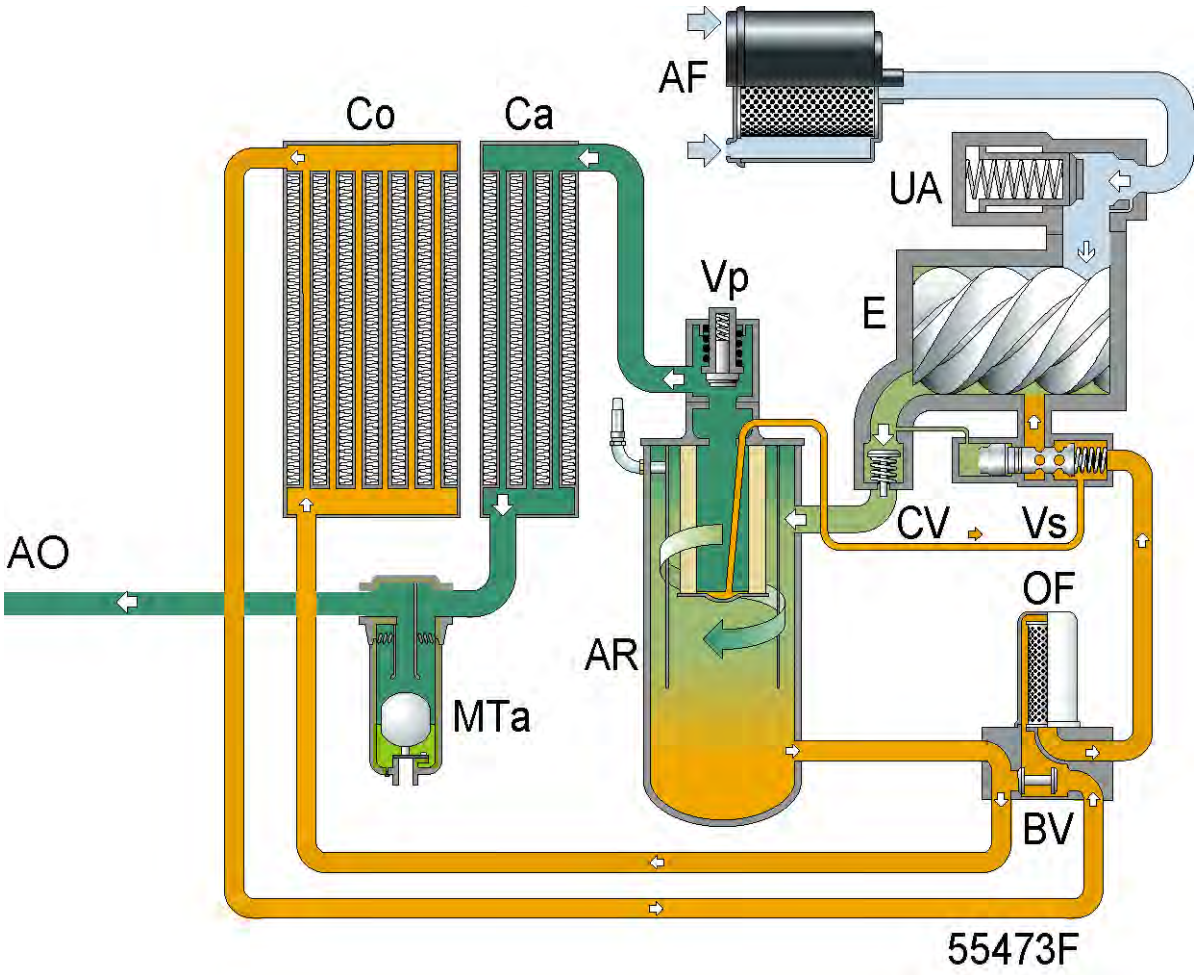
An anti-condensation heater is installed in the motor to prevent condensation during periods of idleness.

Phase Sequence Relay

The phase sequence relay prevents the drive motor from rotating in the wrong direction.

2.2 Air and oil system

Flow diagrams



Flow diagram of G compressor

Air flow

Air drawn through filter (AF) and unloader (UA) is compressed in compressor element (E). Compressed air and oil are discharged through check valve (CV) to air receiver/oil separator (AR) where oil is separated from the compressed air. The air is blown through minimum pressure valve (Vp) to air cooler (Ca).

On G Pack compressors, the cooled air is discharged through condensate trap (MTa) and outlet (AO) towards the air net.

Check valve (CV) prevents blow-back of compressed air.

Minimum pressure valve (Vp) prevents the receiver pressure from dropping below a minimum pressure. The valve has a built-in check valve.

Oil system

Air pressure forces the oil from receiver (AR) through oil cooler (Co), filters (OF) and oil stop valve (Vs) to compressor element (E) and the lubrication points.

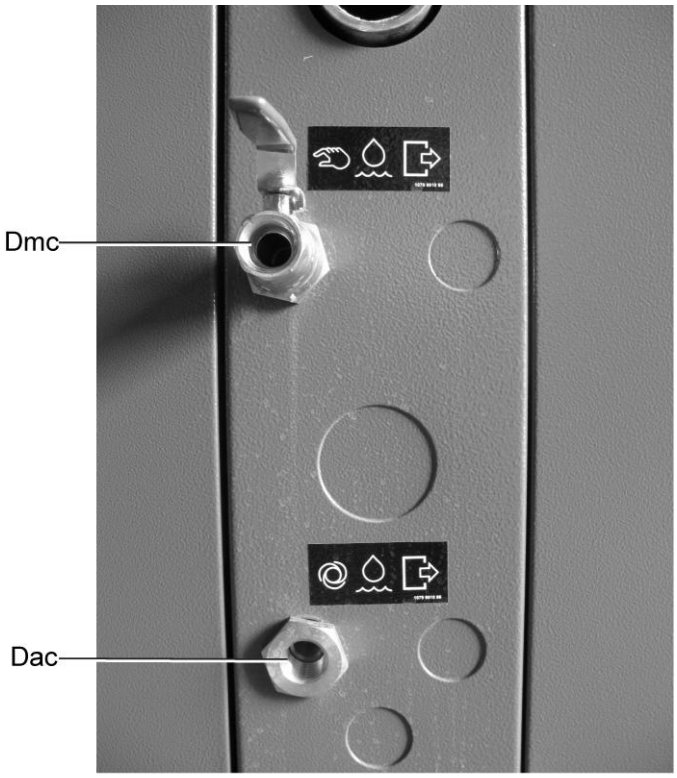
Oil stop valve (Vs) prevents the compressor elements from flooding with oil when the compressor is stopped.

Valve (BV) by-passes oil cooler (Co) when starting the compressor from a cold condition, so ensuring rapid warming of the oil to normal working temperature.

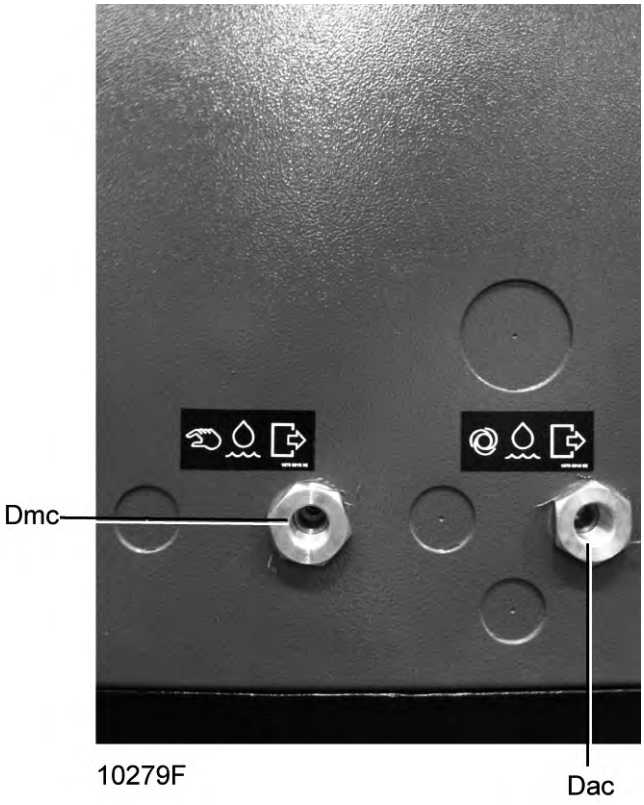
In air receiver (AR) most of the oil is removed from the air centrifugally. Almost all of the remaining oil is removed by the separator element.

2.3 Cooling and condensate system

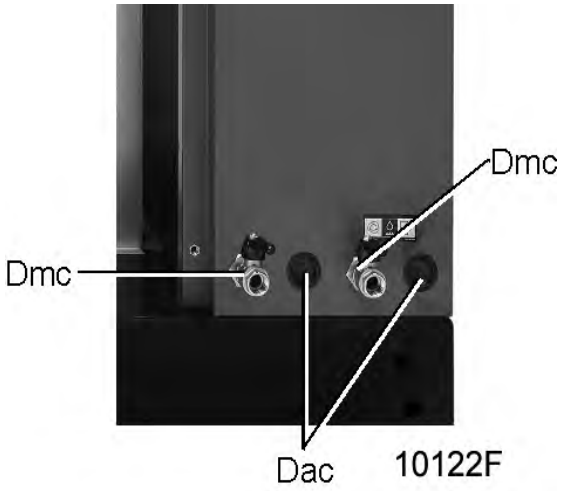
Condensate drain system



Condensate drains of G 110 up to G 160



Condensate drains of G 200 up to G 250



Condensate drains of G 315 up to G 355

Reference	Designation
Dac	Automatic condensate drain, compressor
Dmc	Manual condensate drain

A condensate trap is installed downstream of the air cooler to prevent condensate from entering the air outlet pipe. The trap is provided with a float valve for automatically draining condensate and with a manual drain valve.

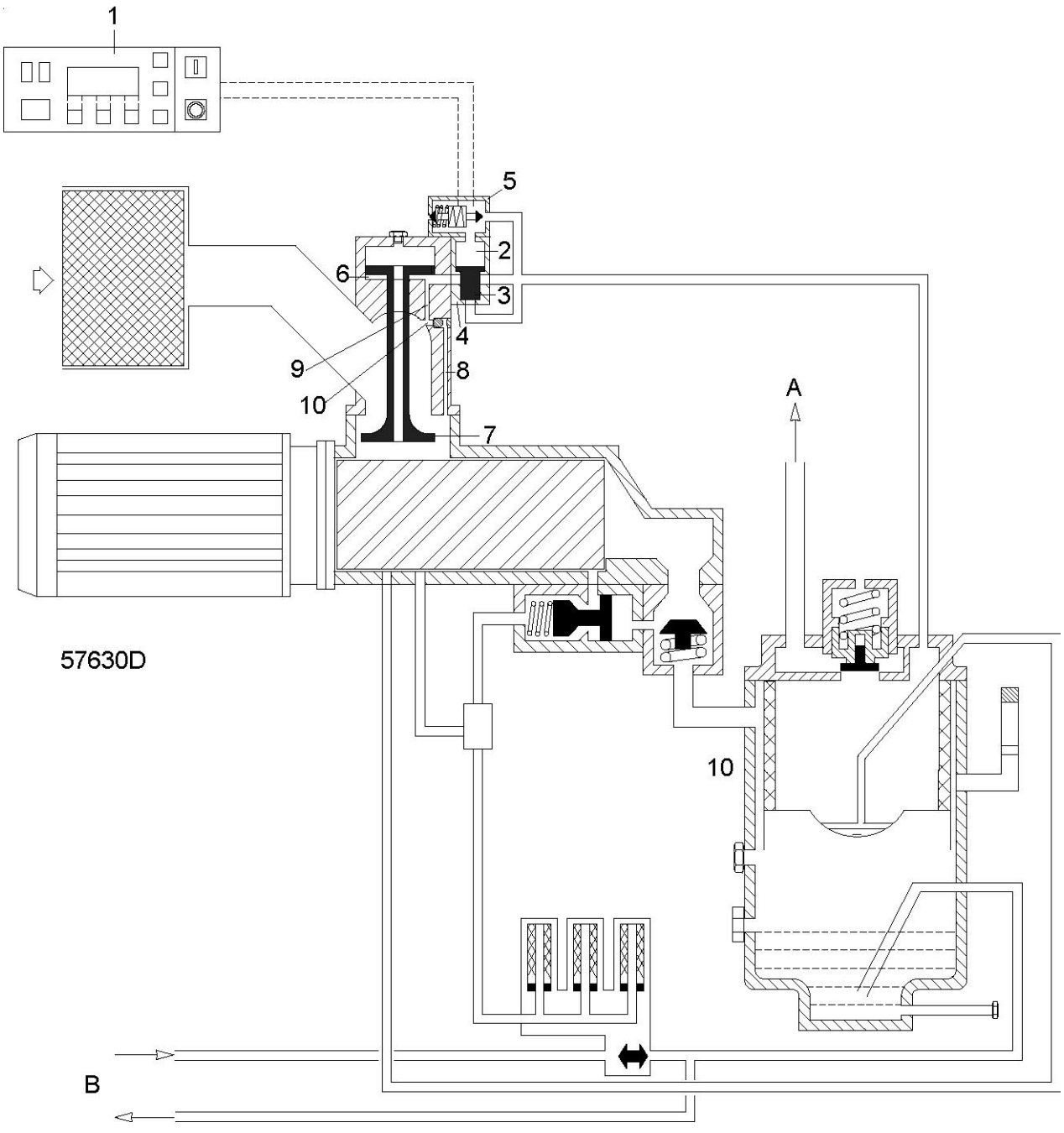
Cooling system

On air-cooled compressors, the air and oil coolers are cooled by fans.

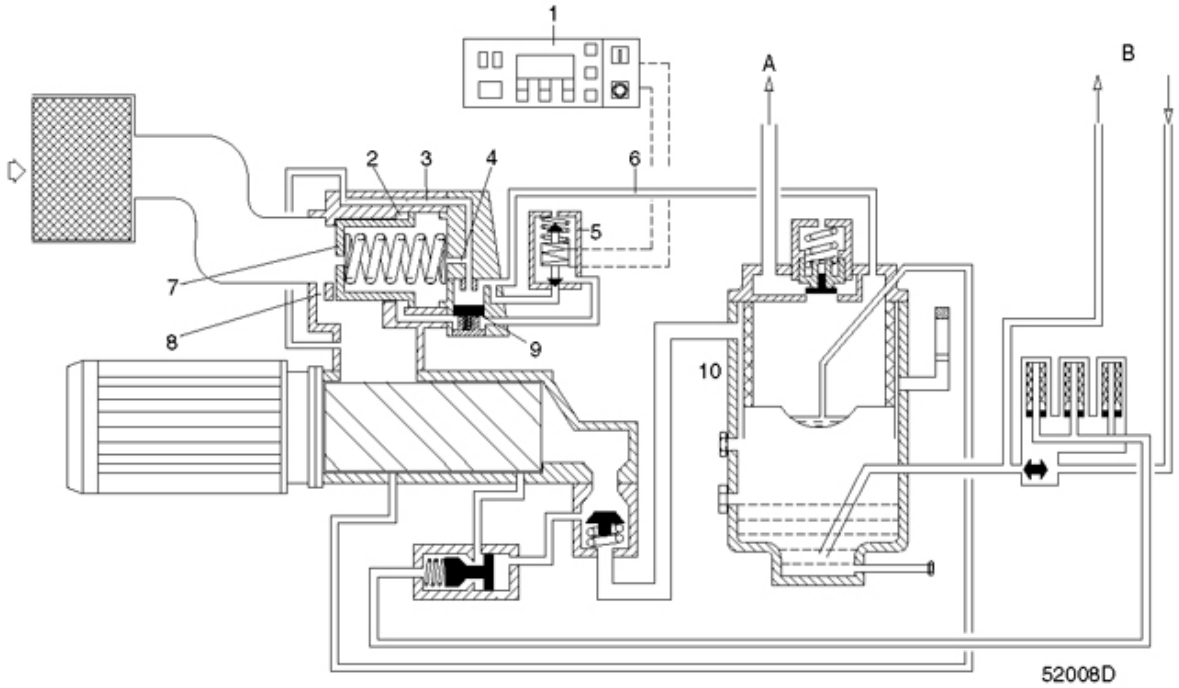
Water-cooled compressors are provided with a cooling water system, including combined oil and air coolers.

2.4 Regulating system

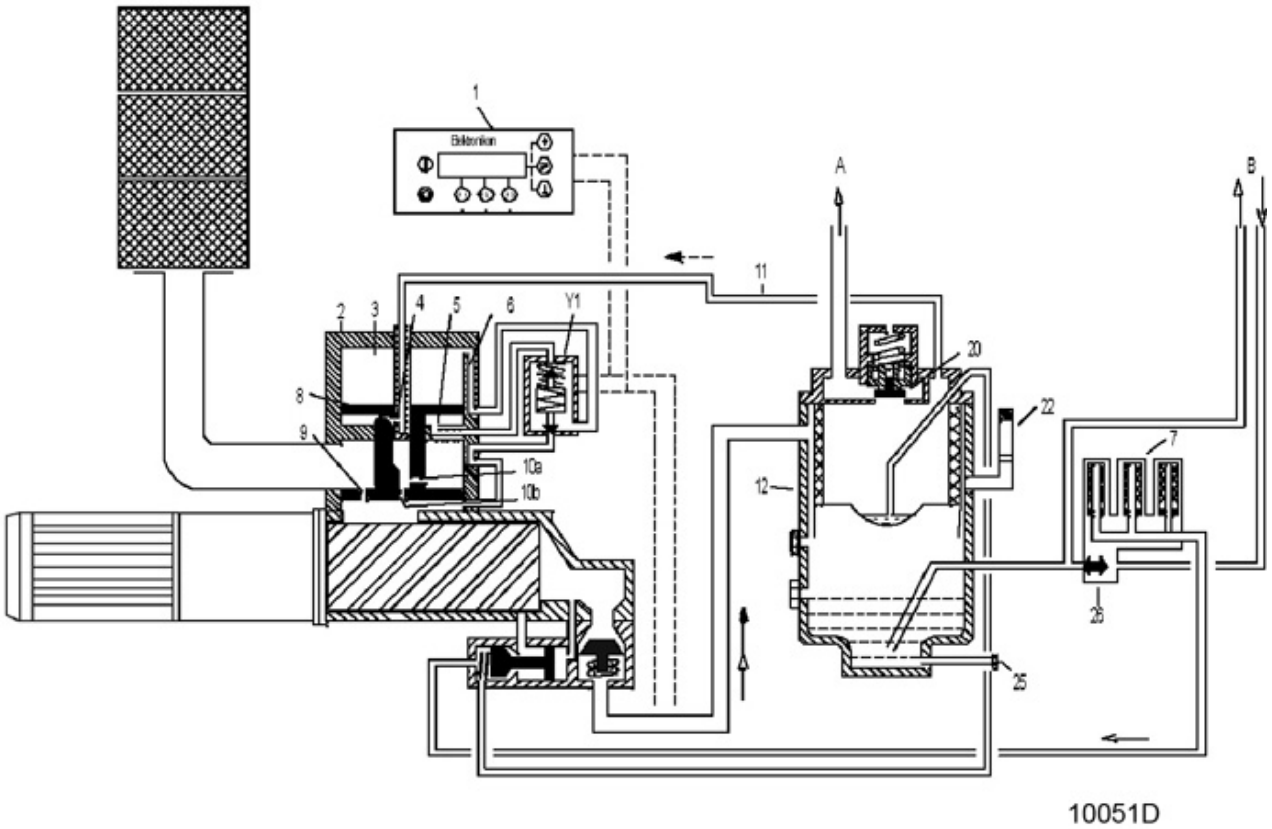
Flow diagrams



Flow diagram of G 110 up to G 160



Flow diagram of G 200 up to G 250



Flow diagram of G 315 up to G 355

Reference	Designation
A	To air cooler
B	To/from oil cooler

Regulating system

The compressor is controlled by an Elektronikon regulator (1).

The regulator keeps the net pressure within programmable pressure limits by automatically loading and unloading the compressor depending on the air consumption. It also protects the compressor and monitors components subject to service.

Unloading

If the air consumption is less than the air delivery of the compressor, the net pressure increases. When the net pressure reaches the upper limit of the working pressure (unloading pressure), solenoid valve (5) is de-energized. The plunger of the valve moves downwards by spring force:

G 110 - G 160

Phase	Description
1	The plunger of solenoid valve (5) shuts off the supply of receiver pressure towards chamber (2).
2	Control pressure present in chamber (2) is vented to the atmosphere. Plunger (3) of blow-off valve (4) is moved by air receiver pressure, allowing air receiver pressure to chamber (6).
3	Valve (7) is pushed upwards closing off the air inlet.
4	A small flow of air remains drawn in via channel (8), and is finally blown from the receiver via channel (10) to the air inlet.
5	Air delivery is stopped (0%), the compressor runs unloaded while chamber (6) contains a steady overpressure (receiver unload pressure minus Blow Off valve (4) pressure drop).

G 200 - G 250

Phase	Description
1	The plunger of solenoid valve (5) shuts off the supply of receiver pressure towards chamber (2).
2	Control pressure present in chamber (2) is vented to atmosphere through loading solenoid valve (5). Unloading valve (7) closes by spring force.
3	Valve (9) is pushed downwards releasing receiver pressure through flexible (6) and channels (3 and 4) towards the air inlet.
4	A small flow of air remains drawn in through hole (8) and channel (3), and is blown from receiver (10) via flexible (6) to the air inlet.
5	Air delivery is stopped (0%), the compressor runs unloaded.

G 315 - G 355

Phase	Description
1	The plunger of solenoid valve (Y1) connects chamber (3) and chamber (5).

2	Driven by the pressure difference in unloader pressure chambers (3) and (5), unloader plunger (8) moves downwards.
3	The compressor stage keeps drawing in air through calibrated bypass holes (10b) and (9) to maintain the unloading pressure level.
4	The air delivery stops, the compressor runs unloaded.

Loading

When the net pressure decreases to the lower limit of the working pressure (loading pressure), solenoid valve (5) is energized. The plunger of solenoid valve (5) moves upwards against spring force:

G 110 - G 160

Phase	Description
1	The plunger of solenoid valve (5) opens the supply of receiver pressure towards chamber (2). Plunger (3) of blow-off valve (4) moves, closing off the air pressure supply towards chamber (6).
2	Valve (7) moves downwards since the pressure in chamber (6) drops below atmospheric pressure, opening the air inlet to the compressor element.
3	Air delivery is resumed (100%), the compressor runs loaded while the piston-rod-valve assembly is only surrounded by atmospheric pressure.

G 200 - G 250

Phase	
1	The plunger of solenoid valve (5) opens the supply of receiver pressure towards chamber (2). Unloading valve (7) opens against spring force.
2	Receiver pressure also pushes valve (9) upwards, shutting off blow-off channels (3 and 4).
3	Air delivery is resumed (100%), the compressor runs loaded.

G 315 - G 355

Phase	
1	The plunger of solenoid valve (Y1) connects chamber (3) and compressor stage, unloader plunger (8) moves upwards.
2	Bypass holes (10b) and (9) close, air reciever (12) stop releasing air and pressure will increase.
3	Air delivery is resumed, the compressor runs loaded.

3 Elektronikon® Graphic controller

3.1 Elektronikon® Graphic controller

Control panel

Display of the Elektronikon® Graphic controller

Introduction

The Elektronikon controller has following functions:

- Controlling the compressor
- Protecting the compressor
- Monitoring components subject to service
- Automatic restart after voltage failure (made inactive)

Automatic control of the compressor operation

The controller maintains the net pressure between programmable limits by automatically loading and unloading the compressor (on compressors running at a fixed speed) or by adapting the motor speed (compressors with frequency converter). A number of programmable settings, e.g. the unloading and loading pressures (for fixed speed compressors), the setpoint (for compressors with frequency converter), the minimum stop time and the maximum number of motor starts and several other parameters are hereby taken into account.

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

	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 compressor.

Protecting the compressor

Shut-down

Several sensors are provided on the compressor. If one of the measured signals exceeds the programmed shut-down level, the compressor will be stopped. This will be indicated on display (1) and general alarm LED (2) will blink.

Remedy the trouble and reset the message. See also the Inputs menu.

	Before remedying, consult the applicable safety precautions.

Shut-down warning

A shut-down warning level is a programmable level below the shut-down level.

If one of the measured signals exceeds the programmed shut-down warning level, a message will appear on display (1) and general alarm LED (2) will light up to warn the operator that the shut-down warning level is exceeded.

The message disappears as soon as the warning condition disappears.

Warning

A warning message will appear if, on Full-Feature compressors, the dew point temperature is too high in relation to the ambient temperature.

Service warning

A number of service operations are grouped (called Service Plans). Each Service Plan has a programmed time interval. If a time interval is exceeded, a message will appear on display (1) to warn the operator to carry out the service actions belonging to that Service Plan.

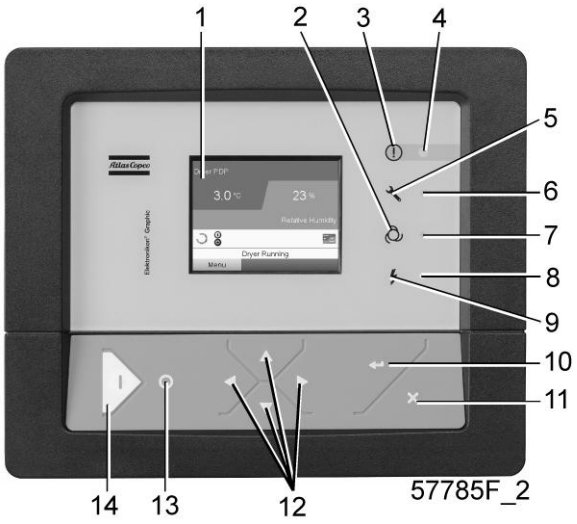
Automatic restart after voltage failure

The controller has a built-in function to automatically restart the compressor when the voltage is restored after voltage failure. For compressors leaving the factory, this function is made inactive. If desired, the function can be activated. Consult the Atlas Copco Customer Centre.

	If the function is activated and provided the regulator was in the automatic operation mode, the compressor will automatically restart if the supply voltage to the module is restored.

3.2 Control panel

Elektronikon regulator



Control panel

Parts and functions

Reference	Designation	Function
1	Display	Shows the compressor operating condition and a number of icons to navigate through the menu.
2	Pictograph	Automatic operation
3	Pictograph	General alarm
4	Alarm LED	Flashes in case of a shut-down, is lit in case of a warning condition.
5	Pictograph	Service
6	Service LED	Lights up if service is needed
7	Automatic operation LED	Indicates that the regulator is automatically controlling the compressor.
8	Voltage on LED	Indicates that the voltage is switched on.
9	Pictograph	Voltage
10	Enter key	Use this button to confirm the last action.
11	Escape key	Use this button to go to previous screen or to end the current action.
12	Scroll keys	Keys to scroll through the menu.
13	Stop button	Button to stop the compressor. LED (7) goes out.
14	Start button	Button to start the compressor. LED (7) lights up indicating that the Elektronikon regulator is operative.

3.3 Icons used

Status icons

Name	Icon	Description
Stopped / Running	 57786F	When the compressor is stopped, the icon stands still. When the compressor is running, the icon is rotating.
Compressor status	 57787F	Motor stopped
	 57788F	Running unloaded
	 57789F	Running loaded
Machine control mode	 57790F or  59161F	Local start / stop
	 57791F	Remote start / stop
	 57792F	Network control
Automatic restart after voltage failure	 57793F	Automatic restart after voltage failure is active
Week timer	 57794F	Week timer is active

Name	Icon	Description
Active protection functions	 57795F	Emergency stop
	 57796F	Shutdown
	 57797F	Warning
Service	 57798F	Service required
Main screen display	 59162F	Value lines display icon
	 82196F	Chart display icon
General icons	 81105D	No communication / network problem
	 82418D	Not valid

Input icons

Icon	Description
 57799F	Pressure
 57800F	Temperature
 57801F	Digital input
 57802F	Special protection

System icons

Icon	Description
 57803F	Compressor element (LP, HP, ...)
 57804F	Dryer
 57805F	Fan
 57806F	Frequency converter
 57807F	Drain
 57808F	Filter
 57809F	Motor
 57810F	Failure expansion module
 81105D	Network problem
 57812F	General alarm

Menu icons

Icon	Description
 57813F	Inputs
 57814F	Outputs
 57812F	Alarms (Warnings, shutdowns)
 57815F	Counters
 57816F or  82641D	Test

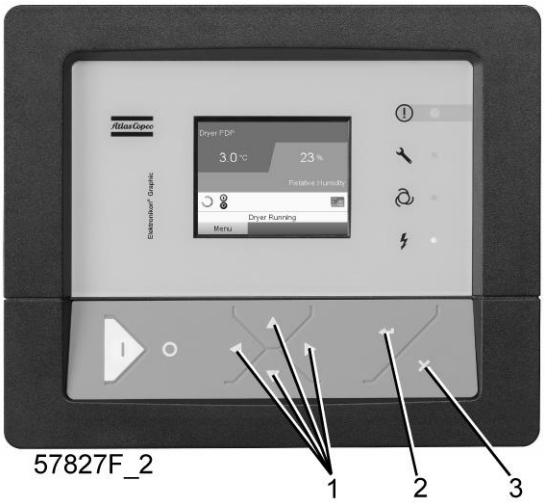
Icon	Description
	Settings
	Service
	Event history (saved data)
	Access key / User password
	Network
	Setpoint
	Info

Navigation arrows

Icon	Description
	Up
	Down

3.4 Main screen

Control panel



(1)	Scroll keys
(2)	Enter key
(3)	Escape key

Function

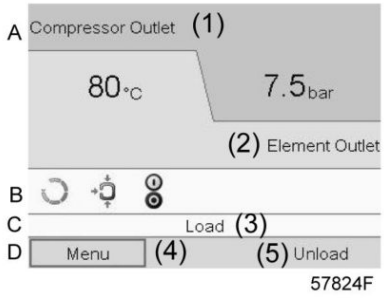
The Main screen is the screen that is shown automatically when the voltage is switched on and one of the keys is pushed. It is switched off automatically after a few minutes when no keys are pushed.

Typically, 5 different main screen views can be chosen:

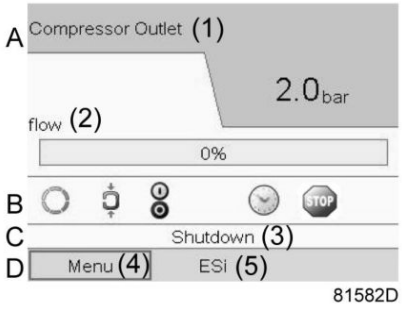
1. Two value lines
2. Four value lines
3. Chart (High resolution)
4. Chart (Medium resolution)
5. Chart (Low resolution)

Two and four value lines screens

This type of Main screen shows the value of 2 or 4 parameters (see section Inputs menu).



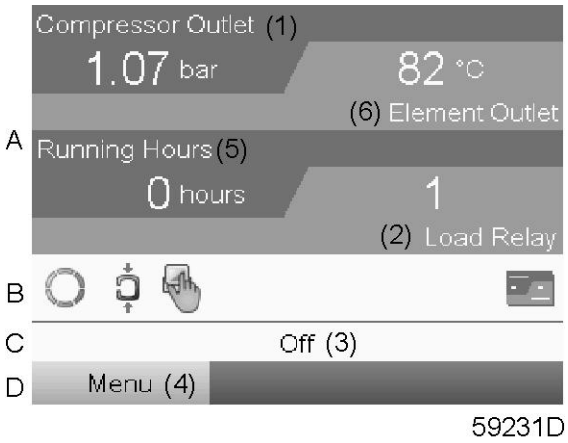
Typical Main screen (2 value lines), fixed speed compressors



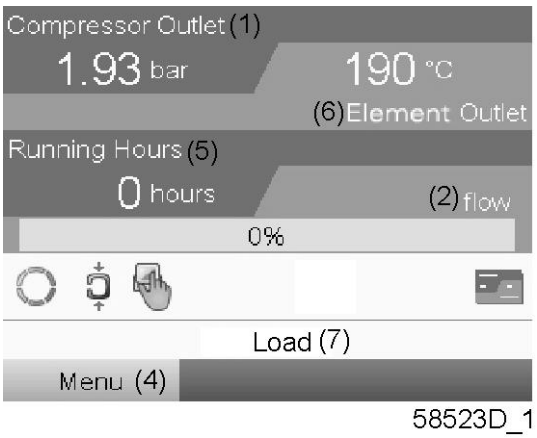
Typical Main screen (2 value lines), compressors with frequency converter

Text on figures

(1)	Compressor Outlet
(2)	Element Outlet (fixed speed compressors) Flow (compressors with frequency converter)
(3)	Load, shutdown, ... (text varies upon the compressors actual condition)
(4)	Menu
(5)	Unload, ES,...(text varies upon the compressors actual condition)



Typical Main screen (4 value lines), fixed speed compressors



Typical Main screen (4 value lines), compressors with frequency converter

Text on figures

(1)	Compressor Outlet
(2)	Load relay (one of the input signals of fixed speed compressors) Flow (compressors with frequency converter)
(3)	Off, Shutdown,... (text varies upon the compressors actual condition)
(4)	Menu
(5)	Running hours
(6)	Element outlet
(7)	Load, Unload, ... (text varies upon the compressors actual condition)

- **Section A** shows information regarding the compressor operation (e.g. the outlet pressure or the temperature at the compressor outlet). On compressors with a frequency converter, the load degree (flow) is given in % of the maximum flow.
- **Section B** shows Status icons. Following icon types are shown in this field:
  - Fixed icons
    These icons are always shown in the main screen and cannot be selected by the cursor (e.g. Compressor stopped or running, Compressor status (running, running unloaded or motor stopped).
  - Optional icons
    These icons are only shown if their corresponding function is activated (e.g. week timer, automatic restart after voltage failure , etc.)
  - Pop up icons
    These icons pop up if an abnormal condition occurs (warnings, shutdowns, service,...)

  To call up more information about the icons shown, select the icon concerned using the scroll keys and press the enter key.
- **Section C** is called the Status bar
  This bar shows the text that corresponds to the selected icon.
- **Section D** shows the Action buttons. These buttons are used:
  - To call up or program settings
  - To reset a motor overload, service message or emergency stop
  - To have access to all data collected by the regulator

  The function of the buttons depends on the displayed menu. The most common functions are:

Designation	Function
Menu	To go to the menu
Modify	To modify programmable settings
Reset	To reset a timer or message

To activate an action button, highlight the button by using the Scroll keys and press the Enter key.
To go back to the previous menu, press the Escape key.

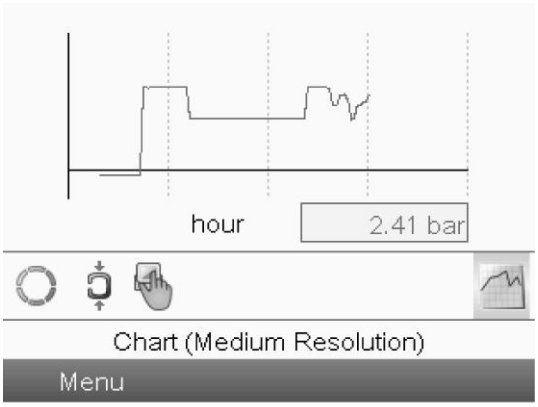
Chart views

Instead of viewing values, it is also possible to view a graph of one of the input signals (see section Inputs menu) in function of the time.

59166D

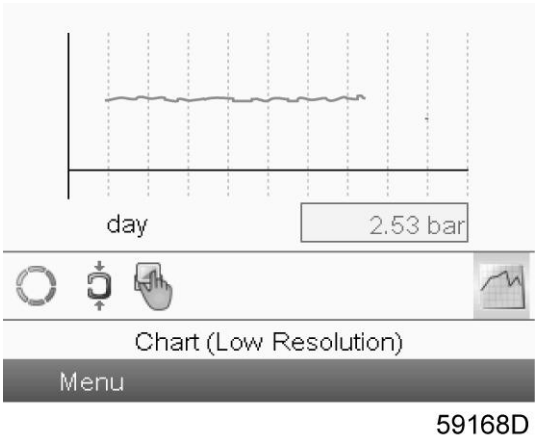
When Chart (High Resolution) is selected, the chart shows the variation of the selected input (in this case the pressure) per minute. Also the instantaneous value is displayed. The screen shows the last 4 minutes.

The switch button (icon) for selecting other screens is changed into a small Chart and is highlighted (active).



59167D

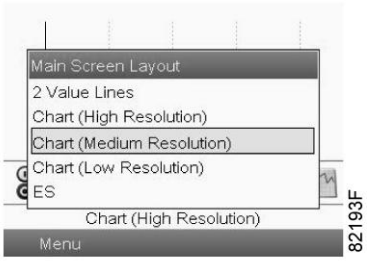
When the Chart (Medium Resolution) is selected, the chart shows the variation of the selected input per hour. The screen shows the last 4 hours.



When the Chart (Low Resolution) is selected, the chart shows the variation of the selected input per day. The screen shows the evolution over the last 10 days.

Selection of a main screen view

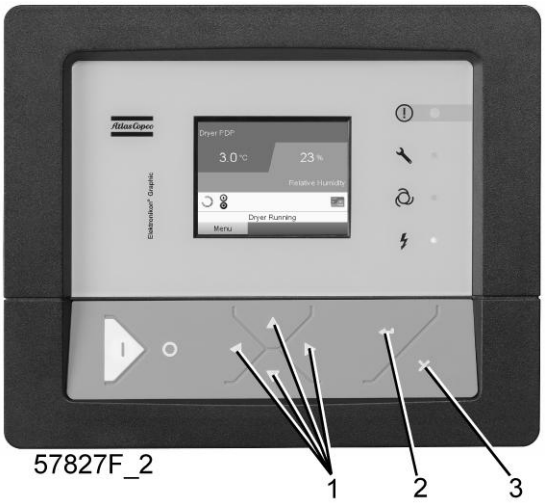
To change between the different screen layouts, select the far right icon in the control icons line (see value lines display icon or chart display icon in section Icons used) and press the Enter key. A screen similar to the one below opens:



Select the layout required and press the Enter key. See also section Inputs menu.

3.5 Calling up menus

Control panel

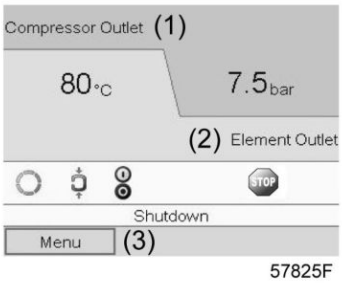


Control panel

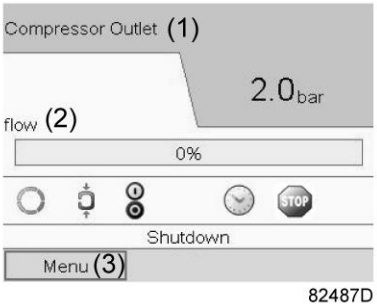
(1)	Scroll keys
(2)	Enter key
(3)	Escape key

Description

When the voltage is switched on, the main screen is shown automatically (see section Main screen):

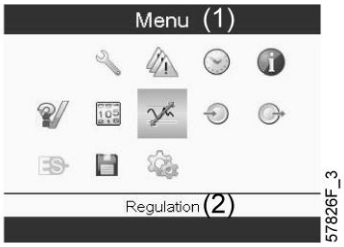


Typical Main screen (2 value lines), fixed speed compressors



Typical Main screen (2 value lines), compressors with frequency converter

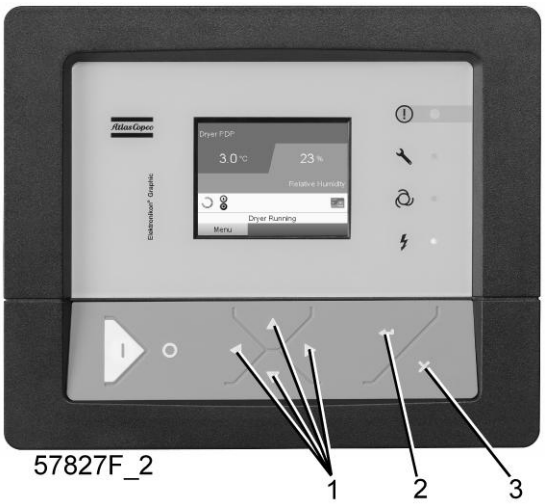
- To go to the Menu screen, highlight the Menu button (3), using the Scroll keys.
- Press the Enter key to select the menu. Following screen appears:



- The screen shows a number of icons. Each icon indicates a menu item. By default, the Pressure Settings (Regulation) icon is selected. The status bar shows the name of the menu that corresponds with the selected icon.
- Use the Scroll keys to select an icon.
- Press the Escape key to return to the Main screen.

3.6 Inputs menu

Control panel



(1)	Scroll keys
(2)	Enter key
(3)	Escape key

Menu icon, Inputs

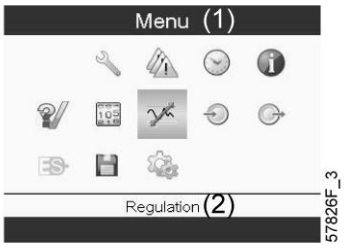
Function

- To display the actual value of the measured data (analog inputs) and the status of the digital inputs (e.g. emergency stop contact, motor overload relay, etc.).
- To select the digital input to be shown on the chart in the main screen.

Procedure

Starting from the main screen,

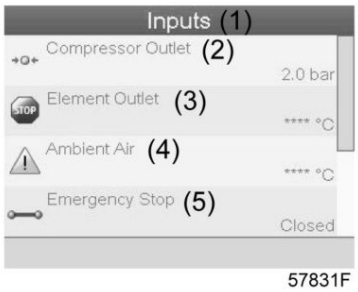
- Move the cursor to the action button Menu and press the Enter key. Following screen appears:



Text on image

(1)	Menu
(2)	Regulation

- Using the Scroll keys, move the cursor to the Inputs icon (see above, section Menu icon).
- Press the Enter key. A screen similar to the one below appears:



Text on image

(1)	Inputs
(2)	Compressor outlet
(3)	Element outlet
(4)	Ambient air
(5)	Emergency stop

- The screen shows a list of all inputs with their corresponding icons and readings.
- If an input is in warning or shutdown, the original icon is replaced by the warning or shutdown icon respectively (i.e. the Stop icon and the Warning icon in the screen shown above).

A small chart icon, shown below an item in the list means this input signal is shown on the chart at the main screen. Any analog input can be selected.

Selecting another input signal as main chart signal

With the Modify button active (light grey background in above screen), press the Enter button on the controller. A screen similar to the one below appears:

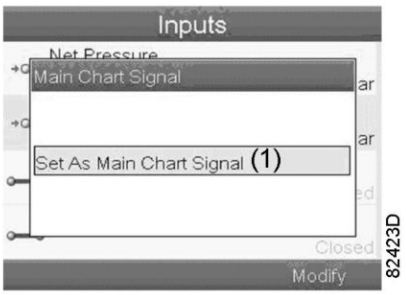
The first item in the list is highlighted. In this example, the Net Pressure is selected (chart icon).

To change, press the Enter button again: a pop-up window opens:

Press Enter again to remove this input from the chart. Another confirmation pop-up opens:

Select Yes to remove or No to quit the current action.

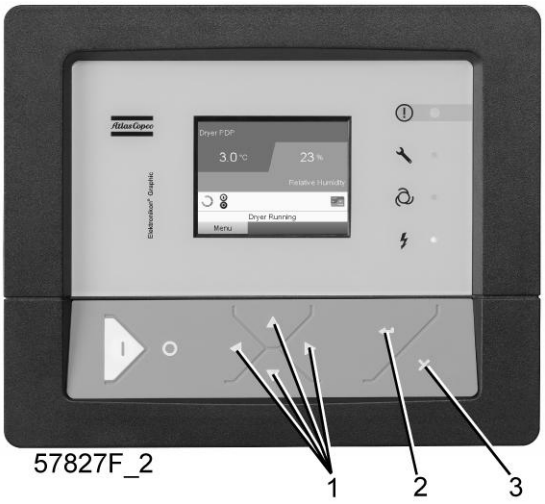
In a similar way, another input signal can be highlighted and selected as Main Chart signal:



(1): Set as main chart signal

3.7 Outputs menu

Control panel



(1)	Scroll keys
(2)	Enter key
(3)	Escape key

Menu icon, Outputs

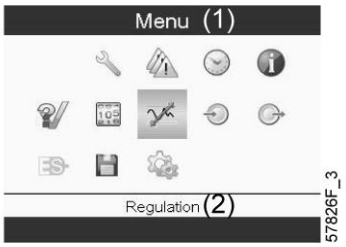
Function

To call up information regarding the actual status of some outputs such as the condition of the Fan overload contact (on air cooled compressors), the Emergency stop contact, etc.

Procedure

Starting from the Main screen,

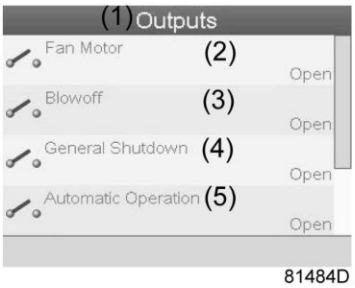
- Move the cursor to the action button Menu and press the Enter key. Following screen appears:



Text on figure

(1)	Menu
(2)	Regulation

- Move the cursor to the Outputs icon (see above, section Menu icon, using the Scroll keys.
- Press the Enter key. A screen similar to the one below appears:



Outputs screen (typical)

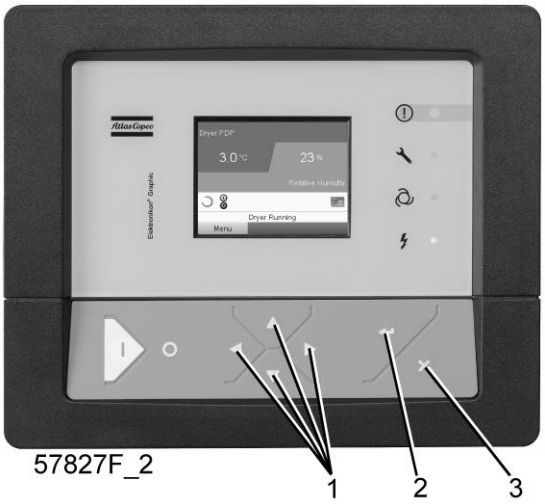
Text on image

(1)	Outputs
(2)	Fan motor contact
(3)	Blow-off contact
(4)	General shutdown
(5)	Automatic operation

- The screen shows a list of all outputs with their corresponding icons and readings.
  If an output is in warning or shutdown, the original icon is replaced by the warning or shutdown icon respectively.

3.8 Counters

Control panel



(1)	Scroll keys
(2)	Enter key
(3)	Escape key

Menu icon, Counters

Function

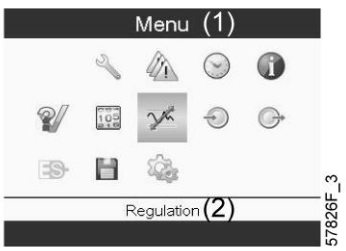
To call up:

- The running hours
- The loaded hours
- The number of motor starts
- The number of hours that the regulator has been powered
- The number of load cycles

Procedure

Starting from the Main screen (see Main screen),

- Move the cursor to the action button Menu and press the Enter key. Following screen appears:



Text on figure

(1)	Menu
(2)	Regulation

- Using the Scroll keys, move the cursor to the Counters icon (see above, section Menu icon)
- Press the Enter key. Following screen appears:

Text on figure

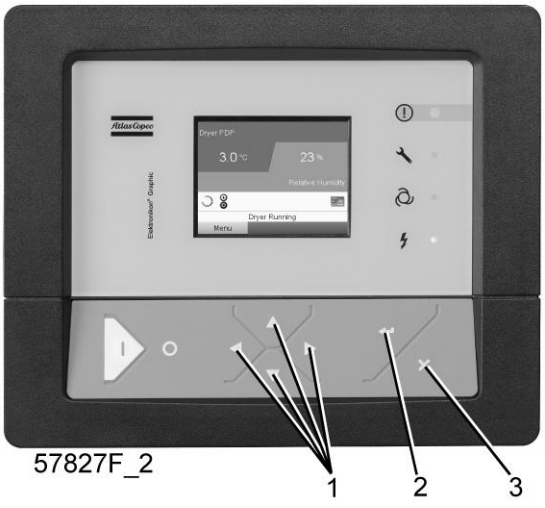
(1)	Counters
(2)	Running hours
(3)	Motor starts
(4)	Load relay
(5)	VSD 1-20 % rpm in % (the percentage of the time during which the motor speed was between 1 and 20 %) (compressors with frequency converter)

The screen shows a list of all counters with their actual readings.

Note: the example above is for a frequency converter driven compressor. For a fixed speed compressor, the actual screen will be somewhat different.

3.9 Control mode selection

Control panel



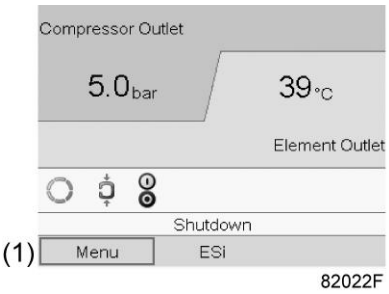
(1)	Scroll keys
(2)	Enter key
(3)	Escape key

Function

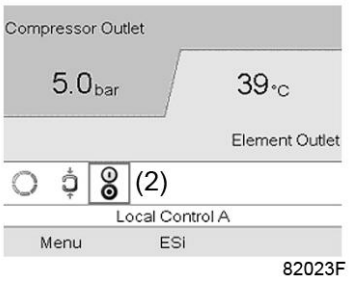
To select the control mode, i.e. whether the compressor is in local control, remote control or controlled via a local area network (LAN).

Procedure

Starting from the main screen, make sure the button Menu (1) is selected:

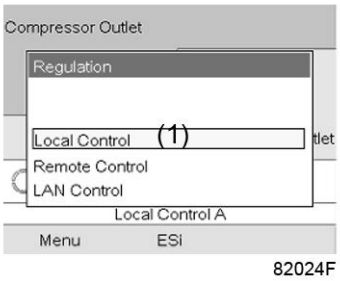


Next, use the scroll buttons to go to the regulation icon (2) and press the enter button:



There are 3 possibilities:

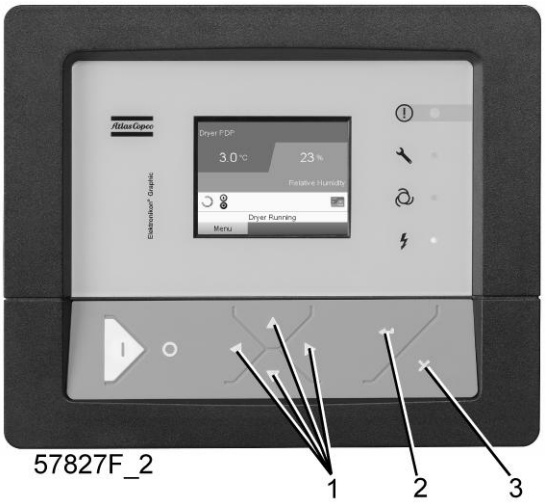
- Local control
- Remote control
- LAN (network) control



After selecting the required regulation mode, press the enter button on the controller to confirm your selection. The new setting is now visible on the main screen. See section Icons used for the meaning of the icons.

3.10 Service menu

Control panel



(1)	Scroll keys
(2)	Enter key
(3)	Escape key

Menu icon, Service

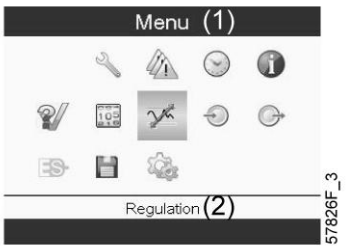
Function

- To reset the service plans which are carried out.
- To check when the next service plans are to be carried out.
- To find out which service plans were carried out in the past.
- To modify the programmed service intervals.

Procedure

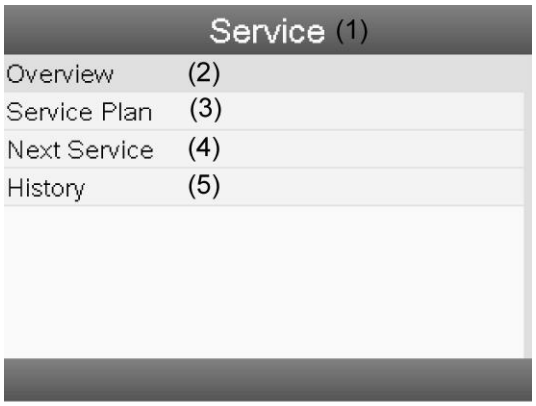
Starting from the Main screen,

- Move the cursor to the action button Menu and press the Enter key. Following screen appears:



- Using the Scroll keys, move the cursor to the Service icon (see above, section Menu icon).

- Press the Enter key. Following screen appears:



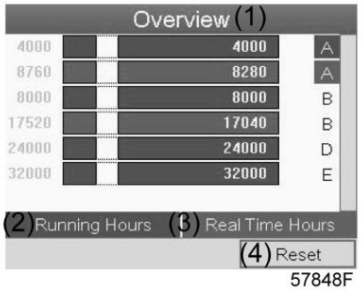
57847F_1

Text on image

(1)	Service
(2)	Overview
(3)	Service plan
(4)	Next service
(5)	History

- Scroll through the items to select the desired item and press the Enter key to see the details as explained below.

Overview



57848F

Text on image

(1)	Overview
(2)	Running Hours
(3)	Real Time hours
(4)	Reset

Example for service level (A):

The figures at the left are the programmed service intervals. For Service interval A, the programmed number of running hours is 4000 hours (upper row) and the programmed number of real time hours is 8760 hours, which corresponds to one year (second row). This means that the controller will launch a service warning when either 4000 running hours or 8760 real hours are reached, whichever comes first. Note that the real time hours counter keeps counting, also when the controller is not powered.

The figures within the bars are the number of hours to go till the next service intervention. In the example above, the compressor was just started up, which means it still has 4000 running hours or 8280 hours to go before the next Service intervention.

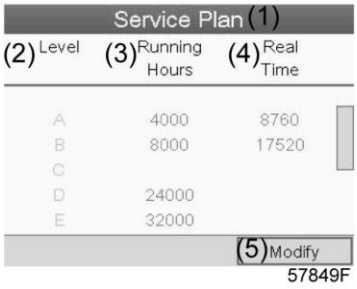
Service plans

A number of service operations are grouped (called Level A, Level B, etc...). Each level stands for a number of service actions to be carried out at the time intervals programmed in the Elektronikon® controller.

When a service plan interval is reached, a message will appear on the screen.

After carrying out the service actions related to the indicated levels, the timers must be reset.

From the Service menu above, select Service plan (3) and press Enter. Following screen appears:

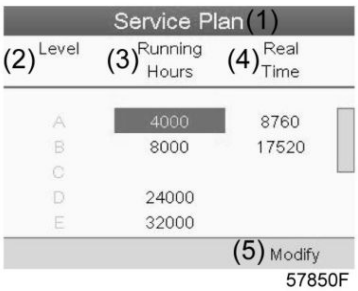


Text on image

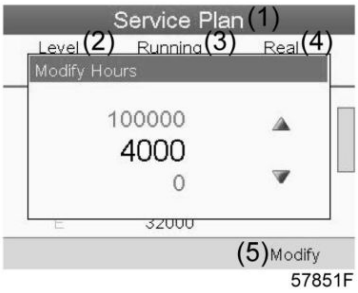
(1)	Service plan
(2)	Level
(3)	Running hours
(4)	Real time hours
(5)	Modify

Modifying a service plan

Dependant on the operating conditions, it can be necessary to modify the service intervals. To do so, use the Scroll keys to select the value to be modified. A screen similar to the one below appears:



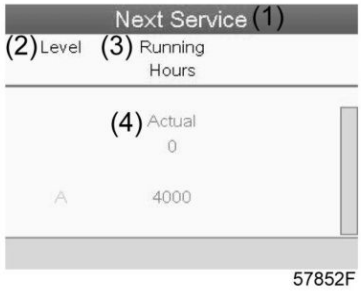
Press the Enter key. Following screen appears:



Modify the value as required using the ↑ or ↓ scroll key and press the Enter key to confirm.

Note: Running hours can be modified in steps of 100 hours, real time hours can be modified in steps of 1 hour.

Next Service



Text on image

(1)	Next service
(2)	Level
(3)	Running hours
(4)	Actual

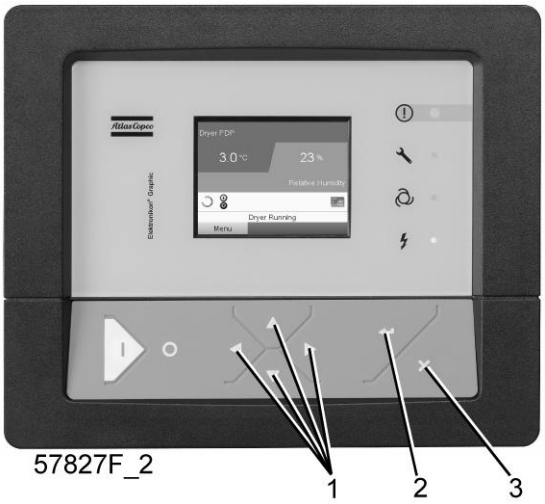
In the example above, the A Service level is programmed at 4000 running hours, of which 0 hours have passed.

History

The History screen shows a list of all service actions done in the past, sorted by date. The date at the top is the most recent service action. To see the details of a completed service action (e.g. Service level, Running hours or Real time hours), use the Scroll keys to select the desired action and press the Enter key.

3.11 Setpoint menu

Control panel



(1)	Scroll keys
(2)	Enter key
(3)	Escape key

Menu icon, Setpoint

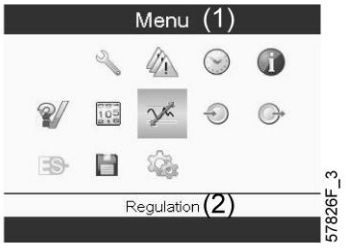
Function

On fixed speed compressors , the operator can program two different pressure bands. This menu is also used to select the active pressure band.

Procedure

Starting from the Main screen (see Main screen),

- Move the cursor to the action button Menu and press the Enter key. Following screen appears:



Text on figure

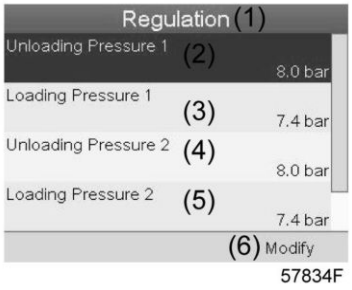
(1)	Menu
(2)	Regulation

- Move the cursor to the Setpoint icon (see above, section menu icon) using the Scroll keys.
- Press the Enter key. Following screen appears:

Text on figure

(1)	Regulation
(2)	Unloading pressure 1
(3)	Loading pressure 1
(4)	Unloading pressure 2
(5)	Loading pressure 2
(6)	Modify

- The screen shows the actual unloading and loading pressure settings for both pressure bands.
  To modify the settings, move the cursor to the action button Modify and press the Enter key. Following screen appears:



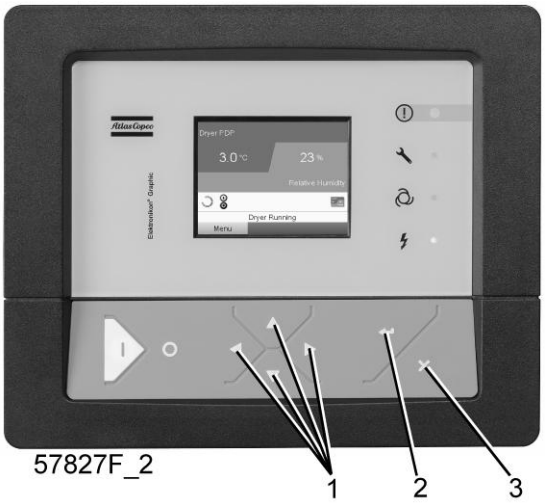
- The first line of the screen is highlighted in red. Use the Scroll keys to highlight the setting to be modified and press the Enter key. Following screen appears:

- The upper and lower limit of the setting is shown in grey, the actual setting is shown in black. Use the ↑ or ↓ key of the Scroll keys to modify the settings as required and press the Enter key to accept.

If necessary, change the other settings as required in the same way as described above.

3.12 Modifying the setpoint

Control panel



(1)	Scroll keys
(2)	Enter key
(3)	Escape key

Menu icon, Setpoint

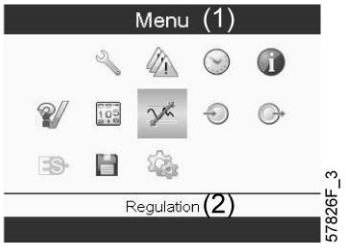
Function

On compressors with a frequency converter driven main motor, it is possible to program two different setpoints. This menu is also used to select the active setpoint.

Procedure

Starting from the Main screen,

- Highlight the action key Menu using the Scroll keys and press the Enter key. Following screen appears:



Text on image

(1)	Menu
(2)	Regulation

- Activate the menu by pressing the enter key. A screen similar to the one below appears:

Text on image

(1)	Regulation
(2)	Setpoint 1
(3)	Indirect stop level 1
(4)	Direct stop level 1
(5)	Setpoint 2
(6)	Modify

- The screen shows the actual settings.
  To modify the settings, move the cursor to the action button Modify and press the Enter key. Following screen appears:

- The first line of the screen is highlighted. Use the Scroll keys (1) to highlight the setting to be modified and press the Enter key (2). Following screen appears:

  The upper and lower limit of the setting is shown in grey, the actual setting is shown in black. Use the ↑ or ↓ key of the Scroll keys to modify the settings as required and press the Enter key to accept.

If necessary, change the other settings as required in the same way as described above.

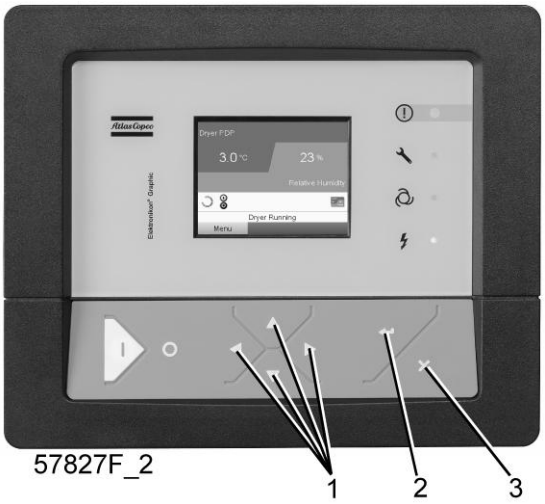
Indirect stop: occurs when the pressure rises to the pre-set Indirect stop setpoint (= setpoint plus Indirect stop level). The motor will decelerate to minimum speed and the compressor will switch to unloaded condition.

Direct stop: occurs when the compressor runs at a speed between minimum and maximum and the net pressure rises above the direct stop setpoint (= setpoint plus Direct stop level).

Both settings (Indirect stop level and Direct stop level) are programmable, see section Programmable settings.

3.13 Event history menu

Control panel



(1)	Scroll keys
(2)	Enter key
(3)	Escape key

Menu icon, Event History

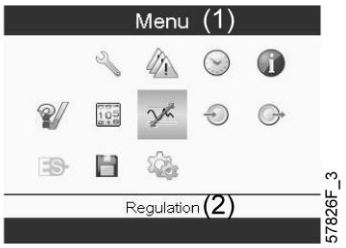
Function

To call up the last shut-down and last emergency stop data.

Procedure

Starting from the Main screen,

- Move the cursor to the action button Menu and press the Enter key. Following screen appears:



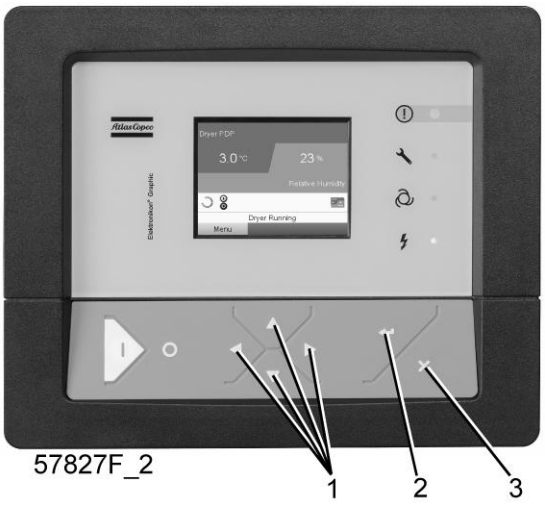
- Using the Scroll keys, move the cursor to the Event History icon (see above, section Menu icon)
- The list of last shut-down and emergency stop cases is shown.

Example of Event History screen

- Scroll through the items to select the desired shut-down or emergency stop event.
- Press the Enter key to find the date, time and other data reflecting the status of the compressor when that shut-down or emergency stop occurred.

3.14 Modifying general settings

Control panel



(1)	Scroll keys
(2)	Enter key
(3)	Escape key

Menu icon, Settings

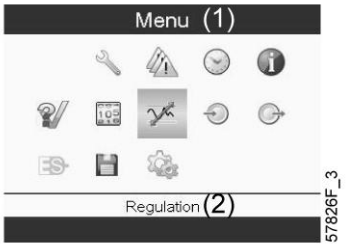
Function

To display and modify a number of settings.

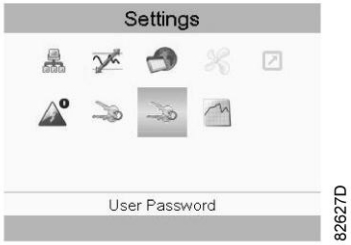
Procedure

Starting from the Main screen,

- Move the cursor to the action button Menu and press the Enter key. Following screen appears:



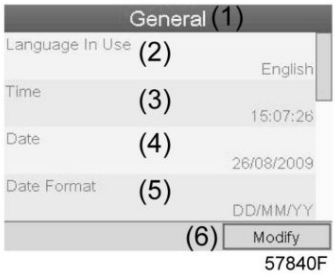
- Next, move the cursor to the Settings icon (see above, section menu icon).using the Scroll keys.
- Press the Enter key. Following screen appears:



This screen shows again a number of icons. By default, the User Password icon is selected. The status bar shows the description that corresponds with the selected icon. Each icon covers one or more items , such as

- Access level
- Elements
- Dryer
- Fan
- Converter(s)
- Filter(s)
- Motor/Starter
- General
- Automatic restart after voltage failure (ARAF)
- Network
- Regulation
- Remote

For adapting certain parameters, a password may be necessary.
Example: Selecting the General Settings icon gives the possibility to change e.g. the language, the date, the date format, etc.:



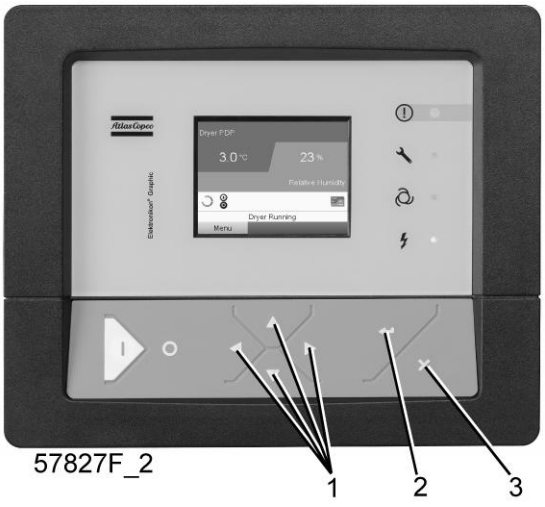
Text on image

(1)	General
(2)	Language used
(3)	Time
(4)	Date
(5)	Date format
(6)	Modify

- To modify, select the Modify button using the Scroll keys and press the Enter key.
- A screen similar to the one above is shown, the first item (Language) is highlighted. Use the ↓ key of the Scroll keys to select the setting to be modified and press the Enter key.
- A pop-up screen appears. Use the ↑ or ↓ key to select the required value and press the Enter key to confirm.

3.15 Info menu

Control panel



(1)	Scroll keys
(2)	Enter key
(3)	Escape key

Menu icon, Info

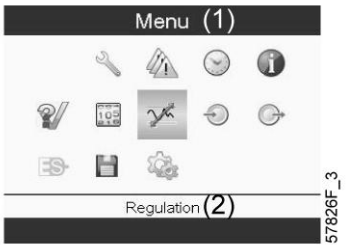
Function

To show the Atlas Copco internet address.

Procedure

Starting from the Main screen,

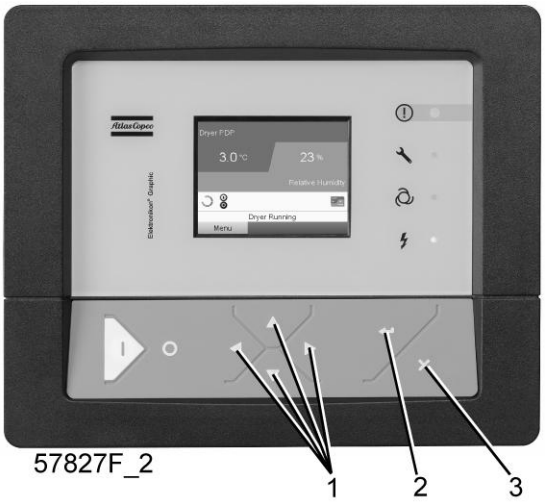
- Move the cursor to the action button Menu and press the Enter key. Following screen appears:



- Using the Scroll keys, move the cursor to the Info icon (see above, section Menu icon).
- Press the Enter key. The Atlas Copco internet address appears on the screen.

3.16 Week timer menu

Control panel



(1)	Scroll keys
(2)	Enter key
(3)	Escape key

Menu icon, Week timer

Function

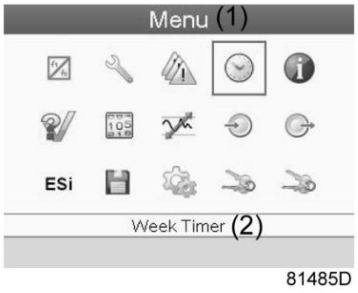
- To program time-based start/stop commands for the compressor
- To program time-based change-over commands for the net pressure band
- Four different week schemes can be programmed.
- A week cycle can be programmed, a week cycle is a sequence of 10 weeks. For each week in the cycle, one of the four programmed week schemes can be chosen.

	Important remark: In the Elektronikon you can select different timers on one day.(up to 8 actions). It is however not possible to program 2 actions at the same time. The solution: leave at least 1 minute in between 2 actions. Example: Start Compressor: 5.00 AM, Pressure Setpoint 2: 5.01 AM (or later).

Procedure

Starting from the Main screen (see Main screen),

- Move the cursor to the action button Menu and press the Enter key. Use the Scroll buttons to select the Timer icon.



Text on figure

(1)	Menu
(2)	Week Timer

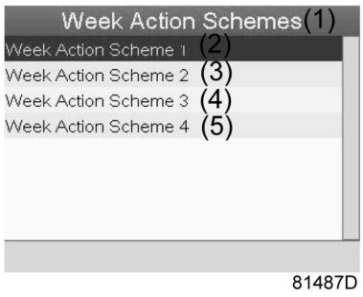
- Press the Enter key on the controller. Following screen appears:

(1)	Week Timer
(2)	Week Action Schemes
(3)	Week Cycle
(4)	Status
(5)	Week Timer Inactive
(6)	Remaining Running Time

The first item in this list is highlighted in red. Select the item requested and press the Enter key on the controller to modify.

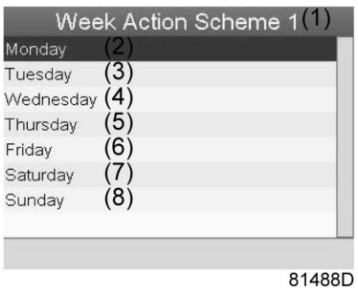
Programming week schemes

- Select Week action schemes and press Enter. A new window opens. The first item in the list is highlighted in red. Press the Enter key on the controller to modify Week Action Scheme 1.



(1)	Week Action Schemes
(2)	Week Action Scheme 1
(3)	Week Action Scheme 2
(4)	Week Action Scheme 3
(5)	Week Action Scheme 4

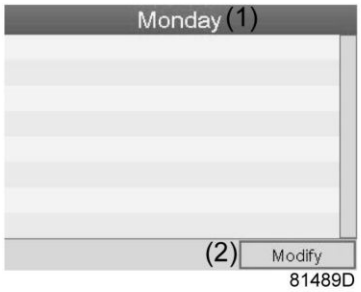
- A weekly list is shown. Monday is automatically selected and highlighted in red. Press the Enter key on the controller to set an action for this day.



(1)	Week Action Scheme 1
(2)	Monday
(3)	Tuesday
(4)	Wednesday
(5)	Thursday

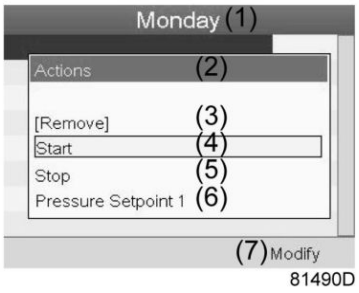
(6)	Friday
(7)	Saturday
(8)	Sunday

- A new window opens. The Modify action button is selected. Press the enter button on the controller to create an action.



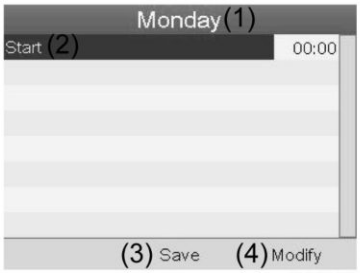
(1)	Monday
(2)	Modify

- A new pop-up window opens. Select an action from this list by using the Scroll keys on the controller. When ready press the Enter key to confirm.



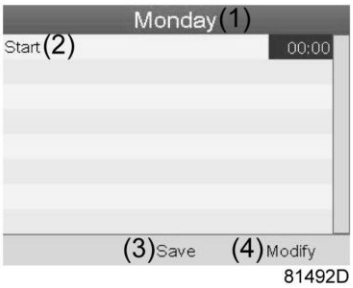
(1)	Monday
(2)	Actions
(3)	Remove
(4)	Start
(5)	Stop
(6)	Pressure Setpoint 1
(7)	Modify

- A new window opens. The action is now visible in the first day of the week.



(1)	Monday
(2)	Start
(3)	Save
(4)	Modify

- To adjust the time, use the Scroll keys on the controller and press the Enter key to confirm.

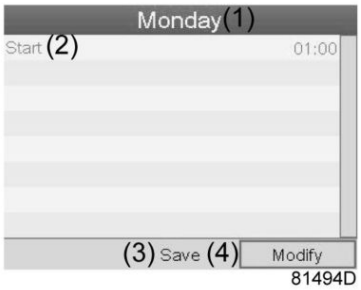


(1)	Monday
(2)	Start
(3)	Save
(4)	Modify

- A pop-up window opens. Use the ↑ or ↓ key of Scroll keys to modify the values of the hours. Use the ← or → Scroll keys to go to the minutes.

(1)	Monday
(2)	Time
(3)	Save
(4)	Modify

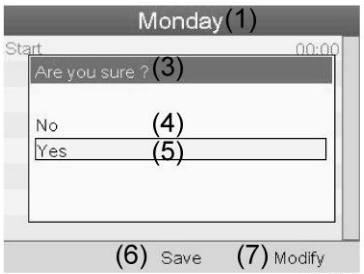
- Press the Escape key on the controller. The action button Modify is selected. Use the Scroll keys to select the action Save.



81494D

(1)	Monday
(2)	Start
(3)	Save
(4)	Modify

- A new pop-up window opens. Use the Scroll keys on the controller to select the correct actions. Press the Enter key to confirm.

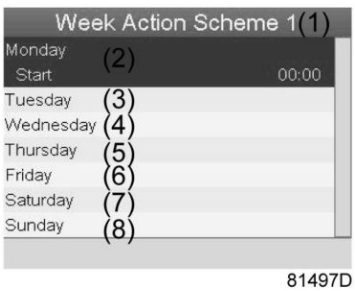


81495D

(1)	Monday
(3)	Are you sure?
(4)	No
(5)	Yes
(6)	Save
(7)	Modify

Press the Escape key to leave this window.

- The action is shown below the day the action is planned.



81497D

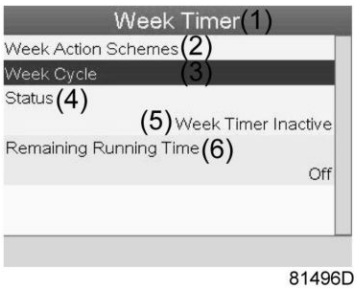
(1)	Week Action Scheme 1
(2)	Monday - Start
(3)	Tuesday
(4)	Wednesday
(5)	Thursday
(6)	Friday
(7)	Saturday
(8)	Sunday

Press the Escape key on the controller to leave this screen.

Programming the week cycle

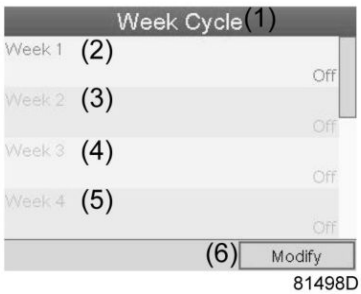
A week cycle is a sequence of 10 weeks. For each week in the cycle, one of the four programmed week schemes can be chosen.

- Select Week Cycle from the main Week Timer menu list.



(1)	Week Timer
(2)	Week Action Schemes
(3)	Week Cycle
(4)	Status
(5)	Week Timer Inactive
(6)	Remaining Running Time

- A list of 10 weeks is shown.

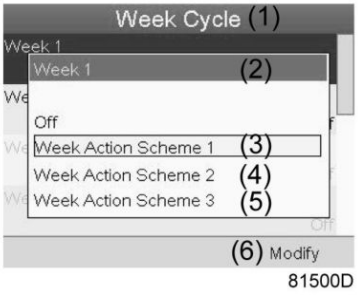


(1)	Week Cycle
(2)	Week 1

(3)	Week 2
(4)	Week 3
(5)	Week 4
(6)	Modify

Press twice the Enter key on the controller to modify the first week.

- A new window opens. Select the action, example: Week Action Scheme 1

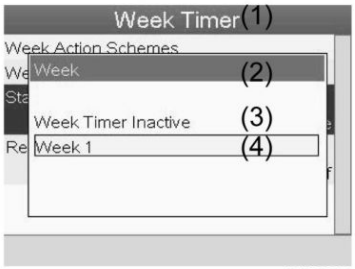


(1)	Week Cycle
(2)	Week 1
(3)	Week Action Scheme 1
(4)	Week Action Scheme 2
(5)	Week Action Scheme 3
(6)	Modify

- Check the status of the Week Timer
  Use the Escape key on the controller to go back to the main Week Timer menu. Select the status of the Week Timer.

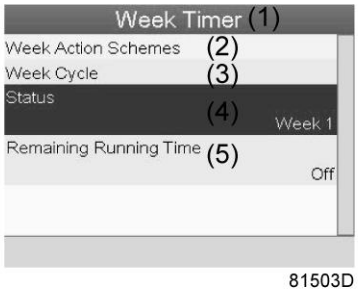
(1)	Week Timer
(2)	Week Action Schemes
(3)	Week Cycle
(4)	Status
(5)	Week Timer Inactive
(6)	Remaining Running Time

- A new window opens. Select Week 1 to set the Week Timer active.



(1)	Week Timer
(2)	Week
(3)	Week Timer Inactive
(4)	Week 1

- Press the Escape key on the controller to leave this window. The status shows that week 1 is active.

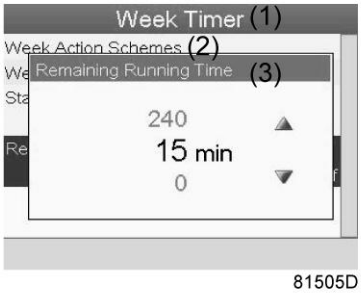


(1)	Week Timer
(2)	Week Action Schemes
(3)	Week Cycle
(4)	Status
(5)	Remaining Running Time

- Press the Escape key on the controller to go to the main Week Timer menu. Select Remaining Running Time from the list and press the Enter key on the controller to Modify.

(1)	Week Timer
(2)	Week Action Schemes
(3)	Week Cycle
(4)	Status
(5)	Remaining Running Time

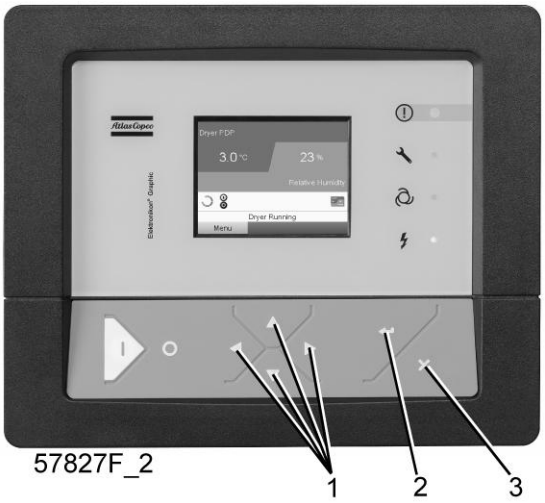
- This timer is used when the week timer is set and for certain reasons the compressor must continue working, for example, 1 hour, it can be set in this screen. This timer is prior to the Week Timer action.



(1)	Week Timer
(2)	Week action schemes
(3)	Remaining Running Time

3.17 Test menu

Control panel



Menu icon, Test

or

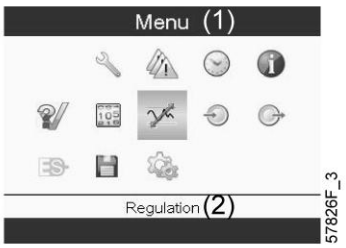
Function

- To carry out a display test, i.e. to check whether the display and LEDs are still intact.

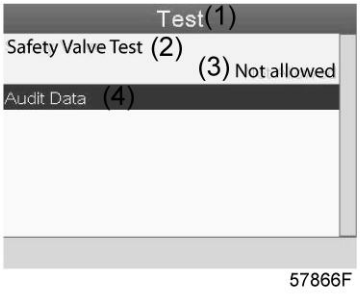
Procedure

Starting from the Main screen,

- Move the cursor to the action button Menu and press the enter key (2), following screen appears:



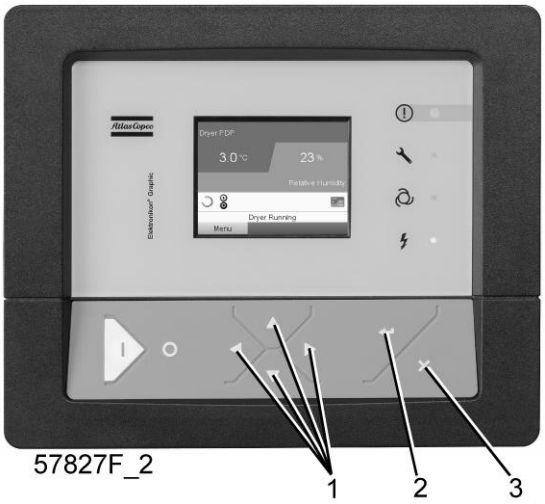
- Using the scroll keys (1), move the cursor to the test icon (see above, section Menu icon)
- Press the enter key (2), following screen appears:



- The safety valve test can only be performed by authorized personnel and is protected by a security code.
- Select the item display test and press the enter key. A screen is shown to inspect the display, at the same time all LED's are lit.

3.18 User password menu

Control panel



(1)	Scroll keys
(2)	Enter key
(3)	Escape key

Menu icon, Password

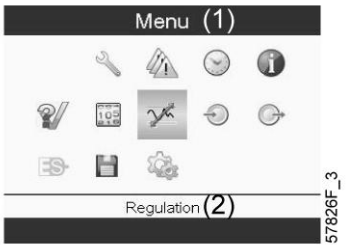
Function

If the password option is activated, it is impossible for not authorized persons to modify any setting.

Procedure

Starting from the Main screen (see Main screen),

- Move the cursor to <Menu> and press the Enter key (2). Following screen appears:



- Using the Scroll keys, select the <Settings> icon (see section Modifying general settings)
- Press the Enter key. Following screen appears:

- Move the cursor to the Password icon (see above, section Menu icon)
- Select <Modify> using the Scroll keys and press the Enter key. Next, modify the password as required.

3.19 Web server

All Elektronikon controllers have a built-in web server that allows direct connection to the company network or to a dedicated PC via a local area network (LAN). This allows to consult certain data and settings via a PC instead of the display of the controller.

Getting started

	If the compressor is equipped with a **SMART**BOX, the network connection of the Elektronikon is already in use. To allow the web server functionality, the network cable that is connected to the **SMART**BOX should be unplugged and replaced by the cable of the company network. If both the web server functionality and **SMART**BOX are required, please contact your local Atlas Copco Customer Centre for support.

Make sure you are logged in as administrator.

- Use the internal network card from your computer or a USB to LAN adapter (see picture below).

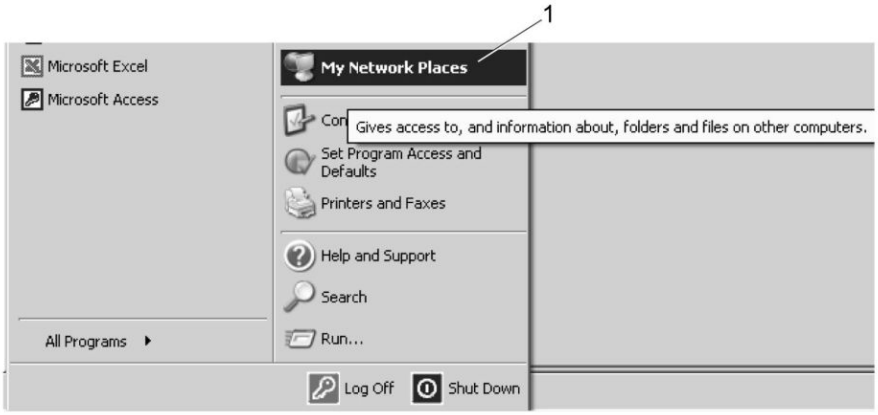
USB to LAN adapter

- Use a UTP cable (CAT 5e) to connect to the controller (see picture below).


81508D

Configuration of the network card (in Windows XP)

- Go to My Network places (1).

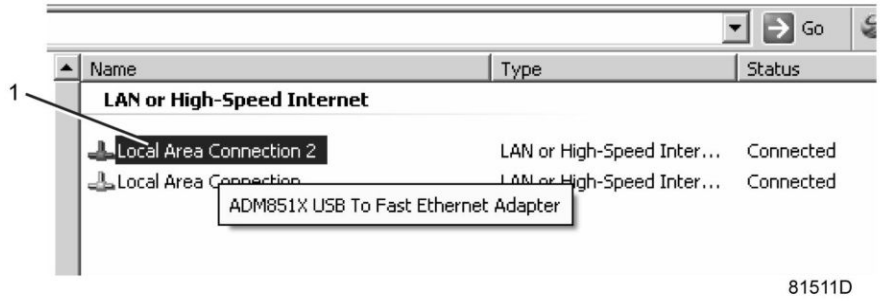


81509D

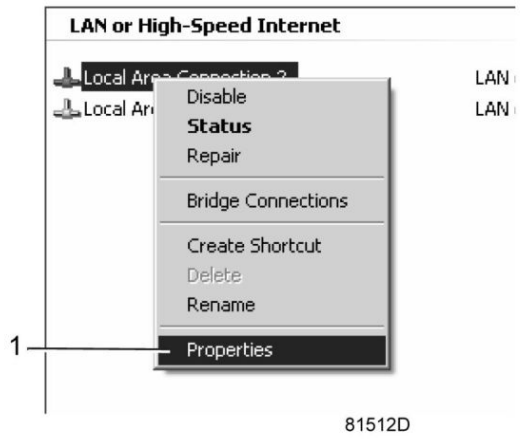
- Click on View Network connections (1).

81510D

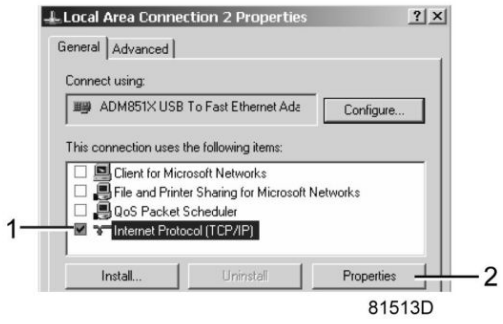
- Select the Local Area connection (1), which is connected to the controller.



- Click with the right button and select properties (1).



- Use the check box Internet Protocol (TCP/IP) (1) (see picture). To avoid conflicts, uncheck other properties if they are checked. After selecting TCP/IP, click on the Properties button (2) to change the settings.



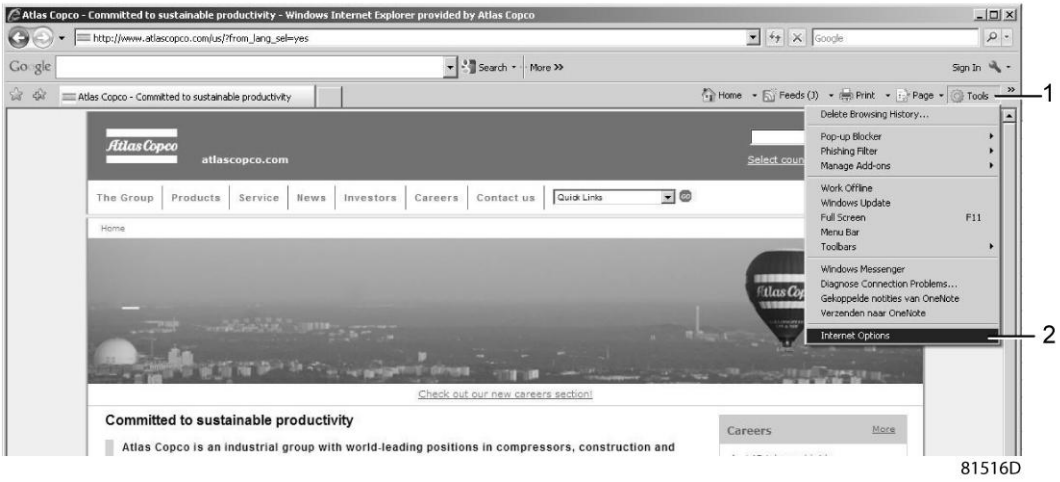
- Use the following settings:
  - IP Address 192.168.100.200
  - Subnetmask 255.255.255.0

  Click OK and close network connections.

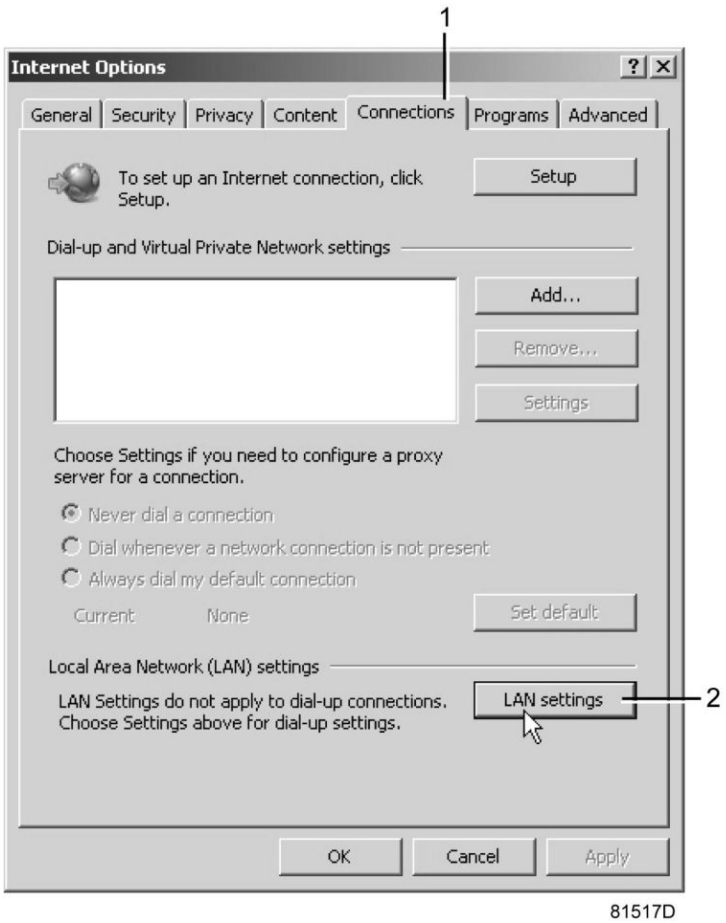
Configuration of the web server

Configure the web interface (for Internet Explorer)

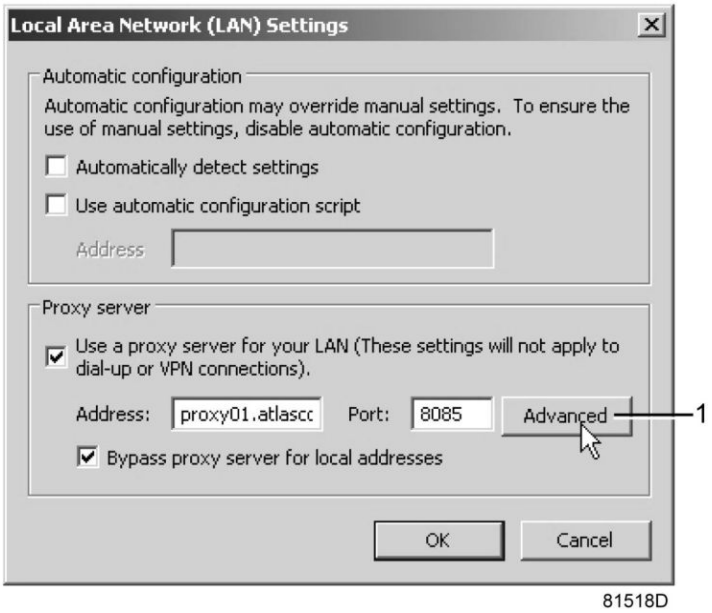
- Open Internet Explorer and click on Tools - Internet options (2).



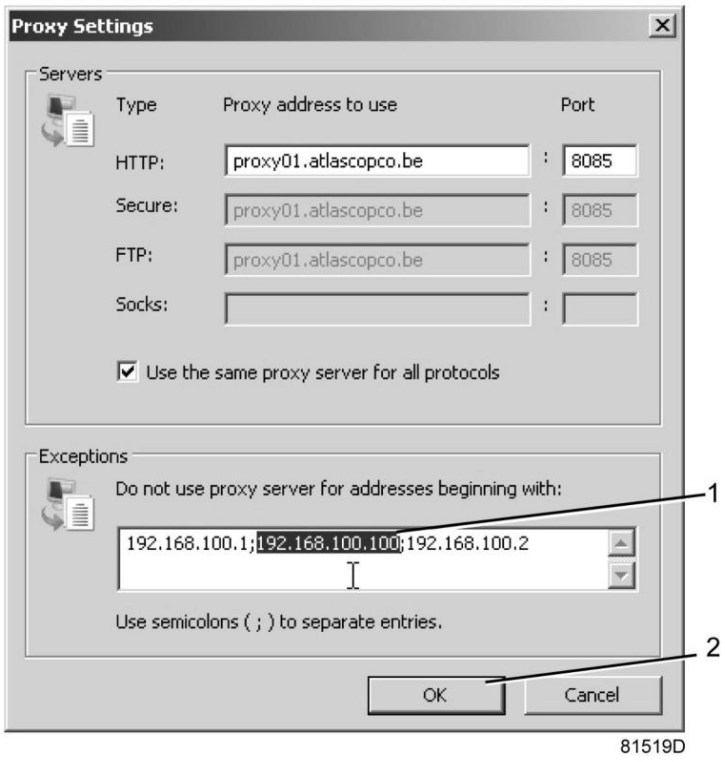
- Click on the Connections tab (1) and then click on the LAN settings button (2).



- In the Proxy server Group box, click on the Advanced button (1).



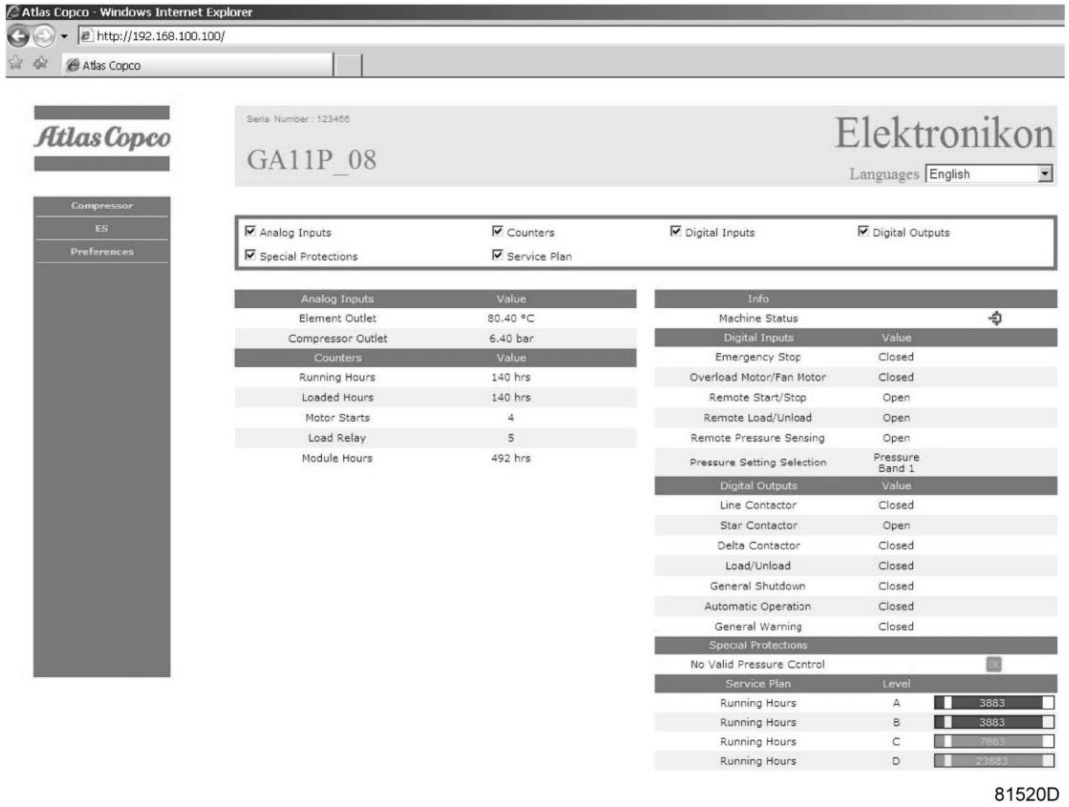
- In the Exceptions Group box, enter the IP address of your controller. Multiple IP addresses can be given but they must be separated with semicolons (;).
  Example: Suppose that you already added two IP addresses (192.168.100.1 and 192.168.100.2). Now you add 192.168.100.100 and separate the 3 IP addresses by putting semicolons between them (1) (see picture). Click OK (2) to close the window.



Viewing the controller data

	All screen shots are indicative. The number of displayed fields depends on the selected options.

- Open your browser and type the IP address of the controller you want to view in your browser (in this example http://192.168.100.100). The interface opens:



Screen shot (example!)

Navigation and options

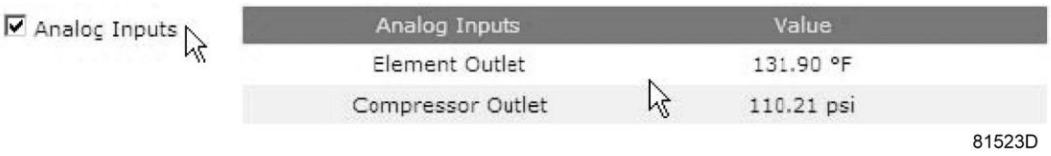
- The banner shows the compressor type and the language selector. In this example, three languages are available on the controller.

Compressor settings

All compressor settings can be displayed or hidden. Put a check mark in front of each point of interest and it will be displayed. Only the machine status is fixed and can not be removed from the main screen.

Analog inputs

Lists all current analog input values. The measurement units can be changed in the preference button from the navigation menu.



81523D

Counters

Lists all current counter values from controller and compressor.

81524D

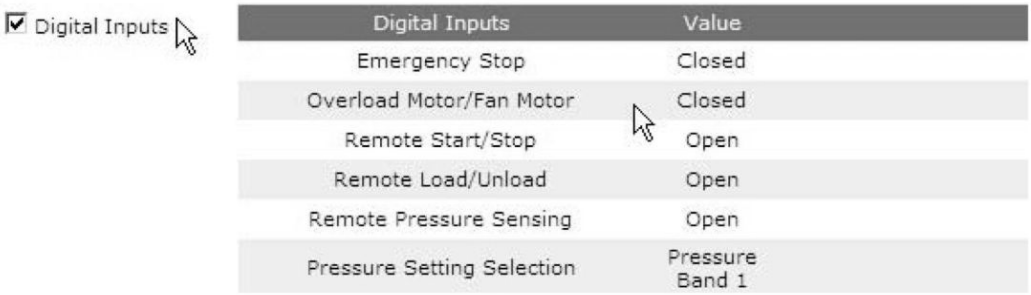
Info status

Machine status is always shown on the web interface.

81525D

Digital inputs

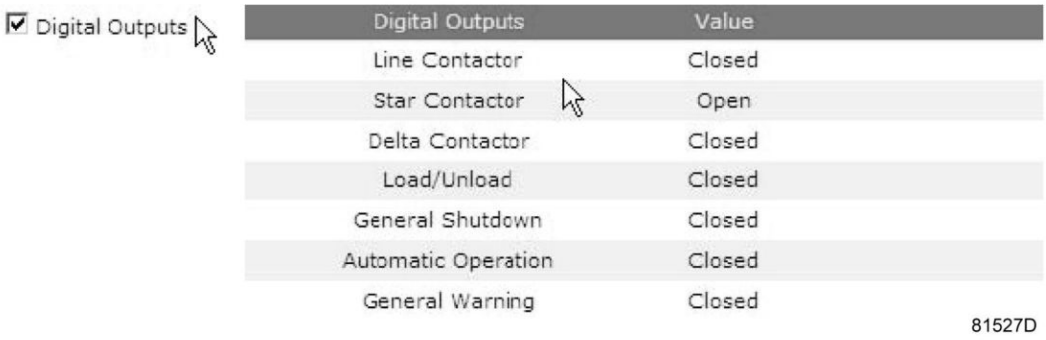
Lists all Digital inputs and their status.



81526D

Digital outputs

Lists all Digital outputs and their status.



Special protections

Lists all special protections of the compressor.

Service plan

Displays all levels of the service plan and their status. This screen shot underneath only shows the running hours. It is also possible to show the current status of the service interval.

3.20 Programmable settings

Regulation settings

Parameters

		Minimum setting	Factory setting	Maximum setting
Motor running time in star	sec	10	20	20
Load delay time (star-delta)	sec	0	0	20
Number of motor starts (star-delta)	starts/day	0	72	72
Minimum stop time	sec	20	20	99
Programmed stop time	sec	30	30	30
Permissive start timer	sec	0	30	255
Power recovery time (ARAVF)	sec	60	60	3600
Start delay time (ARAVF)	sec	0	3	255

		Minimum setting	Factory setting	Maximum setting
Communication time-out	sec	10	30	60
Unloading pressure, 7.5 bar compressor	bar(e)	4.5	7.0	7.505
Unloading pressure, 109 psi compressor	psig	65.3	101.5	108.9
Unloading pressure, 8.5 bar compressor	bar(e)	4.5	8.0	8.505
Unloading pressure, 123.3 psi compressor	psig	65.3	116.0	123.3
Unloading pressure, 10 bar compressor	bar(e)	4.5	9.5	10.005
Unloading pressure, 145 psi compressor	psig	65.3	137.8	145.1
Unloading pressure, 14 bar compressor	bar(e)	4.5	13.5	14.005
Unloading pressure, 203 psi compressor	psig	65.3	195.8	203.1
Unloading pressure, 6.9 bar compressor	bar(e)	4.5	6.9	7.405
Unloading pressure, 100 psi compressor	psig	65.3	100.1	107.4
Unloading pressure, 8.6 bar compressor	bar(e)	4.5	8.6	9.105
Unloading pressure, 125 psi compressor	psig	65.3	124.7	132
Unloading pressure, 10.4 bar compressor	bar(e)	4.5	10.3	10.805
Unloading pressure, 150 psi compressor	psig	65.3	149.5	156.7
Unloading pressure, 13.8 bar compressor	bar(e)	4.5	13.3	13.805
Unloading pressure, 200 psi compressor	psig	65.3	192.9	200.2
Loading pressure, 7.5 bar compressor	bar(e)	4.5	6.4	7.505
Loading pressure, 109 psi compressor	psig	65.3	92.8	108.9
Loading pressure, 8.5 bar compressor	bar(e)	4.5	7.4	8.505
Loading pressure, 123.3 psi compressor	psig	65.3	107.3	123.3
Loading pressure, 10 bar compressor	bar(e)	4.5	8.9	10.005
Loading pressure, 145 psi compressor	psig	65.3	129.1	145.1
Loading pressure, 14 bar compressor	bar(e)	4.5	12.9	14.005
Loading pressure, 203 psi compressor	psig	65.3	187.1	203.1
Loading pressure, 6.9 bar compressor	bar(e)	4.5	6.3	7.405
Loading pressure, 100 psi compressor	psig	65.3	91.1	107.4
Loading pressure, 8.6 bar compressor	bar(e)	4.5	8.0	9.105
Loading pressure, 125 psi compressor	psig	65.3	116.0	132
Loading pressure, 10.4 bar compressor	bar(e)	4.5	9.7	10.805
Loading pressure, 150 psi compressor	psig	65.3	140.7	156.7
Loading pressure, 13.8 bar compressor	bar(e)	4.5	12.7	13.805
Loading pressure, 200 psi compressor	psig	65.3	184.2	200.2

Protection settings

		Minimum setting	Factory setting	Maximum setting
Compressor outlet pressure (shut-down warning level)	bar	0	16.5	17.0
Compressor outlet pressure (shut-down warning level)	psi	0	239.3	246.5

		Minimum setting	Factory setting	Maximum setting
Compressor outlet pressure (shut-down level)	bar	0	17.0	17.0
Compressor outlet pressure (shut-down level)	psi	0	246.5	246.5
Oil injection pressure, element (start protection)	bar	2.0	2.5	13.2
Oil injection pressure, element (start protection)	psi	29	36.2	191.4
Compressor outlet temperature (shut-down warning level)	˚C	0	66	120
Compressor outlet temperature (shut-down warning level)	˚F	32	150.8	248
Compressor outlet temperature (shut-down level)	˚C	0	80	120
Compressor outlet temperature (shut-down level)	˚F	32	176	248
Compressor outlet temperature (delay at signal)	sec	5	5	5
Compressor element outlet temperature (shut-down warning level)	˚C	80	114	120
Compressor element outlet temperature (shut-down warning level)	˚F	176	237	248
Compressor element outlet temperature (shut-down level)	˚C	80	120	120
Compressor element outlet temperature (shut-down level)	˚F	176	248	248
Delay at shut-down signal	sec	5	5	5
Delay at start, motor overload	sec	0	1	1
Delay at signal, motor overload	sec	0	1	1
Delay at start, fan motor overload	sec	0	1	1
Delay at signal, fan motor overload	sec	0	1	1
Delay at start, starter feedback contact = open	sec	0	23	60
Delay at signal, starter feedback contact = closed	sec	0	2	3
Dp Air filter (shut-down warning)	bar	-0.085	-0.08	0
Dp Air filter (shut-down warning)	psi	-1.23	-1.16	0
Dp Air filter (shut-down)	bar	-0.085	-0.085	0
Dp Air filter (shut-down)	psi	-1.23	-1.23	0
Delay at signal	sec	0	60	255
Temperature winding 1U1, warning level	˚C	0	145	155
Temperature winding 1U1, warning level	˚F	32	293	311
Temperature winding 1U1, shut-down level	˚C	0	155	155

		Minimum setting	Factory setting	Maximum setting
Temperature winding 1U1, shut-down level	˚F	32	311	311
Temperature winding 1V1, warning level	˚C	0	145	155
Temperature winding 1V1, warning level	˚F	32	293	311
Temperature winding 1V1, shut-down level	˚C	0	155	155
Temperature winding 1V1, shut-down level	˚F	32	311	311
Temperature winding 1W1, warning level	˚C	0	145	155
Temperature winding 1W1, warning level	˚F	32	293	311
Temperature winding 1W1, shut-down level	˚C	0	155	155
Temperature winding 1W1, shut-down level	˚F	32	311	311
Temperature bearing D-end, warning level	˚C	0	110	115
Temperature bearing D-end, warning level	˚F	32	230	239
Temperature bearing D-end, shut-down level	˚C	0	115	115
Temperature bearing D-end, shut-down level	˚F	32	221	239
Temperature bearing ND-end, warning level	˚C	0	110	115
Temperature bearing ND-end, warning level	˚F	32	230	239
Temperature bearing ND-end, shut-down level	˚C	0	115	115
Temperature bearing ND-end, shut-down level	˚F	32	221	239

Service settings

Service plans

		Minimum setting	Factory setting	Maximum setting
Service plan A (operating hours)	hr		4000	
Service plan B (operating hours)	hr		8000	
Service plan C (operating hours)	hr		16000	
Service plan D (running hours)	hr		24000	
Service plan I (operating hours)	hr		2000	

Analog inputs for G 110 up to G 160

		Minimum setting	Factory setting	Maximum setting
Service warning level for oil separators	bar	0	0.8	0.8
Service warning level for oil separators	psi	0	11.6	11.6
Delay at signal, oil separator	sec	0	60	255
Service warning level for air filters	bar	-0.1	-0.05	-0.05
Service warning level for air filters	psi	-1.45	-0.7	-0.7

		Minimum setting	Factory setting	Maximum setting
Delay at signal, air filter	sec	0	60	255

Terminology

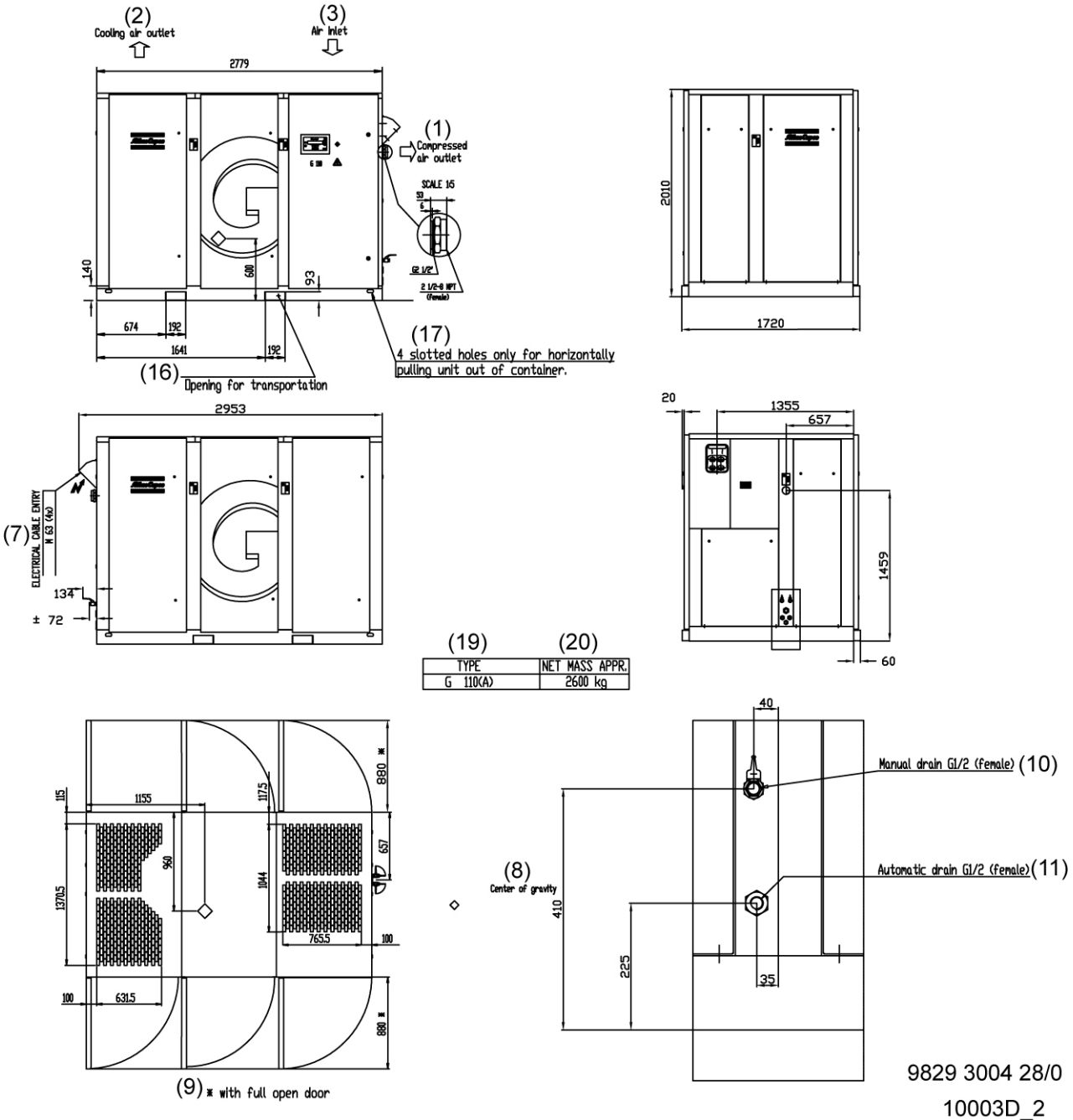
Term	Explanation
ARAVF	Automatic restart after voltage failure. See Elektronikon regulator.
Compressor element outlet	The regulator does not accept illogical settings, e.g. if the warning level is programmed at 95˚C/203˚F, the minimum limit for the shut-down level changes to 96˚C/204˚F. The recommended difference between the warning level and shut-down level is 10˚C/18˚F.
Required stop period/Minimum stop time	Once the compressor has automatically stopped, it will remain stopped for the minimum stop time (approx. 20 seconds), whatever the net air pressure. In automatic operation, the compressor will not be stopped by the regulator until a standstill period of at least the sum of the minimum stop time and required stop period is expected. However, if the decrease in air net pressure should require a new start of the compressor, the regulator will start the compressor after the minimum stop time.
Power recovery time	Is the period within which the voltage must be restored to have an automatic restart. Is accessible if the automatic restart is activated. See Elektronikon regulator. To activate the automatic restart function, consult Atlas Copco.
Unloading/ Loading pressure	The regulator does not accept illogical settings, e.g. if the unloading pressure is programmed at 7.0 bar(e)/101 psig, the maximum limit for the loading pressure changes to 6.9 bar(e)/100 psig. The recommended minimum pressure difference between loading and unloading is 0.6 bar/9 psig.
Delay at shut-down signal	Is the time for which the signal must exist before the compressor is shut down. If it is required to program this setting to another value, consult Atlas Copco.
Permissive start level	The compressor will not start if this level is exceeded at the moment of starting. If the level remains too high for 30 seconds, the message “Start failure” will appear on the display.

4 Installation

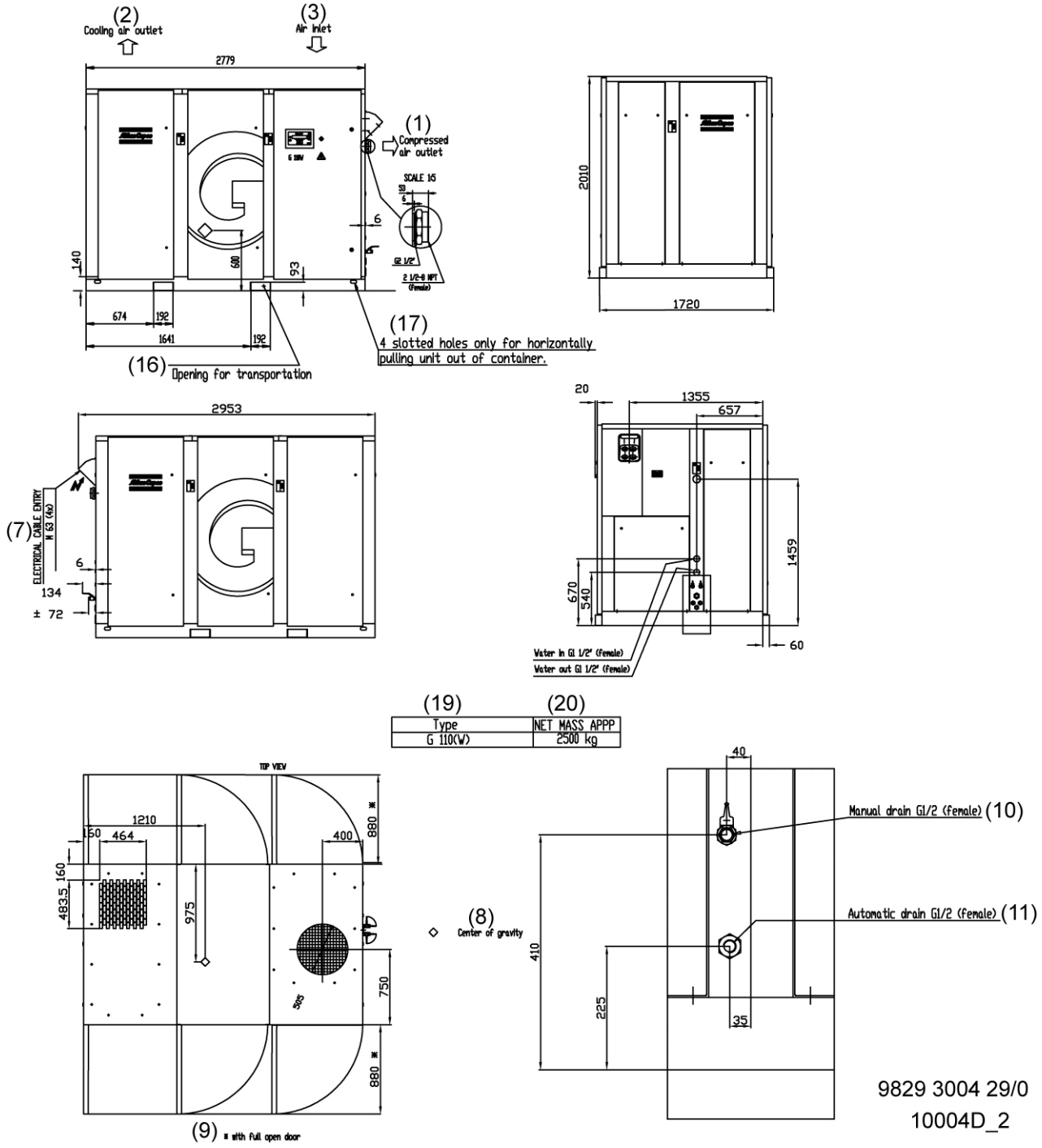
4.1 Dimension drawing

Compressor dimensions

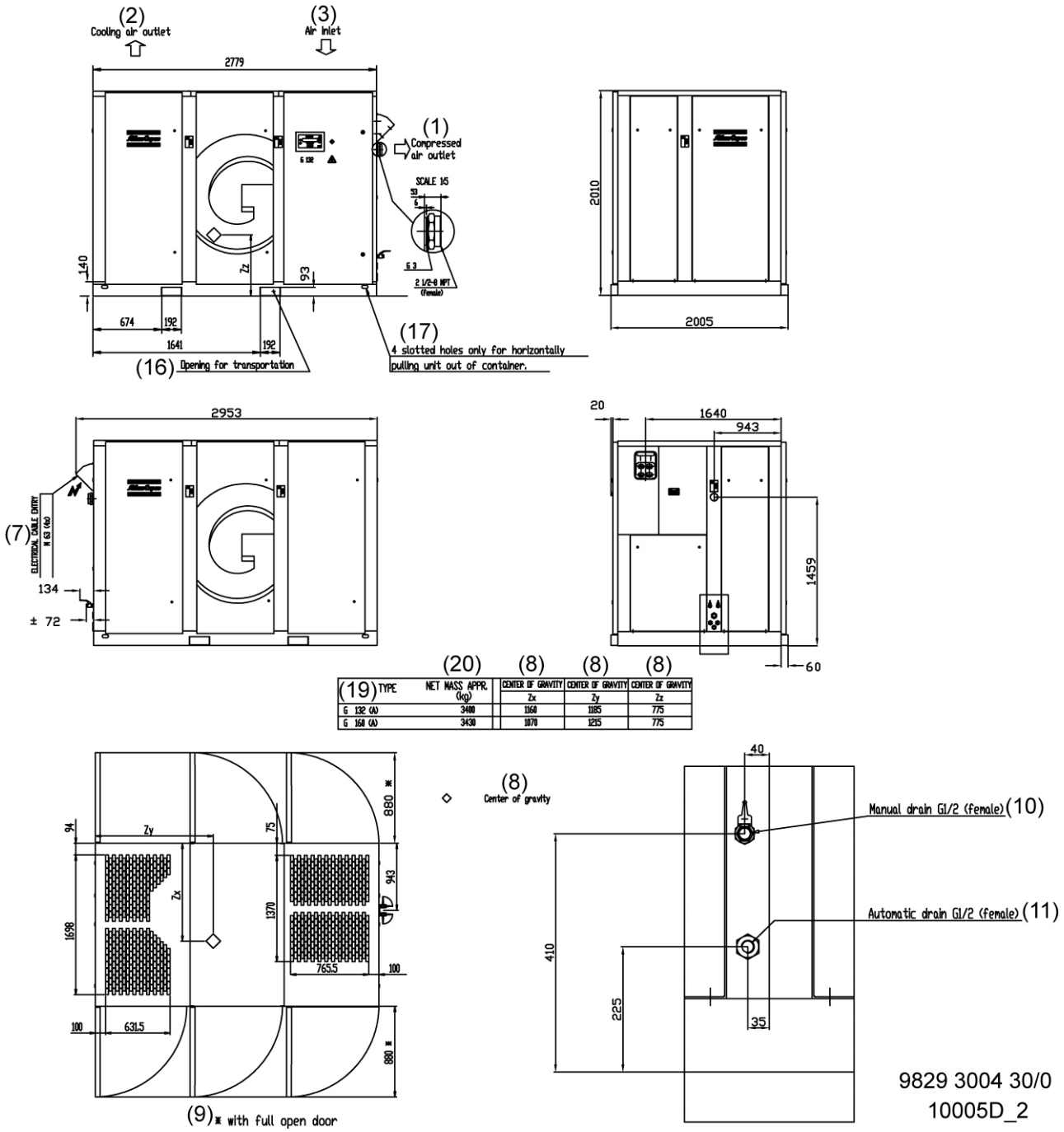
For Metric Units



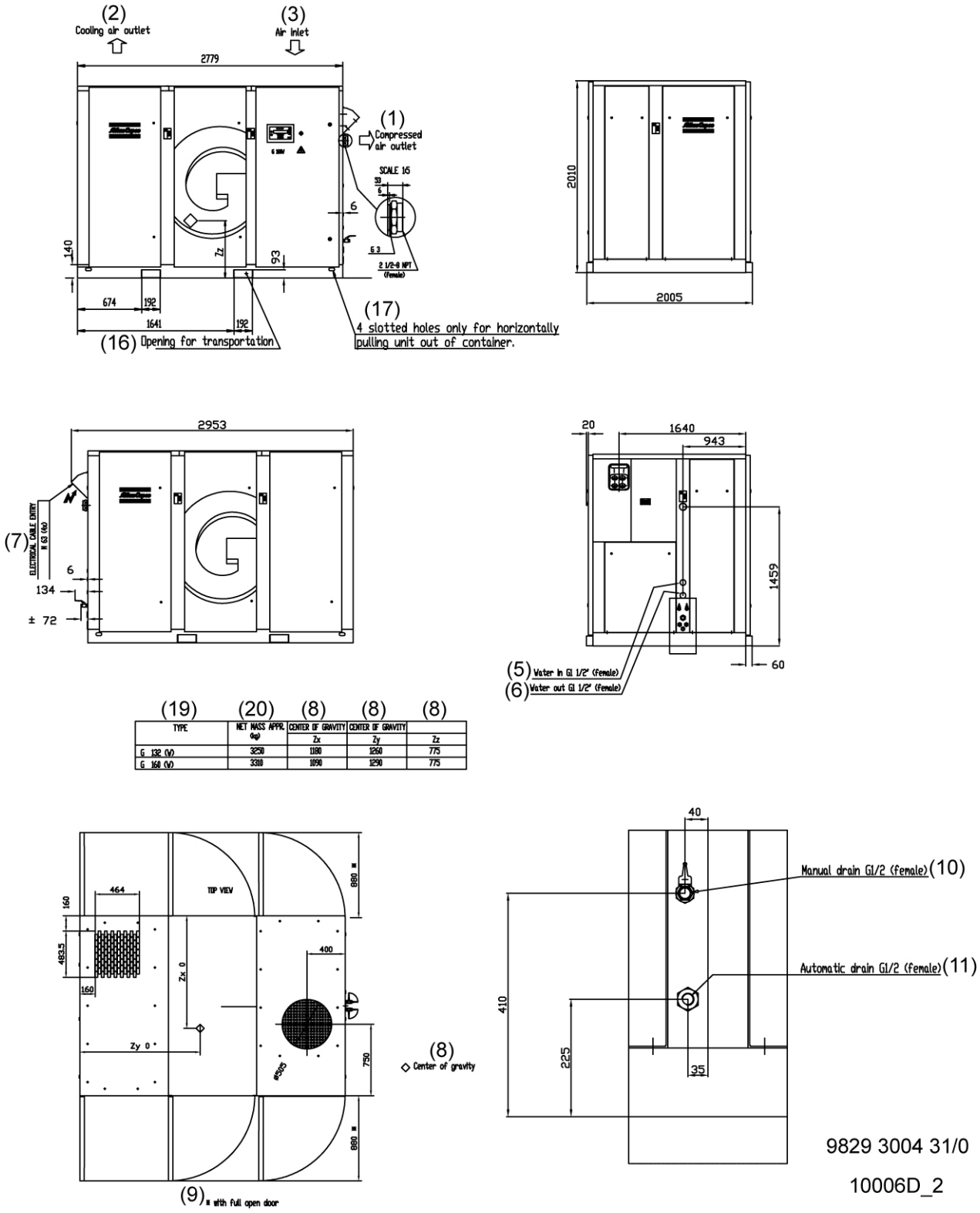
Dimension drawing of G 110, air-cooled



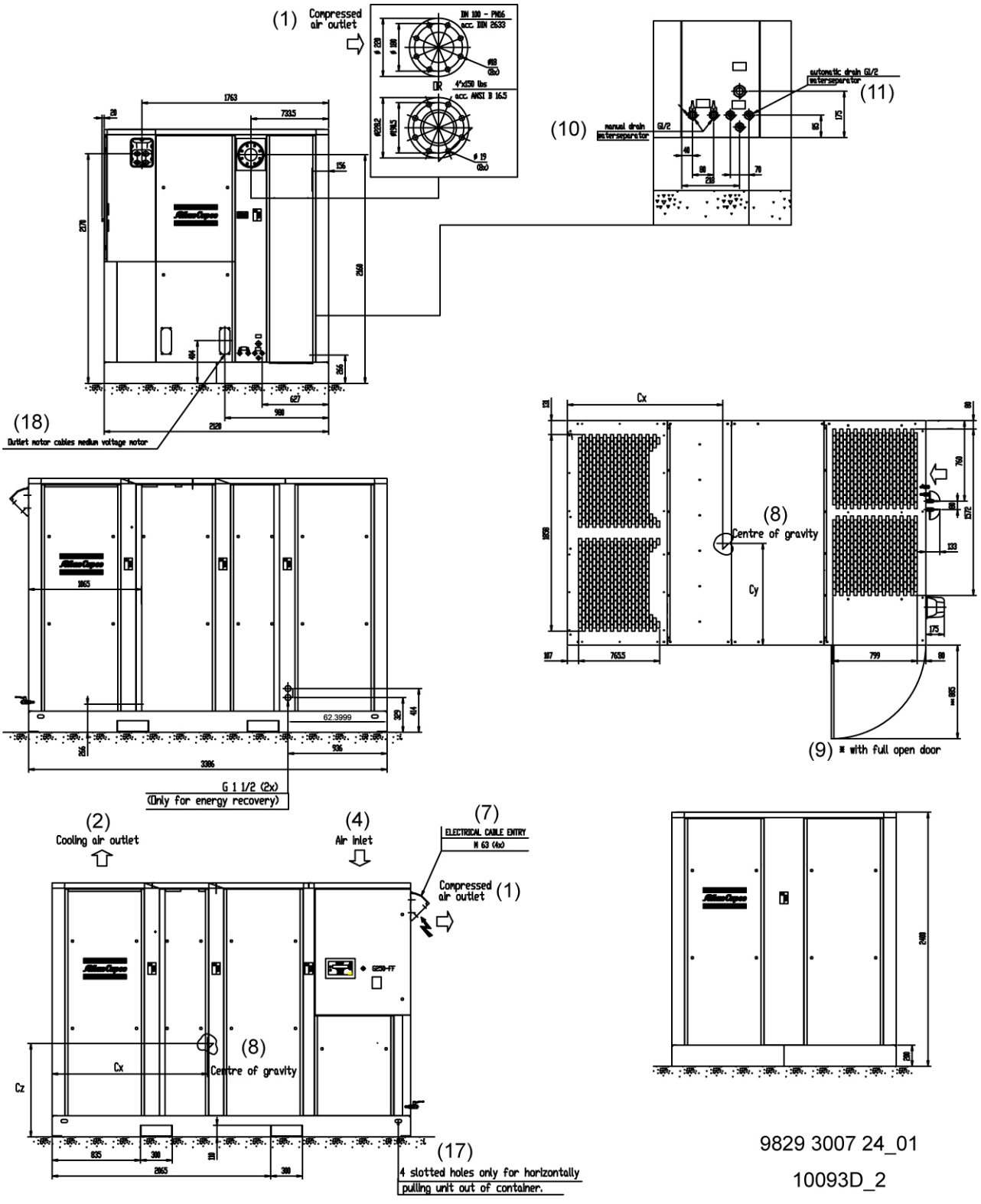
Dimension drawing of G 110, water-cooled



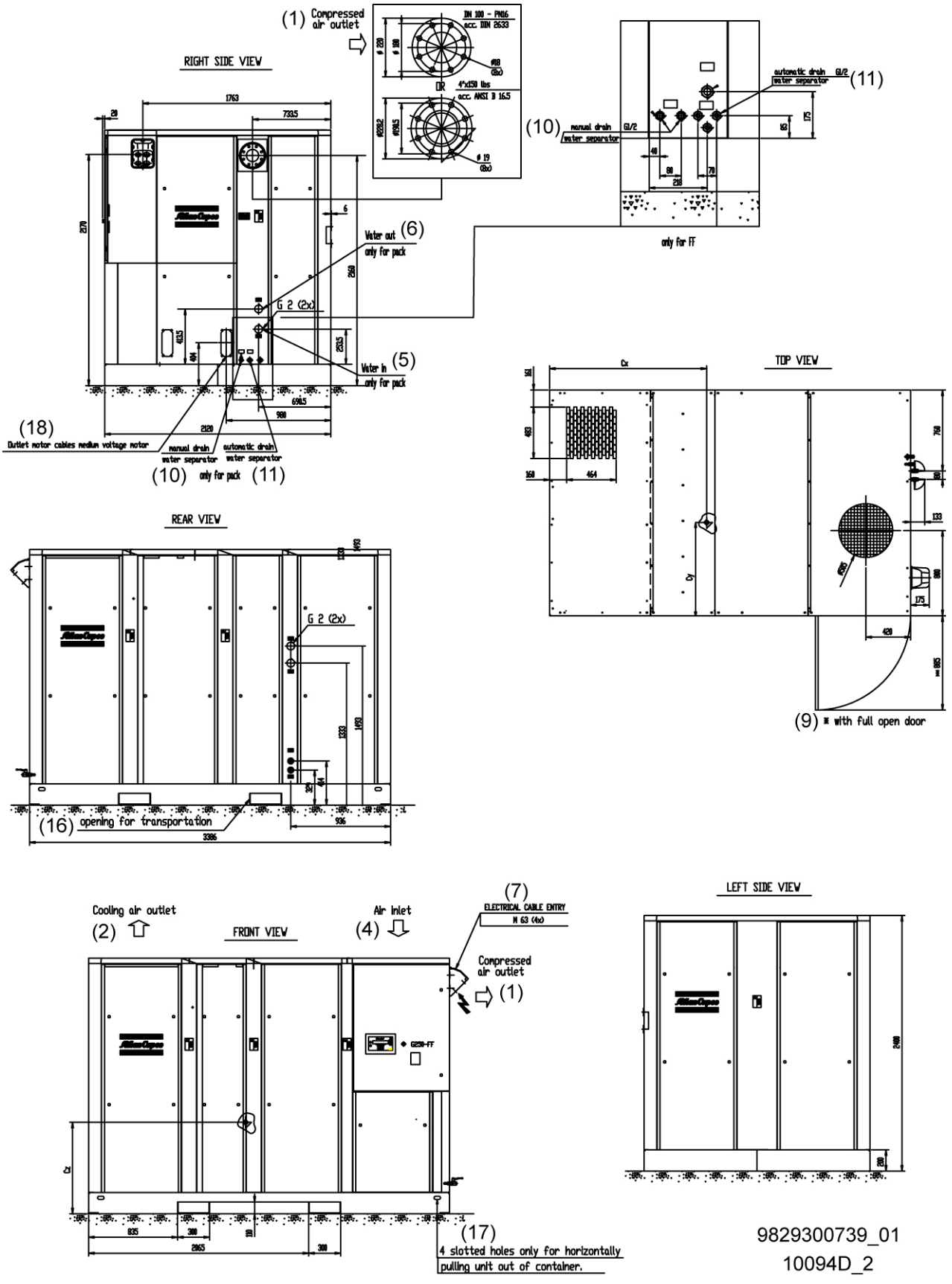
Dimension drawing of G 132/160, air-cooled



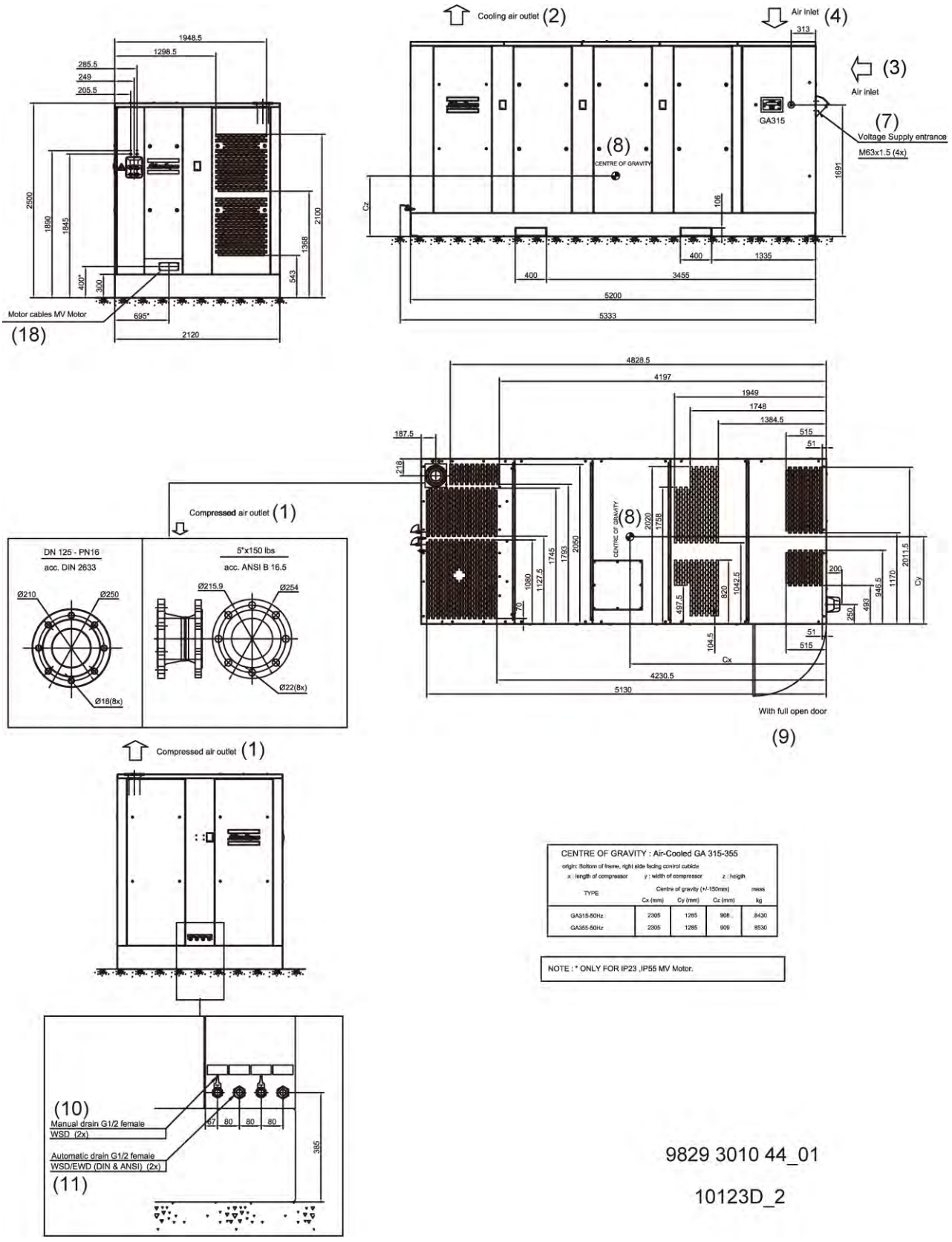
Dimension drawing of G 132/160, water-cooled



Dimension drawing of G 200 - 250, air-cooled



Dimension drawing of G 200 -250, water-cooled



CENTRE OF GRAVITY : Air-Cooled GA 315-355

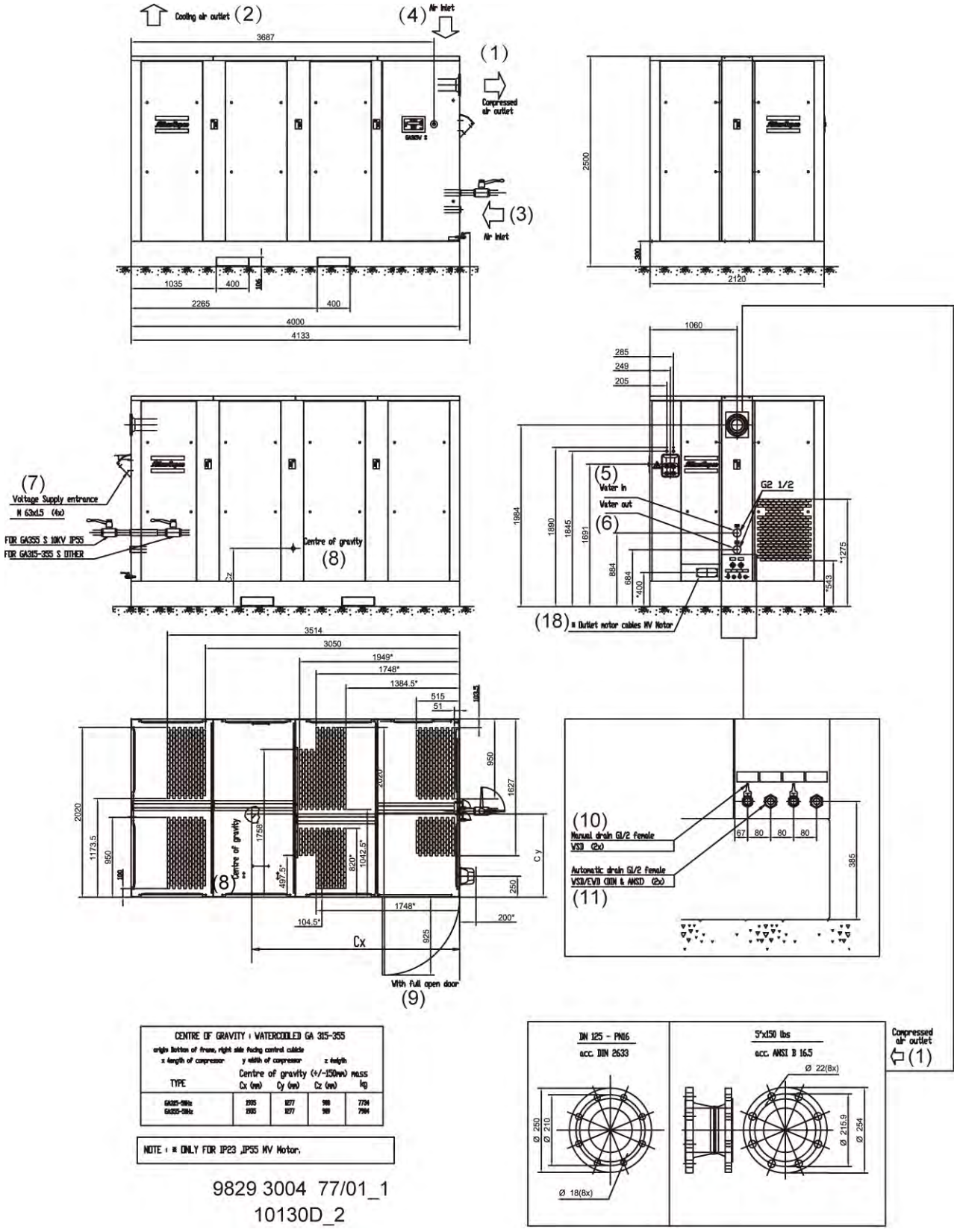
origin: Bottom of frame, right side facing control cubicle

x : length of compressor y : width of compressor z : heigth

TYPE	Centre of gravity (+/-150mm) Cx (mm)	Cy (mm)	Cz (mm)	mass kg
GA315-50Hz	2305	1285	909	8430
GA355-50Hz	2305	1285	909	8530

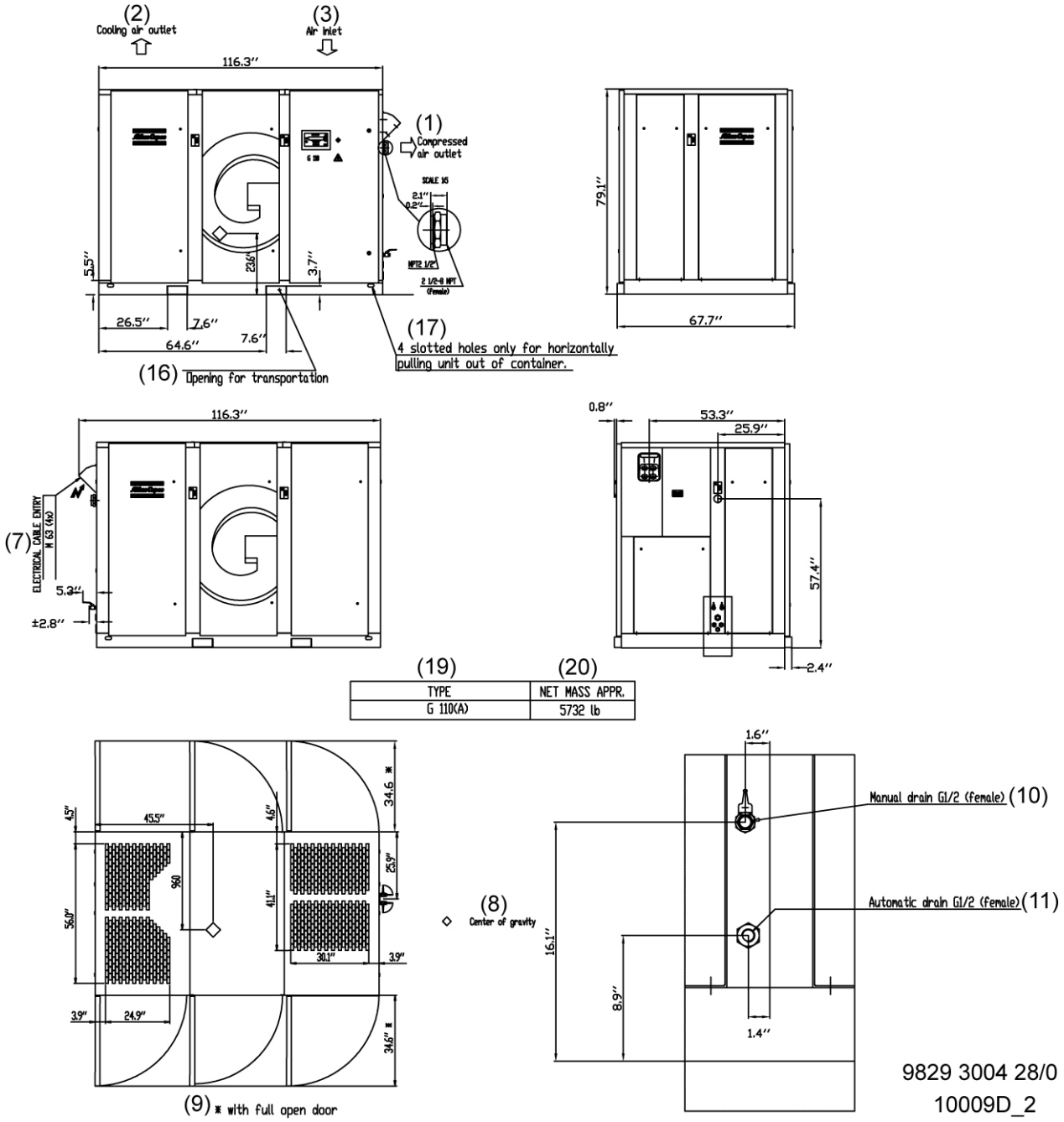
NOTE : * ONLY FOR IP23 ,IP55 MV Motor.

Dimension drawing of G 315 - 355, air-cooled

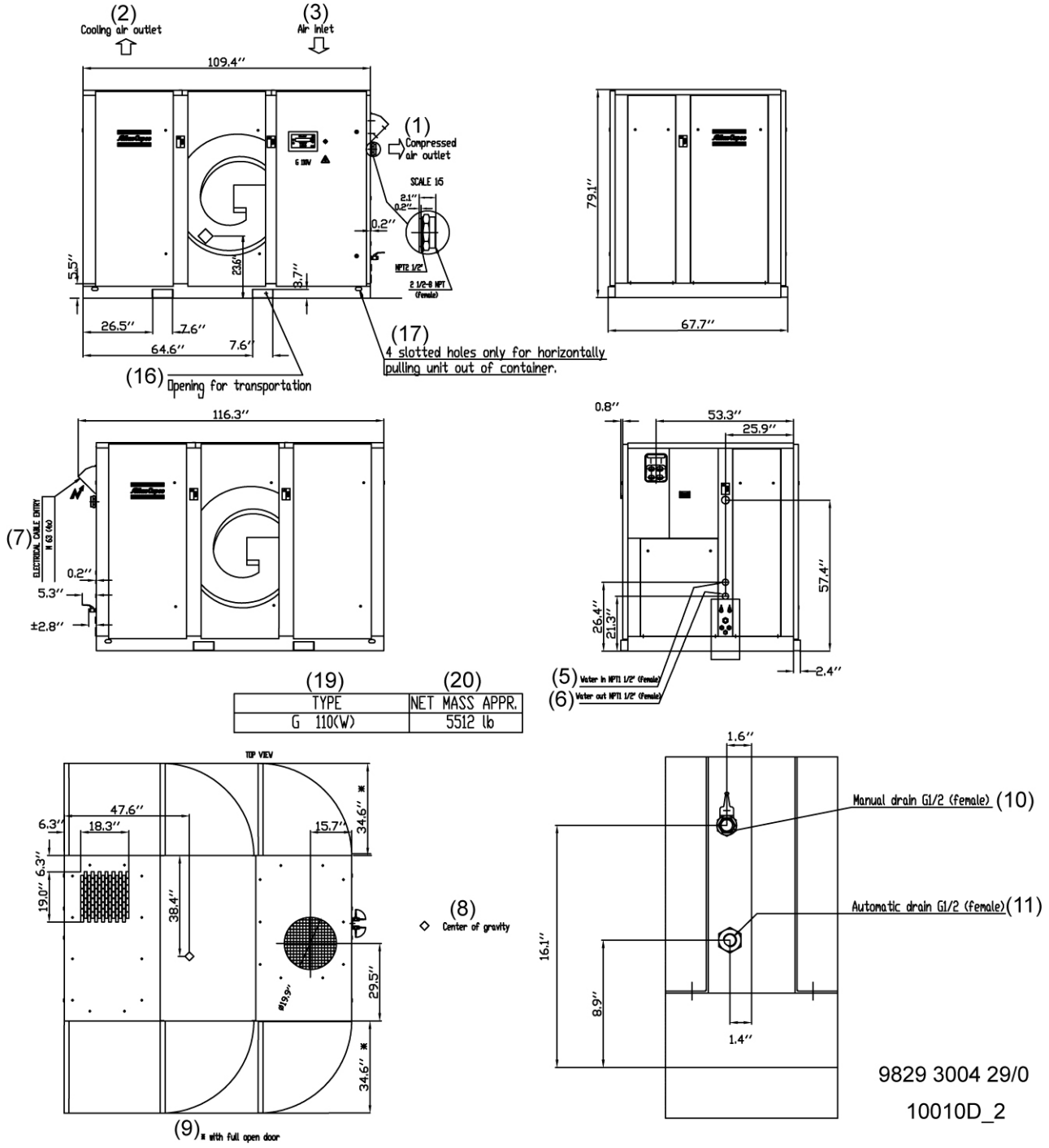


Dimension drawing of G 315 - 355, water-cooled

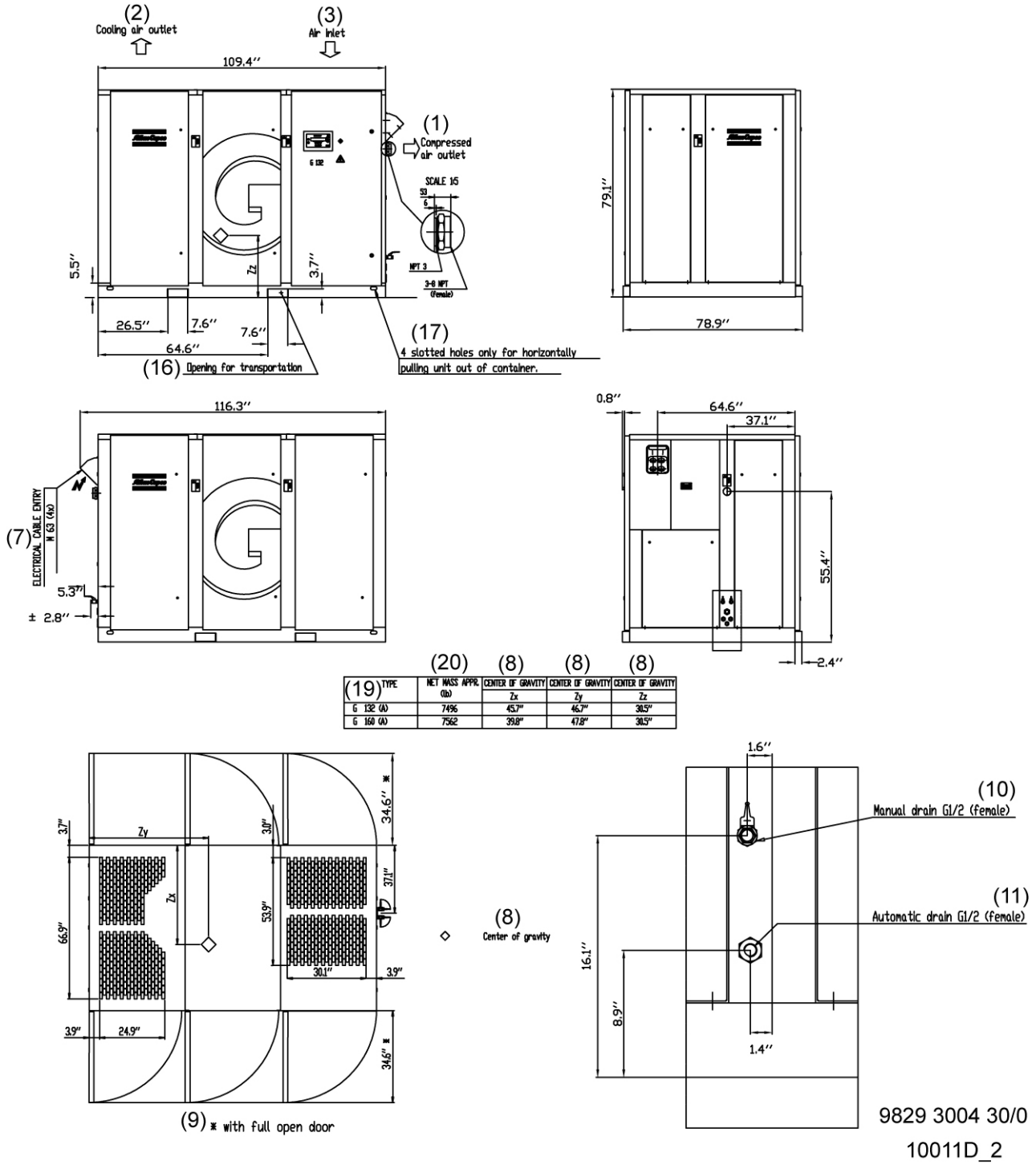
For Anglo-American units



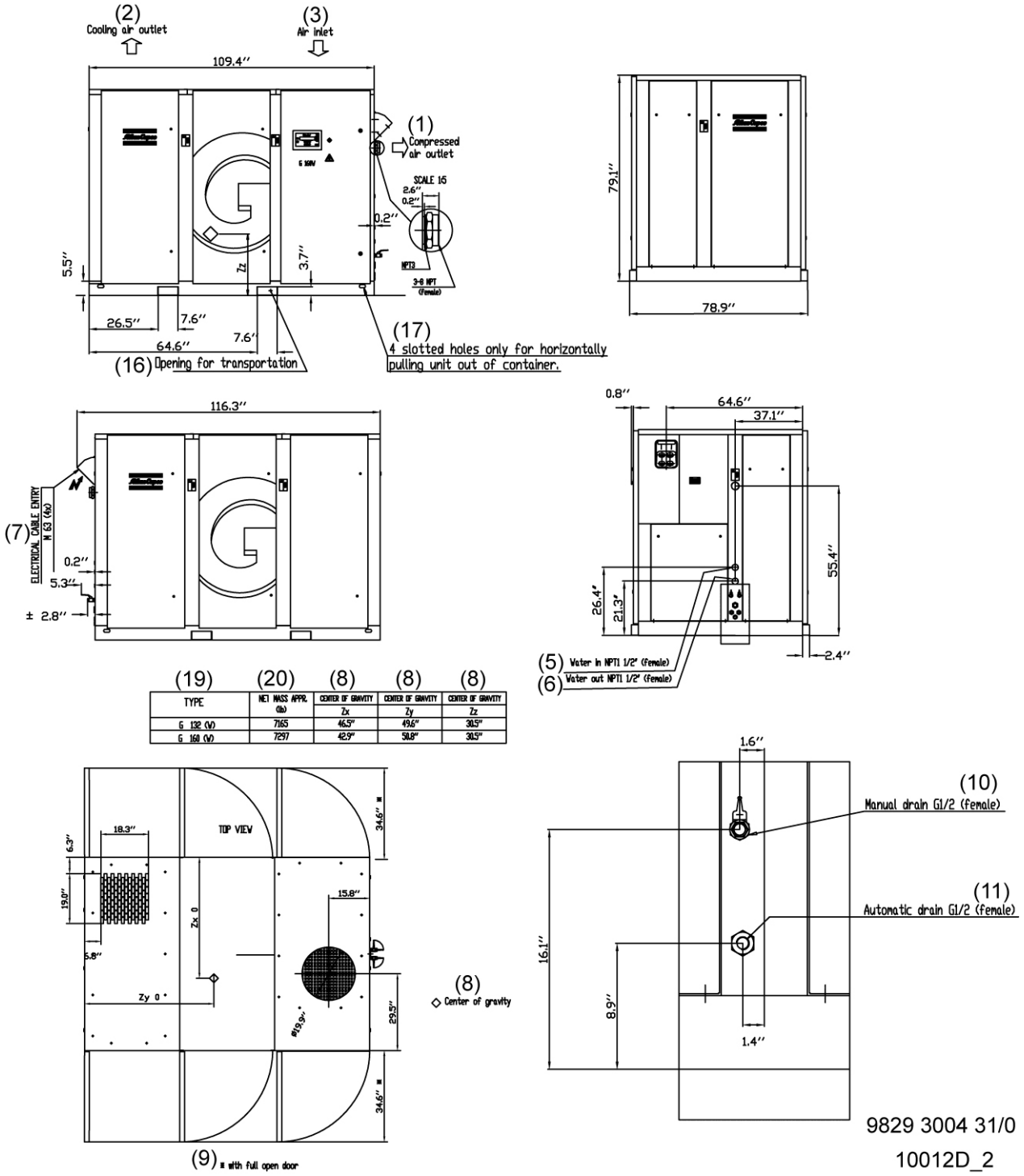
Dimension drawing of G 110, air-cooled



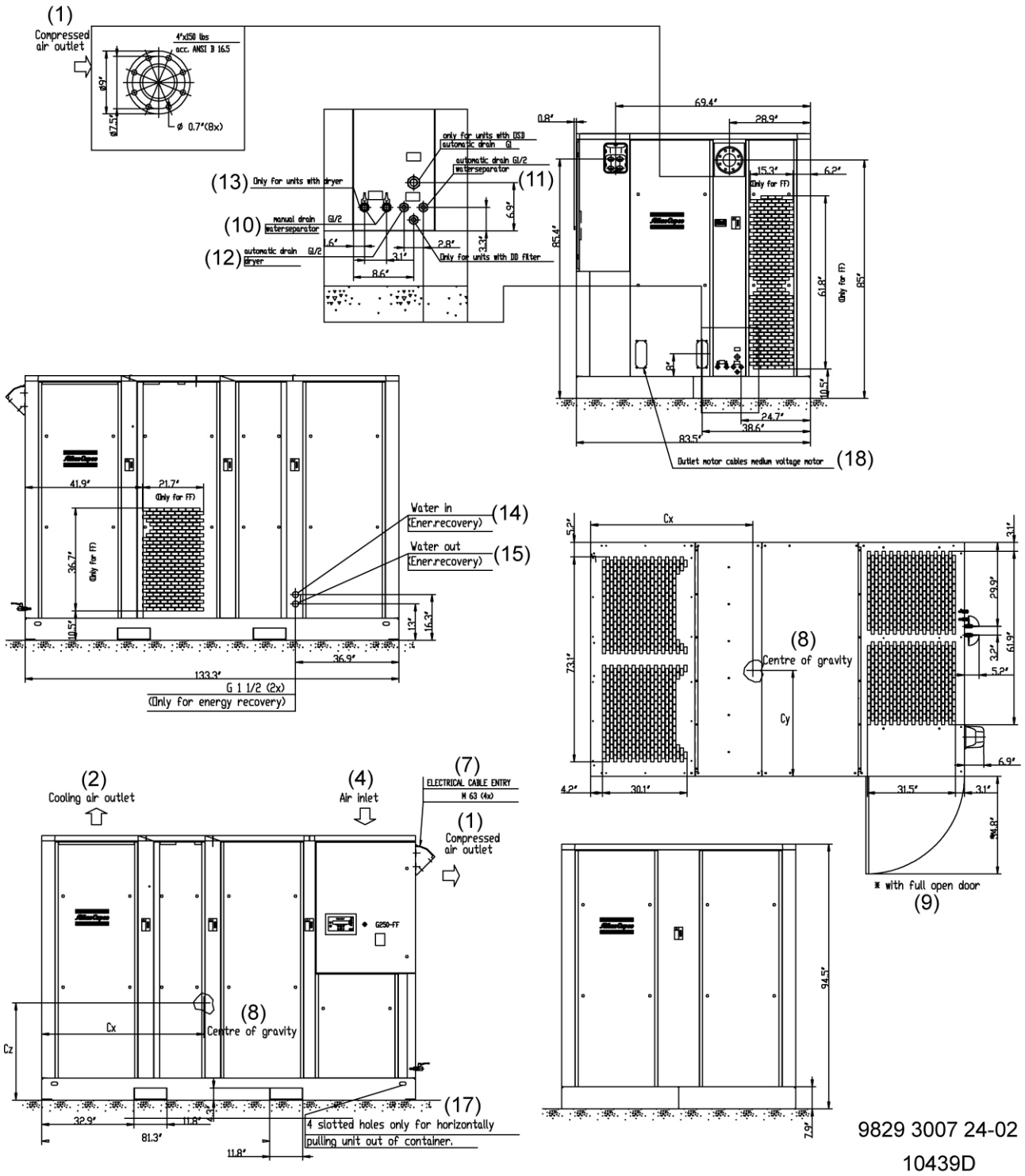
Dimension drawing of G 110, water-cooled



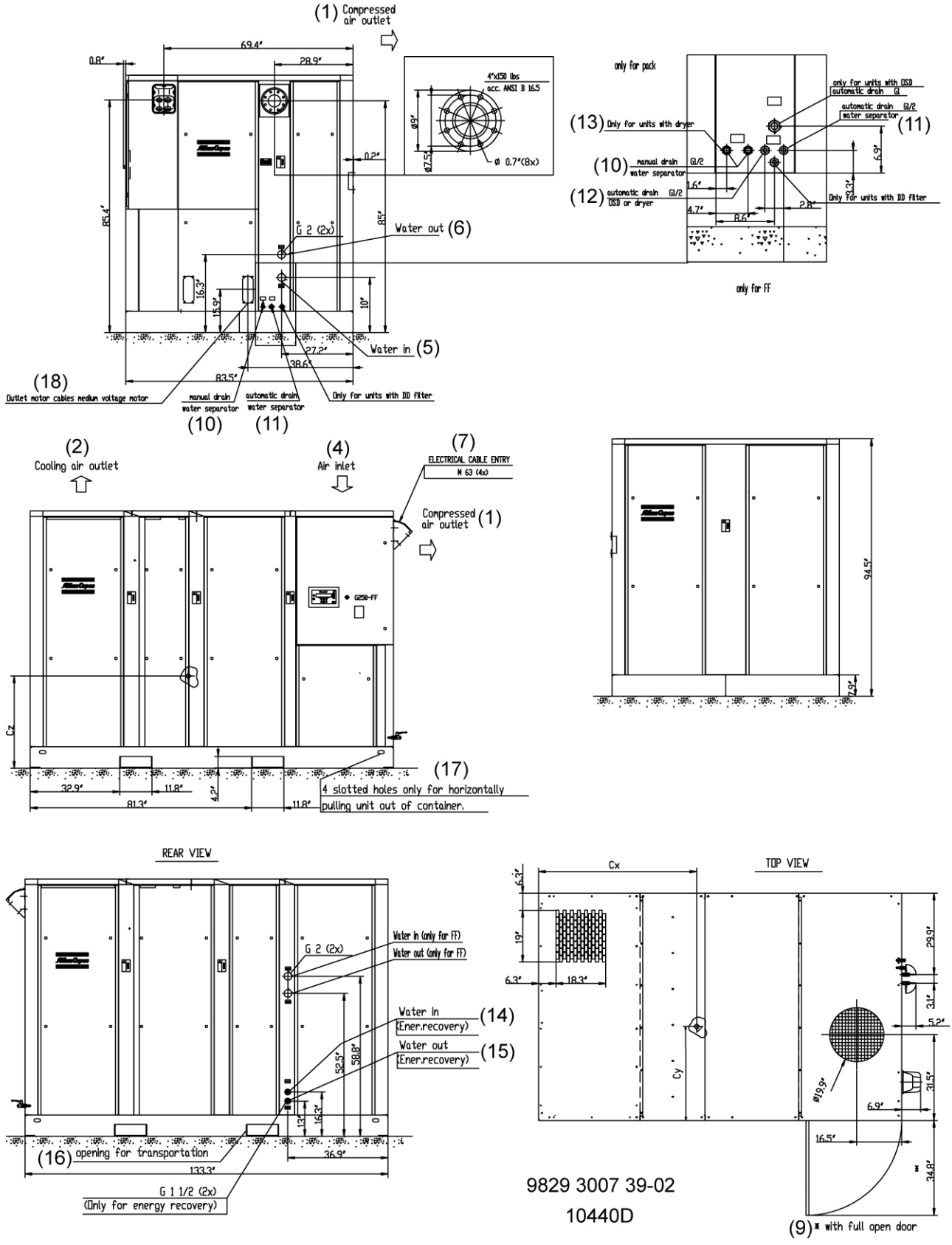
Dimension drawing of G 132/160, air-cooled



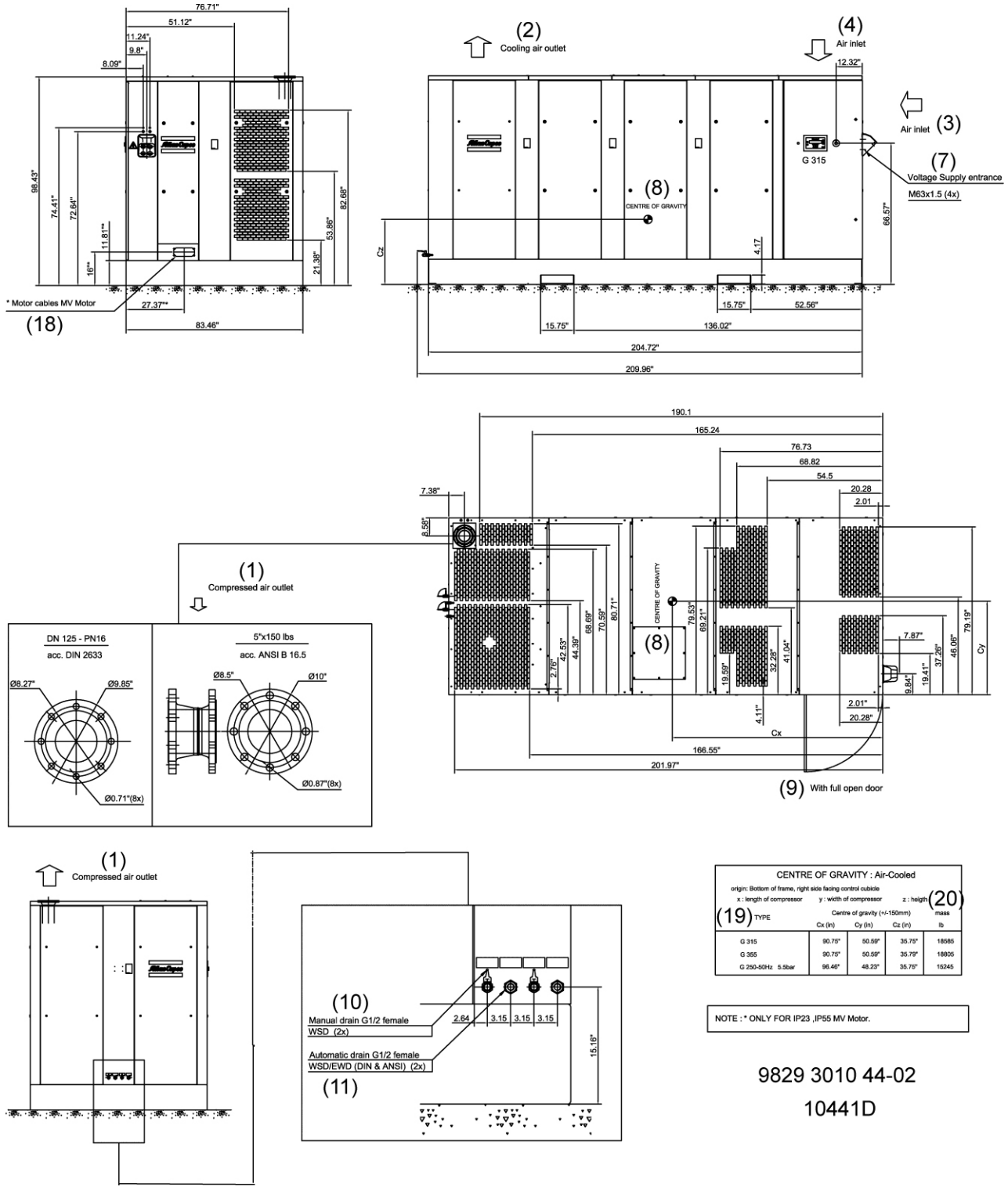
Dimension drawing of G 132/160, water-cooled



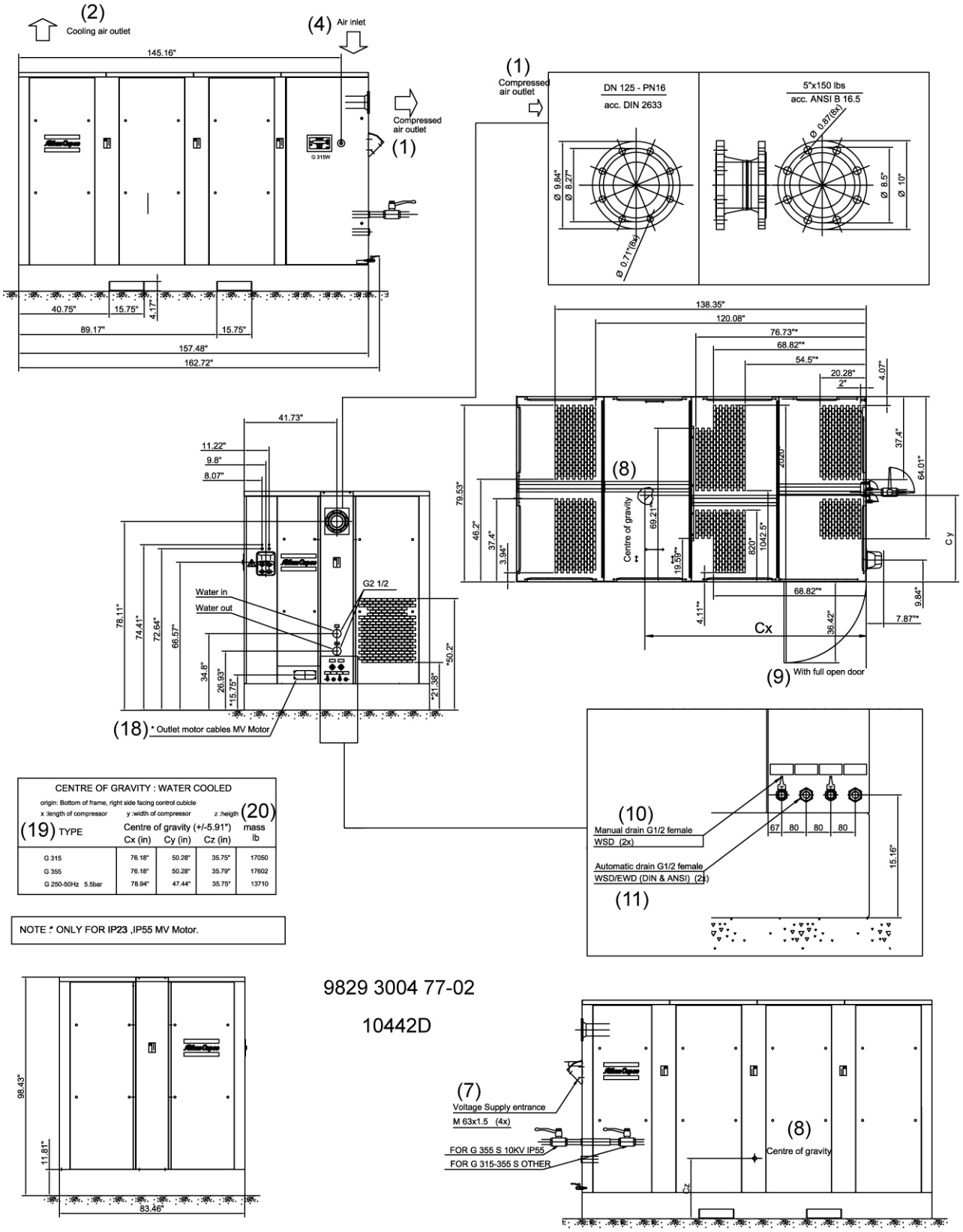
Dimension drawing of G 200/250, air-cooled



Dimension drawing of G 200/250, water-cooled



Dimension drawing of G 315/355, air-cooled



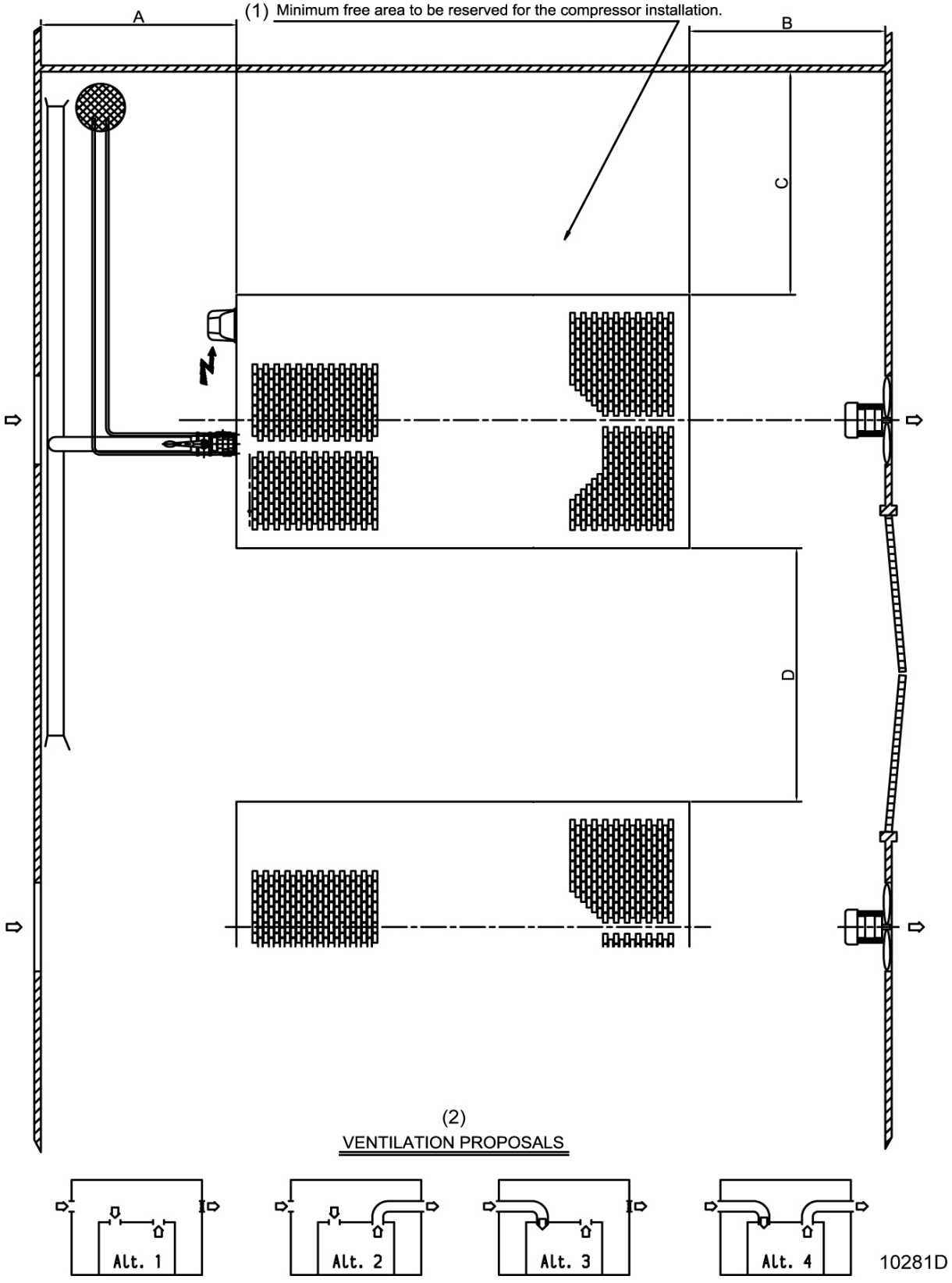
Dimension drawing of G 315/355, water-cooled

Text on drawing

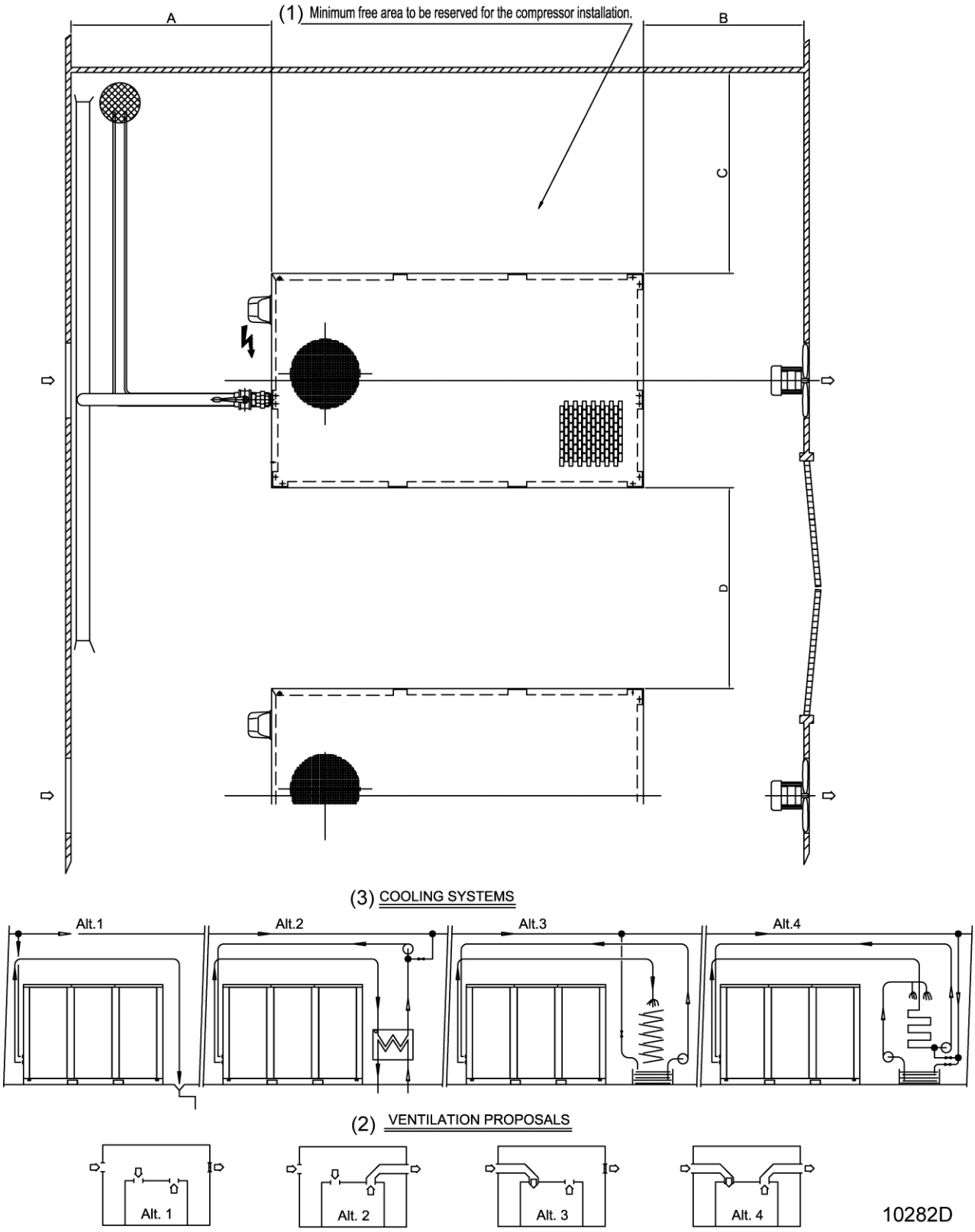
Reference	Designation
(1)	Compressed air outlet
(2)	Air outlet
(3)	Air inlet
(4)	Cooling air inlet
(5)	Water in
(6)	Water out
(7)	Voltage supply entrance
(8)	Centre of gravity
(9)	With door fully open
(10)	Manual drain G 1/2
(11)	Automatic drain G 1/2
(12)	Automatic drain G 1/2 dryer
(13)	Only for units with dryer
(14)	Water in (Energy Recovery)
(15)	Water out (Energy Recovery)
(16)	Opening for transportation
(17)	4 Slotted holes for horizontally pulling unit out of container
(18)	Outlet motor cables medium voltage motor
(19)	Type
(20)	Net mass, approximately

4.2 Installation proposal

Compressor room example



Compressor room example of G 110 up to G 355 air-cooled



Compressor room example of G 110 up to G 355 water-cooled

Type	Demension(mm)			
	A	B	C	D
G 110-160	1200	1200	1500	1500
G 200-250	1500	1500	1500	1500
G 315-355	2500	2000	2000	2500

Text on drawing

Reference	Designation
(1)	Minimum free area
(2)	Ventilation proposals
(3)	Cooling systems

Description

Phase	Description
1	Install the compressor on a level floor suitable for taking its weight. For ventilation alternative 1 (indicated as Alt. 1), the minimum distance between the top of the bodywork and the ceiling is 1200 mm (47 in).
2	Remove the plastic plug (if provided) from the compressor air outlet pipe and fit the air outlet valve (to be provided by the customer) to the pipe. Close the valve and connect it to the net.
3	The pressure drop over the air outlet pipe can be calculated as follows: $dp = (L \times 450 \times Qc^{1.85}) / (d^5 \times p)$ d = Inner diameter of the outlet pipe in mm dp = Pressure drop (recommended maximum = 0.1 bar) L = Length of outlet pipe in m p = Absolute pressure at the compressor outlet in bar(a) Qc = 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. As a rule of thumb, the following formula can be used to calculate the recommended volume of the air net: $V = (30 \times C \times p \times Q) / Dp$ C = Correction factor Dp = Pressure difference between unloading and loading pressures in bar (recommended minimum = 0.6) p = Compressor inlet pressure in bar absolute Q = Free air delivery of compressor in l/s V = Recommended air net volume in l

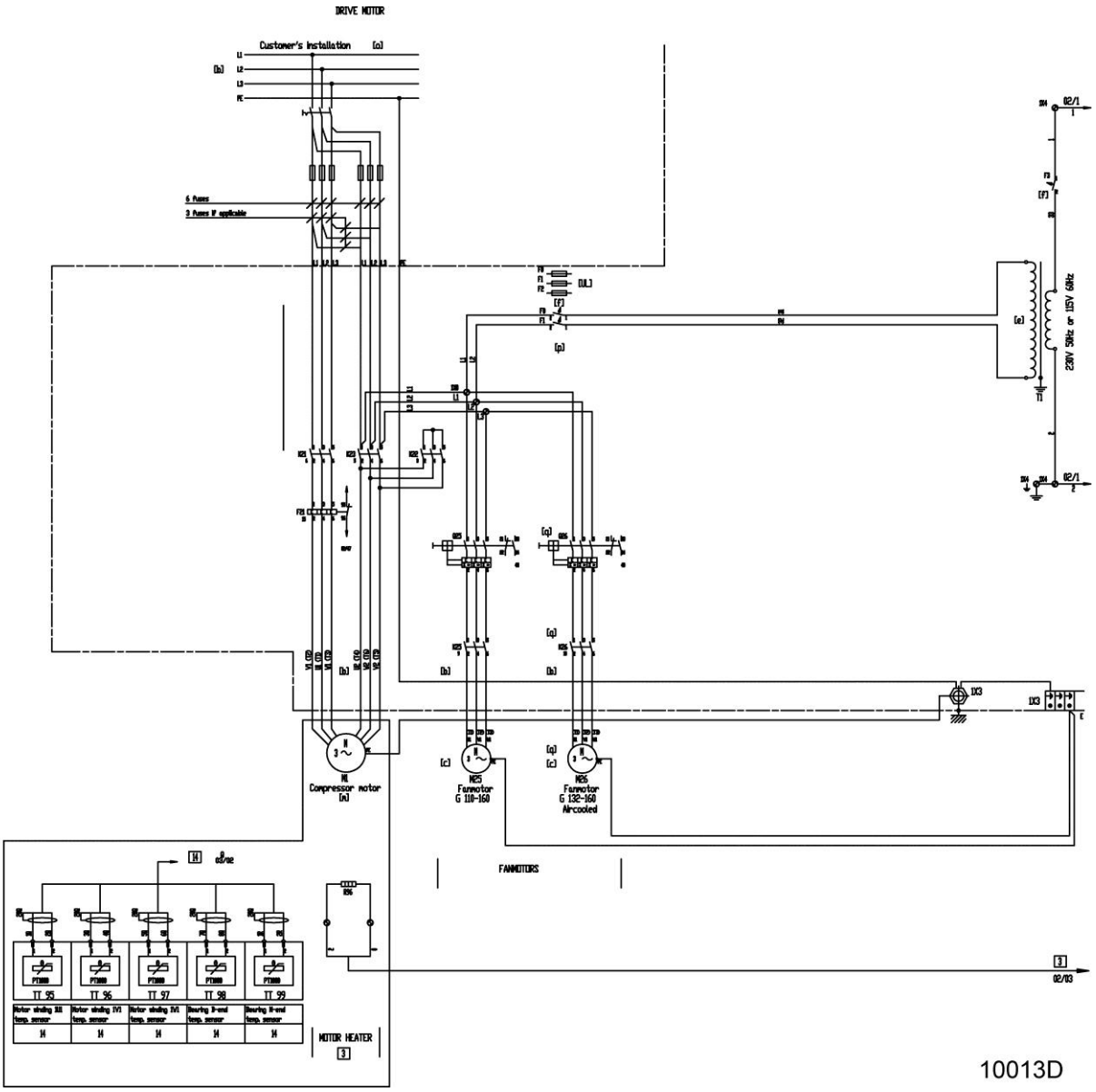
Phase	Description
4	The inlet grids and ventilation fan should be installed in such a way that any recirculation of cooling air to the compressor is avoided. The maximum air velocity through the grids is 5 m/s (16.5 ft/s). The required ventilation to limit the compressor room temperature can be calculated as follows: On air-cooled compressors: Qv = 0.92 N/dT On water-cooled compressors: Qv = 0.1 N/dT Qv = Required ventilation capacity in m^3/s N = Shaft input of compressor in kW dT = Temperature increase in compressor room If cooling air ducts are installed, the maximum allowable pressure drop over the ducts is 30 Pa (0.12 in wc). The maximum pressure drop depends on the ambient temperature. The fan capacity should match the compressor fan capacity at a pressure head equal to the pressure drop caused by the cooling air outlet ducts. Consult Atlas Copco.
5	A water shut-off valve and water drain valve in the compressor water inlet pipe and outlet pipe can be installed by the customer. If water shut-off valves are installed, a safety device with set pressure according to the maximum cooling water inlet pressure has to be installed between the compressor water outlet pipe and the shut-off valve. When operating the unit, the operator must ensure that the cooling water system cannot be blocked. The above mentioned also applies for the energy recovery cooling system. Remove the plastic plugs (if provided) from the compressor water pipes and connect the pipes to the cooling water circuit.
6	Remove the plastic plugs (if provided) from the condensate outlets and fit the manual condensate drain valve. Lay out the drain piping towards the condensate collector. The drain pipes must not dip into the water of the drain collector. It is recommended to provide a funnel to allow visual inspection of the condensate flow.
7	Location of the Elektronikon regulator.
8	See Electric cable size for the recommended size of the supply cables. Check that the electrical connections correspond to the local codes. The installation must be earthed and protected against short circuits by fuses in all phases. An isolating switch must be installed near the compressor.
9	Location of a pipe coupling

Correction factors

Air consumption divided by compressor free air delivery	Correction factor C
0.9	0.10
0.8	0.15
0.7	0.20
0.5	0.25
0.3	0.20
0.2	0.15
0.1	0.10

4.3 Electric cable size

Electrical connections



Electrical connections of G 110 up to G 355 compressors

Cable size

50Hz IEC compressors

Compressor	Supply voltage	Cable size (length <150m)
G 110	380 V	2x (3x70 mm^2+35 mm^2)
G 110	400 V	2x (3x70 mm^2+35 mm^2)
G 132	380 V	2x (3x95 mm^2+50 mm^2)
G 132	400 V	2x (3x95 mm^2+50 mm^2)

Compressor	Supply voltage	Cable size (length <150m)
G 160	380 V	2x (3x120 mm^2+70 mm^2)
G 160	400 V	2x (3x120 mm^2+70 mm^2)
G 200	380 V	4x (3x95 mm^2+50 mm^2)
G 200	400 V	4x (3x95 mm^2+50 mm^2)
G 250	380 V	4x (3x120 mm^2+70 mm^2)
G 250	400 V	4x (3x120 mm^2+70 mm^2)
G 315	380 V	4x (3x150 mm^2+70 mm^2)
G 355	380 V	4x (3x185 mm^2+95 mm^2)

60Hz IEC compressors

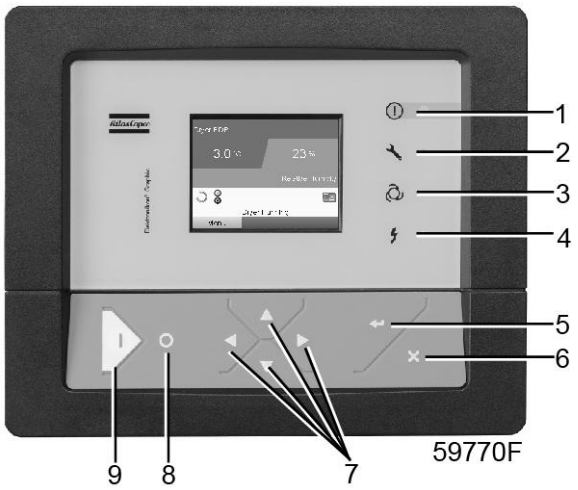
Compressor	Supply voltage	Cable size (length <150m)
G 110	380 V	2x (3x70 mm^2+35 mm^2)
G 110	440 V	2x (3x70 mm^2+35 mm^2)
G 132	380 V	2x (3x120 mm^2+70 mm^2)
G 132	440 V	2x (3x95 mm^2+50 mm^2)
G 160	380 V	2x (3x150 mm^2+70 mm^2)
G 160	440 V	2x (3x120 mm^2+70 mm^2)
G 200	380 V	2x (3x185 mm^2+95 mm^2)
G 200	440-460 V	2x (3x150 mm^2+70 mm^2)
G 250	380 V	4x (3x95 mm^2+50 mm^2)
G 250	440-460 V	4x (3x70 mm^2+35 mm^2)

60Hz CSA/UL compressors

Compressor	Supply voltage	Cable size (length <150m)
G 110	460 V	2X(3XAWG00+AWG2)
G 110	575 V	2X(3XAWG0+AWG3)
G 132	460 V	2X(3XAWG0000+AWG0)
G 132	575 V	2X(3XAWG00+AWG2)
G 160	460 V	2X(3XAWG00+AWG2)
G 160	575 V	2X(3XAWG00+AWG2)
G 200	460 V	4X(3XAWG00+AWG2)
G 250	460 V	4X(3XAWG0000+AWG0)

4.4 Pictographs

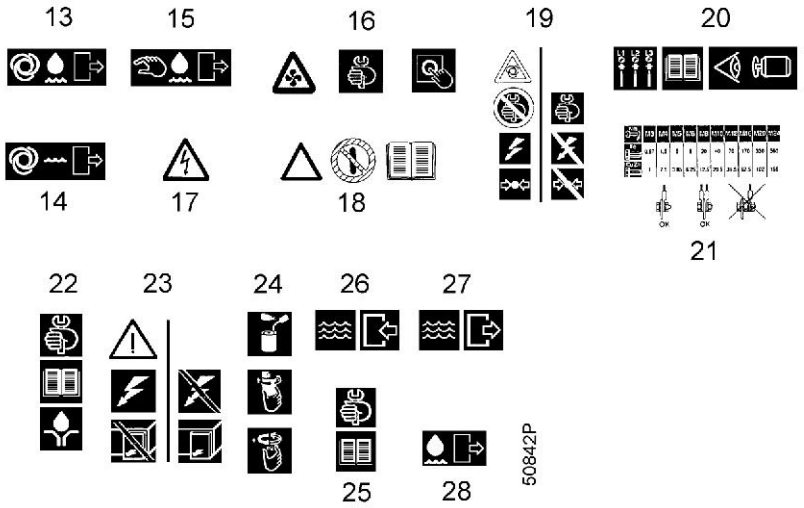
Control panel of Elektronikon Graphic controller



Pictographs on control panel

Reference	Name
1	Alarm
2	Service
3	Automatic operation
4	Voltage on
5	Enter
6	Escape
7	Scroll keys
8	Stop
9	Start

Other locations



Reference	Description
13	Automatic condensate drain
14	Automatic condensate drain for optional oil/water separator (type OSD)
15	Manual condensate drain
16	Stop the compressor before maintenance or repair
17	Warning: under tension
18	Read Instruction book before starting the compressor
19	Switch off the voltage and depressurize the compressor before maintenance or repair
20	Before connecting the compressor electrically, consult the Instruction book for the motor rotation direction
21	Torques for steel (Fe) or brass (CuZn) bolts
22	Consult the Instruction book before greasing
23	Switch off the voltage before removing the protecting cover inside the electric cabinet
24	Oil the gaskets, screw on the filters and tighten by hand (approx. one half turn)
25	Consult the Instruction book before maintenance or repair
26	Cooling water inlet
27	Cooling water outlet
28	Oil outlet

4.5 Cooling water requirements

Recommendations

The cooling water quality must meet certain minimum requirements.

No general recommendation can encompass the effects of all combinations of the various compounds, solids and gases typically found in cooling water in interaction with different materials.

This recommendation is a general guide line for acceptable coolant quality.

Type of system

First, it is important to consider whether you are dealing with a closed system or an open system. In a closed system, the same cooling water circulates through a system without contact with air.

An open system is a pass-through system, or a circulating system with a cooling tower. In the latter case, the composition of the water that enters the cooler must be considered, and not the composition of the make-up water. Due to the evaporative effect in the cooling tower, much higher concentrations of ions can be obtained in the circulating water than in the make-up water.

Ryznar stability index (RSI)

The Ryznar Stability Index (RSI) is a parameter for predicting whether water will tend to dissolve or precipitate calcium carbonate. The adhesion of scaling deposits and their effect are different on different materials, but the equilibrium of the water (scaling or corrosive) is only determined by its actual pH value and by the saturation pH value (pH_s).

The saturation pH value is determined by the relationship between the calcium hardness, the total alkalinity, the total solids concentration and the temperature.

The Ryznar Index is calculated as follows :

$RSI = 2*pH_s - pH$

Symbol	Explanation
pH	Measured pH (at room temperature) of water sample
pH_s	pH at saturation

The pH_s is calculated by using :

$pH_s = (9.3 + A + B) - (C + D)$

Symbol	Explanation
A	Depends on the total solids concentration (mg/l)
B	Depends on the highest cooling water temperature (˚C/˚F), (T=75 ˚C/167 ˚F)
C	Depends on the calcium hardness (ppm $CaCO_3$)
D	Depends on the HCO_3^- concentration or M-alkalinity (mval/l)

The values of A, B, C and D can be found in the following table.

Total dissolved solids (mg/l)	A	Temperature (˚C)	B	Ca-hardness (ppm $CaCO_3$)	C	M-alkalinity (mval/l)	D
50 - 300	0.1	0 - 1	2.6	10 - 11	0.6	0.20 - 0.22	1.0
400-1000	0.2	2 - 6	2.5	12 - 13	0.7	0.24 - 0.26	1.1
		7 - 9	2.4	14 - 17	0.8	0.28 - 0.34	1.2
		10 - 13	2.3	18 - 22	0.9	0.36 - 0.44	1.3
		14 - 17	2.2	23 - 27	1.0	0.46 - 0.54	1.4
		18 - 21	2.1	28 - 34	1.1	0.56 - 0.70	1.5
		22 - 27	2.0	35 - 43	1.2	0.72 - 0.88	1.6
		28 - 31	1.9	44 - 55	1.3	0.90 - 1.10	1.7
		32 - 37	1.8	56 - 69	1.4	1.12 - 1.38	1.8
		38 - 44	1.7	70 - 87	1.5	1.40 - 1.76	1.9
		45 - 50	1.6	88 - 110	1.6	1.78 - 2.20	2.0
		51 - 56	1.5	111 - 138	1.7	2.22 - 2.78	2.1
		57 - 63	1.4	138 - 174	1.8	2.80 - 3.54	2.2
		64 - 71	1.3	175 - 220	1.9	3.54 - 4.40	2.3
		72 - 80	1.2	230 - 270	2.0	4.6 - 5.4	2.4
				280 - 340	2.1	5.6 - 7.0	2.5
				350 - 430	2.2	7.2 - 8.8	2.6
				440 - 550	2.3	9.0 - 11.0	2.7
				560 - 690	2.4	11.2 - 13.8	2.8
				700 - 870	2.5	14.0 - 17.6	2.9
				880 - 1000	2.6	17.8 - 20.0	3.0

Interpretation of the value obtained

RSI	Water condition	Action
RSI<3.9	Very high scale formation	Water cannot be used.
4.0<RSI<5.5	High boiler scale formation	Regular inspection and descaling operation necessary.
5.6<RSI<6.2	Slight boiler scale formation	Water treatment not necessary. Occasional inspection recommended.
6.3<RSI<6.8	Neutral water	Water treatment not necessary. Occasional inspection recommended.
6.9<RSI<7.5	Slight corrosion at higher temperature	Water treatment not necessary. Occasional inspection recommended.
7.6<RSI<9.0	Strong corrosion	Regular inspection necessary, use of corrosion inhibitor recommended.
9.1<RSI<11	Very strong corrosion	Regular inspection necessary, use of corrosion inhibitor required.
RSI>11	Very strong corrosion in complete water system	Water should not be used.

The table indicates that distilled or demineralised water should never be used, as their RSI is > 11.

The RSI only indicates the equilibrium of scaling - descaling. A cooling water showing good RSI conditions can still be unsuitable due to other factors.

From the table above, the RSI index should be between 5.6 and 7.5; otherwise, contact a specialist.

pH

The effect of pH is already calculated in the Ryznar index, but the pH itself has some additional limitations : 6.8 < pH

Total dissolved solids (TDS)

This is the sum of all the ions in the water. It can be derived from the dry residue after evaporation (but not including suspended solids), or it can be estimated from the electrical conductivity.

In a closed system, the following limits apply : TDS < 3000 mg/l (< 3800 microS/cm)

For an open system, the following limits apply : TDS < 450 mg/l (< 580 microS/cm)

Chlorides (Cl^-)

Chloride ions will create pitting corrosion on stainless steel. Their concentration should be limited:

Closed cooling system : chlorides < 500 ppm

Open cooling system : chlorides < 150 ppm

However, if the water is scaling, lower limits should be used. (See The Ryznar stability index (RSI)).

Free chlorine (Cl_2)

A level of 0.5 ppm should not be exceeded for long periods.

For shock treatments, a maximum limit of 2 ppm for maximum 30 minutes/day applies.

Sulphates (SO_4^{--})

Closed cooling system : sulphates < 400 ppm

Open cooling system : sulphates < 150 ppm

Carbonate hardness

Closed cooling system : 50-1000 ppm $CaCO_3$

Open cooling system : 50-500 ppm $CaCO_3$

HCO_3^- / SO_4^{2-} should be > 1

Ammonia

< 0.5 ppm

Copper

< 1 ppm

Iron and manganese

< 1 ppm

Organics

No algae

No oil

Suspended solids

Non-soluble particles, size < 1 mm.

< 10 ppm

5 Operating instructions

5.1 Initial start-up

Warning

	The operator must apply all relevant Safety precautions.
	Switch off the voltage before making any adjustment.

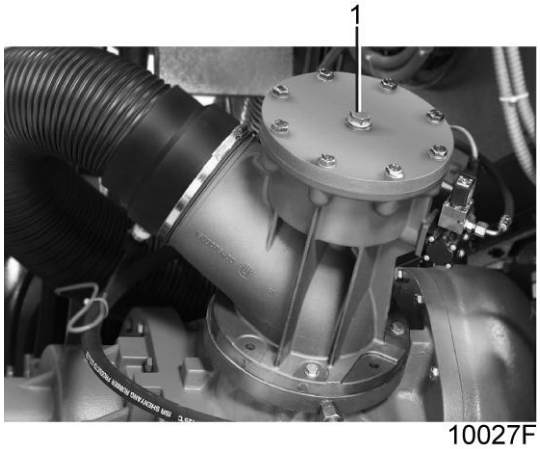
Outdoor/altitude operation

If the compressor is installed outdoors or if the air inlet temperature can be below freezing point, precautions must be taken. In this case, and also if operating at high altitude, consult Atlas Copco.

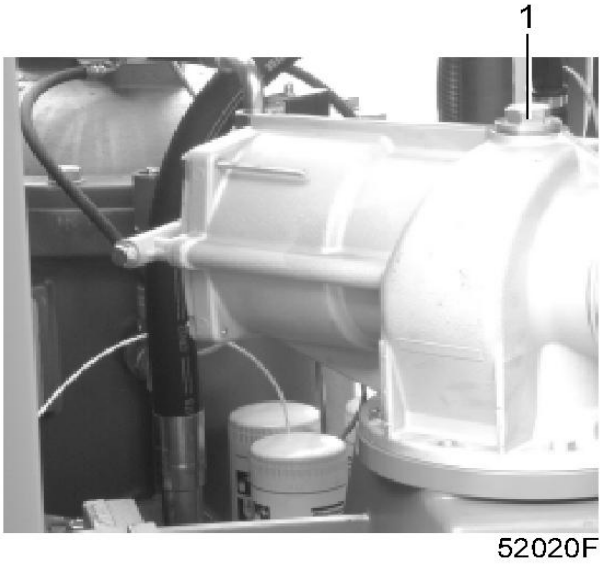
Moving/lifting

The compressor can be moved by a lift truck using the slots in the frame. Make sure that the forks protrude from the other side of the frame. The compressor can also be lifted after inserting beams in the slots. Make sure that the beams cannot slide and that they protrude from the frame equally. The chains must be held parallel to the bodywork by chain spreaders in order not to damage the compressor. The lifting equipment must be placed in such a way that the compressor is lifted perpendicularly. Lift gently and avoid twisting.

General preparations



Plugs to fill compressor elements of G 110 up to G 160 at initial start-up

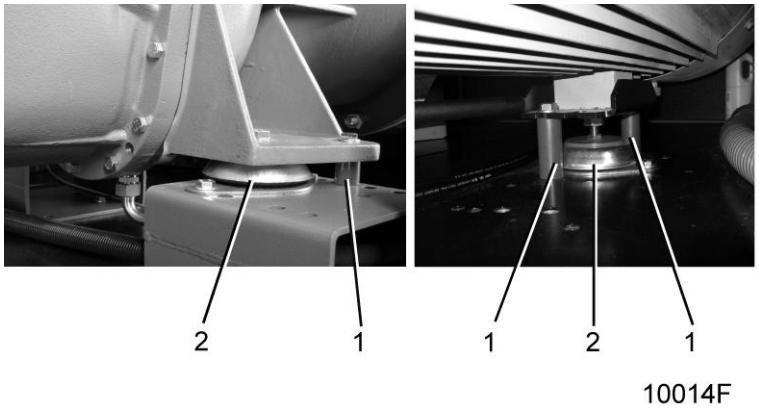


Plugs to fill compressor elements of G 200 up to G 250 at initial start-up

Plugs to fill compressor elements of G 315 up to G 355 at initial start-up

Step	Action
1	Install the compressor, see the sections Dimension drawing, Installation proposal and Electric cable size.
2	**Stick labels near the control panel to warn the operator that:** • the compressor may start automatically after a voltage failure • the compressor is automatically started and stopped • the compressor may be remotely controlled
3	A number of VCI (Volatile Corrosion Inhibitor) plates are provided inside the bodywork to protect the compressor against corrosion. Remove the plates.
4	Remove filler plugs (1). Pour approx. 1 l (0.26 US gal/0.22 Imp gal) of oil into the compressor elements. Refit the plugs.
5	Check that the compressor is filled with oil; the pointer of the oil level indicator should be in the green range (see the section Oil filter change).

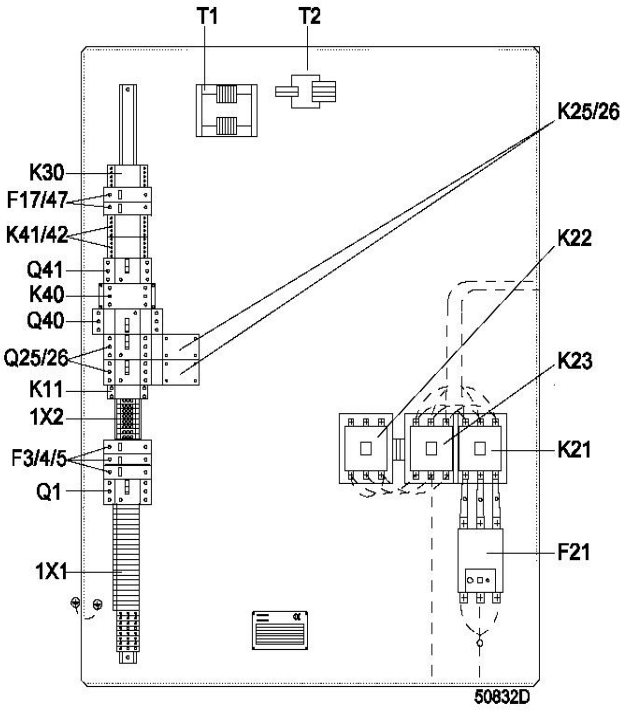
Protection during transport



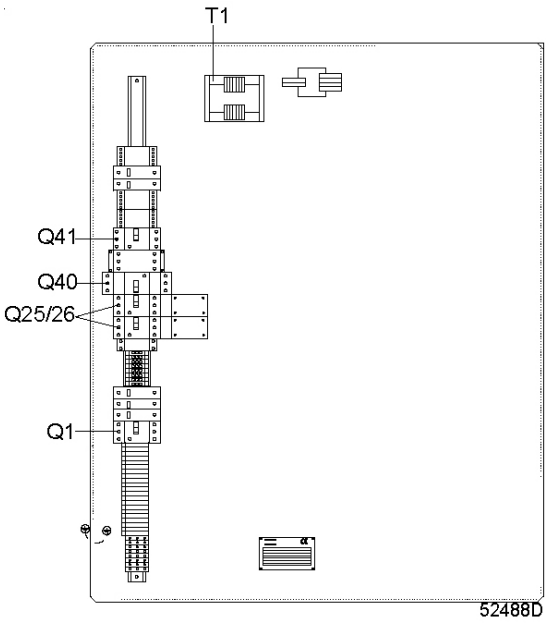
Transport fixtures for G Compressors

Step	Action
1	The gear casing supports, motor support and air receiver supports are secured to the frame, immobilizing the vibration dampers during transport.
2	Remove the bushes (1) from the gear casing supports and the motor support.
3	Remove the brackets fitted next to the air receiver supports.

Electric cabinet



Example of a cubicle with starter



Example of a cubicle without starter

Step	Action
1	Check that the electrical connections correspond to the local codes.The installation must be earthed and protected by fuses in all phases. An isolating switch must be fitted.
2	Check the wires on transformers (T1/T2) for correct connection.
3	Check the setting of the circuit breakers (see the section Settings of circuit breakers).
4	Check that overload relay (F21) is set for automatic resetting and check its setting (see the section Settings for overload relay and fuses).

Water circuit

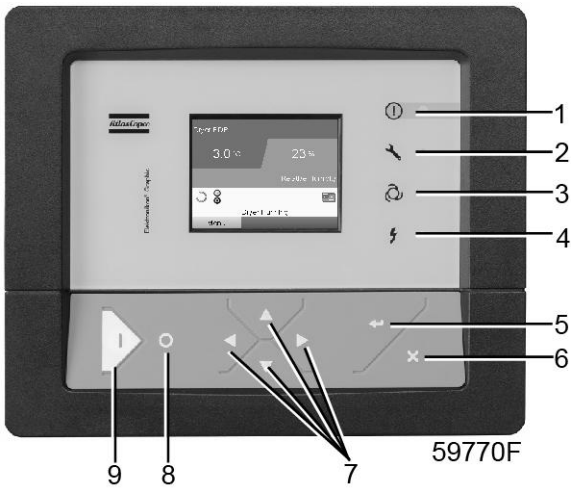
Step	Action
1	Check that the cooling water drain valves (customer's installation) in the inlet and outlet lines are closed.
2	Check that the water shut-off valves (customer's installation) are open.
3	Open the water regulating valve and check for water flow.

5.2 Before starting

Warning

	The operator must apply all relevant Safety precautions.
	If the water system was drained, make sure the drain valves are closed.

Control panel



Elektronikon Graphic controller

Reference	Name
1	Alarm
2	Service
3	Automatic operation
4	Voltage on
5	Enter
6	Escape
7	Scroll keys
8	Stop
9	Start

Procedure

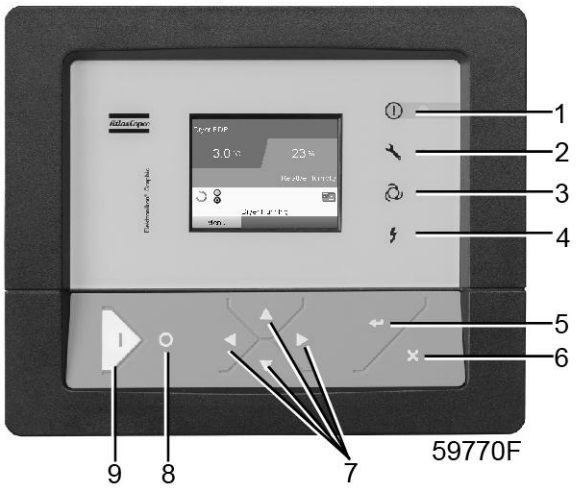
Step	Action
1	Switch on the voltage. Voltage on LED (6) lights up.
2	Close the condensate drain valves (see the section Cooling and condensate system).
3	Open the air outlet valve.
4	Check the oil level indicator (see the section Oil change). The pointer should be in the green range or orange range.
5	Open the water shut-off valves and the water regulating valve.

5.3 Starting

Warning

⚠	The operator must apply all relevant Safety precautions.
	On Full-Feature compressors, switch on the voltage 4 hours before starting in order to energize the crankcase heater of the refrigerant compressor.

Control panel



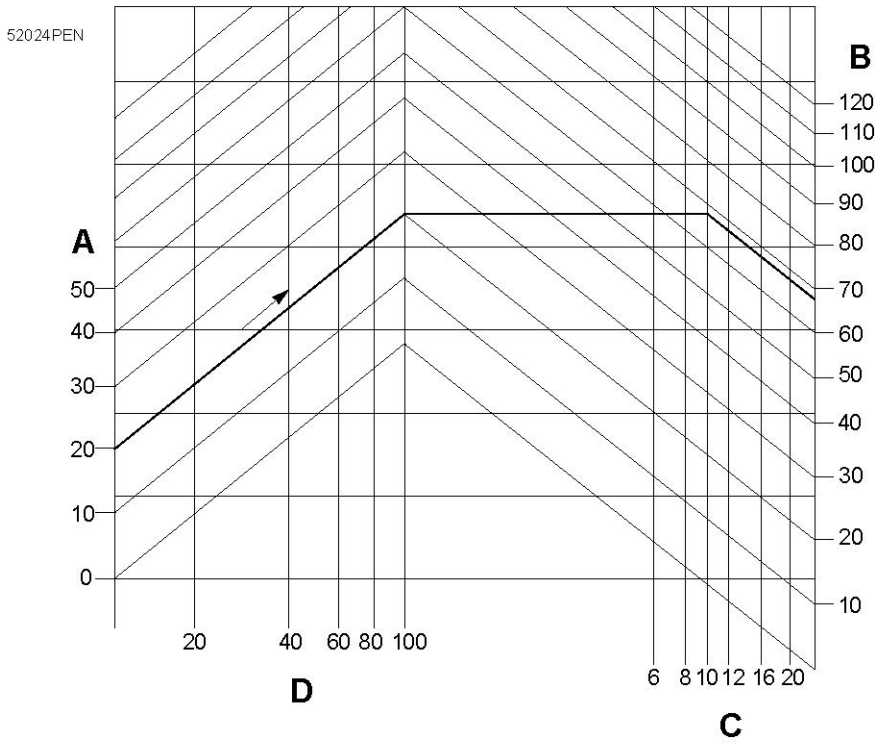
Elektronikon Graphic controller

Reference	Name
1	Alarm
2	Service
3	Automatic operation
4	Voltage on
5	Enter
6	Escape

Reference	Name
7	Scroll keys
8	Stop
9	Start

Procedure

Step	Action
1	Press start button (1). The compressor starts running in unloaded condition. Automatic operation LED (8) lights up.
2	Approx. 10 seconds later (programmable), the compressor starts running loaded. The message on display (2) changes from “Automatically unloaded” to “Automatically loaded”.
3	On water-cooled compressors, regulate the cooling water flow with the compressor running loaded. Adjust the water flow to obtain the most suitable air temperature at the outlet of the compressor elements. The temperature must be between 2 and approx. 7 ˚C (4 and approx. 13 ˚F) above the relevant temperature in the diagram.



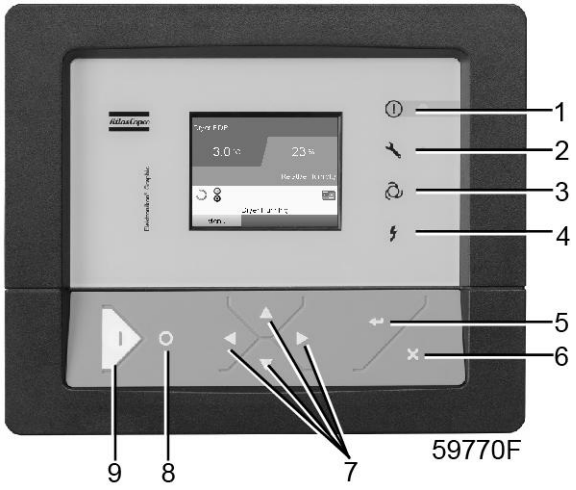
Reference	Name
A	Air inlet temperature in ˚C
B	Condensation temperature in ˚C
C	Effective working pressure in bar
D	Relative air humidity in %

5.4 During operation

Warning

	The operator must apply all relevant Safety precautions.
	The operator should immediately stop the machine in case of oil leaks internally in the machine as well as externally and consult a competent technician to resolve the cause. The machine should not be restarted before the problem has been remedied.
	The load cycle of the compressor must be limited to maximum two cycles per minute.

Compressors with Elektronikon Graphic controller



Elektronikon Graphic controller

1. Check the readings on display (1).
2. When reaching the preset unloading pressure, shown on display (1), the compressor will start running unloaded. From now on, the electronic control module will calculate the optimum moment to stop and restart the compressor motor automatically, depending on the maximum permissible number of motor starts and on the air consumption.
3. To unload the compressor manually, select Unload on the display using the cursor keys and press the Enter key. To put the compressor back into automatic operation, select Load on the display using the cursor keys and press the Enter key.

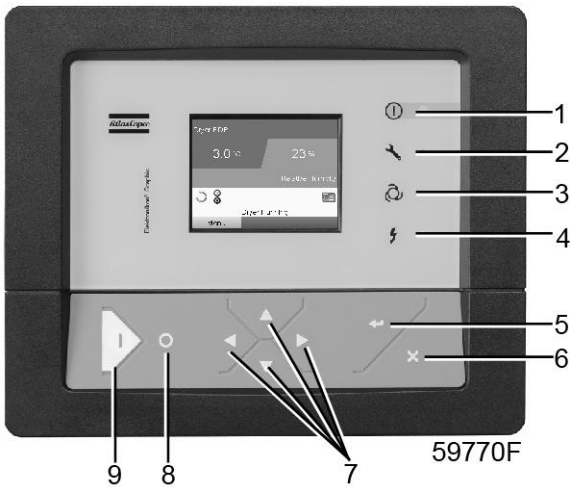
	If the compressor is stopped, it may start automatically.

5.5 Checking the display

Warning

	Before carrying out any maintenance, repair work or adjustment, stop the compressor, press the emergency stop button and switch off the voltage. Close the air outlet valve and open the manual condensate drain valve.

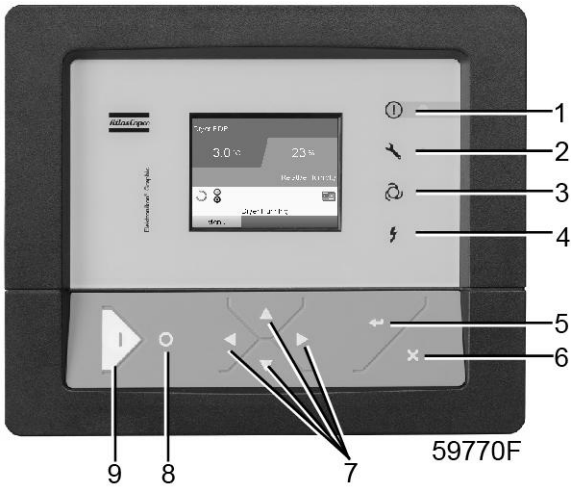
Control panel



Step	Action
1	Regularly check the display for readings and messages. Normally, the main display is shown, indicating the compressor outlet pressure, the status of the compressor and the functions of the keys below the display.
2	Always check the display and remedy the problem if alarm LED (1) is lit or flashing.
3	The display 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. Carry out the service actions of the indicated service plans or replace the component and reset the relevant timer.
4	Regularly check the actual compressor status by pressing the arrow down key from the main screen.

5.6 Manual loading/unloading

Control panel



Control panel of Elektronikon Graphic controller

General

Normally, the compressor runs in automatic operation, i.e. the electronic regulator loads, unloads, stops and restarts the compressor automatically. LED (3) is then alight.

If required, the compressor can be unloaded manually. In this case, the compressor is switched out of automatic operation i.e. the compressor remains running unloaded unless it is loaded again manually.

Manual unloading

Starting from the main screen, move the cursor so that Unload is highlighted in grey. When the Enter key is pressed, the compressor starts running unloaded and LED (3) fades. The message *Manual Unload* appears on the display.

Manual loading

Starting from the main screen, move the cursor so that Load is highlighted in grey. When the Enter key is pressed, LED (3) lights up and the compressor starts running loaded in case the air net pressure drops below the programmed level. The message *Load* appears on the display.

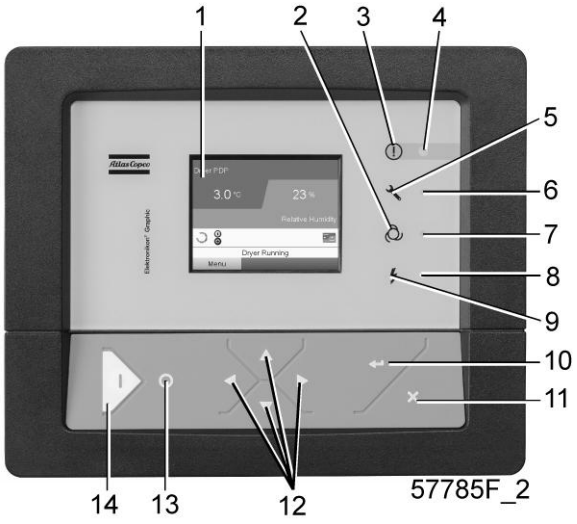
	If the *Load* or *Unload* buttons are not displayed on the bottom line of the screen, make sure to return to the Main screen first.

5.7 Stopping

Important

	After pressing stop button (9), the compressor will run unloaded for 30 seconds. The compressor stops after this period. A start command during this period is ignored. After stopping, the compressor is prevented from restarting within a programmable time (20 seconds). A start command given during this minimum stop time will be memorized; the automatic operation LED lights up. The compressor will start when the minimum stop time has elapsed.

Control panel



Control panel of Elektronikon Graphic controller

Procedure

	Frequently stopping the compressor using the emergency stop button may damage the compressor. Only use the emergency stop button in case of emergency.

Step	Action
1	Press stop button (13). The compressor will run unloaded for 30 seconds and then stop.
2	To stop the compressor in case of emergency, press the emergency stop button. Alarm LED (4) starts flashing. After remedying the trouble, unlock the emergency stop button by pulling it back.
3	Close the air outlet valve.
4	Open the condensate drain valves.
5	Switch off the voltage.
6	On water-cooled compressors, close the water shut-off valves.

Step	Action
7	On water-cooled compressors, if the compressor is installed in a room where freezing temperatures are expected, drain the cooling system by opening the drain valves in the water inlet and outlet pipes (customer's installation).

5.8 Taking out of operation

Disconnecting the compressor

At the end of the service life of the compressor, proceed as follows:

Step	Action
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 drain valve and loosening the oil filler plug one turn.
4	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.
5	Drain the oil and condensate circuits. On water-cooled compressors, drain the water circuits.
6	Disconnect the compressor condensate piping from the condensate drain net.
7	On water-cooled compressors, disconnect the cooling water pipes from the compressor.
8	Also read section Disposal of used material.

5.9 Use of air receiver

Instructions

Step	Action
1	This vessel can contain pressurized air; please be aware of its potential danger in case of misuse.
2	This vessel shall only be used as compressed air/oil separator and must be operated within the specified limits as mentioned on the dataplate.
3	No alterations shall be made to this vessel by welding, drilling or other methods of mechanical working without written permission of the manufacturer.
4	Original bolts have to be used after opening for inside inspection. Maximum torque has to be taken into consideration.
5	Devices for pressure and temperature control must always remain attached to this vessel.
6	This vessel has been designed and built to guarantee an operational lifetime in excess of 20 years and an infinite number of pressure load cycles. Therefore there is no intrinsic need for in-service inspection of the vessel when used within its design limits and in its intended application. National legislation however may require in-service inspection.

6 Maintenance

6.1 Preventive maintenance schedule

Warning

	**Before carrying out any maintenance, repair work or adjustment, proceed as follows:** • Stop the compressor. • Press emergency stop button (S2). • Close the air outlet valve and open the manual condensate drain valves. • For compressors equipped with electronic water drains, press the test buttons on top of the electronic drains until the air system between the air receiver and the outlet valve is fully depressurized. • Switch off the voltage. • Open and lock the isolating switch. The operator must apply all relevant Safety precautions.

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.

General

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

Preventive maintenance schedule

Period	Running hours	Operation
Daily	8	Check readings on display.
Daily	8	Check that condensate is discharged during loading.
Daily	8	Check oil level. Before starting, the level should be in the middle of the sight-glass.
Weekly	50	On compressors equipped with an OSD, check the oil level in the oil collectors. If necessary, empty the collectors and take the oil to the local collection service. Keep the covers of the vessels in place to prevent possible evaporation.
3-Monthly	--	On compressors equipped with an OSD, remove, dismantle and clean the float valve of the condensate traps.
3-Monthly	--	Clean compressor.
3-Monthly	--	Check for possible leaks.
3-Monthly	500	Check the coolers; clean them if necessary. See the section Coolers.
3-Monthly	--	Remove air filter elements and inspect
Yearly	--	Have safety valve tested
Yearly	--	Have all flexibles inspected

Period	Running hours	Operation
Yearly	4000	Replace oil filters
Yearly	8000	If Roto-Xtend Duty Fluid is used, change oil
2-Yearly	8000	Have oil separator element replaced
When displayed	--	Carry out service action according to the displayed service plans.

	When operating in a dusty atmosphere, inspect the air filters more frequently. Use always Atlas Copco filters. The separator element must also be replaced when the pressure difference over the element exceeds 0.8 bar (12 psi). Check the pressure drop when the compressor is running loaded and preferably with a stable working pressure. Damaged flexibles must be replaced immediately.

Service agreements

Atlas Copco Customer Centres have a range of service agreements to suit your needs:

- An Inspection Plan
- A Preventive Maintenance Plan
- A Total Responsibility Plan

Contact your Customer Centre to set up a tailor-made service agreement. It will ensure optimum operational efficiency, minimize downtime and reduce the total life cycle costs.

Service plan

A number of service operations are grouped (called Level A, Level B, Level C...). Each level stands for a number of service actions to be carried out at the time intervals programmed in the Elektronikon regulator.

When a level is reached, a message will appear on the screen. After carrying out all service actions, the interval timers must be reset using the “Reset” key in the “Service” menu. Consult your Atlas Copco Service Centre.

6.2 Motors

Warning

	Stop the compressor and switch off the voltage. The operator must apply all relevant Safety precautions.
	Never mix greases of different brands or types.

Fan motors

The bearings of the fan motors are greased for life. The bearings of the fan motor must be replaced after 25000 operating hours.

Drive motor

Motors must be greased with Polyrex EM

Compressor type	Interval	Amount
G 110	4000 h	45 gr (1.57 oz)
G 132	4000 h	45 gr (1.57 oz)
G 160	4000 h	45 gr (1.57 oz)
G 200	4000 h	45 gr (1.57 oz)
G 250	4000 h	45 gr (1.57 oz)
G 315	4000 h	85 gr (2.98 oz)
G 355	4000 h	85 gr (2.98 oz)

6.3 Oil specifications

Atlas Copco Roto-Xtend Duty Fluid

Atlas Copco Roto-Xtend Duty Fluid is a high-quality lubricant for single-stage, oil-injected rotary screw compressors. (see section Service kits).

Important

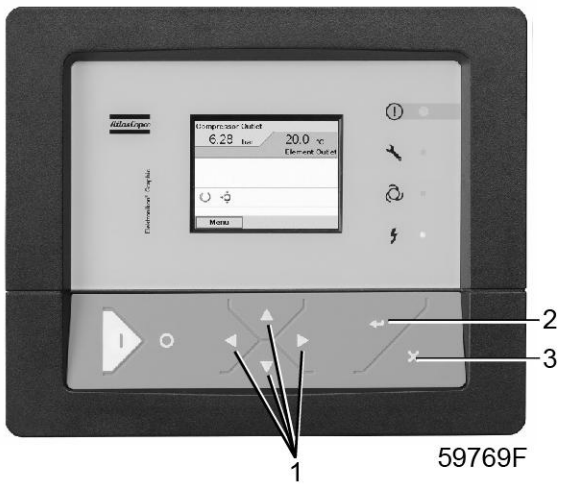
	Never mix oils of different brands or types.

6.4 Oil change

Warning

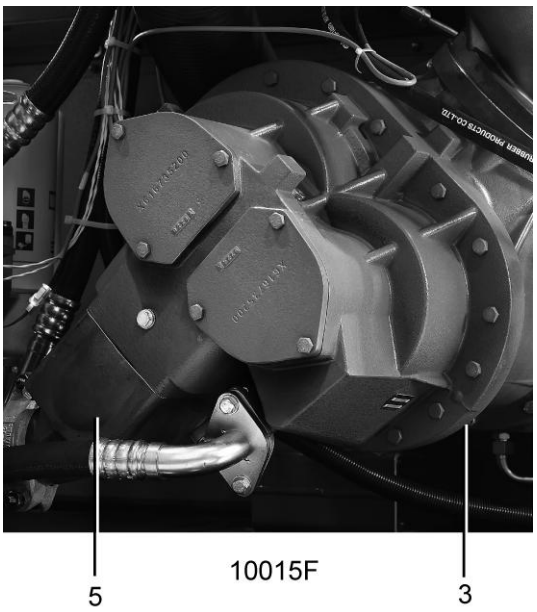
	The operator must apply all relevant Safety precautions.

Control panel

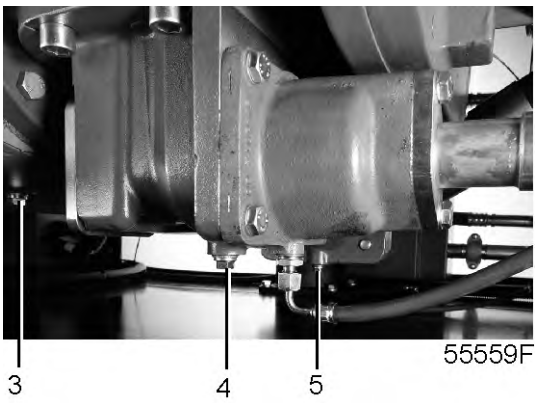


Control panel of Elektronikon Graphic controller

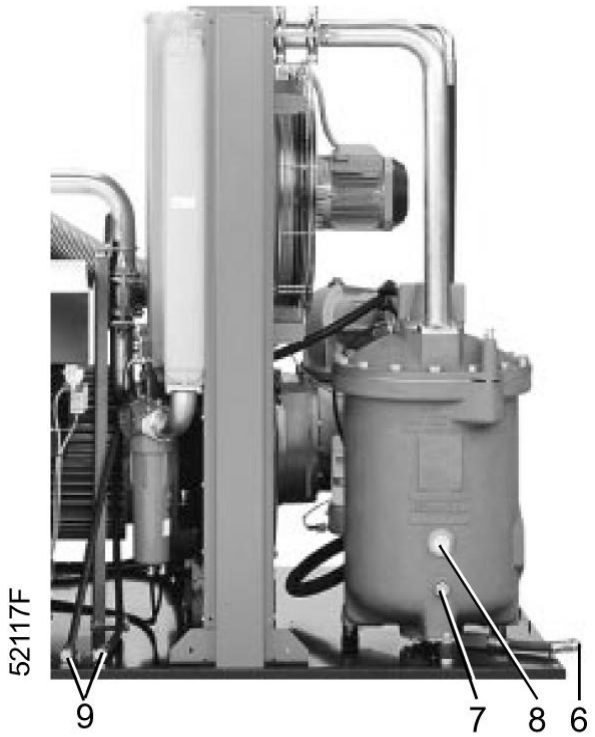
Vent, filler and drain plugs



Oil drain plugs on G 110 up to G 250 compressor elements



Oil drain plugs on G 315 up to G 355 compressor elements



Vent, filler and drain plugs on G 110 up to G 355 compressors

Procedure

Step	Action
1	Run the compressor until warm. Stop the compressor, close the air outlet valve and switch off the voltage. Wait a few minutes and depressurize by unscrewing plug (8) only one turn to permit any pressure in the system to escape.
2	Loosen the vent plugs on top of the oil coolers.
3	Drain the oil by removing the drain plugs. **Plugs are fitted on the:** • Air receiver (6) • Oil stop valve (4) • Check valve (5) • Gearbox (3) • Oil coolers (9) of air-cooled compressors • Flexible between the oil filter housing and oil coolers of water-cooled compressors Tighten the plugs after draining.
4	Remove filler plug (8). Fill the air receiver with oil until the level reaches the filler opening. Refit and tighten plug (8) Tighten the vent plug of the oil cooler.
5	Run the compressor loaded for a few minutes to allow the oil cooler by-pass valve to open. Stop the compressor and wait a few minutes.
6	Depressurize the system by unscrewing plug (8) only one turn to permit any pressure in the system to escape. Remove the plug. Fill the air receiver with oil until the level reaches the filler opening. Tighten filler plug (8).

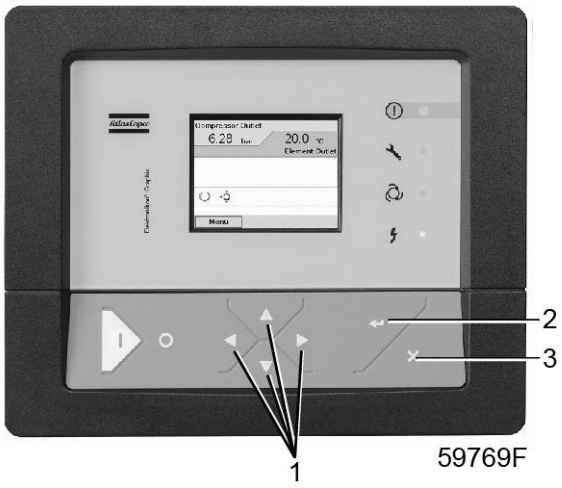
Step	Action
7	After carrying out all service actions in the relevant “Service Plan”, reset the service warning as follows: • Press the “Menu” key (3). • Press key (1) until “Service” is followed by an arrow pointing to the right. Activate the menu by pressing key (2). • Press key (1) until the related “Service Plan” is followed by an arrow pointing to the right and activate by pressing key (2). • Press the “Reset” key (3); the timer is reset to 0.

6.5 Oil filter change

Warning

	Stop the compressor and switch off the voltage. The operator must apply all relevant Safety precautions.

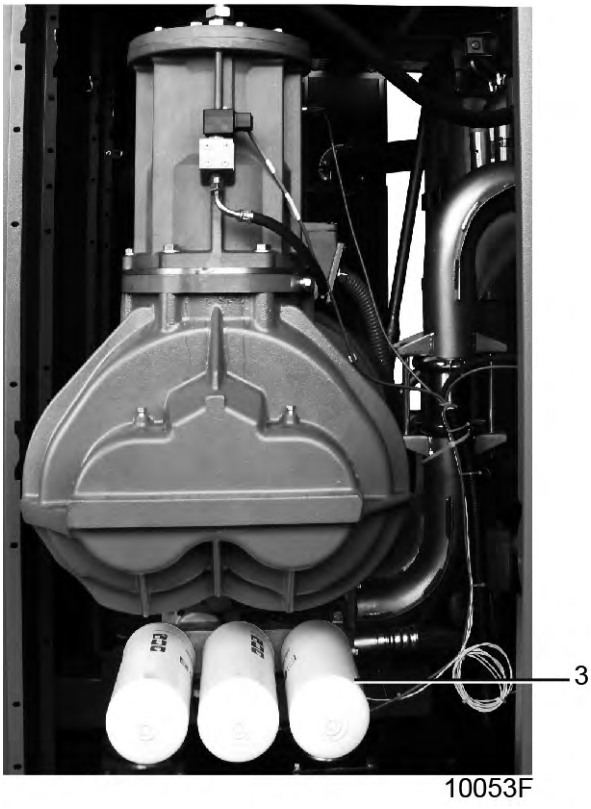
Control panel



Control panel of Elektronikon Graphic controller

Position of oil filters

Position of oil filter on G 110 up to G 250



Position of oil filter on G 315 up to G 355

Procedure

Step	Action
1	Stop the compressor, close the air outlet valve and switch off the voltage. Wait a few minutes and depressurize by unscrewing plug (4) only one turn to permit any pressure in the system to escape.
2	Use an oil pan to avoid possible oil spillage. Unscrew oil filters (3) only one turn and wait a few minutes to let the oil of the filter flow back into the oil separator. Remove the oil filters.
3	Clean the filter seats on the manifold. Oil the gaskets of the new filters and screw the filters into place until the gaskets contact their seats. Then tighten by hand.
4	Tighten plug (4).
5	**Reset the message and service timer:** • Press the “Menu” key (3). • Press key (1) until “Service” is followed by an arrow pointing to the right. Activate the menu by pressing key (2). • Press key (1) until “Oil filter” is followed by an arrow pointing to the right. Activate the menu by pressing key (2). • Press the “Reset” key (3); the timer is reset to 0.

6.6 Storage after installation

Procedure

Run the compressor, e.g. twice a week, until warm. Load and unload the compressor a few times to operate the components of the unloading/loading system.

	If the compressor is going to be stored without running from time to time, protective measures must be taken. Consult the Atlas Copco Customer Centre.

6.7 Service kits

General

Service kits comprise all parts needed for servicing components and offer the benefits of genuine Atlas Copco parts while keeping the maintenance budget low. All service kits are indicated in the relevant Parts Lists.

Atlas Copco Roto-Xtend Duty Fluid

HD Roto-Xtend Duty Fluid can be ordered in the following quantities:

- 5-litre can: 2901 1700 00
- 20-litre can: 2901 1701 00
- 209-litre drum: 2901 1702 00

See Oil specifications.

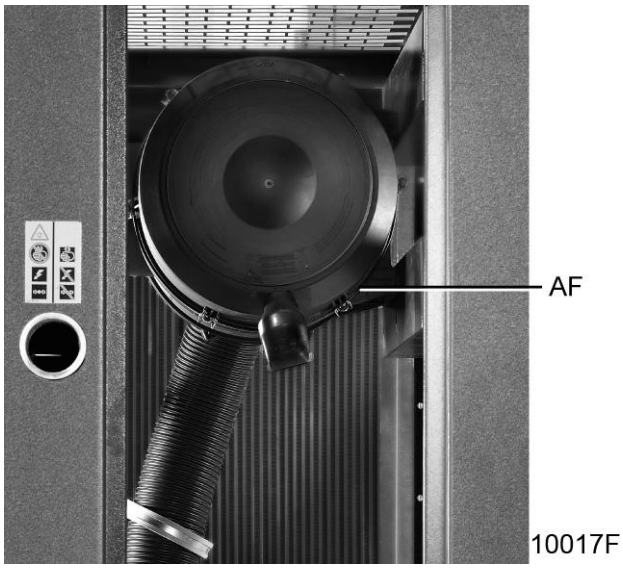
7 Adjustments and servicing procedures

7.1 Air filters

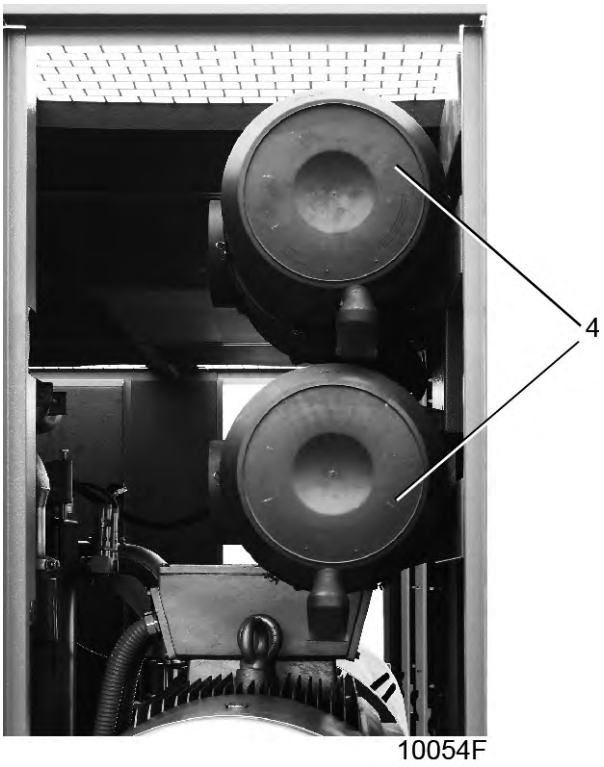
Warning

	Stop the compressor, close the air outlet valve, press the emergency stop button and switch off the voltage. The operator must apply all relevant Safety precautions.

Position of air filters



Air filters, G 110 up to G 160



Air filters, G 200 up to G 355

Procedure

Step	Action
1	Remove the filter housing.
2	Remove the filter elements.
3	Fit the new filter elements.
4	Reinstall the filter housing.
5	Reset the service warning after carrying out all service actions in the relevant Service Plan, see section Service menu.

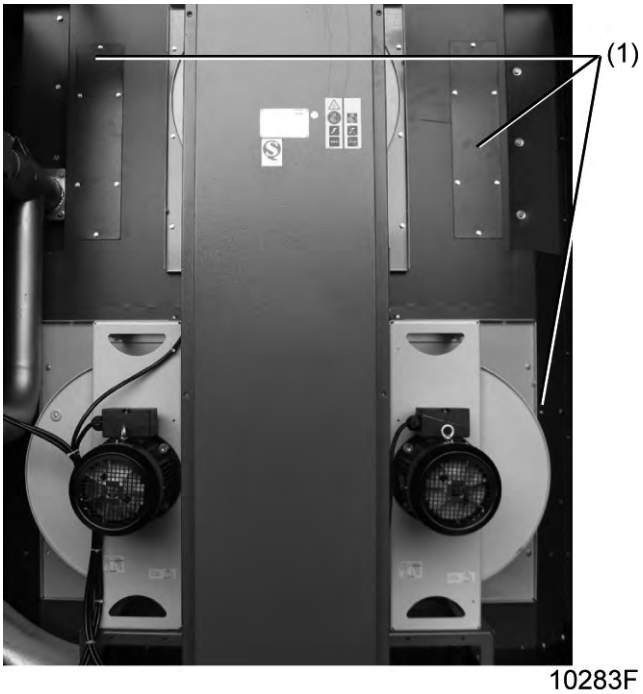
7.2 Coolers

Warning

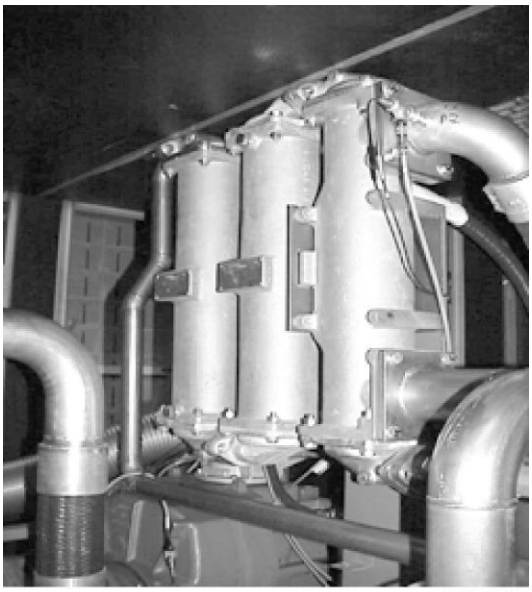
⚠	Stop the compressor, press the emergency stop button and switch off the voltage. The operator must apply all relevant Safety precautions.

Procedure

Cooler block of air-cooled G 110 up to G 250



Cooler block of air-cooled G 315 up to G 355



10018F

Cooler block of water-cooled G110 up to G 250

10284F

Cooler block of water-cooled G315 up to G 355

Keep the cooler block clean to maintain the cooling efficiency.

On air-cooled compressors proceed as follows:

Step	Action
1	Unscrew bolts (1) and rotate the fan away from the cooler block.
2	Remove any dirt form the coolers with a fibre brush, brush in the direction of the fins. Also remove any dirt from the fans.
3	Clean the coolers 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).
4	If it is necessary to clean the coolers with a cleaning agent, consult Atlas Copco.
5	Reposition and fix the fan. Make sure that the fan rotates freely.

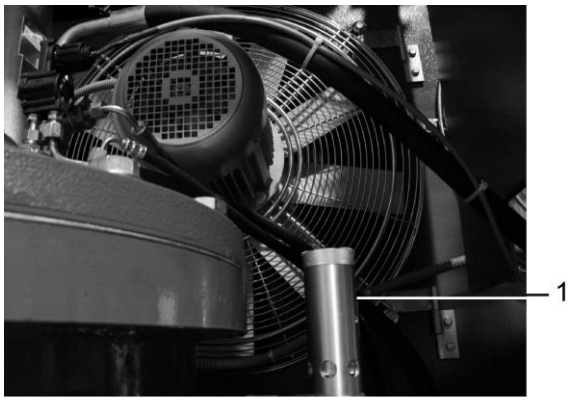
On water-cooled compressors, consult the Atlas Copco Customer Centre if it is necessary to clean the coolers.

7.3 Safety valve

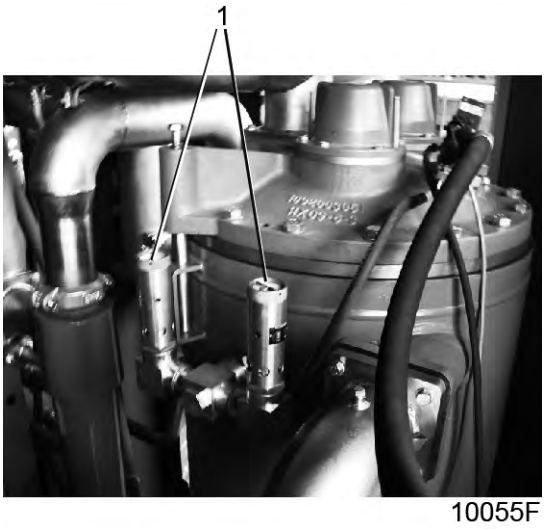
Warning

	Stop the compressor and switch off the voltage. The operator must apply all relevant Safety precautions.
	Never run the compressor without safety valves.
	No adjustments are allowed.

Testing



Location of safety valve on G 110 up to G 250



Location of safety valve on G 315 up to G 355

The valve can be tested on a separate compressed air line.

Consult the Atlas Copco Customer Centre if the valve does not open at the correct pressure (see the section Settings of safety valve).

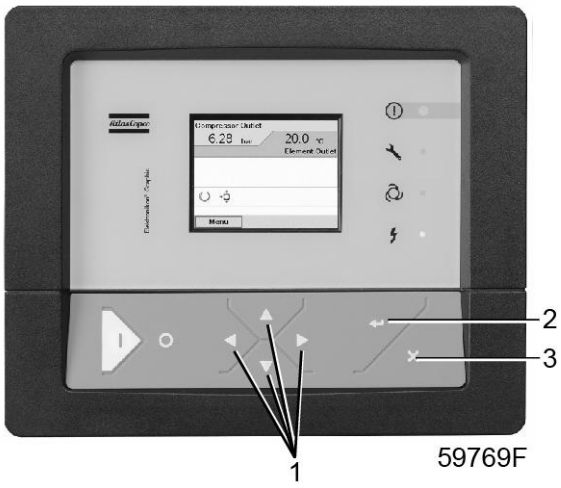
8 Problem solving

8.1 Problem solving

Warning

	Before carrying out any maintenance, repair work or adjustment, stop the compressor, press the emergency stop button and switch off the voltage. Close the air outlet valve and open the manual condensate drain valves.
	Open and lock the isolating switch.
	The operator must apply all relevant Safety precautions.

Control panel



Elektronikon Graphic controller

Faults and remedies

A service message appears on the display
Stop the compressor and carry out the indicated service actions. Reset the message, see Section Service menu.

A shut-down warning message appears on the display
The alarm LED will light up indicating that the temperature at the outlet of the compressor elements is too high. The message disappears as soon as the cause of the problem is remedied.

Unit is shut down
The alarm LED will flash indicating either that the outlet temperature is too high or that the motor overload relay has tripped. Remedy the problem. **On compressors equipped with an Elektronikon Graphic controller**, move the cursor to the Menu action button and push the enter key (2). Using the Scroll keys (1), move the cursor to the protections icon. Push the Enter key (2). Move the cursor to the blinking icon and press the Enter key (2). Move the cursor to the reset button and press the enter key again.

Excessive oil consumption
Have the compressor inspected by the Atlas Copco Customer Centre.

Condition	Fault	Remedy
Condensate is not discharged from condensate traps during loading.	Discharge pipe of condensate trap clogged.	Check and correct as necessary.
	Float valve of condensate traps malfunctioning.	Remove float valve assembly, clean and check.
	EWD (electronic water drain) malfunctioning.	Consult Atlas Copco.

Condition	Fault	Remedy
Compressor air delivery or pressure below normal.	Air consumption exceeds air delivery of compressor.	Check equipment connected.
	Choked air filters.	Replace filters.
	Air leakage.	Check and correct.

Condition	Fault	Remedy
Compressor element outlet temperature or delivery air temperature above normal.	Oil level too low.	Check and correct.
	Oil coolers clogged.	Consult the section Coolers.
	Air cooler clogged.	Consult the section Coolers.
	On air-cooled compressors, insufficient cooling air or cooling air temperature too high.	Check and correct as necessary.
	On water-cooled compressors, cooling water flow too low.	Increase flow.
	On water-cooled compressors, restriction in cooling water system.	Consult Atlas Copco Customer Centre.

9 Technical data

9.1 Readings on display

Important

	The readings are valid when operating under reference conditions. See the section Reference conditions.
	Normally the main display is shown (see the section Function keys), indicating the actual air outlet pressure and the actual compressor status. The arrow down key allows the operator to call up other information such as actually measured pressures and temperatures.

Important readings

Compressor outlet pressure	bar(e) (psig)	Depends on programmed unloading and loading pressures
Pressure drop over air filters	bar	Below 0.05
Pressure drop over air filters	psi	Below 0.73
Pressure difference over oil separator	bar	Below 0.8
Pressure difference over oil separator	psi	Below 12
Oil injection pressure at the compressor elements	bar(e) (psig)	Depends on programmed unloading and loading pressures
Compressor outlet temperature, air-cooled Pack compressors	˚C	Approx. 29
Compressor outlet temperature, air-cooled Pack compressors	˚F	Approx. 84
Compressor outlet temperature, water-cooled Pack	˚C	Approx. 25
Compressor outlet temperature, water-cooled Pack	˚F	Approx. 77
Compressor element outlet temperature	˚C	Between 55 and 100
Compressor element outlet temperature	˚F	Between 131 and 212
Cooling air inlet temperature (G 110 - 160)	˚C	Below 46
Cooling air inlet temperature (G 110 - 160)	˚F	Below 115
Cooling air inlet temperature (G 200 - 355)	˚C	Below 40
Cooling air inlet temperature (G 200 - 355)	˚F	Below 104
Cooling water temperature (G 110 - 160)	˚C	Below 50
Cooling water temperature (G 110 - 160)	˚F	Below 122
Cooling water temperature (G 200 - 355)	˚C	Below 65
Cooling water temperature (G 200 - 355)	˚F	Below 149

9.2 Reference conditions

Reference conditions

Absolute inlet pressure	bar(a)	1
Absolute inlet pressure	psi	14.5
Relative air humidity	%	0
Air inlet temperature	˚C	20
Air inlet temperature	˚F	68
Nominal working pressure		See Compressor data
Cooling water inlet temperature	˚C	20
Cooling water inlet temperature	˚F	68

9.3 Limits

Limits

Maximum air inlet/ambient temperature (G 110 - 160)	˚C	46
Maximum air inlet/ambient temperature (G 110 - 160)	˚F	115
Maximum air inlet/ambient temperature (G 200 - 355)	˚C	40
Maximum air inlet/ambient temperature (G 200 - 355)	˚F	104
Minimum air inlet/ambient temperature	˚C	0
Minimum air inlet/ambient temperature	˚F	32
Maximum cooling air temperature (G 110 - 160)	˚C	46
Maximum cooling air temperature (G 110 - 160)	˚F	115
Maximum cooling air temperature (G 200 - 355)	˚C	40
Maximum cooling air temperature (G 200 - 355)	˚F	104
Minimum cooling air temperature	˚C	0
Minimum cooling air temperature	˚F	32
Maximum working pressure		See section Compressor data
Maximum cooling water inlet temperature	˚C	40
Maximum cooling water inlet temperature	˚F	104
Maximum cooling water outlet temperature (open systems)	˚C	50
Maximum cooling water outlet temperature (open systems)	˚F	122
Maximum cooling water outlet temperature (recirculating systems)	˚C	60
Maximum cooling water outlet temperature (recirculating systems)	˚F	140
Maximum cooling water inlet pressure	bar(e)	10
Maximum cooling water inlet pressure	psig	145

9.4 Settings of safety valve

Compressor type	Setting
For G compressors with a maximum working pressure of 7.5, 8.5,10 or 14 bar	15 bar (e)
For G compressors with an effective working pressure of 6.9, 8.6, 10.4 or 13.8 bar	15 bar (e)
For G compressors with a maximum working pressure of 100, 125,150 or 200 psi	218 psig

9.5 Settings for overload relay and fuses

Compressor type	Supply voltage (V)	Frequency (Hz)	Overload relay (A)	Fuses CSA HRC UL Class 5 (A) 2x3 fuses 2x3 cables to contactor	Fuses UL Class K5 (A) 3 fuses 2x3 cables to contactor
G 110	380	50	132	200	315
G 110	400	50	130	200	315
G 110	380	60	136	200	315
G 110	440	60	117	160	250
G 110	460	60	112	160	250
G 110	575	60	92	125	200
G 132	380	50	155	200	350
G 132	400	50	163	200	350
G 132	380	60	167	250	400
G 132	440	60	140	200	315
G 132	460	60	134	200	315
G 132	575	60	108	160	250
G 160	380	50	201	250	450
G 160	400	50	188	250	450
G 160	380	60	197	315	450
G 160	440	60	170	250	400
G 160	460	60	163	250	400
G 160	575	60	132	200	315
G 200	380	50	250	315	550
G 200	400	50	234	315	550
G 200	380	60	246	315	550
G 200	440-460	60	213-205	315	500
G 250	380	50	308	400	700
G 250	400	50	294	400	700
G 250	380	60	308	400	700
G 250	440-460	60	265-256	350	630
G 315	380	50	365	500	800
G 355	380	50	405	550	900

9.6 Settings of circuit breakers

For cooler cooling fan (air-cooled)

Compressor type	Supply voltage (V)	Frequency (Hz)	Circuit breakers	Setting (A)
G 110	380	50	Q25/Q26	8.3
G 110	400	50	Q25/Q26	7.1
G 110	380	60	Q25/Q26	9.7
G 110	440	60	Q25/Q26	8.3
G 110	460	60	Q25/Q26	8.0
G 110	575	60	Q25/Q26	6.6
G 132	380	50	Q25/Q26	8.3
G 132	400	50	Q25/Q26	7.1
G 132	380	60	Q25/Q26	9.7
G 132	440	60	Q25/Q26	8.3
G 132	460	60	Q25/Q26	8.0
G 132	575	60	Q25/Q26	6.6
G 160	380	50	Q25/Q26	10.7
G 160	400	50	Q25/Q26	9.2
G 160	380	60	Q25/Q26	9.7
G 160	440	60	Q25/Q26	8.3
G 160	460	60	Q25/Q26	8.0
G 160	575	60	Q25/Q26	6.6
G 200	380	50	Q25/Q26	10.7
G 200	400	50	Q25/Q26	9.2
G 200	380	60	Q25/Q26	9.7
G 200	440-460	60	Q25/Q26	8.3-8.0
G 250	380	50	Q25/Q26	10.7
G 250	400	50	Q25/Q26	9.2
G 250	380	60	Q25/Q26	9.7
G 250	440-460	60	Q25/Q26	8.3-8.0
G 315	380	50	Q25/Q26/Q27	8.8
G 355	380	50	Q25/Q26/Q27	8.8

For bodywork ventilation fan (water-cooled)

Compressor type	Frequency (Hz)	Circuit breakers	Setting (A)
G 110	50	Q25	1.4
G 110	60	Q25	1.6
G 132	50	Q25	1.4
G 132	60	Q25	1.6
G 160	50	Q25	1.4
G 160	60	Q25	1.6
G 200	50	Q25	1.4

Compressor type	Frequency (Hz)	Circuit breakers	Setting (A)
G 200	60	Q25	1.6
G 250	50	Q25	1.4
G 250	60	Q25	1.6

9.7 Compressor data

Data for 7.5 bar (109 psi) 50 Hz compressors

	Units	G 110	G 132	G 160	G 200	G 250	G 315	G 355
Maximum working pressure, G Pack	bar(e)	7.5	7.5	7.5	7.5	7.5	7.5	7.5
Maximum working pressure, G Pack	psig	109	109	109	109	109	109	109
Nominal working pressure, G Pack	bar(e)	7	7	7	7	7	7	7
Nominal working pressure, G Pack	psig	102	102	102	102	102	102	102
Motor shaft speed	r/min	1485	1485	1485	1485	1485	1485	1485
Power input, G Pack	kW	124	147	192	226	267	344	380
Power input, G Pack	hp	168	200	261	307	363	468	517
Power input, G W Pack	kW	121	141	183	218	260	329	366
Power input, G W Pack	hp	166	191	249	297	354	447	498
Oil capacity, G	l	70	80	90	130	130	180	180
Oil capacity, G	US gal	18.5	21.1	23.8	34.3	34.3	47.5	47.5
Oil capacity, G	Imp gal	15.4	17.6	19.8	28.6	28.6	39.6	39.6
Oil capacity, G	cu.ft	2.47	2.83	3.18	4.55	4.55	6.3	6.3
Oil capacity, G W	l	58	78	78	113	113	180	180
Oil capacity, G W	US gal	15.3	20.6	20.6	34.3	34.3	47.5	47.5
Oil capacity, G W	Imp gal	12.8	17.1	17.1	28.6	28.6	39.6	39.6
Oil capacity, G W	cu.ft	2.04	2.75	2.75	3.96	3.96	6.3	6.3
Sound pressure level, G Pack	dB(A)	74	74	74	75	75	77	78
Sound pressure level, G W Pack	dB(A)	74	74	74	72	72	74	75
Maximum cooling water flow	l/s	2.5	3.0	3.6	5.5	6.9	7.1	8.1
Maximum cooling water flow	cfm	5.3	6.4	7.6	11.7	14.6	15.0	17.2
Minimum cooling water flow	l/s	0.8	0.9	1.1	1.3	1.6	2.0	2.3
Minimum cooling water flow	cfm	1.7	1.9	2.3	2.8	3.4	4.2	4.9

Data for 8.5 bar (123 psi) 50 Hz compressors

	Units	G 110	G 132	G 160	G 200	G 250	G 315	G 355
Maximum working pressure, G Pack	bar(e)	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Maximum working pressure, G Pack	psig	123	123	123	123	123	123	123
Nominal working pressure, G Pack	bar(e)	8	8	8	8	8	8	8
Nominal working pressure, G Pack	psig	116	116	116	116	116	116	116
Motor shaft speed	r/min	1485	1485	1485	2970	2970	1485	1485
Power input, G Pack	kW	124	149	192	217	275	344	385
Power input, G Pack	hp	168	202	261	295	374	468	523
Power input, G W Pack	kW	122	143	182	209	268	329	370
Power input, G W Pack	hp	165	194	247	284	365	441	503
Oil capacity, G	l	70	80	90	130	130	180	180
Oil capacity, G	US gal	18.5	21.1	23.8	34.3	34.3	47.5	47.5
Oil capacity, G	Imp gal	15.4	17.6	19.8	28.6	28.6	39.6	39.6
Oil capacity, G	cu.ft	2.47	2.83	3.18	4.55	4.55	6.3	6.3
Oil capacity, G W	l	58	78	78	113	113	180	180
Oil capacity, G W	US gal	15.3	20.6	20.6	34.3	34.3	47.5	47.5
Oil capacity, G W	Imp gal	12.8	17.1	17.1	28.6	28.6	39.6	39.6
Oil capacity, G W	cu.ft	2.04	2.75	2.75	3.96	3.96	6.3	6.3
Sound pressure level, G Pack	dB(A)	74	74	74	75	75	77	78
Sound pressure level, G W Pack	dB(A)	74	74	74	72	72	74	75
Maximum cooling water flow	l/s	2.5	3.0	3.6	5.5	6.9	7.1	8.1
Maximum cooling water flow	cfm	5.3	6.4	7.6	11.7	14.6	15.0	17.2
Minimum cooling water flow	l/s	0.8	0.9	1.1	1.3	1.6	2.0	2.3
Minimum cooling water flow	cfm	1.7	1.9	2.3	2.8	3.4	4.2	4.9

Data for 10 bar (145 psi) 50 Hz compressors

	Units	G 110	G 132	G 160	G 200	G 250	G 315	G 355
Maximum working pressure, G Pack	bar(e)	10	10	10	10	10	10	10
Maximum working pressure, G Pack	psig	145	145	145	145	145	145	145
Nominal working pressure, G Pack	bar(e)	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Nominal working pressure, G Pack	psig	138	138	138	138	138	138	138
Motor shaft speed	r/min	1485	1485	1485	1485	2970	1485	1485

	Units	G 110	G 132	G 160	G 200	G 250	G 315	G 355
Power input, G Pack	kW	123	150	193	224	273	353	393
Power input, G Pack	hp	167	204	262	305	371	480	534
Power input, G W Pack	kW	121	144	184	217	265	340	378
Power input, G W Pack	hp	165	196	250	295	360	462	514
Oil capacity, G	l	70	80	90	130	130	180	180
Oil capacity, G	US gal	18.5	21.1	23.8	34.3	34.3	47.5	47.5
Oil capacity, G	Imp gal	15.4	17.6	19.8	28.6	28.6	39.6	39.6
Oil capacity, G	cu.ft	2.47	2.83	3.18	4.55	4.55	6.3	6.3
Oil capacity, G W	l	58	78	78	113	113	180	180
Oil capacity, G W	US gal	15.3	20.6	20.6	34.3	34.3	47.5	47.5
Oil capacity, G W	Imp gal	12.8	17.1	17.1	28.6	28.6	39.6	39.6
Oil capacity, G W	cu.ft	2.04	2.75	2.75	3.96	3.96	6.3	6.3
Sound pressure level, G Pack	dB(A)	74	74	74	75	75	77	78
Sound pressure level, G W Pack	dB(A)	74	74	74	72	72	74	75
Maximum cooling water flow	l/s	2.5	3.0	3.6	5.5	6.9	7.1	8.1
Maximum cooling water flow	cfm	5.3	6.4	7.6	11.7	14.6	15.0	17.2
Minimum cooling water flow	l/s	0.8	0.9	1.1	1.3	1.6	2.0	2.3
Minimum cooling water flow	cfm	1.7	1.9	2.3	2.8	3.4	4.2	4.9

Data for 14 bar (203 psi) and 13 bar (189 psi) 50 Hz compressors

	Units	G 110	G 132	G 160	G 200	G 250	G 355
Maximum working pressure, G Pack	bar(e)	14	14	14	13	13	13
Maximum working pressure, G Pack	psig	203	203	203	189	189	189
Nominal working pressure, G Pack	bar(e)	13.5	13.5	13.5	12.5	12.5	12.5
Nominal working pressure, G Pack	psig	196	196	196	181	181	181
Motor shaft speed	r/min	1485	1485	1485	2970	2970	1485
Power input, G Pack	kW	123	152	191	241	289	383
Power input, G Pack	hp	167	207	260	328	393	521
Power input, G W Pack	kW	120	145	182	233	281	368
Power input, G W Pack	hp	163	197	247	317	382	500
Oil capacity, G	l	70	80	90	130	130	180
Oil capacity, G	US gal	18.5	21.1	23.8	34.3	34.3	47.5
Oil capacity, G	Imp gal	15.4	17.6	19.8	28.6	28.6	39.6
Oil capacity, G	cu.ft	2.47	2.83	3.18	4.55	4.55	6.3
Oil capacity, G W	l	58	78	78	113	113	180
Oil capacity, G W	US gal	15.3	20.6	20.6	34.3	34.3	47.5

	Units	G 110	G 132	G 160	G 200	G 250	G 355
Oil capacity, G W	Imp gal	12.8	17.1	17.1	28.6	28.6	39.6
Oil capacity, G W	cu.ft	2.04	2.75	2.75	3.96	3.96	6.3
Sound pressure level, G Pack	dB(A)	74	74	74	75	75	78
Sound pressure level, G W Pack	dB(A)	74	74	74	72	72	75
Maximum cooling water flow	l/s	2.5	3.0	3.6	5.5	6.9	8.1
Maximum cooling water flow	cfm	5.3	6.4	7.6	11.7	14.6	17.2
Minimum cooling water flow	l/s	0.8	0.9	1.1	1.3	1.6	2.3
Minimum cooling water flow	cfm	1.7	1.9	2.3	2.8	3.4	4.9

Data for 6.9 bar (100 psi) 60 Hz compressors

	Units	G 110	G 132	G 160	G 200	G 250	G 315	G 355
Maximum working pressure, G Pack	bar(e)	7.4	7.4	7.4	7.4	7.4	7.4	7.4
Maximum working pressure, G Pack	psig	107	107	107	107	107	107	107
Nominal working pressure, G Pack	bar(e)	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Nominal working pressure, G Pack	psig	100	100	100	100	100	100	100
Motor shaft speed	r/min	1780	1780	1780	1780	1780	1780	1780
Power input, G Pack	kW	131	148	176	217	254	350	391
Power input, G Pack	hp	178	201	239	295	345	476	532
Power input, G W Pack	kW	127	142	169	234	271	335	376
Power input, G W Pack	hp	173	193	230	318	368	455	511
Oil capacity, G	l	70	80	90	130	130	180	180
Oil capacity, G	US gal	18.5	21.1	23.8	34.3	34.3	47.5	47.5
Oil capacity, G	Imp gal	15.4	17.6	19.8	28.6	28.6	39.6	39.6
Oil capacity, G	cu.ft	2.47	2.83	3.18	4.55	4.55	6.3	6.3
Oil capacity, G W	l	58	78	78	113	113	180	180
Oil capacity, G W	US gal	15.3	20.6	20.6	34.3	34.3	47.5	47.5
Oil capacity, G W	Imp gal	12.8	17.1	17.1	28.6	28.6	39.6	39.6
Oil capacity, G W	cu.ft	2.04	2.75	2.75	3.96	3.96	6.3	6.3
Sound pressure level, G Pack	dB(A)	74	74	74	75	75	77	78
Sound pressure level, G W Pack	dB(A)	74	74	74	72	72	74	75
Maximum cooling water flow	l/s	2.5	3.0	3.6	5.5	6.9	7.1	8.1
Maximum cooling water flow	cfm	5.3	6.4	7.6	11.7	14.6	15.0	17.2
Minimum cooling water flow	l/s	0.8	0.9	1.1	1.3	1.6	2.0	2.3
Minimum cooling water flow	cfm	1.7	1.9	2.3	2.8	3.4	4.2	4.9

Data for 8.6 bar (125 psi) 60 Hz compressors

	Units	G 110	G 132	G 160	G 200	G 250	G 315	G 355
Maximum working pressure, G Pack	bar(e)	9.1	9.1	9.1	9.1	9.1	9.1	9.1
Maximum working pressure, G Pack	psig	132	132	132	132	132	132	132
Nominal working pressure, G Pack	bar(e)	8.6	8.6	8.6	8.6	8.6	8.6	8.6
Nominal working pressure, G Pack	psig	125	125	125	125	125	125	125
Motor shaft speed	r/min	1780	1780	1780	1780	1780	1780	1780
Power input, G Pack	kW	132	148	177	220	257	351	389
Power input, G Pack	hp	179	201	241	299	349	477	529
Power input, G W Pack	kW	128	142	171	211	248	336	375
Power input, G W Pack	hp	174	193	232	287	337	457	510
Oil capacity, G	l	70	80	90	130	130	180	180
Oil capacity, G	US gal	18.5	21.1	23.8	34.3	34.3	47.5	47.5
Oil capacity, G	Imp gal	15.4	17.6	19.8	28.6	28.6	39.6	39.6
Oil capacity, G	cu.ft	2.47	2.83	3.18	4.55	4.55	6.3	6.3
Oil capacity, G W	l	58	78	78	113	113	180	180
Oil capacity, G W	US gal	15.3	20.6	20.6	34.3	34.3	47.5	47.5
Oil capacity, G W	Imp gal	12.8	17.1	17.1	28.6	28.6	39.6	39.6
Oil capacity, G W	cu.ft	2.04	2.75	2.75	3.96	3.96	6.3	6.3
Sound pressure level, G Pack	dB(A)	74	74	74	75	75	77	78
Sound pressure level, G W Pack	dB(A)	74	74	74	72	72	74	75
Maximum cooling water flow	l/s	2.5	3.0	3.6	5.5	6.9	7.1	8.1
Maximum cooling water flow	cfm	5.3	6.4	7.6	11.7	14.6	15.0	17.2
Minimum cooling water flow	l/s	0.8	0.9	1.1	1.3	1.6	2.0	2.3
Minimum cooling water flow	cfm	1.7	1.9	2.3	2.8	3.4	4.2	4.9

Data for 10.4 bar (150 psi) 60 Hz compressors

	Units	G 110	G 132	G 160	G 200	G 250	G 315	G 355
Maximum working pressure, G Pack	bar(e)	10.9	10.9	10.9	10.9	10.9	10.9	10.9
Maximum working pressure, G Pack	psig	157	157	157	157	157	157	157
Nominal working pressure, G Pack	bar(e)	10.4	10.4	10.4	10.4	10.4	10.4	10.4
Nominal working pressure, G Pack	psig	150	150	150	150	150	150	150

	Units	G 110	G 132	G 160	G 200	G 250	G 315	G 355
Motor shaft speed	r/min	1780	1780	1780	1780	1780	1780	1780
Power input, G Pack	kW	131	150	176	222	260	348	383
Power input, G Pack	hp	178	204	239	302	354	473	521
Power input, G W Pack	kW	127	143	169	211	248	334	368
Power input, G W Pack	hp	173	193	230	287	337	454	500
Oil capacity, G	l	70	80	90	130	130	180	180
Oil capacity, G	US gal	18.5	21.1	23.8	34.3	34.3	47.5	47.5
Oil capacity, G	Imp gal	15.4	17.6	19.8	28.6	28.6	39.6	39.6
Oil capacity, G	cu.ft	2.47	2.83	3.18	4.55	4.55	6.3	6.3
Oil capacity, G W	l	58	78	78	113	113	180	180
Oil capacity, G W	US gal	15.3	20.6	20.6	34.3	34.3	47.5	47.5
Oil capacity, G W	Imp gal	12.8	17.1	17.1	28.6	28.6	39.6	39.6
Oil capacity, G W	cu.ft	2.04	2.75	2.75	3.96	3.96	6.3	6.3
Sound pressure level, G Pack	dB(A)	74	74	74	75	75	77	78
Sound pressure level, G W Pack	dB(A)	74	74	74	72	72	74	75
Maximum cooling water flow	l/s	2.5	3.0	3.6	5.5	6.9	7.1	8.1
Maximum cooling water flow	cfm	5.3	6.4	7.6	11.7	14.6	15.0	17.2
Minimum cooling water flow	l/s	0.8	0.9	1.1	1.3	1.6	2.0	2.3
Minimum cooling water flow	cfm	1.7	1.9	2.3	2.8	3.4	4.2	4.9

Data for 13.8 bar (200 psi) and 12.8 (185 psi) 60 Hz compressors

	Units	G 110	G 132	G 160	G 200	G 250	G 355
Maximum working pressure, G Pack	bar(e)	13.8	13.8	13.8	13.8	13.8	13.3
Maximum working pressure, G Pack	psig	200	200	200	200	200	193
Nominal working pressure, G Pack	bar(e)	13.3	13.3	13.3	13.3	13.3	12.8
Nominal working pressure, G Pack	psig	193	193	193	193	193	185
Motor shaft speed	r/min	1780	1780	1780	1780	1780	1780
Power input, G Pack	kW	132	152	181	226	269	390
Power input, G Pack	hp	179	207	246	307	366	530
Power input, G W Pack	kW	128	146	172	217	260	375
Power input, G W Pack	hp	174	199	234	295	354	510
Oil capacity, G	l	70	80	90	130	130	180
Oil capacity, G	US gal	18.5	21.1	23.8	34.3	34.3	47.5
Oil capacity, G	Imp gal	15.4	17.6	19.8	28.6	28.6	39.6
Oil capacity, G	cu.ft	2.47	2.83	3.18	4.55	4.55	6.3
Oil capacity, G W	l	58	78	78	113	113	180

	Units	G 110	G 132	G 160	G 200	G 250	G 355
Oil capacity, G W	US gal	15.3	20.6	20.6	34.3	34.3	47.5
Oil capacity, G W	Imp gal	12.8	17.1	17.1	28.6	28.6	39.6
Oil capacity, G W	cu.ft	2.04	2.75	2.75	3.96	3.96	6.3
Sound pressure level, G Pack	dB(A)	74	74	74	75	75	78
Sound pressure level, G W Pack	dB(A)	74	74	74	72	72	75
Maximum cooling water flow	l/s	2.5	3.0	3.6	5.5	6.9	8.1
Maximum cooling water flow	cfm	5.3	6.4	7.6	11.7	14.6	17.2
Minimum cooling water flow	l/s	0.8	0.9	1.1	1.3	1.6	2.3
Minimum cooling water flow	cfm	1.7	1.9	2.3	2.8	3.4	4.9

*The A-weighted emission sound pressure level is measured according to the standard EN ISO 2151:2004

10 Pressure equipment directives

PED instructions G 110 up to G 160

Product : G 110-160

This machine is a pressure assembly of cat. III according to 97/23/EC.

Parts of article 3.3 of 97/23/EC are subject to good engineering practice.

Parts of category I according to 97/23/EC are integrated into the machine and fall under the exclusion of article I, section 3.6.

Parts subject to the Simple Pressure Vessel Directive 87/404/EEC are excluded from 97/23/EC according to article I, section 3.3.

The following pressure bearing parts are of category higher than I :

Oil separator vessel : Cat III

For G 110: design pressure 15 bar(e), content 160 l

For G 132 and G 160: design pressure 15 bar(e), content 170 l

Air cooler: Cat II

For G 132 and G 160: Design pressure 15 bar(e), content 13.8 l.

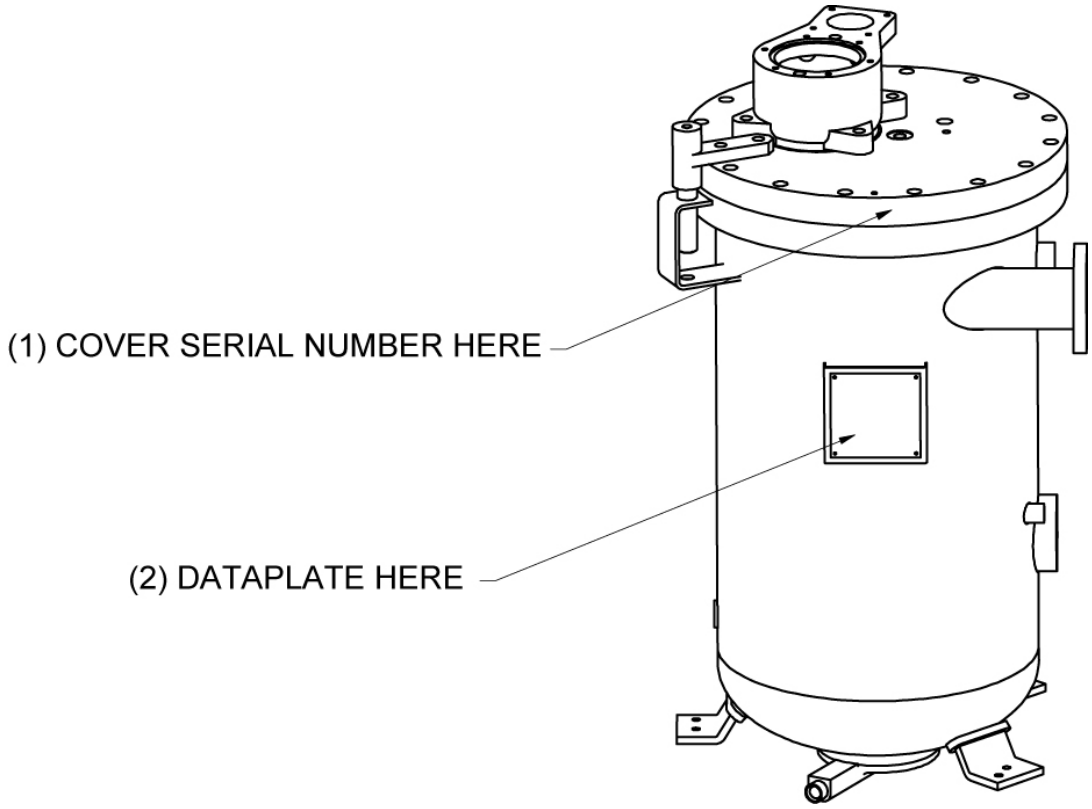
Design standard : ASME section VIII div. 1.

Safety valve : Cat IV

Design code : AD-Merkblätter, A2

Safety Standard : EN1012

Re-inspection data



Text on figure:

Reference	Description
(1)	Cover serial number here
(2)	Data plate here

Minimum wall thickness after corrosion of the vessel	9.8mm (0.386 in)
Minimum wall thickness after corrosion of the cover	48 mm (1.89 in)
Lifetime	infinite according to AD2000-S1 § 4.2.2.
Internal pressure range Delta p	12 bar (174 psi)
Welding factor vessel	0.85

11 Documentation

Declaration of conformity

Typical example of a Declaration of Conformity document

Atlas Copco

EC DECLARATION OF CONFORMITY

We, Atlas Copco (Wuxi) Compressor Co., Ltd., declare under our sole responsibility, that the product
Machine name *Air Compressor*
Machine type :
Serial number :

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

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

	Directive on the approximation of laws of the Member States relating to		Harmonized and/or Technical Standards used	Att' mnt
a.	Pressure equipment	97/23/EC		X
b.	Machinery safety	2006/42/EC	EN ISO 12100 – 1 EN ISO 12100 – 2 EN 1012 – 1	
c.	Simple pressure vessel	2009/105/EC		
d.	Electromagnetic compatibility	2004/108/EC	EN 61000-6-2 EN 61000-6-4	
e.	Low voltage equipment	2006/95/EC	EN 60034 EN 60204-1 EN 60439	X
f.				
g.	Equipment and protective systems in potentially explosive atmospheres	94/9/EC		
h.	Medical devices General	93/42/EEC	EN ISO 13845 EN ISO 14971 EN 737-3	

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

Atlas Copco Airpower n.v., Boomsesteenweg 957 B-2610 Wilrijk is authorized to compile the technical file.

Conformity of the product and the specification to the directives

Issued by General Manager

Name *Eric Langmans*

Signature

Date

Atlas Copco (Wuxi) Compressor Co., Ltd. Part of the Atlas Copco Group

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9829 3006 25 ed.03 2011-10-25

p.1(18)

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What sets Atlas Copco apart as a company is our conviction that we can only excel in what we do if we provide the best possible know-how and technology to really help our customers produce, grow and succeed.

There is a unique way of achieving that - we simply call it the Atlas Copco way. It builds on **interaction**, on long-term relationships and involvement in the customers' process, needs and objectives. It means having the flexibility to adapt to the diverse demands of the people we cater for.

It's the **commitment** to our customers' business that drives our effort towards increasing their productivity through better solutions. It starts with fully supporting existing products and continuously doing things better, but it goes much further, creating advances in technology through **innovation**. Not for the sake of technology, but for the sake of our customer's bottom line and peace-of-mind.

That is how Atlas Copco will strive to remain the first choice, to succeed in attracting new business and to maintain our position as the industry leader.

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