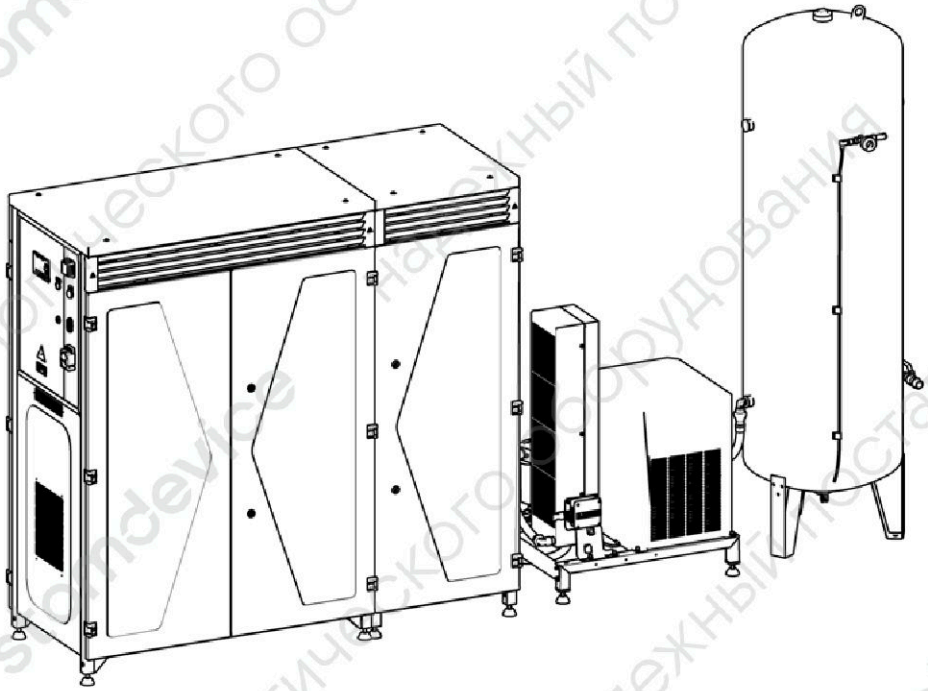
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AIR FOR LIFE



DK50-9x4VRT/M

EN User manual

October 2018

Z_2195/2018
Chap. 3 – pgs.5

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COMPRESSOR

DK50 9x4VRT/M

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IMPORTANT INFORMATION

1. CONFORMITY WITH THE REQUIREMENTS OF EUROPEAN UNION DIRECTIVES

This product confirms to the requirements of Directives 93/42/EEC (Medical Device Directive) and 2006/42/EEC and is safe for the intended use when all safety instructions are followed.

2. INTENDED USE

The compressor is used as a central source of clean, oil-free compressed air to power individual devices and equipment with compressed air used in large dental clinics and laboratories, in hospitals wards and other settings where the parameters and properties of the compressed air are suitable to the specific application.

Compressed air supplied by the compressor is unsuitable for use with artificial lung ventilation devices without further filtration.

Any use of the product outside the framework of its intended use is considered improper use. The manufacturer is not liable for any damages or injury resulting from misuse.

3. CONTRAINDICATIONS AND SIDE-EFFECTS

There are no contraindications or side-effects known.

4. WARNINGS AND SYMBOLS

The following labels and symbols are used in the Installation, Operation and Maintenance Manual and on the equipment and its packaging to indicate important details and information:

- General warnings
- Danger, electrocution hazard
- Read the user manual
- CE conformity marking
- Compressor is remote-controlled and may start without warning
- Warning! Hot surface
- Earth (ground) connection
- Terminal for ground connection
- Alternating current
- Handling mark on package – FRAGILE
- Handling mark on package – THIS WAY UP
- Handling mark on package – DO NOT EXPOSE TO RAIN
- Handling mark on package – TEMPERATURE RANGE
- Handling mark on package – LIMITED STACKING
- Mark on package – RECYCLABLE MATERIAL
- Manufacturer

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5. NOTICE

The product is designed and manufactured to be safe for the user and its surrounding environment when used in the defined manner. Keep the following warnings in mind. This keeps risks to a minimum.

5.1. General warnings

READ THE USER MANUAL CAREFULLY BEFORE USING THE DEVICE AND KEEP IT FOR FUTURE USE!

- The user manual aids in the correct installation, operation and maintenance of the product. It is included with the product and must be kept close to it at all times. Careful review of this manual will provide the information necessary for the intended use and correct operation of the product.
- Equipment containing the condensing dryer is provided with a separate manual for these components.
- Only the original packaging ensures optimal protection of the equipment during transport. Save this packaging should you ever have to return the equipment. The manufacturer is not liable for damages caused by faulty packaging when returning a product for transport during the warranty period.
- Use a fork lift truck or similar hoisting equipment for any movement or handling of the product.
- This warranty does not cover damages originating from the use of accessories or consumables other than those specified or suggested by the manufacturer.
- The manufacturer only guarantees the safety, reliability and function of the equipment if:
  - installation, new settings, changes, modifications and repairs are performed by the manufacturer or its representative, or a service provider authorized by the manufacturer..
  - the product is used pursuant to the user manual.
- The user manual corresponds to the configuration of the product and its compliance with applicable safety and technical standards at the time of its printing. The manufacturer reserves all rights for the protection of its configuration, methods and names.
- Translation of the user manual is performed in accordance with the best available knowledge. The Slovak version is to be used in the event of any uncertainties.

5.2. General safety warnings

The manufacturer designed and manufactured the product to minimise all risks when used correctly for the intended purpose. The manufacturer considers it responsible for specifying the following general safety precautions.

- Use and operation of the product must comply with all local codes and regulations. The operator and user are responsible for following all appropriate regulations in the interests of performing work safely.
- Only the use of original parts guarantees the safety of operating personnel and reliable operation of the product itself. Only use accessories and parts mentioned in the technical documentation or expressly approved by the manufacturer.
- The manufacturer assumes no liability for any damages or other risks if any accessories or parts other than mentioned in the technical documentation or expressly approved by the manufacturer are used. This warranty does not cover damages originating from the use of accessories or consumables other than those specified or suggested by the manufacturer.
- The user must make sure that the equipment is functioning correctly and safely every time it is used.
- The user / operator must be capable of safely using and properly operating the

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product. The user must be trained to operate the product and must be experienced.

- Create operating regulations for the person operating the product.
- Wear hearing protection when starting the product, during operation and any time it is in operation.
- Operating the product in operating premises that may contain mixtures of flammable gases such as operating rooms or in areas that may contain explosive mixtures of particulate, such as coal dust, is prohibited.
- Flammable materials pose an explosion hazard!
- Use of the product in wet or damp environments is prohibited.
- The user shall inform the supplier immediately if any problem occurs in direct connection with the operation of the equipment.

5.3. Electrical system safety warnings

- The equipment may only be connected to a properly installed socket connected to earth (grounded).
- Before the product is plugged in, make sure that the mains voltage and frequency stated on the product are the same as the power mains.
- Check for possible damage to the product and the connected air distribution system before use. Replace damaged pneumatic and electrical conductors immediately.
- Immediately disconnect the product from the mains in hazardous situations or when a technical malfunction occurs.
- During repairs and maintenance, ensure that:
  - product is disconnected from the mains
  - pressure is released from all lines
- Only the manufacturer, or a qualified specialist trained by the manufacturer may install, modify or upgrade the product itself.
- Only a qualified electrician may install electrical components!

6. STORAGE AND TRANSPORT

The compressor is shipped from the factory in a transport packaging. This protects the device from damage during transport.

The original compressor packaging must be used for transport whenever possible. The compressor is to be shipped in a vertical position and must be secured using transport straps.

Protect the compressor from humid and dirty environments and extreme temperatures during transport and storage. Store a compressor in its original packaging in a warm, dry and dust-free area. Do not store near any chemical substances.

Keep packaging material if possible. If not, please dispose of the packaging material in an environmentally-friendly way. Packaging cardboard can be recycled with old paper.

The compressor must be transported only when all air has been vented. Before moving or transporting the compressor, release all the air pressure from the tank and hoses and drain the condensed water.

Ambient conditions for storage and transport

Products may only be stored and transported in vehicles that are free of any traces of volatile chemicals under the following conditions :

Temperature : *+0°C až +50°C,*
Max. relative humidity: *90%,*

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7. TECHNICAL DATA

Compressors are designed for dry and well-ventilated indoor environments with the following conditions:

Temperature : *+5°C to +40°C,*
Max. relative humidity.: *70%,*
Max. absolute humidity.: *15 g/m³.*

Tab.1

Type		DK50 9x4VRT/M	DK50 9x4VRTS/M
Output at 6 bar	l/min	2380	2380
Voltage / frequency	V / Hz	3 x 400 / 50	3 x 400 / 50
Current draw (max.)	A	45	45
Main circuit breaker	A	50	50
Main feeder gauge	mm^2	10	10
Enclosure		IP10	IP30
Air tank capacity	l	500	500
Working pressure	bar	**6 ÷ 8**	**6 ÷ 8**
Safety valve	bar	10	10
Noise level	dB	85	74
Total weight of compressor (net)	kg	747	817
Weight - compressor module	kg	540	610
Weight - dryer module	kg	80	80
Weight of air tank	kg	127	127
Compressor dimensions, total (w x d x h)	mm	3800x705 x2100	3800x705 x2100
Dimensions - compressor module (w x d x h)	mm	1840x630 x1730	1860x705 x1760
Dimensions – ED108 dryer module (w x d x h)	mm	760x580x1050	760x580x1050
Air tank dimensions (w x d x h)	mm	770x705 x2100	770x705 x2100
Operating mode		S1 – 100%	S1 – 100%
Dryer performance with condensation dryer (ED108) (PDP*)		+3°C	+3°C
Time to fill air tank from 0 to 7 bar	s	50	50
Recommended cooling air changes in space	m^3/h	3250	3250
Electrical class		class I.	class I.

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Tab.2

Type		DK50 9x4VRT/M	DK50 9x4VRTS/M
Output at 8 bar	l/min	1780	1780
Voltage / frequency	V / Hz	3 x 400 / 50	3 x 400 / 50
Current draw (max.)	A	47	47
Main circuit breaker	A	50	50
Main feeder gauge	mm^2	10	10
Enclosure		IP10	IP30
Air tank capacity	l	500	500
Working pressure	bar	**8 ÷ 10**	**8 ÷ 10**
Safety valve	bar	11	11
Noise level	dB	80	69
Total weight of compressor (net)	kg	747	817
Weight - compressor module	kg	540	610
Weight - dryer module	kg	85	74
Weight of air tank	kg	127	127
Compressor dimensions, total (w x d x h)	mm	3800x705 x2100	3800x705 x2100
Dimensions - compressor module (w x d x h)	mm	1840x630 x1730	1860x705 x1760
Dimensions – ED108 dryer module (w x d x h)	mm	760x580x1050	760x580x1050
Air tank dimensions (w x d x h)	mm	770x705 x2100	770x705 x2100
Operating mode		S1 – 100%	S1 – 100%
Dryer performance with condensation dryer (ED108) (PDP*)		+3°C	+3°C
Time to fill air tank from 0 to 7 bar	s	50	50
Recommended cooling air changes in space	m^3/h	3250	3250
Electrical class		class I.	class I.

(*) Apply the correction factor for the ED180 dryer

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7.1. Free air delivery (FAD) correction due to elevation

FAD correction table

Elevation [MASL]	0 - 1500	1501 - 2500	2501 - 3500	3501 - 4500
FAD [l/min]	FAD x 1	FAD x 0.8	FAD x 0.71	FAD x 0.60

FAD reference conditions:

Elevation: 0 MASL
Temperature: 20°C
Atmospheric pressure: 101 325 Pa
Relative humidity: 0%

7.2. Dryer performance correction

ED180 dryer reference values

Temperature of air entering the dryer	t_{inlet}	°C	35 (max.55)
Ambient temperature	t_0	°C	25 (max.45)
Working pressure	p	bar	7 (max.16)
Pressure dew point	PDP	°C	+3 (-22 atm.)

ED180 dryer correction factors

Correction factor for working pressure							
p (bar)	4	5	6	7	8	9	10
F_{C1}	0.78	0.85	0.93	1.0	1.06	1.11	1.15

Correction factor for temperature of compressed air entering the dryer							
t_{inlet}(°C)	30	35	40	45	50	55	
F_{C2}	1.2	1.0	0.85	0.71	0.58	0.49	

The cooler cools the compressed air to a temperature of ~19°C higher than the ambient temperature. Therefore:
$t_{inlet} = t_o + 19°C$
It means E.G. at ambient temperature of $t_o = 16°C$, $t_{inlet} = 16° + 19° = 35°C \rightarrow F_{C2} = 1,0$

Dew point correction factor							
PDP (°C)	3	4	5	6	7	8	9
F_{C3}	1	1.04	1.09	1.14	1.18	1.25	1.3

Correction factor for ambient temperature							
t_o (°C)	25	30	35	40			
F_{C4}	1	0.96	0.92	0.88			

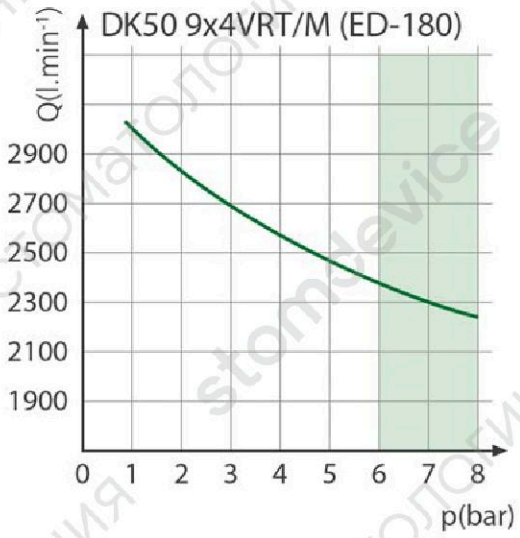
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Calculation to determine dryer pressure dew point value:

$$F_{C3} = \frac{Q_{skut}}{Q_n \cdot F_{C1} \cdot F_{C2} \cdot F_{C4}}$$

Q_{skut} = actual airflow
Q_n = nominal dryer flow (1800lit/min)
F_{C1} = working pressure correction factor
F_{C2} = correction factor for air entering the dryer
F_{C3} = dew point correction factor
F_{C4} = ambient temperature correction factor

See the user manual for the dryer on the CD for more information





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8. PRODUCT DESCRIPTION

8.1. Variants

DK50 9x4VRT/M compressor comprised of the following modules (Fig.1a):

- compressor module with 9 compressor air pumps and controls
- a (condensing) dryer module with connection hoses
- air tank module

DK50 9x4VRTS/M compressor comprised of the following modules (Fig. 1b):

- a compressor module with 9 compressor air pumps and controls along with a soundproof enclosure
- a (condensing) dryer module with connection hoses
- air tank module

Fig. 1a Compressor without enclosure

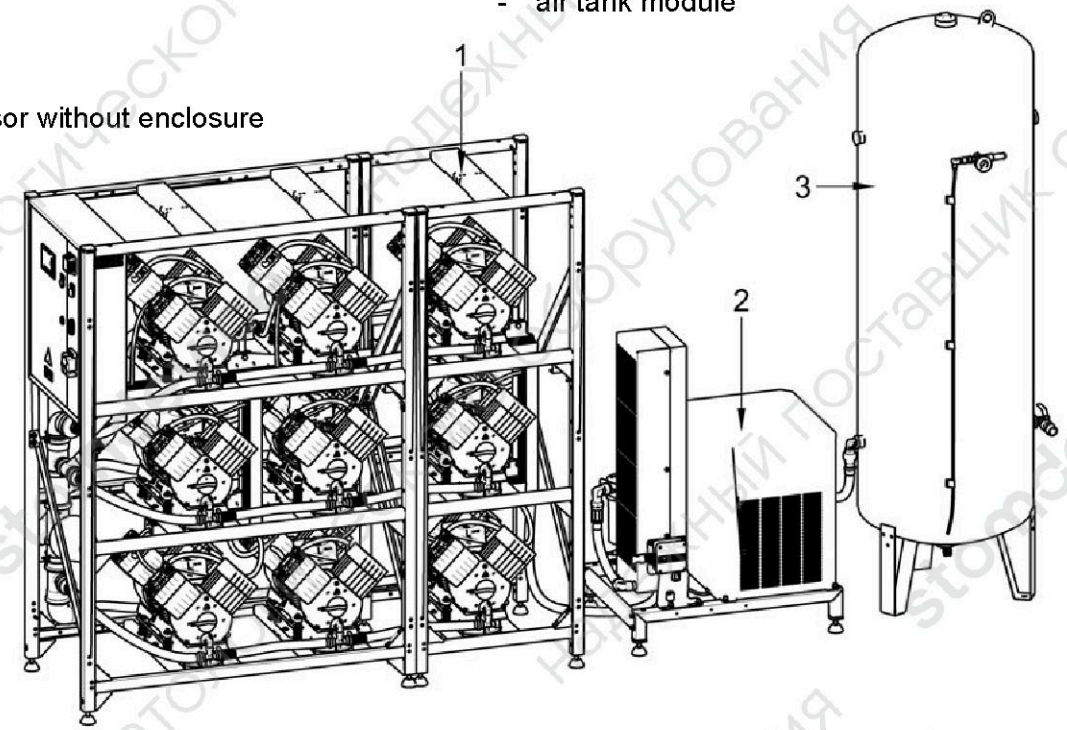
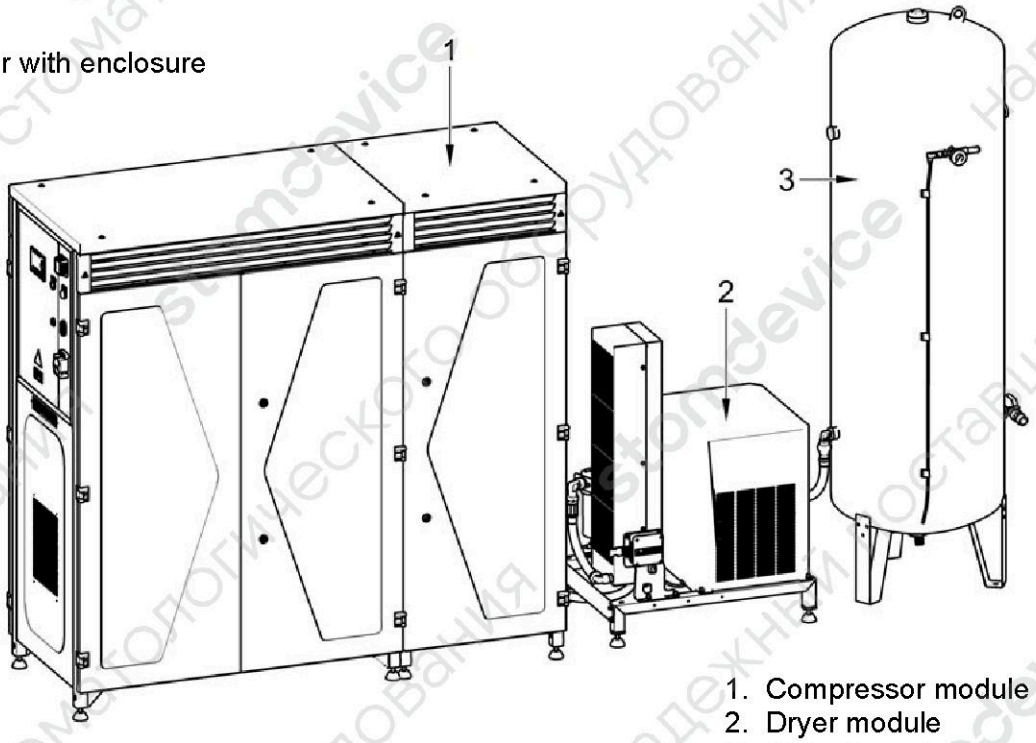


Fig.1b Compressor with enclosure



1. Compressor module
2. Dryer module
3. Air tank module

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8.2. Accessories

Accessories are available for compressor directly from the manufacturer (by special request in an order) or may be ordered directly from the manufacturer at a later time, see below. Individual accessories may be combined.

Accessories not included in the standard order must be ordered separately!

8.2.1. Central air pump intake kit

This kit provides a properly sized central filter located on the compressor module with intake ducts to the individual compressors. This extends the central filter replacement interval (now every 2,000 hours) and eliminates the need to replace filters on individual compressors with simple and fast replacement of the central filter.

Compressor type	Kit article no.
DK50 9x4VRT/M	447000001-067
DK50 9x4VRTS/M	447000001-066

8.2.2. Set of compressed air outlet filters

The compressor may be equipped with a set of filters if needed. A pressure regulator may be added to the set of filters. The set of filters is fully compatible with all compressors listed above.



If a higher level of air filtration is required, this specification must be agreed upon with the supplier and made clear in the order.

	Level of filtration	Pressure regulator	Kit article no.
SET OF FILTERS	3µm	yes	447000001-058
	3µm – 0.3µm		447000001-060
	3µm – 0.01µm		447000001-062
	1µm – AC/HC		447000001-064
	3µm – 0.3µm	no	447000001-061
	3µm – 0.01µm		447000001-063
	1µm – AC/HC		447000001-065

8.2.3. Compressor module enclosure (soundproofing)

Enclosing the compressor module reduces the noise generated by the compressor by up to 11 dB(a) compared to the existing module while ensuring sufficient cooling for the air pumps themselves for S1 class continuous operations.

Compressor type	With central intake	Kit article no.
DK50 9x4VRT/M	yes	447000001-068
DK50 9x4VRT/M	no	447000001-069

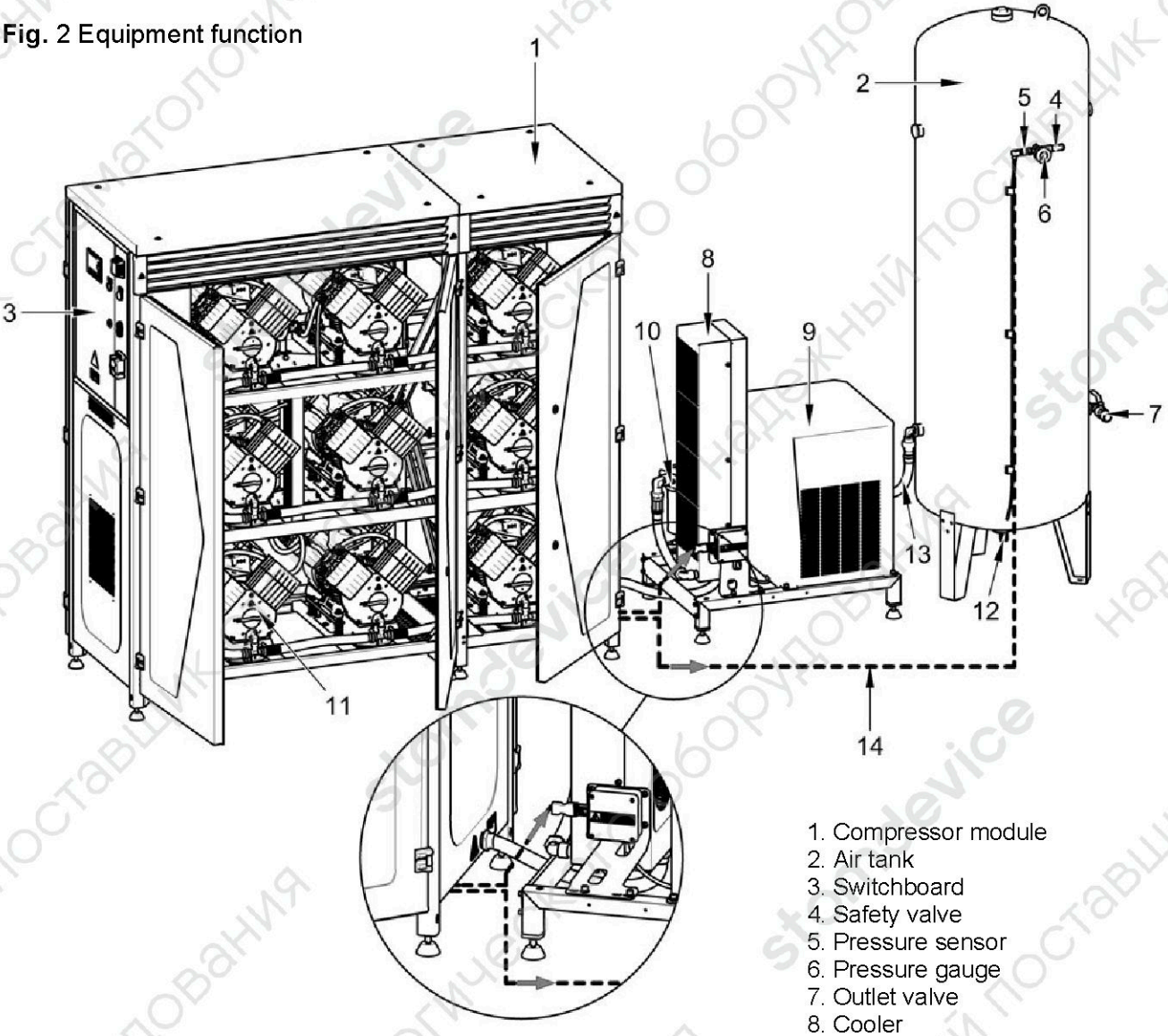
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9. EQUIPMENT FUNCTION

The compressor produces oil-free, dry, filtered compressed air to power pneumatic devices and equipment used in dental clinics and laboratories, hospital departments and more.

Compressor air pumps (11) draw in atmospheric air through the inlet filters and compress it through check valves and into the compressed air system. From there, the compressed air proceeds to the cooler (8), in which the compressed air is cooled for the first time and condensate is produced. The air then passes through a water separator and into the condensing dryer (9). This continues to lower the temperature of the air and produces more condensate. The temperature then rises to reduce the relative humidity. The clean, dry air then passes through a check valve and enters the air tank (2). Condensate from the water separator and the dryer is drained off into a 10 l vessel in the condensate drain kit. The dryer ensures the continuous and no-loss drying of the compressed air. The treated compressed air is then ready for additional use in the air tank.

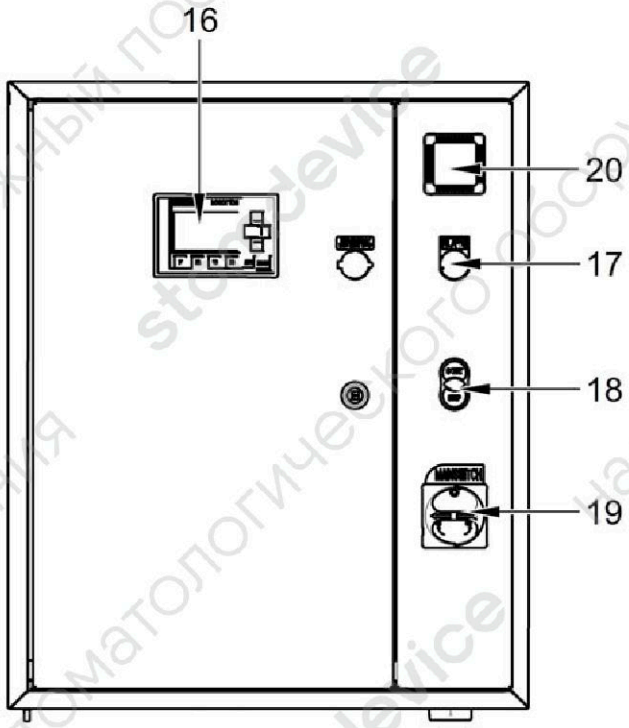
Fig. 2 Equipment function

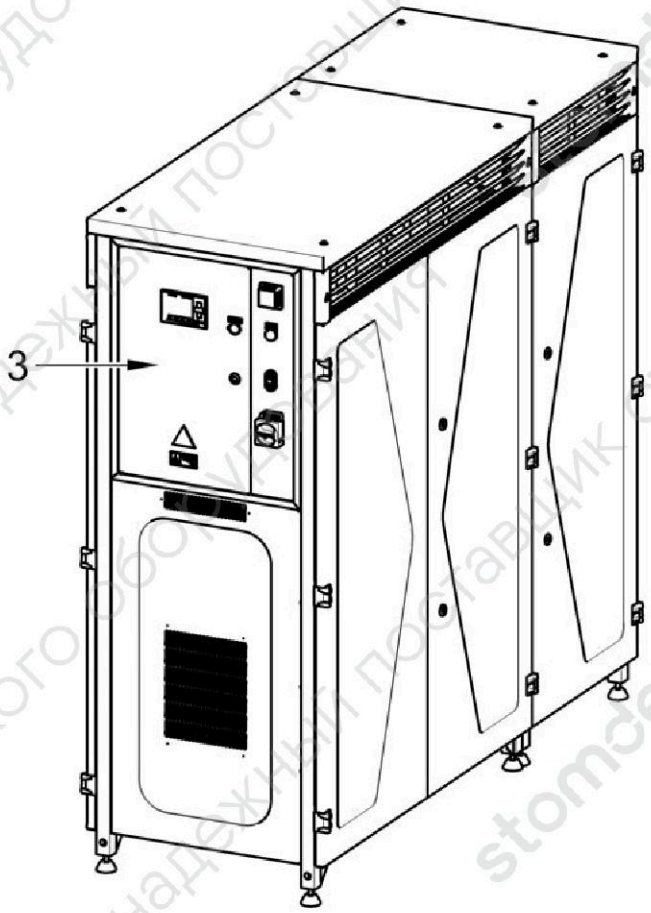


1. Compressor module
2. Air tank
3. Switchboard
4. Safety valve
5. Pressure sensor
6. Pressure gauge
7. Outlet valve
8. Cooler
9. Condensation dryer
10. Water separator
11. Compressor air pump
12. Drain valve
13. Connecting hoses
14. Electric cables

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Fig. 3 Electrical box / switchboard



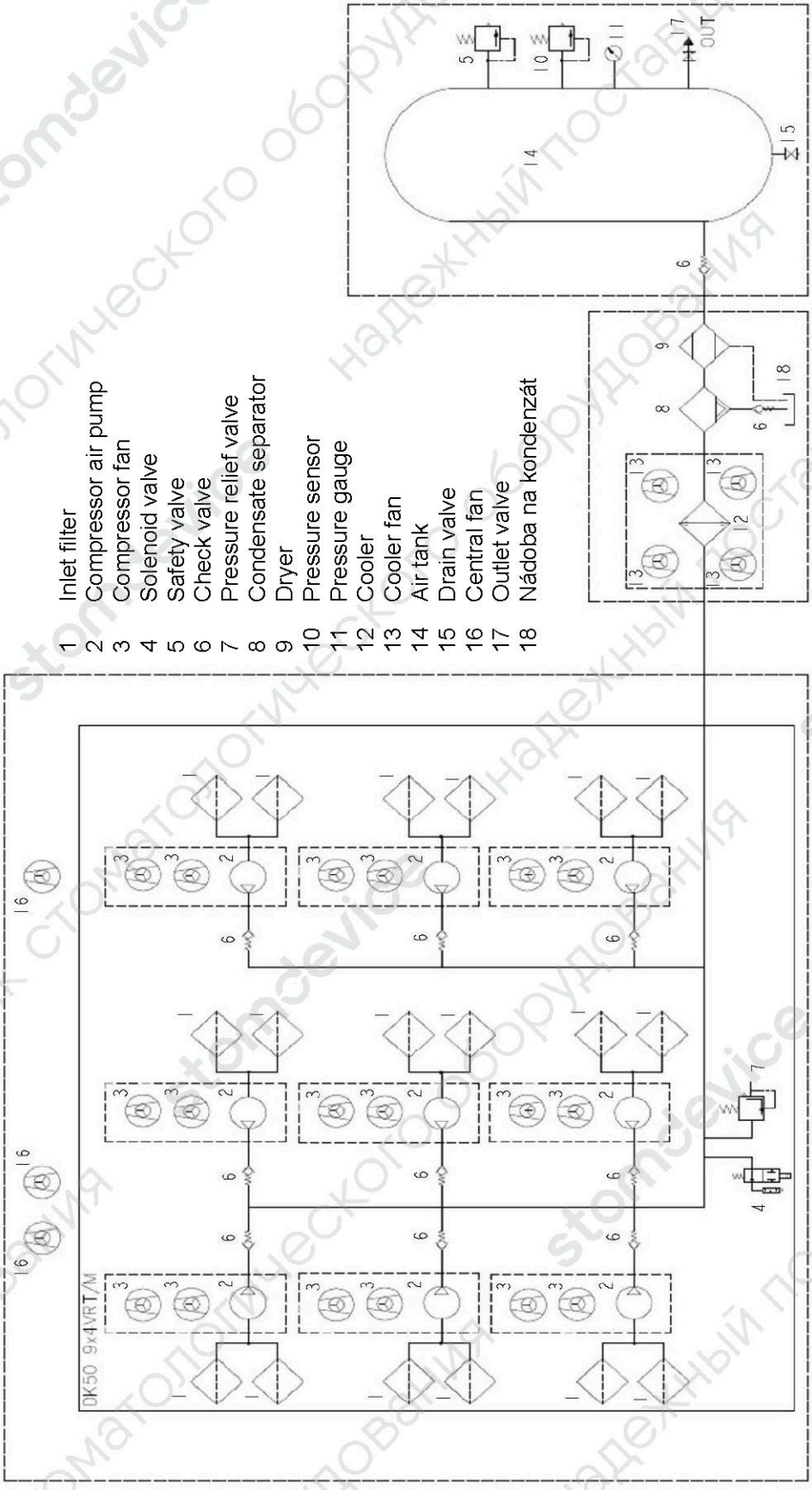


3. Electrical box / switchboard
16. Display
17. Alarm indicator
18. Start/stop button
19. Main switch
20. Temperature sensor

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10. PNEUMATIC DIAGRAM

DK50 9x4VRT/M and DK50 9x4VRTS/M



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INSTALLATION

11. CONDITIONS FOR USE

The compressor may only be installed and operated in dry, well-ventilated and dust-free areas.

The compressor must be installed so that it is accessible at all times for operating and maintenance. Please ensure that the nameplate on the device is readily accessible.

The compressor must stand on a flat, sufficiently stable base (be aware of the weight of the compressor, see Technical Data).

The compressor on the operator's side must be at least 70 cm from the wall to allow air flow for cooling purposes and to ensure the safety of the operator and maintenance personnel.

⚠ Operating the equipment in areas in which flammable mixtures may be present, such as in operating rooms, coal storage areas, etc., is prohibited. Flammable materials pose an explosion hazard.

⚠ Ensure power cords and air hoses are not damaged. The power cord may not show signs of stress and must be kept without tension (putting any objects on it is prohibited) and subjecting the cord to external heat in any form is prohibited.

Environmental requirements:

Temperature :	*+5°C to +40°C,*
Max. relative humidity:	*70%,*
Max. absolute humidity:	*15 g/m^3.*

Approximately 70% of the electrical energy used by the compressor air pumps is converted to heat and therefore the rooms in which a compressor assembly is installed must have additional ventilation to provide sufficient air exchange for cooling purposes (see the technical data)

Caution! Hot surface! Portions of the compressor may be hot and reach hazardous temperatures during compressor operations that may harm materials or operating staff.

Fire hazard!

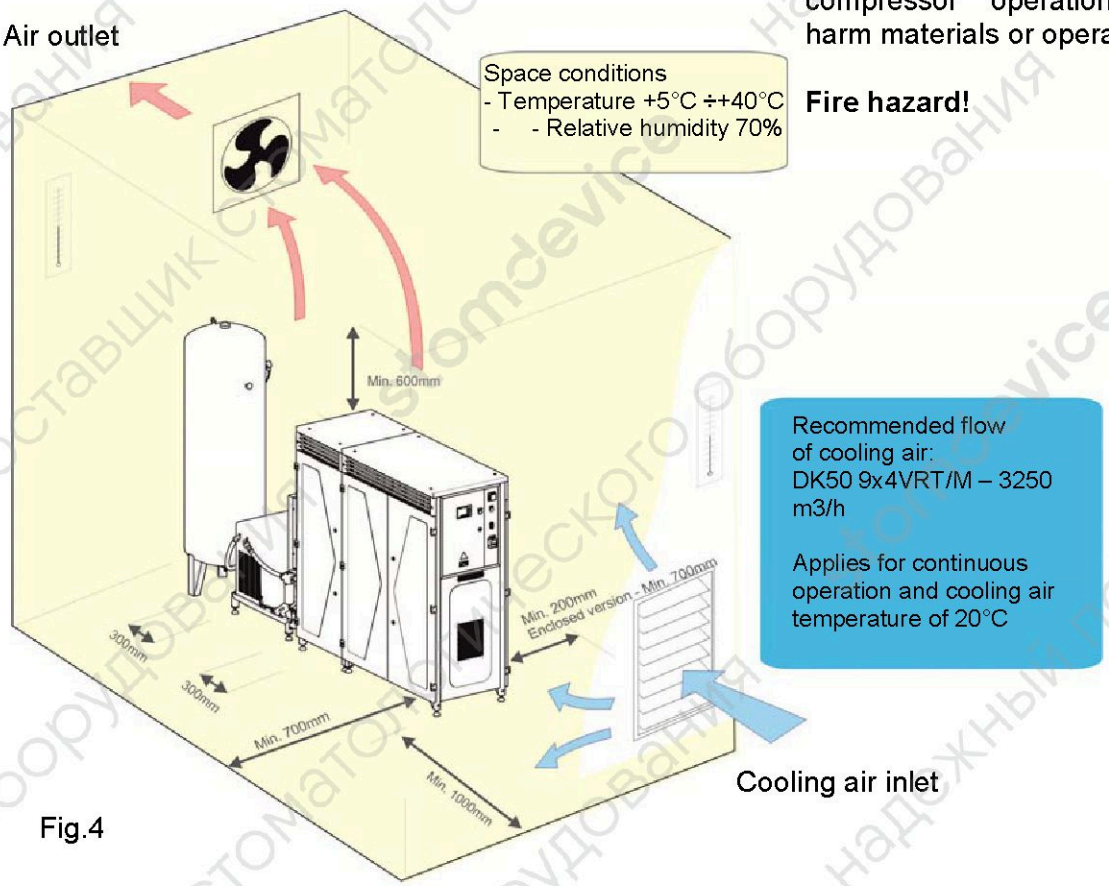


Fig.4

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12. PLACEMENT OF THE COMPRESSOR

Only a trained and qualified technician may install the product.

Unpack the compressor assembly (compressor, dryer and air tank modules) to remove all packaging and release the transport anchors from the pallet. Anchors securing all modules to the pallet.

12.1. Handling

Use a fork lift truck or similar hoisting equipment to handle and position the product.

Place the compressor module at the site of installation. (Fig.5a)

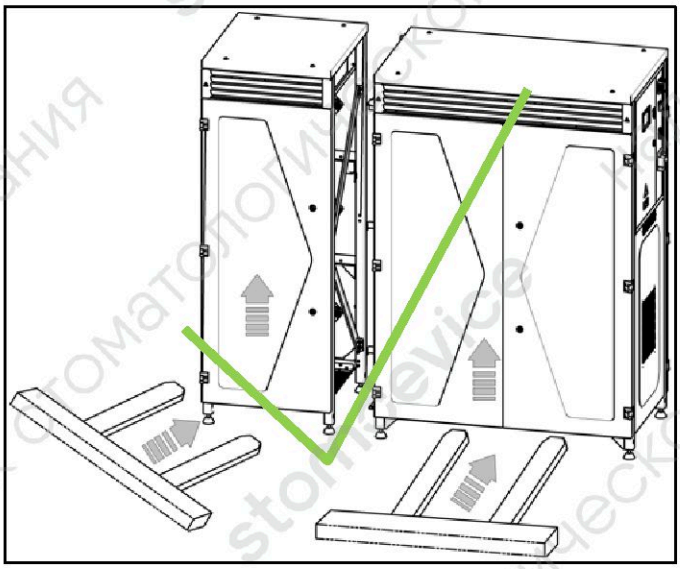


Fig.5a

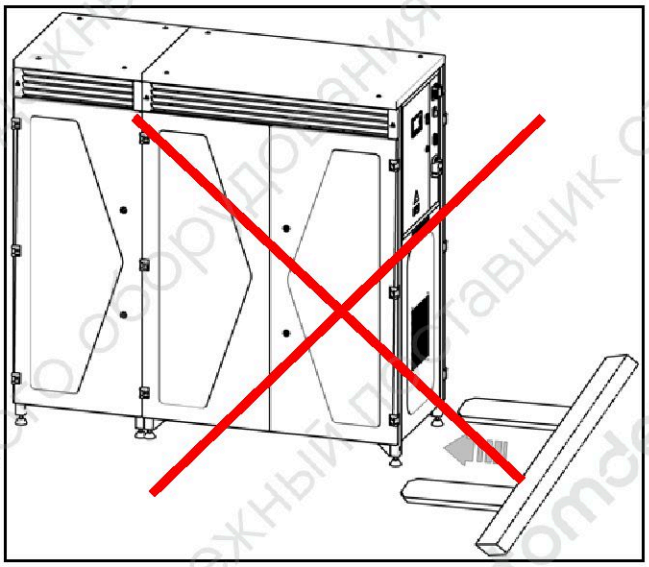


Fig.5b

Level the compressor assembly. (Fig.6)

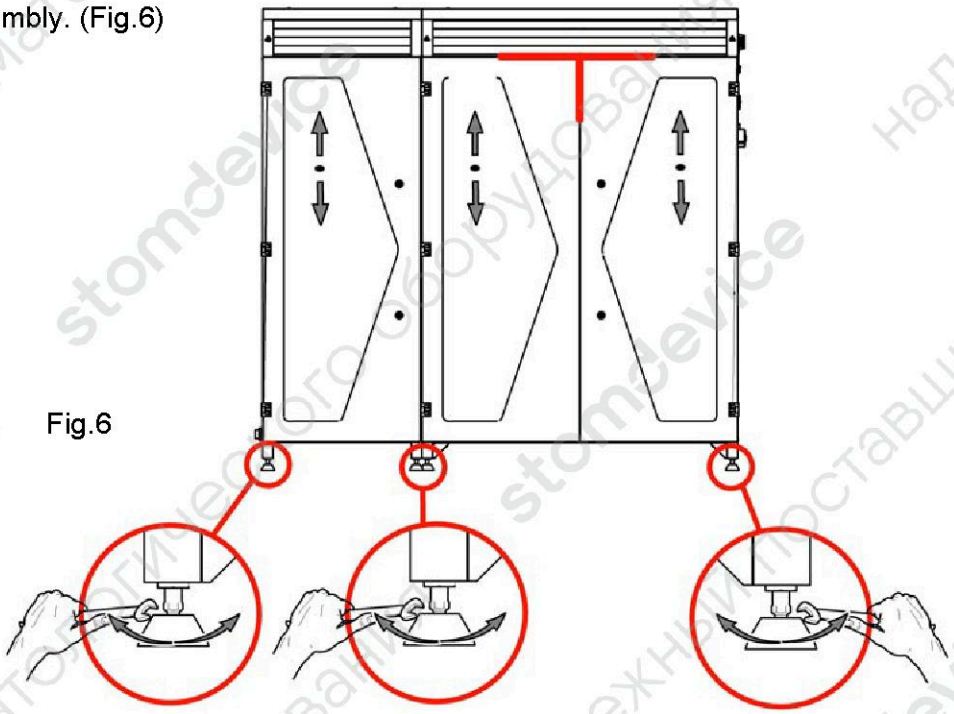


Fig.6

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Frame installation. (Fig. 7)

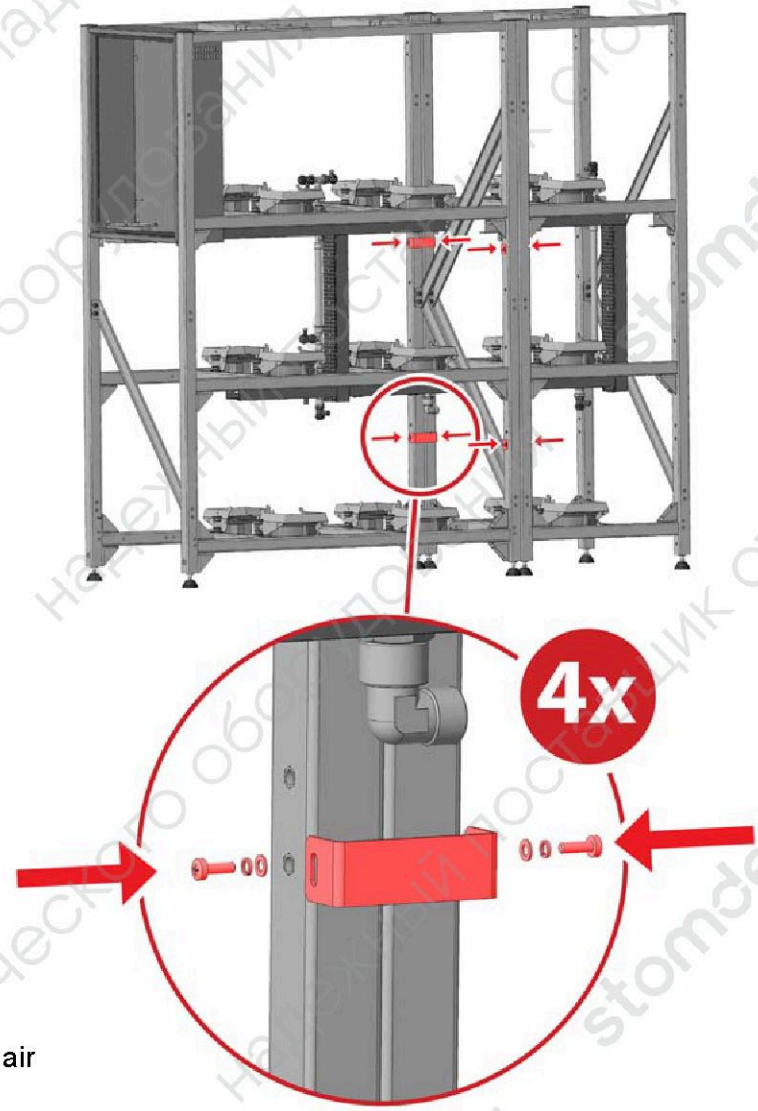


Fig.7

Remove the transport stabilizers from the air pumps. (Fig.8)

Remove all stabilizers on the air pumps once the compressor assembly has been positioned and levelled at the site of final installation!

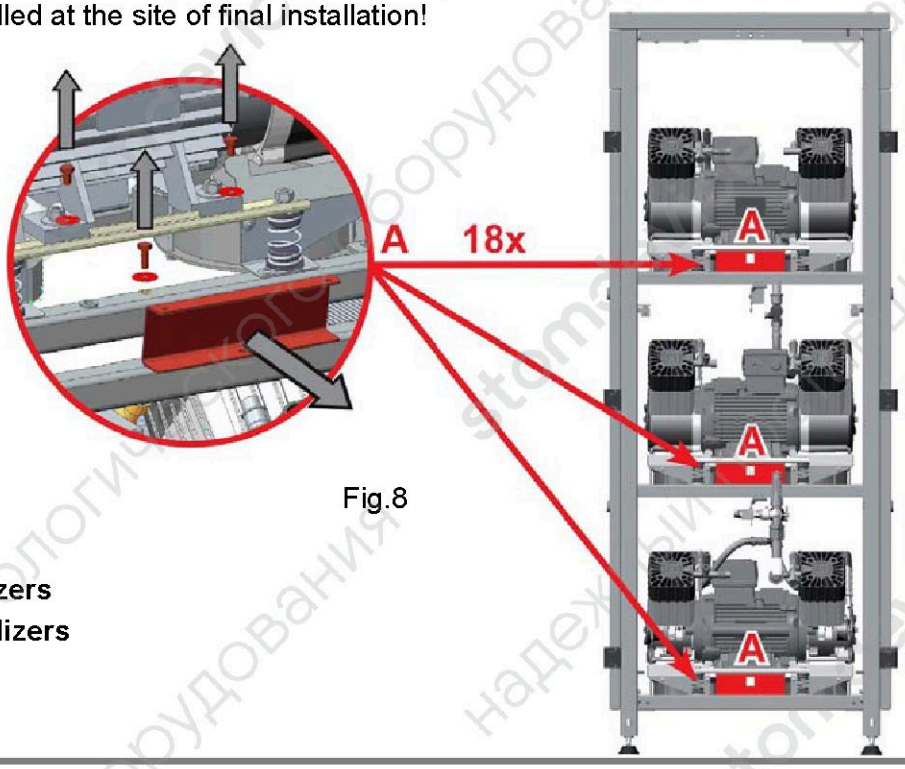
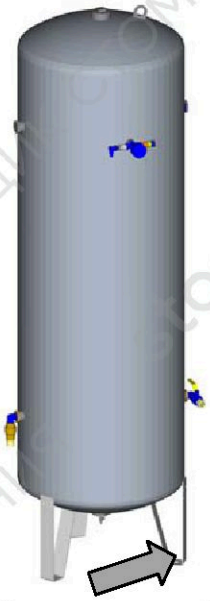


Fig.8

Releasing air pump stabilizers
DK50 9x4VRT/M - 18 stabilizers

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Position the air tank at the site of installation and anchor it to the floor! (Fig.9)

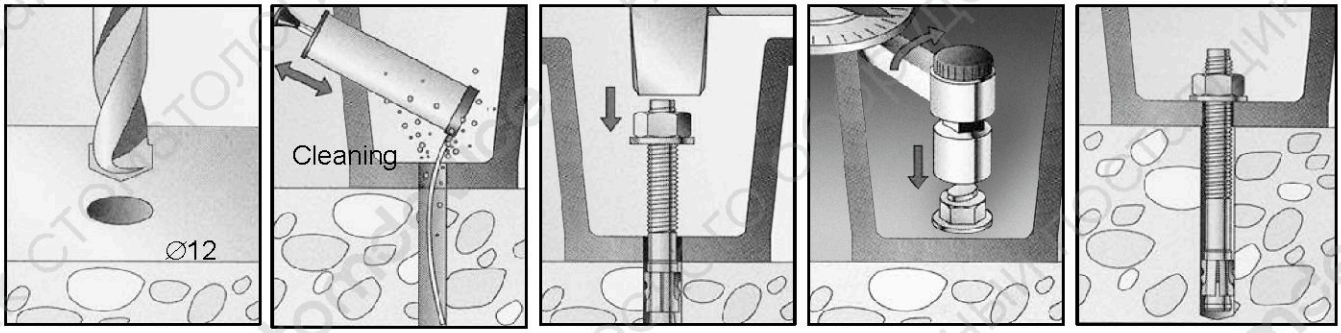


Fig.9

13. PNEUMATIC CONNECTIONS

Compressor module – dryer module – connect
the air tank with the provided hoses. (Fig.10)

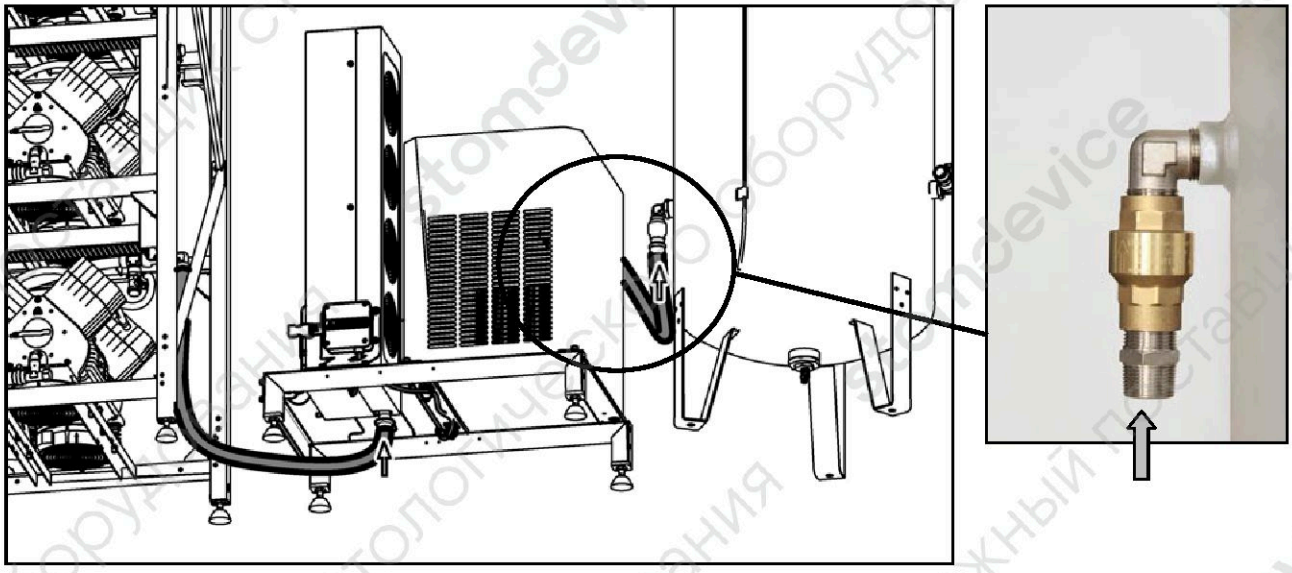


Fig.10

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- Connect the hoses from the water separator and the condensate drain from the dryer to connectors at the canister valves (Fig.11).

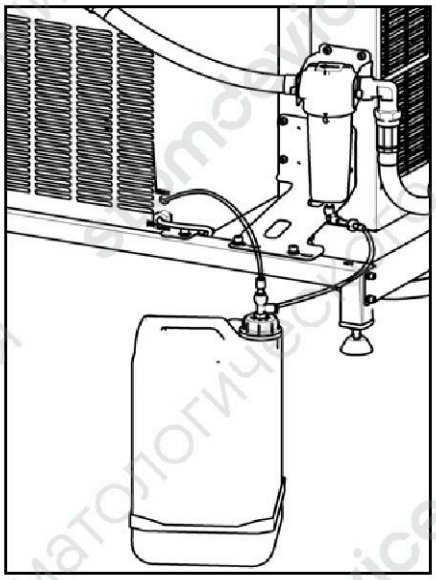


Fig.11

- A G3/4" threaded ball valve is installed on the compressed air outlet from the air tank (Fig.12)

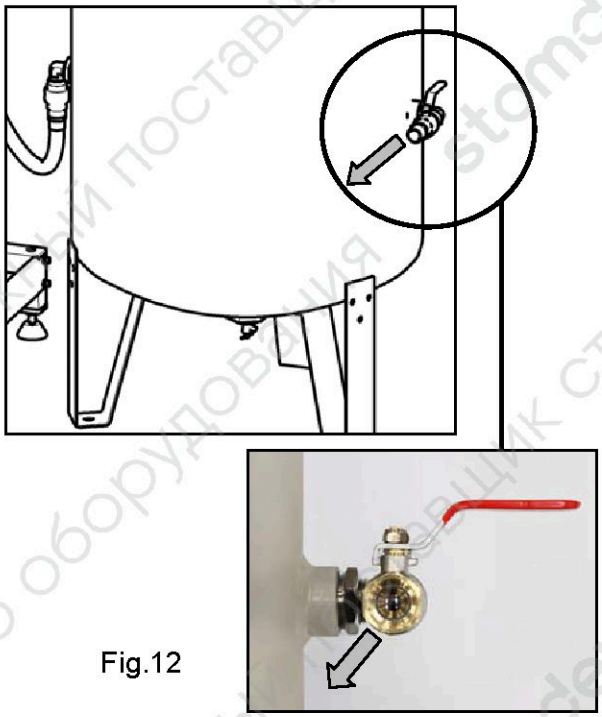


Fig.12

14. ELECTRICAL CONNECTIONS

Only a qualified electrician may install electrical components!

The operator is obliged to provide circuit protection for the equipment per the specifications in valid technical standards.

The product is delivered without a power cord.

- Connect the compressor module to the dryer module using the W22 cable (Fig. 14).
- Connect the compressor module to sensor B1 located on the air tank using the W23 cable, which is terminated with a valve connector. (Fig.13, Fig. 15)

The manufacturer recommends protecting cabling loose on the floor (W22 and W23) with a cable bridge

- Connect the power cord conductors to the power terminals L1, L2, L3, N/BU/, PE/GNYE/. (Fig. 16).
- Recommended configuration of phase conductors: L1-BN, L2-BK, L3-GY.

Cable type (minimum requirements) H05 VV-F_ 5G10

Route the power cord out of the enclosure as illustrated (Fig.17)

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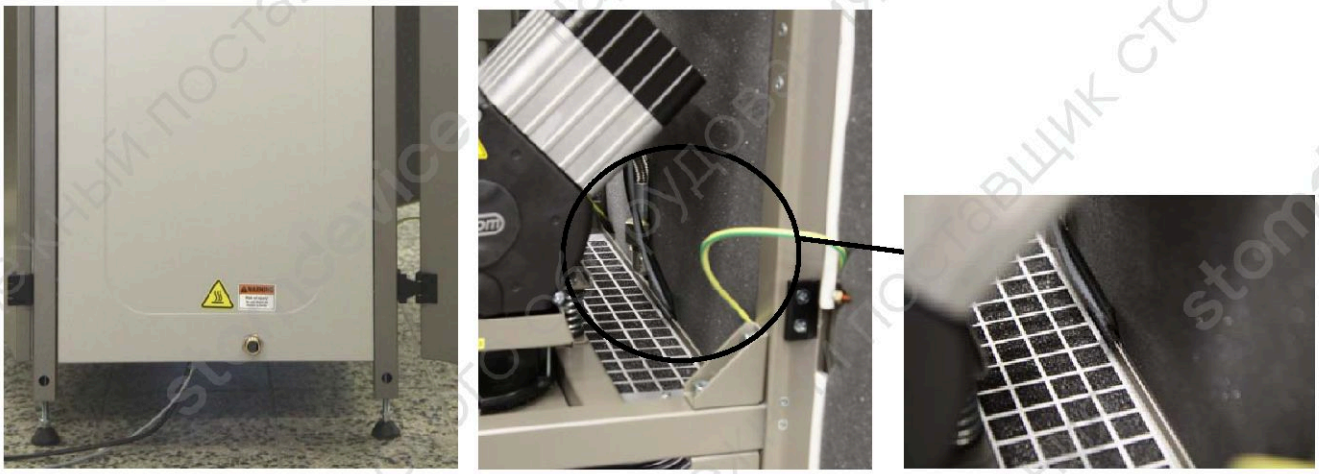


Fig.13



Fig.14

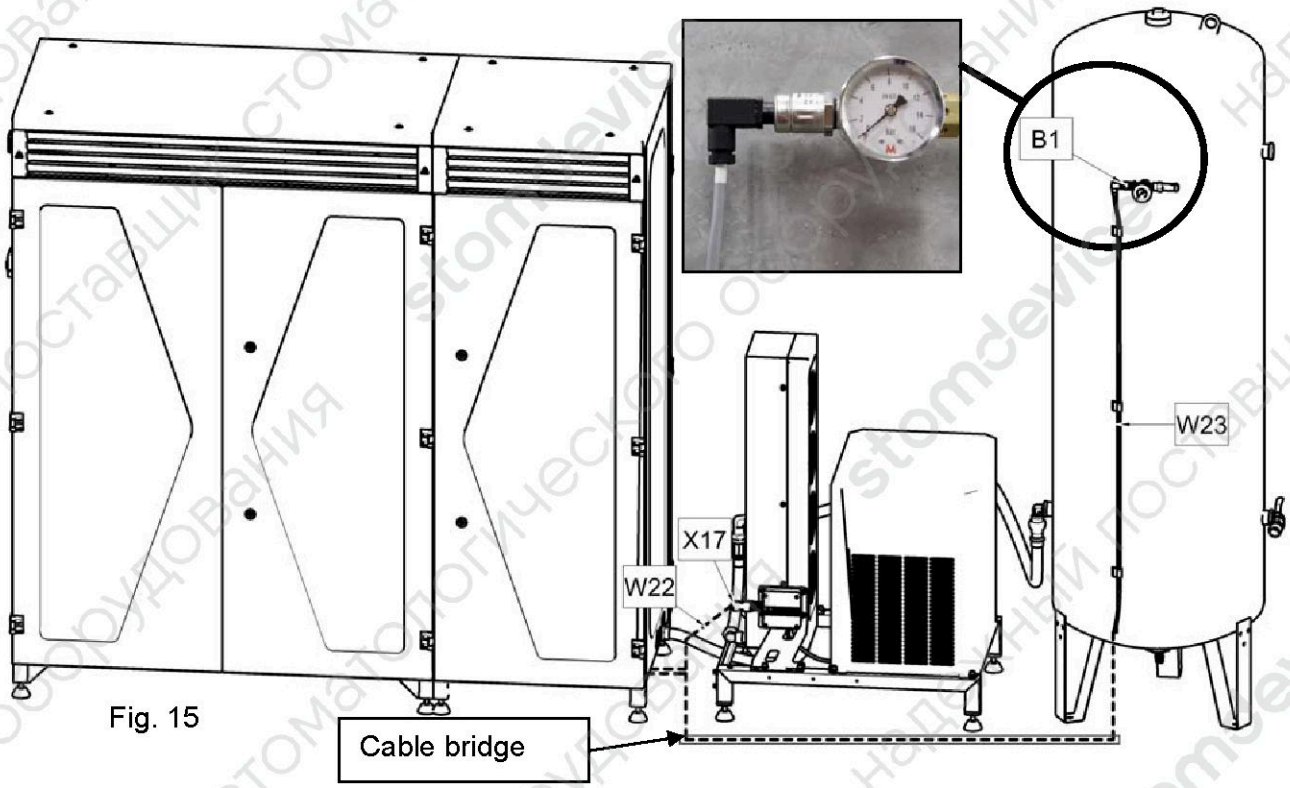


Fig. 15

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Fig.16

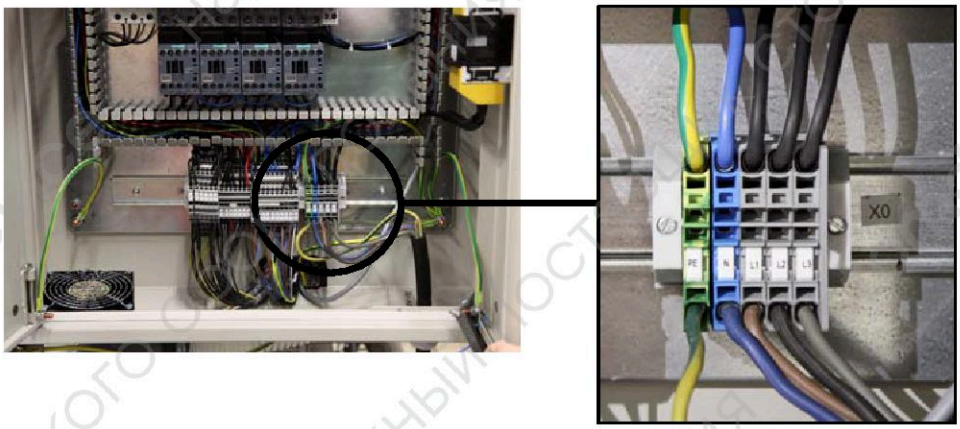


Fig.17



ETHERNET NETWORK CONNECTION

The compressor may be connected to an Ethernet 10/100 M network via the controller as follows:

1. Use the RJ-45 connector on the switchboard door to connect a cable to the Ethernet network.
2. The user shall then request IT staff to connect the compressor to the user's Ethernet network. The equipment's default IP addresses are: BM=192.168.0.3, TDE=192.168.0.2, sub-mask =255.255.255.0.

   or
3. The user shall request the configuration of IP addresses (specific or requested) from the manufacturer before the compressor is shipped, or configure the IP addresses (specific or requested) based on the manual (see the service manual) or via the compressor manufacturer's technical support for such purposes.

Web server

The controller has an integrated Web Server function that facilitates compressor monitoring via a PC, smartphone or tablet using a conventional web browser (Mozilla, Opera, Safari, Google Chrome, etc /

The process for logging into the Web Server function once the compressor is connected to an Ethernet network is as follows:
Open the web browser on a PC, smartphone or tablet and enter the IP address of the controller basic module **192.168.0.3**

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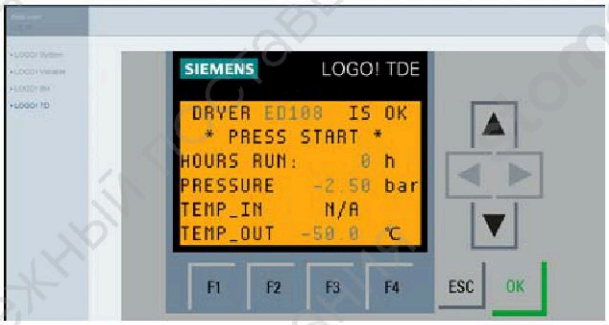
Enter the password “LOGO” and click on the “LOG on” button.



After logging in, the browser displays the first screen showing the system information for the controller itself: module generation, model, firmware (FW), IP address and activity status.



Click on the “LOGO! BM” function in the browser to display the current virtual status of the BM text display screen. Navigate through the screen using the cursor keys the same as on the real display



Monitoring memory variables.

The second option for monitoring compressor parameters using selected memory variables is the “LOGO! Variable” function. Clicking on the “LOGO! Variable” button shows the screen on the display that facilitates the monitoring of selected memory variables based on mapping by the compressor manufacturer using the “Add Variable” button.

Variables assigned based on addresses and models may be viewed in the MAPPING PARAMETERS table (see the Annexes – Page 42).

Using the columns of Range, Address, Type and Display format in order defines the parameters of the specific variable (see the Annex). The value of the variable itself is displayed in the Value column. The resulting table for monitoring may appear as follows:



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Note:

1. The values of time-based variables are displayed in minutes. For instance, 12.000 minutes is displayed in address ten, which corresponds to 2.000 hours.
2. The values of analogue parameters (pressures and temperatures) are displayed without decimal points

Logging out of the web server

Click on the button in the upper left corner.



OPERATION

IN CASE OF EMERGENCY, DISCONNECT THE COMPRESSOR FROM THE MAINS (TURN OFF THE MAIN SWITCH).

THE COMPRESSOR AIR PUMP HAS HOT SURFACES. BURNS MAY RESULT IF CONTACT IS MADE.

During prolonged operation of the compressor, the temperature inside the enclosed model may increase to over 40°C. At this point the cooling fan in the enclosure and the compressor fan automatically switch on. The fans switch off automatically once the space is cooled to below 32°C.

Automatic start. The compressor automatically switches on when pressure in the air tank drops to the pressure switch's lower limit level. The compressor automatically switches off after reaching the pressure switch's upper limit level.

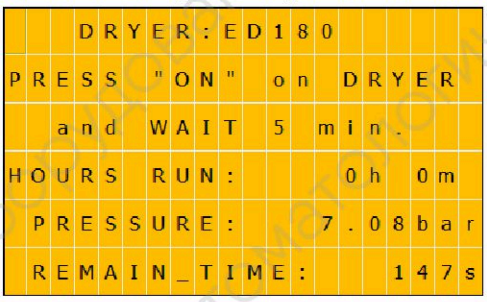
15. INITIAL START UP OF THE DEVICE

- Make sure all transport stabilizers were removed.
- Check that all compressed air hose connections are correct.
- Check to ensure the power cord is properly connected to the mains.
- Check to ensure the outlet valve is in the OFF position.

16. SWITCHING THE COMPRESSOR ON

(Fig.1 - 3)

- Turn the main switch (19) into the "I" position on the compressor switchboard. The white indicator P1 (17) lights up and the display (16) on the switchboard door shows the following message:



DRYER: the dryer model - ED180
HOURS RUN: operating hours
PRESSURE: current pressure
REMAIN. TIME: the time remaining until the compressor switches on (300 seconds).

Dryer - ED180

- Press and hold the ON/OFF button on the dryer panel for 1 second. The dryer motors then gradually start.
- The dryer may be shut off by pressing and holding the ON/OFF button again for 1 second. The dryer motors then switch off to ensure the space inside

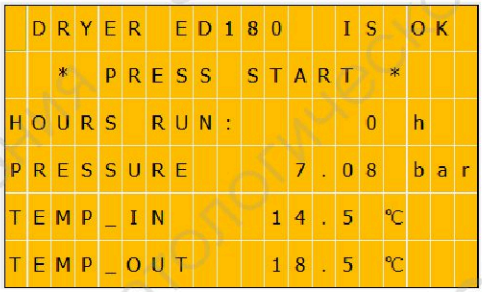
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the dryer itself cools down and the internal pressure is balanced.

The dryer begins cooling the heat exchanger.

Wait 5 minutes, the period counts down on the display (16). Once the period is over, the display indicates that the compressor start-up process may begin.

- Press the "START" button (18) on the switchboard.
  The display shows:



HOURS RUN: operating hours
PRESSURE: current pressure
TEMP_IN: internal temperature (only for enclosed compressors)
Note: TEMP_IN reads “N/A” for compressor models with no cover
TEMP_OUT: ambient temperature around the compressor

The first air pump automatically turns on and the other air pumps then sequentially turn on. The pressure sensor monitors the pressure in the air tank.
The air pumps operate in automatic mode, and are switched on and off (see the section on working pressures in the Technical Data chapter) by the controller depending on the compressed air usage. The compressors sequentially turn off once the switching pressure is reached.
The motors may be shut down by pressing the STOP button (18), after which the display returns to the start screen.

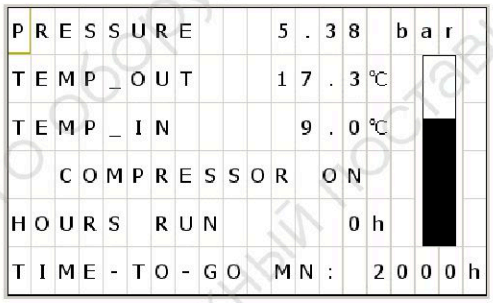
Note:
The START button is preset to "RETENTIVITY=ON", which means that if the compressor has been activated once using the START button, the system remembers this action and there is no need to press the START button to start up the compressor in the event of a power loss or if the compressor has been turned off.

NORMAL OPERATION

Air pumps operate in automatic mode and are switched on and off based on the demand for compressed air. When the pressure in the air tank drops to the switching pressure, the compressors automatically switch on in a sequence. This ensures that the required pressure is delivered to the air tank in the shortest possible time.

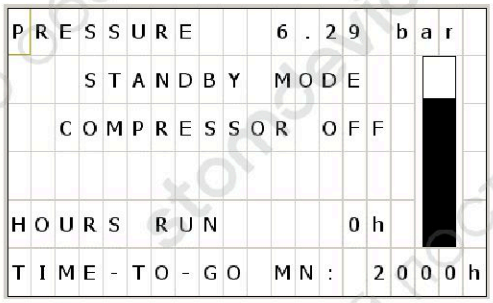
Two screens are shown on the display during the normal operation of the equipment:

- Motors are on



PRESSURE: current working pressure
TEMP_OUT - ambient temperature around the compressor
TEMP_IN - temperature inside the compressor cover
- Text “N/A” - displayed for models with no cover
COMPRESSOR ON – all air pumps on / off
HOURS RUN - operating hours
TIME-TO-GO MN - time to the next maintenance/service work (in hours).

- Motors are switched off



PRESSURE: current working pressure
STANDBY MODE – all air pumps are switched off
HOURS RUN - operating hours
TIME-TO-GO MN - time to the next maintenance/service work (in hours).

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The pressure sensor monitors the pressure in the air tank. The pressure is shown on the display.

Check all air line connections and check for compressed air leaks. Remedy all leaks that are identified.

Slowly open the outlet valve to the ON position. The compressor starts and runs until the pressure in the entire compressed air system stabilises. The air pumps then gradually turn off at the switching pressure.

Complete a record for the installation of the compressor assembly and commissioning (see the NP - Annex chapter – Page 44)

SHUTTING DOWN THE COMPRESSOR

Press the STOP button (18) to shut down the compressors.

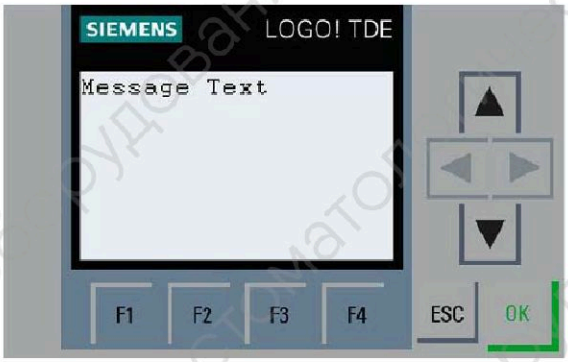
16.1. Controller – operation and alarms

The controller controls the air pumps, monitors their operation, analyses faults, reports alarms and indicates when maintenance is required after defined intervals are met.

The controller assesses the ambient and internal temperature of the compressor, working pressure and operating hours.

These values, alarms and service interval information are shown on the display. Temperatures above the critical values are shown as alarms.

The control panel on the controller has four cursor buttons ▲, ▼, ►, ◄, ESC and OK buttons, and four function buttons F1-F4, which trigger the following:



F1 - in alarm display mode, press to switch back to normal operating mode for 60 seconds. Backlit screen.

F2 - information on operating hours and maintenance intervals

F3 - statistics on the number of motor circuit breaker trips from motor overcurrent above the defined motor circuit breaker limit

F4 - SERVICE TECHNICIAN BUTTON (after completing service or maintenance work - hold for 5 seconds to reset the 2,000 hour maintenance interval.)

Note: Pressing F1-3 on the control panel turns on the display backlight for 30 seconds.

16.1.1. Equipment operation

Normal operating mode is shown when the equipment is operating and the functional and control buttons are used to browse through the following:

Pressing **F2** :

MAINTENANCE DISPLAY:	
/2000 hours/	
HOURS RUN:	0h 0m
Time-to-go MN:	2000h
TOTAL HOURS:	0h
NUMBER of MN:	0x

HOURS METER – air pump operating hours
TIME–TO–GO MN - time to next maintenance/service
TOTAL HOURS: - total compressor operating hours
NUMBER of MN – number of completed maintenance (service) checks confirmed using the F4 button

The screen automatically returns to the home screen after 10 seconds.

Pressing **F3** :

FAILURES MOTORSTAR			
M1:	0	M2:	0
M3:	0	M4:	0
M5:	0	M6:	0
M7:	0	M8:	0

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This permits browsing through different auxiliary screens. E.g. displays the number of overload faults for motors M1 to M9 (the motor circuit breaker disconnects the motor from the power). The circuit breakers must be manually turned to the ON position to remedy the malfunction

The screen automatically returns to the home screen after 10 seconds.

Pressing **F4** :



F4 is only active if the maintenance screen appears once 2000 hours of operation have been passed (see the maintenance alarm). Press and hold F4 for at least 5 seconds to set a new interval. The screen switches back to normal operating mode once the new interval is set.

Note: Only service personnel are authorised to configure a new service interval using the F4 button.

16.1.2. Alarms

The equipment has an intelligent monitoring system that generates an alarm signal based on priority (medium priority alarms have a higher priority than low priority alarms)

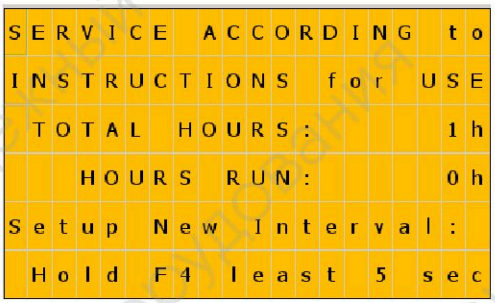
Alarm signals have a higher priority than maintenance/service interval signals..

The maintenance/service interval is measured from the first time the equipment is energised. All alarms are accompanied by a blinking red P2 (Alarm) indicator.

Low priority alarm conditions

- Expiry of defined maintenance/service interval.

This alarm activates once the 2,000 hour maintenance/service interval expires. The display shows the following details:



SERVICE ACCORDING TO INSTRUCTIONS FOR USE
TOTAL HOURS - total time the equipment has been connected to power
HOURS RUN – equipment operating hours
The display flashes orange.

Note: Press F1 to switch to the normal operating mode screen for 60 seconds.

The compressor **supplies** air to the compressed air system as needed and without restriction.

Call in service personnel to perform the required service.

Note: Only service personnel are authorised to configure a new service interval.

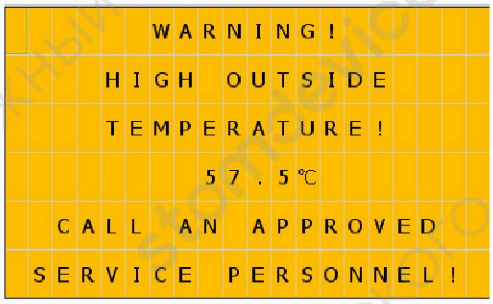
Press F4 and hold for at least 5 seconds to confirm the completion of maintenance/service.
The display then changes to the normal operating mode screen.

This indicates the new maintenance interval has been set on the controller from this time forward.

Any maintenance or service work must be recorded in the compressor's service log.

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- Compressor module ambient temperature exceeds the limit.

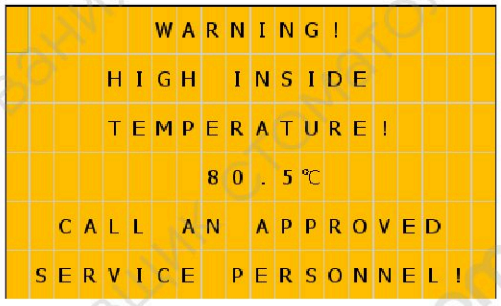


WARNING - high ambient temperature alarm. The display flashes orange.
This alarm appears if the ambient temperature exceeds the 40°C limit for at least 30 seconds. The air pumps operate normally.

The display otherwise shows the current ambient air temperature
The alarm clears when the temperature drops below the limit.

The compressor **supplies** air to the compressed air system as needed and without restriction.

- Compressor module internal temperature exceeds the limit.

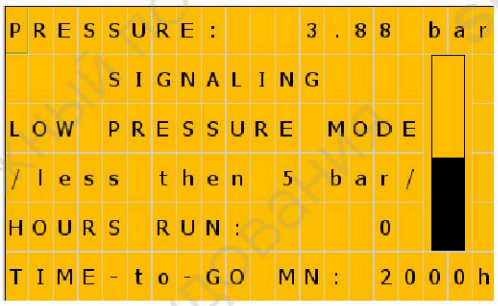


WARNING - high temperature alarm inside an enclosed compressor. The display flashes orange.
This alarm appears if the temperature inside the enclosed compressor module exceeds the 70°C limit for at least 30 seconds. The air pumps operate normally.

Note: The internal temperature monitoring function is not included for unenclosed compressors.

The display shows the current temperature inside the enclosed compressor module
The alarm clears when the temperature drops below the limit.
The compressor **supplies** air to the compressed air system as needed and without restriction.

- Low pressure alarm during compressor start-up.

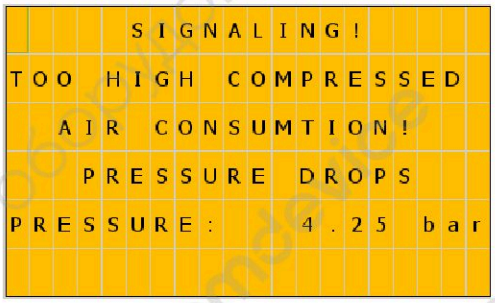


SIGNALING - Low pressure alarm during compressor start-up. The display flashes orange
PRESSURE - current pressure in the system
HOURS RUN – operating hours
TIME –TO –GO MN - time to next service interval

The information on the display automatically disappears once the air pressure is above 5 bar.

The compressor **supplies** air to the compressed air system as needed and without restriction.

- Low pressure alarm at elevated compressed air demand.



SIGNALING – low pressure alarm at elevated compressed air demand. The display flashes orange
PRESSURE - current pressure in the system

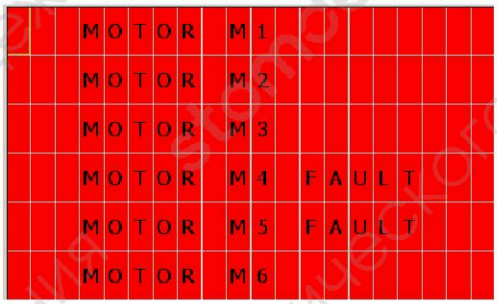
The display automatically disappears once the air pressure is above 5 bar.

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The compressor **supplies** air to the compressed air system as needed and without restriction.

Medium priority alarm conditions

- Air pump malfunction



The message on the display (FAULT) and indicator P2-ALARM (17) flashes.
Indicates that the air pump is not running (a motor circuit breaker (Q1 - Q9) is tripped due to current overload). The display flashes red.
The other air pumps are working normally.

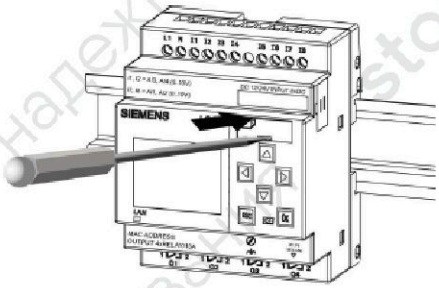
The screen disappears once the malfunction is remedied and the motor circuit breaker is manually placed back in the "ON" position. The display for normal operation is shown.

The compressor only **supplies** compressed air to the central line through the functional air pumps.
All alarms are automatically recorded on an SD card.

Alarm signals have priority over maintenance interval signals.
As such, the light will indicate an alarm from any of the air pumps.

All error signals are connected to controller output K3:Q3.2 and to terminals X1:44 and X1:45 (in the control panel) as **NON VOLT ALARM SIGNAL**.

DATA ACQUISITION
Data is recorded on a micro SD card in a slot in the base module. (See the illustration). The figure shows the location of the micro SD card onto which alarms and operating events are logged. Information is saved in .CSV format files. The system records data sequentially into 50 files, with each file containing up to 20.000 lines.
Copying data from the SD card is conducted by manually removing the card and manually reading it using Excel on a PC or remotely over an Ethernet network.



17. COMPRESSOR SHUT-DOWN

Use the main switch, Q10, to switch off the compressor for maintenance or other reasons; the switch also functions as a central stop button. The compressor is disconnected from the mains with the exception of the mains terminal block X0.

Vent the air tank by disconnecting from the central compressed air circuit and opening the outlet valve (Fig. 1) or the drain valve.

Attention:
Power terminals X0 remain energised even when main switch Q10 is in the "O" (off) position

MAINTENANCE

18. PRODUCT MAINTENANCE

Warning!
The operator shall ensure completion of repeated testing of the equipment at least once every 24 months (EN 62353) or at intervals defined by applicable national legal regulations. A record of these test results shall be completed (e.g. per EN

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62353, Annex G) together with the measurement methods.

The equipment has been constructed and produced to keep maintenance to a minimum. The following work shall be completed to ensure the full and reliable operation of the compressor.

Before starting compressor maintenance work, check to ensure the compressor is disconnected from the appliance to ensure the person using the appliance is not at risk and there is no risk of any other material damages!

Air pump components (head, cylinder and pressure hose) are very hot when the compressor is running and just after it shuts down – do not touch these components!

Repair works beyond normal maintenance can be performed only by qualified personnel or he manufacturer's customer service. Use only spare parts and accessories approved by the manufacturer.

PROTECT EYESIGHT, WEAR GOGGLES, WHEN VENTING COMPRESSED AIR FROM THE COMPRESSED AIR CIRCUIT (AIR TANK).

Only trained professionals may perform this work as follows:

BEFORE BEGINNING ANY OF THE FOLLOWING MAINTENANCE WORK, SWITCH OFF THE MAIN SWITCH ON THE SIDE OF THE SWITCHBOARD TO POSITION "0".

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18.1. Maintenance intervals

Tab.3

Time interval	once a day	once a week	once a year	once every 2 years	2000	4000	6000	8000	10000	12000	16000	Chapter	Set of spare parts	Performed by
Product function check	x											18.2		user
Cleaning the compressor intake filters (*)		x										18.8		user
Cleaning the dryer filter screen, Check the condensate drain, Check the temperature on the display		x										See the dryer manual on the CD		user
Clean the dryer condenser, check dryer operation					x	x	x	x	x	x		See the dryer manual on the CD		user
Check compressor fan operation		x										Visual check of rotation during air pump operation		user
Replace float in separator						x		x		x		18.7	025200146-000	qualified professional
Cleaning the compressor intake filters (*)					x	x	x	x	x	x		18.8		qualified professional
Compressor intake filter replacement (*)					x	x	x	x	x	x		18.8	604031770-000	qualified professional
Equipment inspection					x	x	x	x	x	x		18.3		kvalifikovaný odborník
Cleaning the dryer filter screen, Check the condensate drain, Check the temperature on the display					x	x	x	x	x	x		See the dryer manual on the CD		qualified professional
Check compressor fan operation					x	x	x	x	x	x		Visual check of rotation during air pump operation		qualified professional

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Tab. 3

Time interval	once a day	once a week	once a year	once every 2 years	2000	4000	6000	8000	10000	12000	16000	Chapter	Set of spare parts	Performed by
Replacement of compressor fans (6-8bar)										x			035300016-000	
Replacement of compressor fans (8-10bar)									x				035300016-000	
Check electrical connections					x	x	x	x	x	x		18.4.	-	qualified professional
Check operation of check valves						x		x		x		18.10.		qualified professional
Check pressure sensor operation					x	x	x	x	x	x		18.13.		qualified professional
Check pressure relief valve					x	x	x	x	x	x		18.		qualified professional
Check temperature sensor switching function					x	x	x	x	x	x		18.12.		qualified professional
Replacement of piston group with bearing (6-8bar)								x			x		604031764-000	qualified professional
Replacement of piston group with bearing (8-10bar)							x			x			604031764-000	qualified professional
Check safety valve operation			x			x		x		x		18.6.		qualified professional
Check solenoid valve operation						x		x		x		18.11.		qualified professional
Compressor intake filter replacement					x	x	x	x	x	x		18.5	604031761-000	qualified professional
Compressor performance check					x	x	x	x	x	x		18.9		qualified professional
Conduct a "repeated test" pursuant to EN 62353				x								18.1		qualified professional
Check pneumatic connections for leaks					x	x	x	x	x	x		18.3	-	qualified professional

(*) enclosed compressor

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18.2. Functionality check

- Check air pump condition – the air pumps should be operating normally without excessive vibration or noise. Troubleshoot any problem or call in service personnel if trouble is detected.
- Check fan operation (visually) – the fans must be running per the description of their function. Troubleshoot any problem or call in service personnel if trouble is detected.
- Check to ensure the power cord, the cable for the pressure sensor on the air tank and the connecting compressed air hoses are undamaged. Replace damaged components or call in service personnel.
- Check the ambient temperature on the display – the ambient temperature must be below the temperature limit (40°C). Cool the space if the temperature is high.
- Check for alarm conditions on the display – troubleshoot and remedy all alarms.

18.3. Leak check compressed air connections and inspect the equipment

Leak testing:

- Leak test the compressor's compressed air lines when running – when the compressor is delivering pressure (not during regeneration blowdown).
- Use a leak analyser or soapy water to check all joints and connections for leaks. Tighten or reseal the connection where leaks are found.

Inspecting the equipment:

- Check the condition of the compressor air pump for normal operation and noise levels.
- Check the operation of fans.
- Check the condition of filters.
- Check the condition of the air pump itself:
  - contamination in the crankcase and play in the crankshaft
- Replace any parts as needed.

18.4. Inspection of electrical connections

Inspect the product's electrical connections when the mains are disconnected!

Inspection

- Check the mechanical function of the main switch Q10 and the START-STOP buttons, S1 and S2.
- Check the power cord, conductors connected to the X1 terminal strip and the main switch to ensure they are undamaged. Inspect to ensure the connection terminals are properly supported to relieve tension.
- Check to ensure all screw terminals on all conductors are tight (motor circuit breakers Q1 to Q6, mains circuit breakers F1 to F3, contactors Q11 to Q16 and Q20 to Q21, etc.) Tighten all loose conductors with a screwdriver.
- Visually inspect the connection of individual cables to the terminal strip X1 (spring clips) and the LOGO! control system (screw terminals).
- Inspect all screw terminals for the protective green and yellow PE grounding conductor in the electrical box, the motor section, the cooling unit and the pressure vessel. Tighten any loose terminals.
- Inspect the connector X50 (dryer and cooler) and the pressure sensor (B1) (on the pressure vessel).

18.5. Air pumps intake filter set replacement

(Fig. 18)

The filters installed in the compressor air pump crankcases must be replaced during regular operation of the compressor.

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Inlet filter replacement:

- Pull out the rubber plug by hand (2).
- Remove the used filter (1).
- Insert a new filter and replace the rubber plug.

Pre-filter replacement:

- Pull out the pre-filter by hand (3).
- Replace the element and re-insert.



Fig. 18

18.6. Check safety valve operation

(Fig. 19)

Never use the safety valve to release the air pressure in the air tank. It could damage the safety valve. The valve is set to the maximum permitted pressure by the manufacturer. Adjustments are not permitted!

Warning! Compressed air can be dangerous. Wear eye protection, i.e. safety glasses, when venting any air.

- Rotate the screw on the safety valve to the left a number of turns until the valve itself vents.
- Let the safety valve vent for only a few seconds.
- Rotate the screw back to the right (clockwise) to the stop, and the valve must be closed.

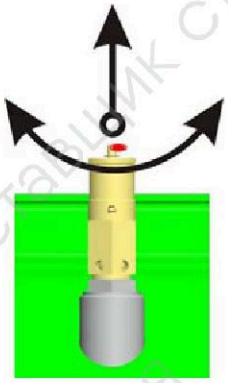


Fig.19

18.7. Float replacement

BEFORE PROCEEDING, VENT THE AIR TANK TO ZERO PRESSURE AND DISCONNECT THE EQUIPMENT FROM THE ELECTRICAL MAINS.

(Fig. 20)
Replace the float in the water separator at the defined interval

A) Check to ensure that all pressure has been vented from the segment with the water separator.
B) Disassemble the separator vessel.
C) Remove the condensate separator.
D) Release the float nut on the bottom of the vessel.
E) Remove the worn separator float and replace with a new float.
F) Secure the float with the nut on the bottom of the vessel.
G) Reinsert the condensate separator as illustrated.
H) Reinsert the separator vessel and screw in place.
I) The vessel is locked in the position indicated by the symbol.

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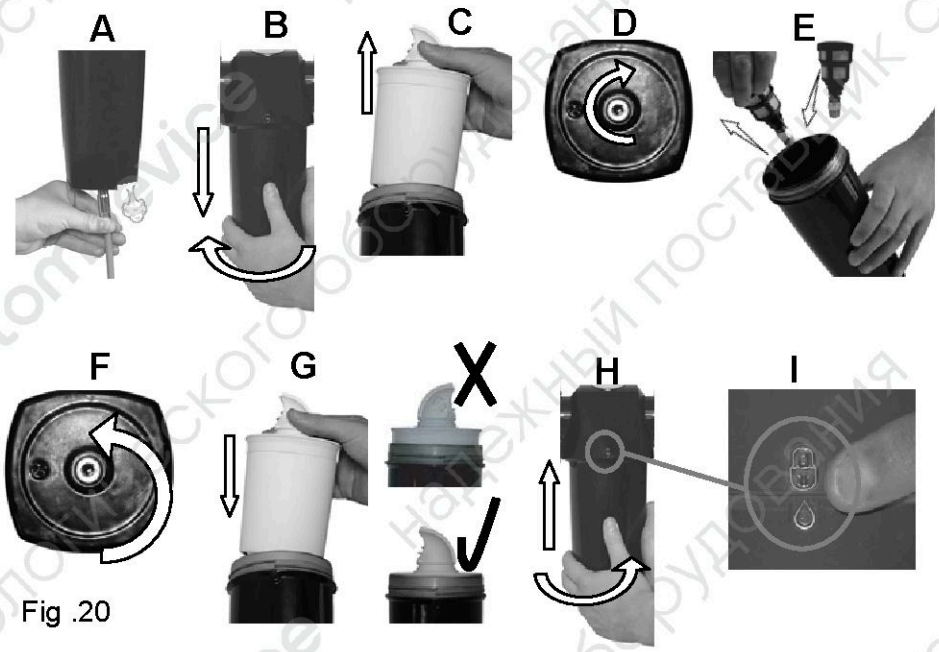


Fig .20

18.8. Cleaning / replacing the compressor's intake filters (*)

(Fig. 21, Fig. 22)

(*) - only applicable to enclosed products.

Clean or replace the inlet filters at defined intervals (Table 3) using the following procedure:

- Remove the nuts (1) and covers (4) on the lower part of the enclosure beneath the air pumps two times and remove the filters (5).
- Remove the nuts (1) and covers (2) inside the enclosure three times and remove the filters (3).
- Clean or wash the filter if heavily contaminated in a solution of soapy water and allow to dry completely.
- Reinstall the filters once dry (reverse the procedure to reassemble).
- In Point A, remove the foam, remove the 4 screws (5), washers (6) and remove the suction filter cover (7). – (Fig. 21)
- Remove the 2 nuts (8) on the filter bracket (9) and remove the filter (10).
- In Point B (on the sides (11)), remove the 2 nuts (12), washers (13), release the filter bracket (14) and remove the filter (15).
- Clean or wash the filter, if heavily contaminated, in a solution of soapy water and allow to dry completely.
- Reinstall the filters once dry (reverse the procedure to reassemble).

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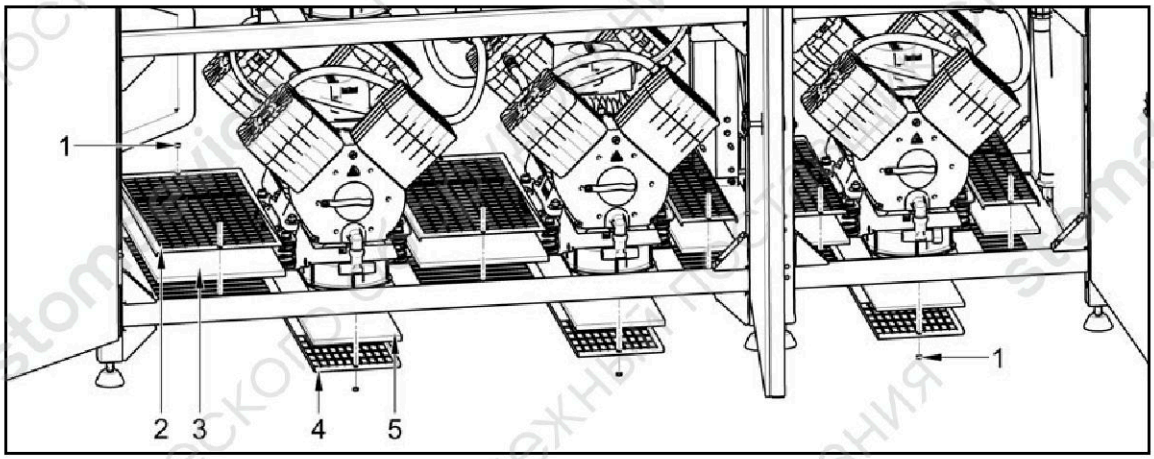


Fig .21

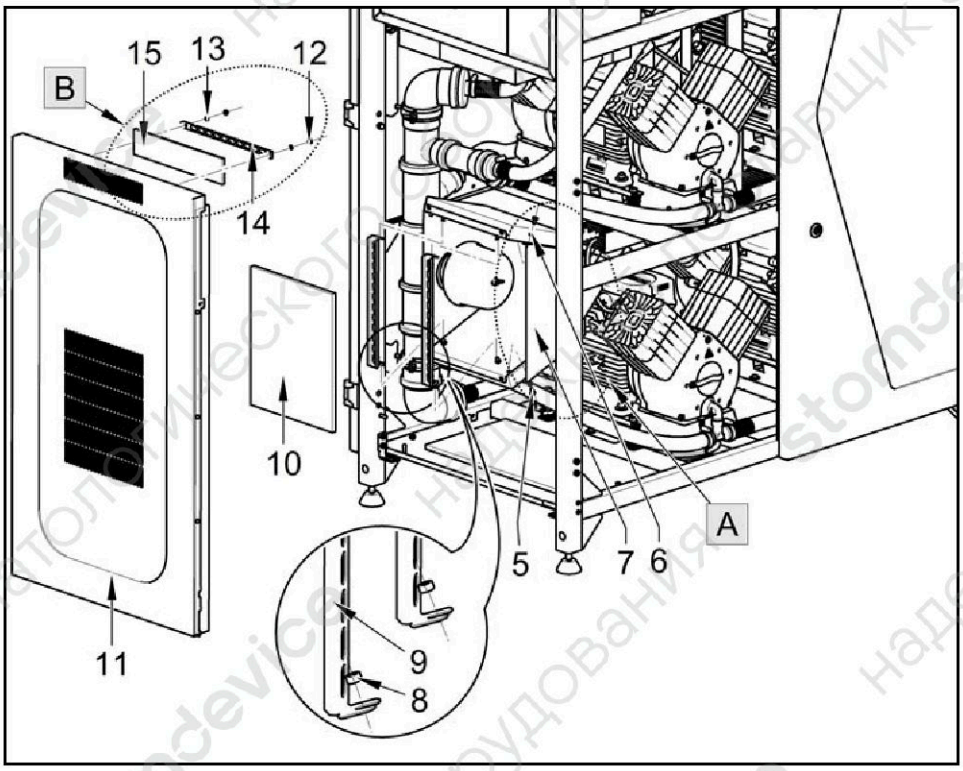


Fig. 22

18.9. Compressor performance check

- Turn off the compressor using the STOP button
- Vent the air pressure in the air tank to zero
- Turn on the compressor using the START button
- Measure the time to fill the air tank from 0 to 7 bar
- The measured value must be less than the data provided in the “Technical data” table

18.10. Check operation of check valves

Compressed air circuit:
Check for proper operation of the check valves (3) in the pneumatic circuit by disconnecting the pressure hoses from the air pumps.

One air pump must be operating, shut off the remaining air pumps at the current protection device in the switchboard. No air may leak through the check valves.

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Air tank:

Check for proper operation of the check valve on the air tank by disconnecting the pressure hose from the valve.

Inspect the check valve once the air tank is pressurised and the compressor is off. No air may leak.

18.11. Check operation of solenoid valve

(Fig. 23)
Valve functionality is checked using the "Magnetic indicator" as follows: place it on the valve coil and if the motors are active, the indicator must turn, if not, the indicator does not turn.



Fig. 23

18.12. Checking the operation of temperature sensor switching

(Fig.24)
This check is conducted using the LOGO!TDE display where the instantaneous temperature values are shown on the starting screen in STOP mode. See Fig. 24

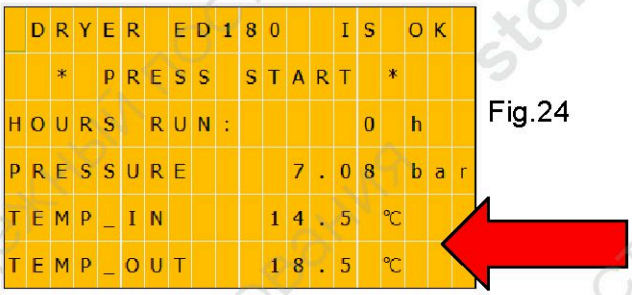


Fig.24

The check is based on a slight change in temperature around the sensor, i.e. caused by heating, or the temperature shown on the display must also change. The B4 sensor is not connected on uncovered versions and the display shows N/A.

18.13. Check the function of pressure sensor

Functionality is checked visually using the TDE screen, which shows the compressed air value. Changes in air usage must be reflected in pressure changes on the display.

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TROUBLESHOOTING AND REMEDYING PROBLEMS

19. TROUBLESHOOTING COMMON PROBLEMS

Caution! Disconnect the equipment from the mains before starting work!

Troubleshooting may only be performed by trained service personnel!

Adjusting the pressure setting of the safety valve is expressly prohibited!

Pressure relief valve (PRV)

The pressure relief valve automatically begins to vent air from the system if the pressure in the compressed air circuit exceeds its pre-set value. The pressure relief valve closes as the pressure drops.

Pressure in the compressed air circuit can only increase because of an increase in flow resistance in the compressed air lines or as a result of a dryer malfunction (e.g. solenoid valve malfunction) and therefore repeated opening of the relief valve requires a dryer function check and repairs if necessary!

Consultation with the manufacturer is required before any adjustment is made to the relief valve!
The outlet openings on the relief valve may not be blocked and the egress of compressed air through them may not be restricted.

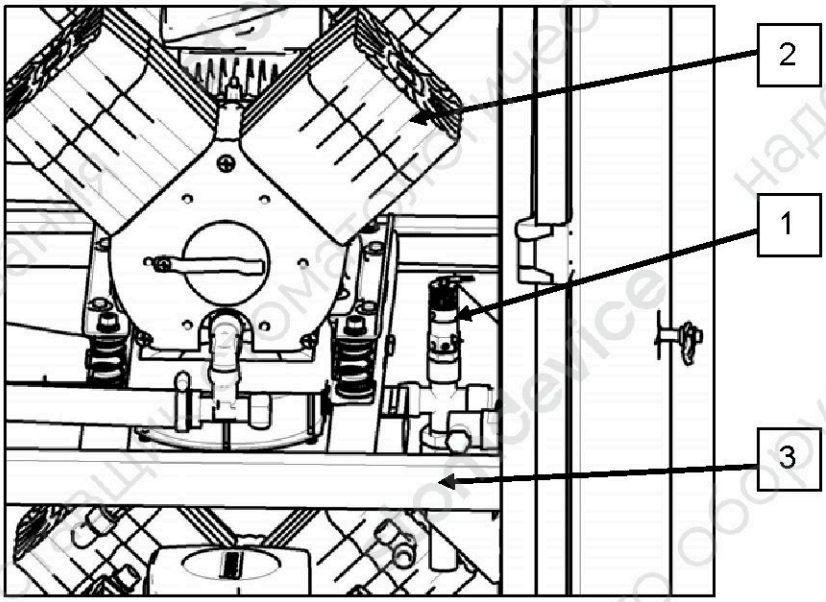


Fig.25

1. Pressure relief valve
2. Compressor air pump
3. Compressor frame

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Tab.4

FAILURE	POSSIBLE CAUSE	REMEDY
None of the compressor air pumps starts	Problem with electrical power source	Main breaker is off
	Loss of power	Check mains voltage
		Loose terminal in the electrical box - tighten
		Check the main power connection - replace if damaged
	Failed pressure switch	Inspect the terminals and operation of the pressure switch - replace if damaged
Some compressor air pumps do not start (indicators are on)	Loss of power to motor	Check mains voltage
		Check function of contactor and thermal relay - replace if damaged
		Loose terminal on motor terminal strip - tighten terminals, replace damaged or broken terminals
	Motor winding shorted, damaged /open thermal protection/ high ambient temperature	Replace the motor / decrease the ambient temperature
	Worn piston or other moving component (mechanical damage to moving components)	Replace damaged parts
	Controller malfunction	Check the functionality of the controller and software – replace if damaged or reload the program
RUN / STOP indicator does not light up green	Open connection between controller and expansion module	Check the connection and replace if damaged
	Loss of power	Check mains voltage
		Loose terminal in the electrical box - tighten
		Check the main power connection - replace if damaged
	Problem with electrical power source	Main breaker is off
	Controller or expansion module malfunction	Replace the malfunctioning controller or module
Compressor air pumps switch frequently, even with no compressed air demand	Air leak in compressed air distribution system	Check compressed air distribution system – tighten the leaking connection
	Check valve leaking	Test check valves and clean – replace if damaged
	Solenoid valves leaking after regeneration	Clean the check valve – replace if damaged
	Leak at pressure sensor and safety valve	Check functionality and clean – replace if damaged
Functionality of certain compressor air pumps is reduced, run cycles are extended	Leak at compressor air pump	Check the compressor air pump for leaks – tighten the leaking connection
	Worn piston rings	Replace worn piston
	Gasket between cylinder head and valve plate damaged	Replace the gasket, tighten
	Intake filter is plugged	Replace old filter with a new filter
Certain compressor air pumps are noisy (knocking or metal-on-metal sounds)	Damaged motor bearing	Replace damaged bearing
	Damaged piston bearing, piston rod	Replace the damaged piston
	Failed (cracked) rubber mount spring	Replace damaged spring with new spring
High ambient air temperature when compressors on top of	Insufficient ventilation in compressor space	Secure suitable conditions
	Compressor air pump, cooler and	Replace the defective fan(s)

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one another switch on (overheating)	enclosure cooling fans do not operate	Defective temperature switch – replace
	ED180 dryer	See the dryer manual on the CD
High compressed air dew point	Condensation dryer off	Turn on the dryer, drain condensate found in the air tank
	Dryer malfunction	Call in professional service

Once a fault is cleared and after reassembling the dryer, all condensate trapped in the air tank must be drained off, the air tank must be dried and the dryer must be regenerated, best when using continuous compressor operation at a pressure of around 0.7 bar for a period of at least 1 hour; then check the dryness of the compressed air.

20. REPAIR SERVICE

Guaranteed and post-guarantee repairs must be done by the manufacturer, its authorized representative, or service personnel approved by the supplier.

The manufacturer reserves the right to make changes to the device without notice. Any changes made will not affect the functional properties of the device.

21. DISPOSAL OF THE DEVICE

- Disconnect the appliance from the mains.
- Release air pressure in the pressure tank by opening the drain valve (12) (Fig. 2).
- Dispose of the equipment following all applicable environmental regulations.
- Entrust a specialised company to sort and dispose of waste.
- Worn out components have no negative environmental impact

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ANNEX

22. MAPPING PARAMETERS

Parameter VM Mapping

ID	Block	Parameter	Type	Address
1	0019 HOURS RUN [Hours Counter]	OT - hour:minute	DWord	0
2	SF018 PRESSURE [Mathematic instruction]	Aq amplified	Word	4
3	SF023 TEMP-OUT [Analog Amplifier]	Ax, amplified	Word	6
4	SF052 TEMP-IN [Analog Amplifier]	Ax, amplified	Word	8
5	0019 HOURS RUN [Hours Counter]	MN - hourminute	DWord	10
6	C037 COUNTER-MN [Up/Down counter]	Counter	DWord	14
7	SF025 MAX_TEMP_OUT [Max/Min]	Maximum value	Word	26
8	SF050 MAZ_TEMP+IN [Max/Min]	Maximum value	Word	28
9	0038 TOTAL HOURS [Hours Counter]	OT - hourminute	DWord	30
10	0091 HIGH CONSUMP [Up/Down counter]	Counter	DWord	34
11	0095 FAULT M1 [Up/Down counter]	Counter	DWord	38
12	0096 FAULT M2 [Up/Down counter]	Counter	DWord	42
13	0099 FAULT M3 [Up/Down counter]	Counter	DWord	46
14	C098 FAULT M4 [Up/Down counter]	Counter	DWord	50
15	C100 FAULT M5 [Up/Down counter]	Counter	DWord	54
16	C101 FAULT M6 [Up/Down counter]	Counter	DWord	58
17	0041 SWITCH MOTOR [Up/Down counter]	Counter	DWord	62

Creator	Ing. Vanek Milan	© KOMÁpbl &. 0.	Prefect		Customer	
Checked	Iris Maear Joiaf		Inetallatit n	DK50 6x4VRTSM /OMI.0ГNCM/	Diagram No	4ZA439
C.JIL-	5/23/17 333 PM/2®/18 11 17 AM		File	9X4VRTM..OMI..VI..00.090218.Jld	Page.	1./2

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Parameter VM Mapping

ID	Block	Parameter	Type	Address
18	C045 SWITCH FAN [Up/Down counter]	Counter	DWord	70
19	C111 MN NDM COUNT [Up/Down counter]	Counter	DWord	74
20	C130 FAULT M7 [Up/Down counter]	Counter	DWord	78
21	C119 FAULT M8 [Up/Down counter]	Counter	DWord	82
22	C088 FAULT M9 [Up/Down counter]	Counter	DWord	86

Creator	Ing. Vanek Milan		PIWCt.			Customer	
Checked:	Ing. MasarJozef	EKOM spot. ! .O	Installation	DKM.6X4VRTSM/OMI or NEW		Diagram No.:	4ZA439
Data	5/23/173.33 PM/2/9/18 11 17 AM		File-	9X4VRTM.pMI_V1 00_090218 Hd		Page	2/2

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23. INSTALLATION RECORD

1. Product: (model) DK50 9x4VRT/M DK50 9x4VRTS/M	**2. Serial number**:
3.1. User's name:	
3.2. Address of installation:	
4. Equipment connected to the compressor:	

5. Installation / Commissioning:		**6. Contents of operator training:**	
A. Product completeness check **	Y N	A. Description of the product and functions**	Y N
B. Documentation completeness check **	Y N	B. Product operation: turning on/off, controls, control procedures, data on the display panel, alarms, operation in alarm conditions **	Y N
C. Installation/connection to equipment **	Y N	C. Product maintenance: maintenance intervals, maintenance procedure, service intervals, operating activities **	Y N
D. Functional test **	Y N	D. Safety measures, warnings – their meaning and compliance **	Y N

Notes:

7. Operator instructed on safety measures, operations and maintenance:	
Name :	Signature :
Name :	Signature :
Name :	Signature :
8. Installation and instruction performed by – First name/Last name	Signature:
Company:	Address:
Phone:	
E-mail :	Date:
9. Distributor :	
Company:	Address:
Contact person:	
Phone:	Email :

** mark with an "X" in points 5 and 6 (Y - yes /N - no). Enter any observations from points 5 and 6 into the "Notes" section

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DK50-9x4VRT/M

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