Original Instruction

Oil-injected screw air compressor

Instruction book

Stationary Screw Rotary Compressor Units

EPM15-15.5, EPM22-15.5

Instruction book

Original instructions

PN: 9829 5621 56
Edition: 01
Date: 2023-11

CONTENTS

INTRODUCTION

In the event of breakdown or malfunction of the machine, switch it off and do not tamper with it.
If repairs are needed, contact to a technical assistance centre approved by the manufacturer and insist on the use of original spare parts.
Failure to comply with the above may endanger the safety of the machine.

Keep this manual with care for future consultation; the use and maintenance manual is an integral part of the machine.
Read this manual carefully before carrying out any operations on the compressor unit.
The installation of the compressor unit and all operations involving it must be performed in conformity with the regulations in force concerning electric plants and personal safety.

CHARACTERISTICS AND SAFETY PRECAUTIONS

FIG. 1

MACHINE WITH AUTOMATIC START

BEFORE REMOVING THE PROTECTION DEVICES FOR ANY MAINTENANCE WORK ON THE MACHINE, DISCONNECT THE ELECTRICAL POWER SUPPLY.MAKE SURE THAT THERE IS NO INTERNAL RESIDUAL PRESSURE.ALL WORK ON THE ELECTRIC PLANT MUST BE CARRIED OUT BY PROFESSIONALLY SKILLED PERSONNEL.

The manufacturer does not accept responsibility for damage caused as a result of negligence of failure to abide by the instructions given above.

THIS MACHINE IS NOT SUITABLE FOR EXTERNAL INSTALLATION

1.0 GENERAL CHARACTERISTICS

The compressor units use single-stage screw rotary air compressors with oil injection.
The central unit comprises:compressor; oil separator; oil cooler and output air cooler; fan; electric start; safety and regulation devices; instrument panel.
The system is self-bearing and does not require bolts or other devices to anchor it to the floor.
The unit is completely assembled in the factory; the necessary connections for setting it up are:

- connection to the power mains (see installation chapter)
- connection to the compressed air network (see installation chapter)

The compressor-motor unit is fitted on the machine chassis by means of flexible supports: this allows the compressor unit to be laid directly on the floor without any need of further vibration-damping systems.

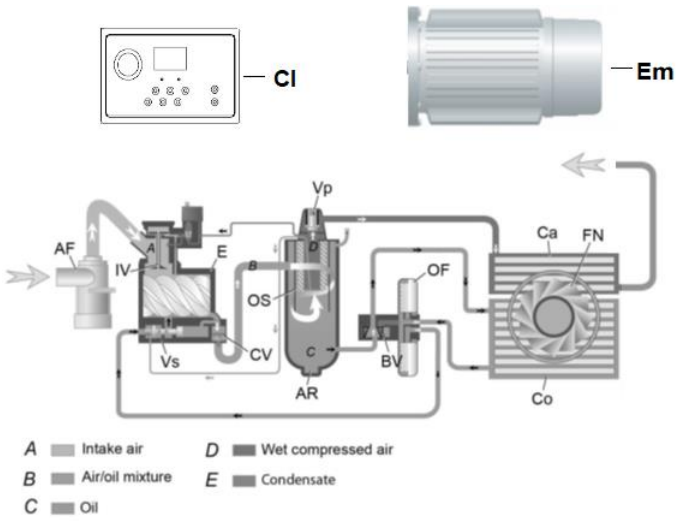
2.0 INTENDED USE

The compressor has been built to supply compressed air for industrial use.
The machine cannot be used in premises where there is a risk of fire or explosion or where work is carried out which releases substances into the environment which are dangerous with regard to safety (for example: solvents, inflammable vapours, alcohol, etc.).
In particular the appliance cannot be used to produce air to be breathed by humans or used on direct contact with foodstuffs. These uses are allowed if the compressed air produced is filtered by means of a suitable filtering system as per the applicable standards.
(Consult the manufacturer for these special uses.)
This appliance must be used only for the purpose for which it was specifically designed.
All other uses are to be considered incorrect and therefore unreasonable.
The Manufacturer cannot be held responsible for any damage resulting from improper, incorrect or unreasonable use.

3.0 OPERATION

The electric motor and the compressor unit are coupled direct connected.
The compressor unit takes in the outside air through the inlet valve. The air taken in is filtered by panel pre-filter fitted one the panel of the external covering and by the filter cartridge fitted upstream from the suction valve. Inside the compressor unit, the air and the lubricating oil are compressed and sent to the oil separating filter where the oil is separated from the compressed air; the air is then filtered again by the oil separating cartridge to reduce the amount of suspended oil particles to a minimum. At this point the two flows (of oil and air) are sent to two separate coolers where they are cooled, using a flow of air taken from the environment by a special fan inside the machine.
The cooled oil returns to the circuit while the compressed air is sent to the using network.
Refer to figure 2.

FIG. 2



1 AF--AIR FILTER
2 IV--INLET VALUE
3 E--ELEMENT
4 CV--OIL CUT-OFF VALVE
5 AR--AIR-OIL PRESEPARATOR
6 CL--CONTROLLER
7 SV--SAFETY VALVE
8 OF--OIL FILTER
9 OS--AIR-OIL SEPARATOR
10 CA—AIR COOLER
11 CO—OIL COOLER
12 EM-ELECTRIC MOTOR
13 FN--FAN
14 VP—MIN PRESSURE VALVE

4.0 GENERAL SAFETY STANDARDS

The appliance may be used only by specially trained and authorized personnel.
Any with the machine or alterations not approved beforehand by the Manufacturer relieve the latter of responsibility for any damage resulting from the above actions.

ATTENTION: UPSTREAM OF THE MACHINE INSTALLAN ISOLATOR KNIFE-SWITCH WITH AN AUTOMATIC CUTOUT AGAINST CURRENT SURGES AND EQUIPPED WITH A DIFFERENTIAL DEVICE FOR CALIBRATIONS SEE WIRING DIAGRAM ON LAST PAGE

ALL WORK ON THE ELECTRIC PLANT, HOWERE SLIGHT, MUST BE CARRIED OUT BY PROFRSSIONALLY SKILLED PERSONEL.

5.0 DESCRIPTION OF DANGER SIGNALS

FIG. 3

1) FLUID EJECTION

2) DANGEROUS ELECTRIC VOLTAGE

3) AIR NOT FIT FOR BREATHING

4) NOISE

5) HIGH PRESSURE

6) HOT PARTS

7) MOVING PARTS

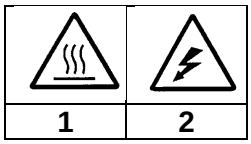
8) FAN ROTATING

9) MACHINE WITH AUTOMATIC START

6.0 DANGERS ZONES

Risks present on the whole machine

FIG 4



7.0 SAFETY DEVICES

1 Safety screws
2 Side panels, opened with a special key
3 Fixed protection device - cooling fan
4 Emergency push button
5 Safety valve
6 Oil filling cap (with safety breather)

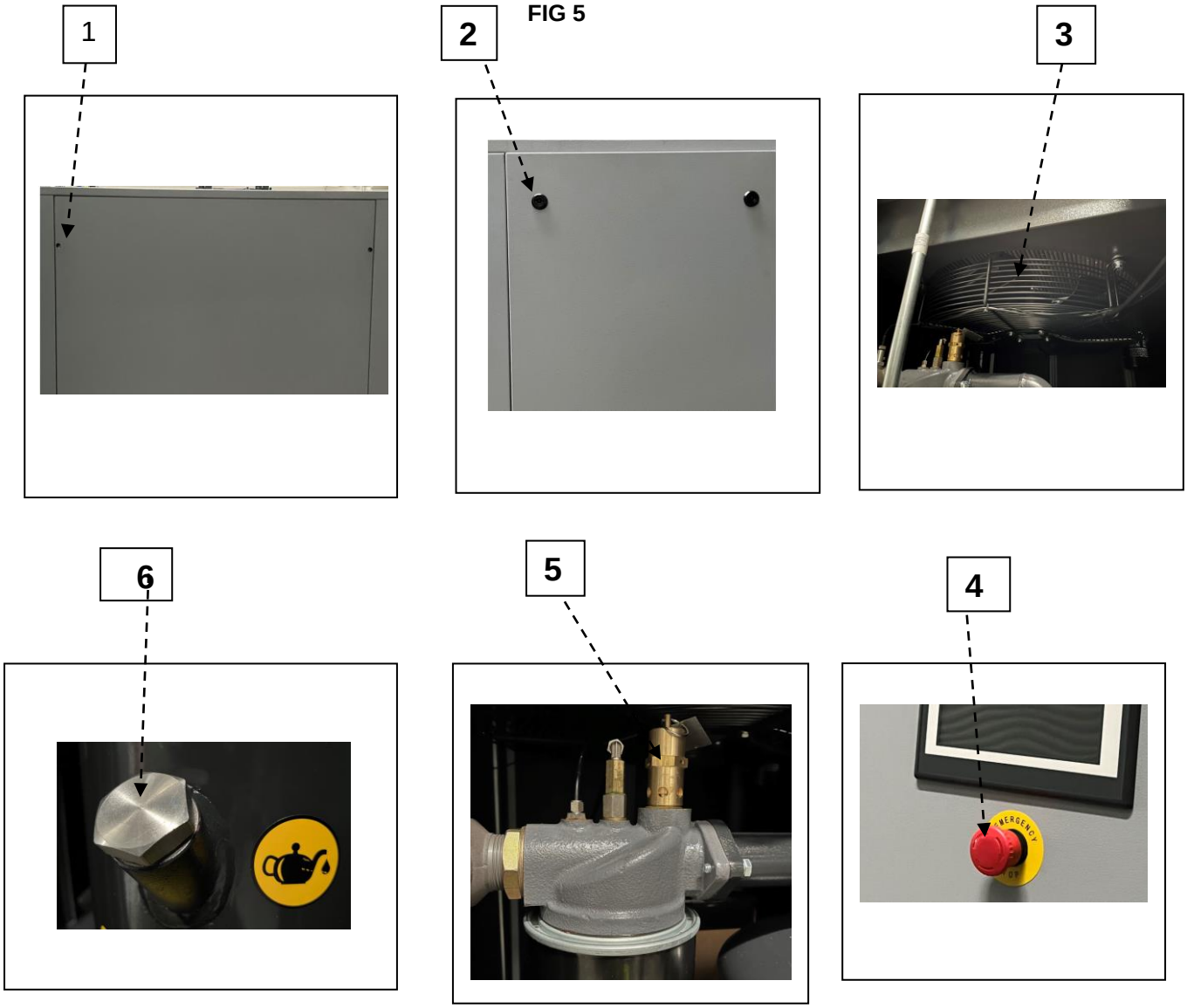


FIG 5

8.0 POSITION OF SIGNS & DATA PLATES

8.1 POSITION OF THE DATA PLATE

The plates fitted on the compressor unit are part of the machine; they have been applied for safety purposes and must not be removed or spoiled for any reason.

1 Compressed air outlet
2 Data plate

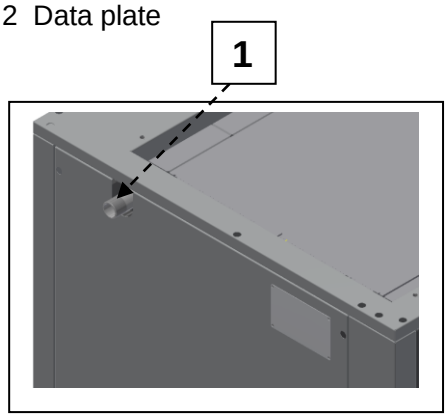


FIG 6

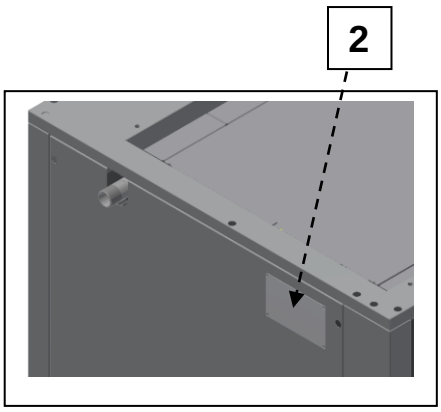


FIG. 7

9.0 COMPRESSOR ROOM

9.1 FLOOR

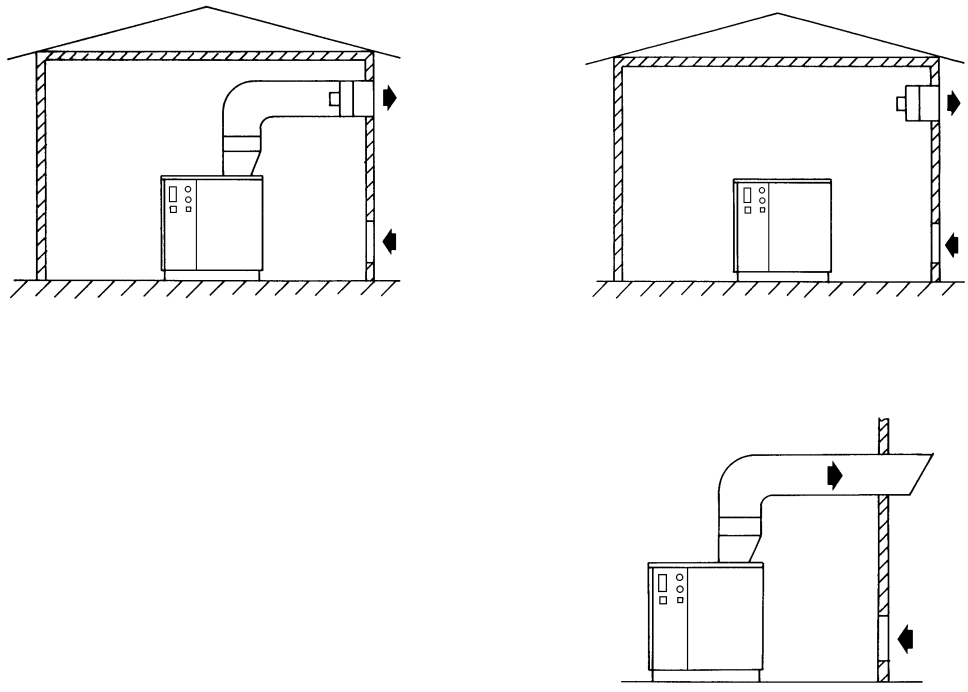
The floor must be even and of industrial type for the total weight of the machine(Please refer to technical data)..
Remember the total weight of the machine when positioning it. (See chapter 13.0)

9.2 VENTILATION

When the machine is operating, the room temperature must not be higher than **40 °C** or lower than **1 °C.**
The volume of the room must be about **30 m^3**
The room must be provided with 2 openings for ventilation with a surface area of about **0.35 m^2** each.
The first opening must be in a high position to evacuate the hot air, the second opening must be low to allow the intake of external air for ventilation.
If the environment is dusty it is advisable to fit a filtering panel for this opening.
The hot air ejected by the compressor may be led outside with a duct.
This duct must have a minimum section of **0.7 m^2** and it must not be longer than **2 m.**
For longer ducts an extra exhaust fan must be fitted.

9.3 EXAMPLES OF VENTILATION OF THE COMPRESSOR ROOM

FIG. 8



10.0 TRANSPORT AND HANDLING

IT IS FORBIDDEN TO USE METAL CABLES FOR LIFTING

ATTENTION: DO NOT STAND OR WALK PASS UNDER OVERHEAD WEIGHTS

The machine must be transported as shown in the following figures.

FORK LIFT TRUCK

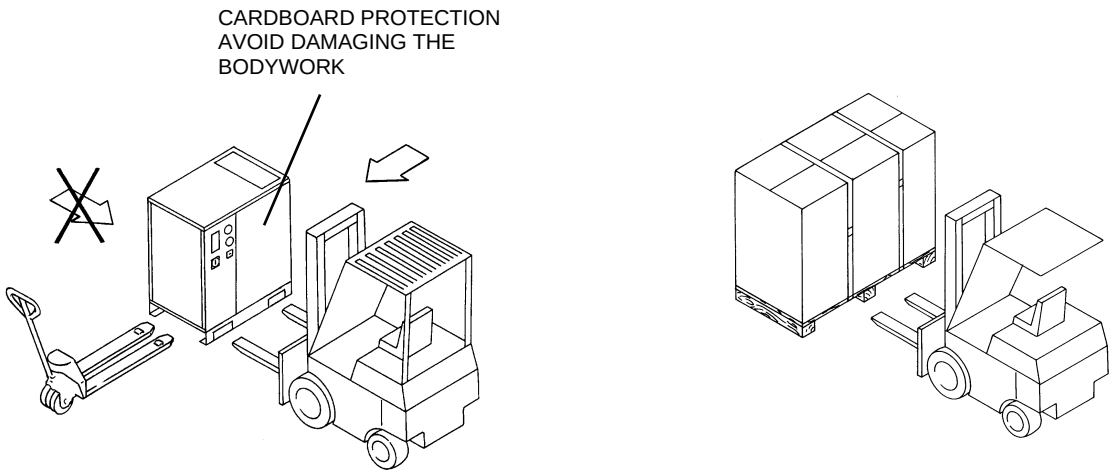


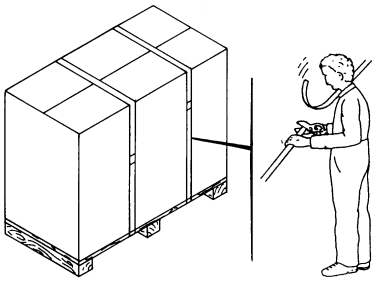
FIG. 9

11.0 UNPACKING

CUTTING THE METAL STRAPPING IS A DANGEROUS OPERATION, SEE FIG.10 DO NOT ABANDON THE CUT PIECES IN THE ENVIRONMENT.

After removing the packing, ensure that the machine has no visibly damaged parts. If you are in doubt, do not use the machine but contact the manufacturer technical assistance service or your dealer. The packing material (plastic bags, polystyrene foam, nails, screws, wood, metal strapping, etc.) must not be left within the reach of children or abandoned in the environment, as they are a potential source of danger and pollution. Dispose of these materials in the approved collection centres.

FIG. 10

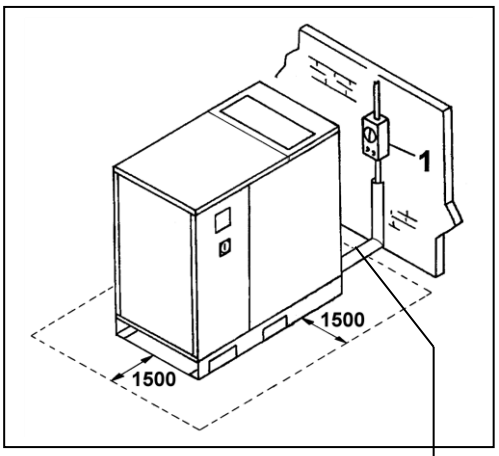


12.0 INSTALLATION

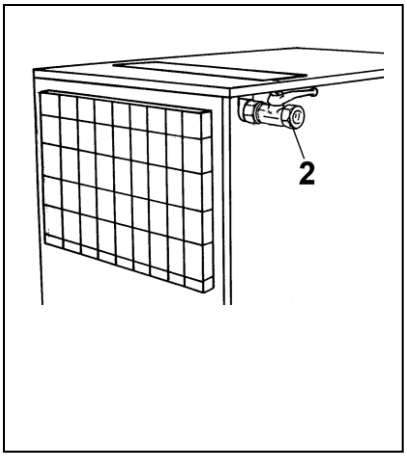
12.1 POSITIONING

After unpacking the equipment and preparing the compressor room, put the machine into position, checking the following items:

- ensure that there is sufficient space around the machine to allow maintenance (see Fig. 11).



Protect the power cable with a suitable channel.



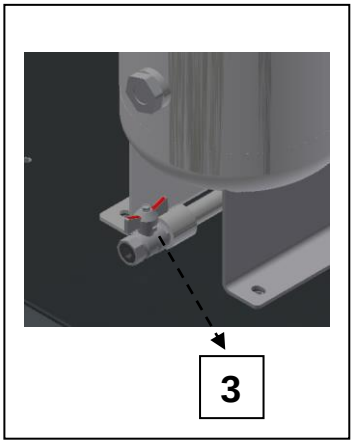


FIG. 11

ENSURE THAT THE OPERATOR CAN SEE THE WHOLE MACHINE FROM THE CONTROL PANEL AND CHECK THE PRESENCE OF ANY UNAUTHORIZED PERSONS IN THE VICINITY OF THE MACHINE.

12.2 ELECTRICAL CONNECTION

- Check that the supply voltage is the same as the value indicated on the machine data plate.
- Check the condition of the line leads and ensure that there is an efficient earth lead.
- Ensure that there is an automatic cut-out device upstream for the machine against overcurrents,with a differential device (see Ref. 1 wiring diagram).
- Connect the machine power cables with the greatest care, according to the local standards in force. These cables must be as indicated on the machine wiring diagram.
- Connect the cables to the charging clamps on the electric panel and make sure they are properly tightened. After the first 50 working hours, check that the screws on the electric terminals are tight.

ONLY PROFESSIONALLY SKILLED PERSONNEL MAY HAVE ACCESS TO THE ELECTRIC PANEL. SWITCH OFF THE POWER BEFORE OPENING THE DOOR OF THE ELECTRIC PANEL.

COMPLIANCE WITH THE REGULATIONS IN FORCE CONCERNING ELECTRIC PLANTS IS FUNDAMENTAL FOR OPERATOR SAFETY AND FOR THE PROTECTION OF THE MACHINE.

12.3 CONNECTION TO THE COMPRESSED AIR NETWORK

Fit a manual isolation valve Ref. 2 Fig. 11 between the machine and the compressed air network so that the compressor may be isolated during maintenance operations.
Condensate must be drained Ref. 3 Fig. 11 from the oil receiver (manually) in conformity with the local regulations in force.

ALL DAMAGE DUE TO THE FAILURE TO COMPLY WITH THESE INDICATIONS CANNOT BE ATTRIBUTED TO THE MANUFACTURER AND MAY CAUSE INVALIDITY OF THE WARRANTY CONDITIONS.

12.4 STARTING UP

BEFORE CARRYING OUT ANY OPERATION ON THE MACHINE, ENSURE THAT THE ELECTRIC POWER SUPPLY HAS BEEN DISCONNECTED.

12.4.1 PREPARING FOR SETTING UP

After checking everything as indicated in Chap. 12, follow the instructions in Fig. 12.

12.4.2 PRELIMINARI CHECKS

- Check the oil level Ref. 1 Fig. 12 when supplied the machine is filled with oil;if the oil is not at the correct level, top up with the same oil as the original type.
- If more than 3 months have passed between the inspection in the factory and the date of installation,

lubricate the screw before starting up. Refer to manufacturer or dealer for further instruction:

- If more than 6 months have passed between the inspection in the factory and the date of installation, consult the manufacturer.

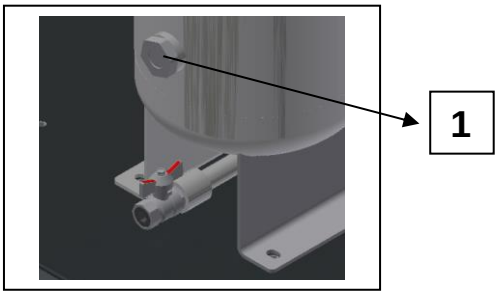


FIG. 12

12.4.3 CHECK THE DIRECTION OF ROTATION

- Check that all fixed guards are in their correct position.
- Connect the control board to the power supply with the automatic circuit-breaker.
- Check if controller display “phase sequence error”.
- If YES there may be lack of phase or wrong sequence.

First check if the voltage is stable. If YES then change any two phases.

ALL WORK ON THE ELECTRIC PLANT, HOWEVER SLIGHT, MUST BE CARRIED OUT BY PROFESSIONALLY SKILLED PERSONNEL.

IT IS ADVISABLE NOT TO DO ANYTHING ON THE MACHINE CONTROL PANEL.
IF ALL THE INSTRUCTIONS FOUND IN THIS MANUAL HAVE BEEN OBSERVED THE MACHINE CAN BE STARTED.

13.0 DIMENSIONS

Dimension drawing	
9829 2397 46	EPM7.5, EPM7.5-10, EPM11, EPM11-10, EPM15, EPM15-10,
9829 2397 47	EPM22, EPM22-10
9829 2397 48	EPM30, EPM30-10, EPM37, EPM37-10, EPM45, EPM45-10
9829 5620 58	EPM7.5 TMDD, EPM7.5-10 TMDD, EPM15 TMDD, EPM15-10 TMDD
9829 5623 27	EPM15-15 TMDD with 270L tank
9829 5623 37	EPM22-15 TMDD with 270L tank

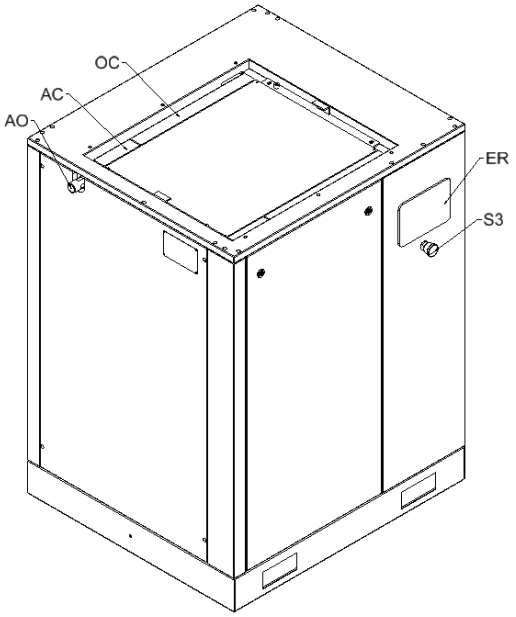
9829 5626 42	EPM15-15 TMDD with 500L tank
9829 5626 43	EPM22-15 TMDD with 500L tank
Installation Proposal	
9829 2397 49	EPM7.5-45
9829 5621 06	E APM7.5-45 TMDD

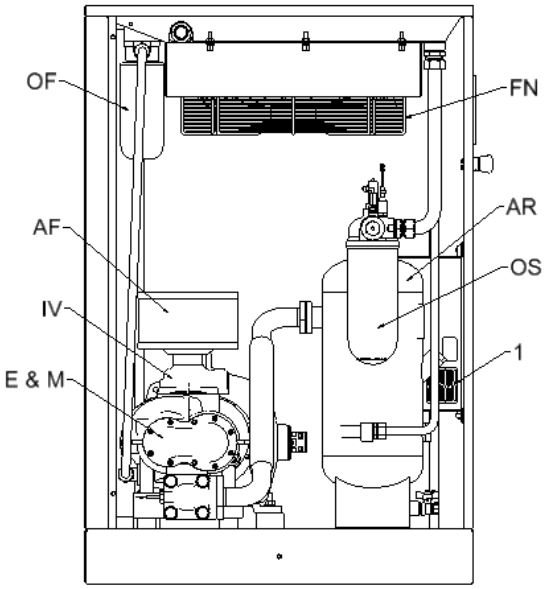
14.0 MACHINE ILLUSTRATION

14.1 GENERAL LAY-OUT

*It is forbidden to tamper the setting of the safety valve

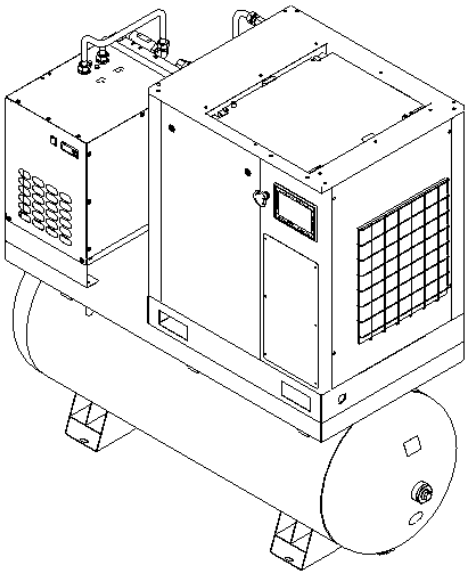
Compressor package

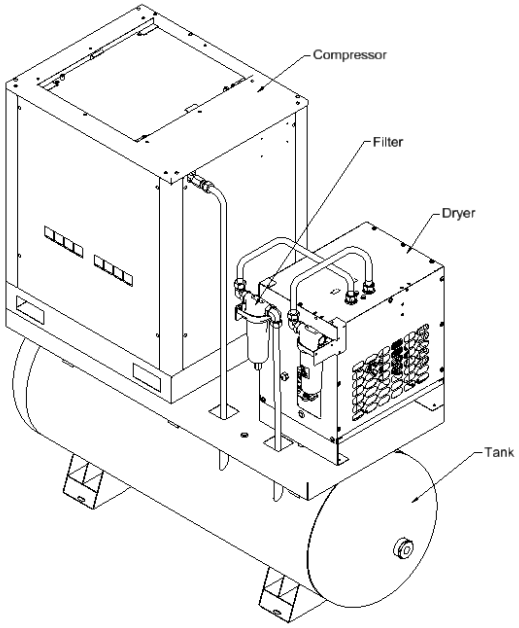




Ref.	Name
AF	Air filter
AR	Air reciever
AO	Air outlet
CA	After cooler
CO	Oil cooler
E & M	Element & motor
ER	Controller
FN	Cooling fan
IV	Inlet valve
OF	Oil filter
OS	Oil separator
S3	Emergency stop
1	Convertor

TMDD





14.2 Control panel instruction refer to saparated documents

15.0 MAINTENANCE

BEFORE CARRYING OUT ANY MAINTENANCE JOBS IT IS OBLIGATORY TO STOP THE MACHINE AND DISCONNECT IT FROM THE POWER MAINS.

■ The maintenance jobs described in this chapter may be carried out by the user.

■■ The more complex maintenance jobs require professionally skilled personnel to carry out.

15.1 GENERAL INFORMATION

Routine maintenance must be carried out according to the maintenance schedule displayed on the machine.

15.2 DRAINING CONDENSATE FROM THE OIL TANK

If the compressor work cycle contemplates long pauses during which the machine cools down, a certain amount of condensate may collect in the oil tank. This happens, for example, when stopping overnight or at weekends.

The condensate must be drained off every 50 hours or every week. This operation may be performed only when the machine is cold, that is when it has been switched off for at least 8 hours.

BEFORE DRAINING THE CONDENSATE IT IS OBLIGATORY TO STOP THE MACHINE AND DISCONNECT IT FROM THE POWER MAINS.

Proceed as follows:
- Press the “STOP” button on controller
- Turn the isolating switch and block it with the padlock.
- Turn on the supply automatic differential switch.

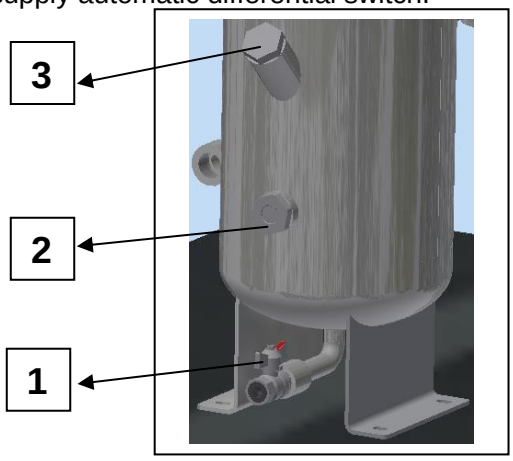


FIG 16

Wait for the machine to cool down.
- Remove the panels with the key provided.
- SLOWLY turn on the valve Ref. 1 Fig. 16 and let the condensate flow out.
- When the first traces of oil appear, turn off the valve.

CONDENSATE MUST BE DISPOSED OF IN CONFORMITY WITH THE LOCAL REGULATIONS IN FORCE.

- Check the oil level on the indicator Ref. 2 Fig. 16
- If the oil level is low, top up as described in 15.4

USE OIL OF THE SAME TYPE AS THAT ALREADY IN THE MACHINE; DO NOT MIX DIFFERENT TYPES OF OIL

15.3 MAINTENANCE SCHEDULE

■ **OPERATIONS THAT MAY BE CARRIED OUT BY THE USER**
■■ **OPERATIONS THAT REQUIRE SKILLED PERSONNEL**

These maintenance intervals are recommended for work environments that are not dusty and are well ventilated.

For particularly dusty environments, double the frequency of intervals.For more information please contact manufacturer or nearest dealer

Running time	Plan		Content
Every 50 hours (Daily/Weekly)		■	Check the temperature reading.
		■	Check the oil level
		■	Clean the filtering panel
		■	Check for possible air or oil leaks.
Every 500 hours (OR monthly)	**A**	■	Clean the air suction filter **(see control board LED)**
		■	Drain condensate from separator tank
Every 2000 hours (OR 1/2 Year)	**B**	■■	Change the oil **(see control board LED)**
		■■	Change the oil filter **(see control board LED)**
		■	Change the air filter **(see control board LED)**
		■■	Clean the finned surface of the air-oil cooler
		■■	Change the oil separating filter **(see control board LED)**
Every 4000 hours (OR 1 Years)	**C**	■■	All maintenance content of plan B
		■■	Test the emergency stop function
		■■	Test the safety valve (or one year, whichever is first)
Every 6000 hours (OR 2 Years)	**D**	■■	All maintanence contents of plan C
		■■	Change the inlet valve service
		■■	Change the MPV service
		■■	Clean the oil carbon (using the company's proprietary carbon cleaning agents)

BEFORE CARRYING OUT ANY MAINTENANCE JOBS IT IS OBLIGATORY TO STOP THE MACHINE AND DISCONNECT IT FROM THE POWER MAINS.

15.4 CHECK OIL LEVEL AND TOP UP

- Switch off the machine using the stop button on controller: the machine will stop after running unloaded
  for few seconds.
- Wait a few minutes for the foam in the air/oil separtor tank to abate (check sight glass).
- Check the oil level on the indicator Ref. 2 Fig. 16
- If the oil level is under the minimum, top up.

USE OIL OF THE SAME TYPE AS THAT ALREADY IN THE MACHINE; DO NOT MIX DIFFERENT TYPES OF OIL.

BEFORE CARRYING OUT ANY OPERATION ON THE MACHINE, ENSURE THAT THE ELECTRIC POWER SUPPLY HAS BEEN DISCONNECTED.

Proceed as follows to top up (see 18.0 for oil part number)
- Open the front panel with the special key
- Slowly open the oil plug Ref. 3 Fig. 16
- Top up to maximum level Ref. 2 Fig. 16, with oil of the same type in the compressor.

- Turn off the cap of the oil tank Ref. 3 Fig. 16.
- Close the panel.

Note: If the oil has turned Creamy in Color contaminated with Condensate, Immediately contact dealer or Manufacturer, Do not operate the machine

15.5 CLEANING THE PRE-FILTER OF INLET AIR

- Press the “STOP” button on controller
- Press the “EMERGENCY STOP” button
- Turn power off from the mains.
- Clean the pre-filter / filter with a jet of air**.**
- Once the operation has been completed, re-assemble the pre-filter into panel. Turn the power on.

FIG. 17

15.6 CHANGING THE FILTER

- Press the “STOP” button on controller
- Press the “EMERGENCY STOP” button
- Turn the power off from the mains.
- Remove the filter from inlet valve

AVOID DROPPING FOREIGN BODIES INTO THE SUCTION MANIFOLD.

- Clean the filter with a jet of air, working from inside to outside.
  DO NOT USE WATER OR SOLVENTS. Fit a new filter if required.
- Fit the filter on inlet valve.
- Dispose of the old filter in conformity with the local regulations in force.

15.7 CHANGING THE OIL (see 18.0 part number for oil.)

BEFORE CARRYING OUT ANY MAINTENANCE JOBS IT IS OBLIGATORY TO STOP THE MACHINE AND DISCONNECT IT FROM THE POWER MAINS AND FROM THE COMPRESSED AIR DISTRIBUTION NETWORK.

Oil changing is an important operation for the compressor:
The oil must be changed when the machine is still warm, that is immediately after stopping it.
The suggestions listed below should be carefully followed.
After draining the old oil out of the machine Ref. 1 Fig. 16.

- Completely fill the oil collector , observe level on sight glass Ref. 2 Fig. 16.
- Start the compressor.
- After about 1 minute switch off the machine by pressing “STOP” button on controller (machine will switch off after a few seconds of idle running.)

AFTER THIS STEP PROCEED AS DESCRIBED IN CHAPTER 15.4

THE OLD OIL MUST BE DISPOSED OF IN COMPLIANCE WITH THE REGULATIONS IN FORCE.

NOTE ON LUBRICANTS
When delivered the machine is filled with oil;
In normal conditions of use, these lubricants have proved to be able to withstand use for as many as 4.000 hours.

However, due to the external polluting agents that get into the compressor with the air suction, it is advisable to change the oil at more frequent intervals, as indicated on the routine maintenance chart.

If the compressor is being used at high temperatures (continuous operation above 90 °C) or in particularly severe conditions, we advise changing the oil at shorter intervals than those recommended in the maintenance chart.

DO NOT TOP UP WITH DIFFERENT OILS

15.8 REPLACING THE OIL SEPERATOR ELEMENT AND OIL FILTER

BEFORE CARRYING OUT ANY MAINTENANCE THE MACHINE MUST BE STOPPED, CUT OFF THE MACHINE FROM THE ELECTRICAL MAINS AND FROM THE COMPRESSED AIR DISTRIBUTION CIRCUIT, CHECK THAT THE MACHINE IS NOT UNDER PRESSURE.

Before proceeding with the replacement of the oil filter check that there is no pressure in the machine.
- Lubricate the filter seals with a little oil before fitting.
- Tightening must be done by hand

16.0 PERIODS OF INACTIVITY

If the machine has to remain inactive for a long period:
- Press the “STOP” button on controller
- Press the “EMERGENCY STOP” button.
- Turn on the supply power automatic differential switch.
- Turn off the isolation valve.

During periods of inactivity the weather must be protected against atmospheric agents, dust and humidity which could damage the motor and the electrical system.
To restart the machine after periods of inactivity, consult the manufacturer.

17.0 SCRAPPING THE UNIT

If the machine is to be scrapped, it must be dismantled into parts of the same material, to be disposed of according to the local regulations in force.

ALWAYS RESPECT THE REGULATIONS IN FORCE FOR DISPOSING OF OLD OIL AND OTHER POLLUTING MATERIALS SUCH AS SOUND-DEADENING, FOAM, ETC.

18.0 LIST OF SPARE PARTS FOR ROUTINE MAINTENANCE

Refer to related ASL

19.0 TROUBLE-SHOOTING AND EMERGENCY REMEDIES

N.B. OPERATIONS MARKED ■ ■ MUST BE CARRIED OUT BY PROFESSIONALLY SKILLED PERSONNEL APPROVED BY THE MANUFACTURER.

FAULT FOUND	POSSIBLE CAUSES	OBSERVATIONS
The machine does not start	1) no power	Check the power supply line, Chapter 12.2
	2) Fuse burns	Replace fuses
	3) Protection relay	■ ■ Be examined and repaired by electrician or professional person
	4) Start button bad	
	5) Low voltage	
	6) Motor fault	
	7) Convertor fault	
High discharge temperature	1) High ambient temperature	Improve ventilation in the compressor room, Chapter 9.2
	2) Lack of lubricant	Top up the oil tank
	3) Too dirty on oil cooler fin	■ ■ Clean the oil cooler
	4) Oil filter block	■ ■ Replace the oil filter
	5) Cooling fan fault	Replace cooling fan
	6) Temperature sensor fault	Examine and replace the temperature sensor
	7) Too high working pressure	Lower the working pressure
Exhaust pressure is too low	1) Compressed air demand exceeds the supply	Check if leaks on piping
	2) Air filter block	■ ■ Clean or replace the air filter
	3) Inlet valve can't open	Check the air inlet
	4) Oil separator element block	■ ■ Replace the OSE
High oil consumption	1) Oil volume is too high	Check oil level, drain the oil at normal position
	2) Throttling orifice block on check valve of oil scavenge line	Clean the throttling orifice or replace the check valve
	3) Oil separator element or seal broken	■ ■ Check and replace OSE or seal
	4) Too low exhaust pressure	Increase the exhaust pressure