USE AND MAINTENANCE MANUAL
SILENT ELECTRIC ROTARY SCREW COMPRESSORS

WARNING: Read this manual carefully and in full before using the compressor.
IMPORTANT INFORMATION

Read all the operational instructions, safety recommendations and all warnings provided in the instruction manual. Most accidents encountered when using the compressor are merely due to the failed observance of basic safety standards.

Accidents are prevented by foreseeing potentially hazardous situations and observing the appropriate safety standards.

The fundamental safety standards are listed in the “SAFETY” section of this manual and also in the section involving the use and maintenance of the compressor.

Hazardous situations to be avoided in order to prevent serious personal injuries and machine damages are listed in the “WARNINGS” section of the instruction manual or are actually printed on the machine.

Never use the compressor improperly but only as recommended by the Manufacturer.

The Manufacturer reserves the right to up-date the technical information given in this manual without notice.
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0 Foreword

0.1 How to read and use the instruction manual

0.1.a Importance of the manual

This INSTRUCTION MANUAL has been written to guide you through the INSTALLATION, USE and MAINTENANCE of the compressor purchased. We recommend that you strictly observe all the indications given within as the ideal operational efficiency and lasting wear of the compressor depend on the correct use and methodical application of the maintenance instructions given hereafter. Remember that when any doubts or inconveniences arise it is a good rule to always contact the AUTHORISED SERVICE CENTRES. They are at your complete disposal for any explanations or jobs required. The Manufacturer therefore declines all liabilities regarding the incorrect use and poor maintenance of the compressor. The INSTRUCTION MANUAL is integral part of the compressor. Ensure that any up-dates forwarded by the Manufacturer are actually added to the manual. If the compressor is sold on at a later date the manual must be given to the new owner.

0.1.b Conserving the manual

Use and read the manual with care being careful not to damage any part of it. Do not remove, tear or re-write any parts of the manual for any reason whatsoever. Keep the manual in a dry and sheltered place.

0.1.c Consulting the manual

This instruction manual is made up of the following:

- FRONT COVER WITH MACHINE IDENTIFICATION
- DETAILED INDEX
- INSTRUCTIONS AND/OR NOTES ON THE COMPRESSOR

The model and serial number of the compressor to which the manual refers and that you have purchased is found on the FRONT COVER. The various SECTIONS in which all the notes relative to a certain subject are found in the INDEX. All the INSTRUCTIONS AND/OR NOTES ON THE COMPRESSOR aim at pointing out safety warnings and procedures required to use the compressor correctly.
Symbols used

The **SYMBOLS** pointed out below are used throughout this manual and their purpose is that of drawing the operator’s attention, informing the latter how to behave and how to proceed in each operational situation.

**READ THE INSTRUCTION MANUAL**
Read the use and maintenance manual carefully before installing and starting the compressor.

**GENERAL HAZARDOUS SITUATION**
An additional note will point out the type of hazard involved.
Meaning of the indications:

- **Warning!** This points out a potentially hazardous situation, which if ignored, could cause personal injury and machine damage.

- **Note!** This enhances crucial information.

**RISK OF ELECTRIC SHOCK**
Warning: the electrical power supply of the compressor must be disconnected before doing any jobs on the compressor.

**RISK OF SCOLDING**
Warning: be careful when touching the compressor as some parts of it could be very hot.
1 General information

1.1 Identification data of the manufacturer and the compressor

COMPRESSOR
IDENTIFICATION
NAMEPLATE  (Example)

![Silent electric rotary screw compressor.]

1.2 Information on machine technical/maintenance service

We remind you that our technical service department is at your complete disposal to help you resolve any problems that may possibly be encountered, or to provide you with any other information necessary.

In the case of need contact:

Our CUSTOMER TECHNICAL SERVICE department or your local dealer.

The constant and efficient performance of the compressor is ensured only if original spare parts are used.
We recommend therefore that you strictly observe the indications provided in the MAINTENANCE section and to use EXCLUSIVELY original spare parts.

The use of NON ORIGINAL spare parts automatically annuls the guarantee.

1.3 General safety warnings

Note! The procedures provided in this manual have been written to assist the operator throughout the use and maintenance of the compressor.

![IMPORTANT INSTRUCTIONS FOR THE SAFE USE OF THE COMPRESSOR]

WARNING: THE INAPPROPRIATE USE AND POOR MAINTENANCE OF THIS COMPRESSOR MAY CAUSE PHYSICAL INJURY TO THE USER. YOU ARE RECOMMENDED TO CAREFULLY FOLLOW THE INSTRUCTIONS PROVIDED HEREAFTER TO AVOID SUCH RISKS.

1. DO NOT TOUCH MOVING PARTS
Never put your hands, fingers or other parts of the body near moving parts of the compressor.
2. NEVER USE THE COMPRESSOR WITHOUT THE SAFETY GUARDS FITTED
Never use the compressor without all the safety guards fitted perfectly in their correct place (i.e. panelling, belt guard, safety valve). If these parts are to be removed for maintenance or servicing purposes, ensure that they are put back in their original place perfectly before using the compressor again.

3. ALWAYS WEAR SAFETY GOGGLES
Always wear goggles or equivalent eye protection means. Never direct compressed air towards any part of your body or that of others.

4. PROTECT YOURSELF AGAINST ELECTRIC SHOCKS
Avoid accidentally touching the metal parts of the compressor with your body, such as pipes, the tank or metal parts connected to earth. Never use the compressor where there is water or in damp rooms.

5. DISCONNECT THE COMPRESSOR
Disconnect the compressor from the electric power supply and completely discharge the pressure from the tank before carrying out any service, inspection, maintenance, cleaning, replacing or inspection jobs of each part.

6. ACCIDENTAL START-UP
Never move the compressor while it is connected to the electrical power supply or when the tank is pressurised. Ensure that the main switch is turned OFF before connecting the compressor to the electrical power supply.

7. STORE THE COMPRESSOR APPROPRIATELY
When the compressor is not in use, it must be stored in a dry room away from atmospheric agents. Keep it out of children’s reach.

8. OPERATIONAL AREA
Keep the work area clean and remove any tools that are not required. Keep the work area sufficiently ventilated. Never use the compressor in the presence of flammable liquids or gas. The compressor may produce sparks while running. Do not use the compressor where there may be paints, gasoline, chemical compounds, glues and any other flammable or explosive material.

9. KEEP THE COMPRESSOR OUT OF CHILDREN’S REACH
Prevent children or anyone else from touching the power supply cable of the compressor. All outsiders must be kept at a safe distance from the operational area.

10. WORK CLOTHES
Do not wear unsuitable clothing, ties or jewellery as these may get caught up in moving parts. Wear caps to cover your hair if necessary.

11. PRECAUTIONS FOR THE POWER SUPPLY CABLE
Do not disconnect the power supply plug by pulling on the cable. Keep the cable away from heat, oil and sharp edges. Do not stand on the electrical cable or squash it under heavy weights.

12. LOOK AFTER THE COMPRESSOR WITH CARE
Follow the maintenance instructions. Inspect the power supply cable on a periodic basis and if damaged it must be repaired or replaced by an authorised service centre. Visually check the outside appearance of the compressor, ensuring that there are no visual anomalies. Contact your nearest service centre if necessary.

13. ELECTRICAL EXTENSIONS FOR OUTDOOR USE
When the compressor is used outdoors, use only electrical extensions manufactured for outdoor use and marked as such.

14. WARNING
Pay attention to everything you do. Use your common sense. Do not use the compressor if you are tired. The compressor must never be used if you are under the effect of alcohol, drugs or medicines, which could make you tired.

15. CHECK FAULTY PARTS OR AIR LEAKS
Before using the compressor again, if a safety guard or other parts are damaged, they must be checked carefully to evaluate whether they may operate as established in complete safety. Check the alignment of moving parts, hoses, gauges, pressure reducers, pneumatic connections and every other part that may be crucial for the normal operational efficiency of the compressor. All damaged parts must be properly repaired or replaced by an authorised service centre or replaced following the instructions provided in instruction manual.

16. USE THE COMPRESSOR EXCLUSIVELY FOR THE APPLICATIONS SPECIFIED IN THIS INSTRUCTION MANUAL.
The compressor is a machine that produces compressed air. Never use the compressor for purposes other than those specified in the instruction manual.

17. USE THE COMPRESSOR CORRECTLY
Operate the compressor in compliance with the instructions provided in this manual. Do not allow children to use the compressor or those who are not familiar with it.

18. ENSURE THAT EACH SCREW, BOLT AND GUARD IS FIRMLY SECURED IN PLACE.
19. KEEP THE IN-TAKE GRIDS CLEAN
Keep the motor ventilation grids clean. Regularly clean these grids if the work area is particularly dirty.

20. OPERATE THE COMPRESSOR AT THE RATED VOLTAGE
Operate the compressor at the voltage indicated on the electric data nameplate. If the compressor is used at a higher voltage than that rated, the motor will run faster, thus it could be damaged or could burn-out.

21. NEVER USE THE COMPRESSOR IF IT IS FAULTY
If the compressor is noisy or vibrates excessively when running or it seems to be faulty, stop it immediately and check its efficiency or contact your nearest authorised service centre.

22. DO NOT CLEAN PLASTIC PARTS USING SOLVENTS
Solvents such as gasoline, thinners, gas oil or other compounds that contain hydrocarbons may damage the plastic parts. Clean them with a soft cloth and soapy water or other suitable liquids.

23. USE ORIGINAL SPARE PARTS ONLY
The use of non-original spare parts involves the annulment of the guarantee and the abnormal running conditions of the compressor. Original spare parts are available c/o the authorised dealers.

24. DO NOT MODIFY THE COMPRESSOR
Do not modify the compressor. Contact an authorised service centre for all repairs required. An unauthorised modification may impair the efficiency of the compressor and may also cause serious accidents for those who do not have the technical skill required to make such modifications.

25. TURN THE COMPRESSOR OFF WHEN IT IS NOT IN USE
When the compressor is not in use turn the main ON/OFF switch OFF (position “0”).

26. DO NOT TOUCH HOT PARTS OF THE COMPRESSOR
To avoid scolding do not touch pipes, the motor or any other hot part.

27. DO NOT DIRECT THE JET OF AIR DIRECTLY TOWARDS THE BODY
To avoid all risks never direct the jet of air towards people or animals.

28. DO NOT STOP THE COMPRESSOR BY PULLING ON THE POWER SUPPLY CABLE
Use the “O/I” (ON/OFF) switch to stop the compressor.

29. PNEUMATIC CIRCUIT
Use recommended pneumatic hoses and tools that can withstand the same or a higher pressure than the maximum running pressure of the compressor.

30. SPARE PARTS
Use only original and identical spare parts to replace worn or damaged ones. Repairs must be made exclusively by authorised service centres.

31. CORRECT USE OF THE COMPRESSOR
The operator must be perfectly familiar with all the controls and compressor characteristics before starting to work with the machine.

32. MAINTENANCE JOBS
The use and maintenance jobs of the commercial components fitted on the machine, but not indicated in this manual, are indicated in the enclosed documents.

33. DO NOT UNSCREW THE CONNECTION WHEN THE TANK IS PRESSURISED
Do not unscrew the connection for any reason whatsoever with the tank pressurised without first checking if the tank is discharged.

34. DO NOT MODIFY THE TANK
It is prohibited to intentionally drill, weld or deform the compressed air tank.

35. IF THE COMPRESSOR IS USED FOR PAINTING JOBS
   a) Do not work in closed rooms or near free flames.
   b) Ensure that the room in which you are working is sufficiently ventilated.
   c) Wear face and nose mask.

36. DO NOT PUT OBJECTS OR HANDS INSIDE THE PROTECTION GRID
Do not put objects or hands inside the protection grid to avoid physical and material damages.

KEEP THESE USE AND MAINTENANCE INSTRUCTIONS CAREFULLY AND GIVE THEM TO PERSONNEL WISHING TO USE THE COMPRESSOR!

WE RESERVE THE RIGHT TO MAKE MODIFICATIONS WHERE NECESSARY WITHOUT NOTICE
2 Preliminary machine information

2.1 General description

The rotary screw compressor has been specifically designed aiming at minimising maintenance and labour costs. The outside cabinet is completely covered in sound-proof and oil-proof panelling thus ensuring its extended and lasting wear. The components have been arranged so that all vital parts can be easily reached for maintenance purposes simply by opening dedicated panels with quick-release locking devices. The filters and adjustment and safety devices (oil filter, air filter, oil separator filter, regulator valve, minimum pressure valve, max. pressure safety valve, thermostat, belt tightener, screw compression unit, pressure switch and oil separator tank emptying and filling taps) are all fitted on the same side.

Note! The tanks of the compressors have been manufactured in compliance with the EEC/404/87 Directive for the European market. The compressors have been manufactured in compliance with the EC/37/98 Directive for the European market.

Note! Check your model on the identification nameplate fitted on the compressor. It is also indicated in this manual.

ADVISED LUBRICANTS

Always use oil for turbines with approximately 46 cSt at 40°C and a pour point of at least -8 +10°C. The flash point must be greater than +200°C.

NEVER MIX DIFFERENT OIL QUALITIES.

SCREW OIL

ESSO EXXCOLUB 46
BP ENERGOL HLP 46
SHELL CORENA D 46
TOTAL AZOLLA ZS 46
MOBIL DTE OIL 25
DUCKHAMS ZIRCON 46

Use oil with VG32 rating for cold climates and VG68 for tropical climates. It is advisable to use synthetic oils for very hot and humid climates.

2.2 Intended use

The silent rotary screw compressors have been designed and manufactured exclusively to produce compressed air. EVERY OTHER USE, DIFFERENT AND NOT FORESEEN BY ALL INDICATED, RELIEVES THE MANUFACTURER OF POSSIBLE CONSEQUENT RISKS.

In any event the use of the compressor different to that agreed in the purchase order RELIEVES THE MANUFACTURER FROM ALL LIABILITIES WITH REGARD TO POSSIBLE MATERIAL DAMAGE AND PERSONAL INJURY.

The electrical system is not designed for the use in environments subject to explosion or for flammable products.

NEVER DIRECT THE JET OF AIR TOWARDS PEOPLE OR ANIMALS. NEVER USE THE COMPRESSED AIR PRODUCED BY LUBRICATED COMPRESSORS FOR RESPIRATORY PURPOSES OR IN PRODUCTION PROCESSES WHERE THE AIR IS IN DIRECT CONTACT WITH FOODSTUFFS UNLESS IT HAS BEEN FIRST FILTERED AND CONDITIONED FOR SUCH PURPOSE.
2.3 Technical data

<table>
<thead>
<tr>
<th>Model</th>
<th>HP10</th>
<th>HP15</th>
<th>HP20</th>
<th>HP25</th>
<th>HP30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of rotary screw end</td>
<td>RC B60</td>
<td>RC B60</td>
<td>RC B101</td>
<td>RC B101</td>
<td>RC B101</td>
</tr>
<tr>
<td>Compressor rotation speed min⁻¹</td>
<td>4470 3920 3310</td>
<td>6030 5200 4320</td>
<td>3930 3420 2865</td>
<td>4736 4104 3510</td>
<td>5510 4990 4040</td>
</tr>
<tr>
<td>Free air delivery ISO 1217 l/min</td>
<td>1180 980 800</td>
<td>1630 1400 1150</td>
<td>2350 2000 1450</td>
<td>2850 2490 1853</td>
<td>3054 2779 2250</td>
</tr>
<tr>
<td>Lubricant qty cfm</td>
<td>41,6 34,5 28,2</td>
<td>57,5 49,4 40,6</td>
<td>83 70,6 61,7</td>
<td>100,6 87,9 65,4</td>
<td>113,8 103,1 83,3</td>
</tr>
<tr>
<td>Fan capacity m³/h</td>
<td>2500 2500 2500</td>
<td>2500 2500 2500</td>
<td>4200 4200 4200</td>
<td>4800 4800 4800</td>
<td>5000 5000 5000</td>
</tr>
<tr>
<td>Oil residue in air ppm</td>
<td>&lt;3 &lt;3 &lt;3</td>
<td>&lt;3 &lt;3 &lt;3</td>
<td>&lt;3 &lt;3 &lt;3</td>
<td>&lt;3 &lt;3 &lt;3</td>
<td>&lt;3 &lt;3 &lt;3</td>
</tr>
<tr>
<td>2-pole electric motor IEC</td>
<td>MEC132 ME132 MEC132</td>
<td>MEC132 ME132 MEC132</td>
<td>MEC132 MEC132 MEC132</td>
<td>MEC160 MEC160 MEC160</td>
<td>MEC160 MEC160 MEC160</td>
</tr>
<tr>
<td>Output HP/kW</td>
<td>10/7,5 10/7,5 10/7,5</td>
<td>15/11 15/11 15/11</td>
<td>20/15 20/15 20/15</td>
<td>25/18,5 25/18,5 25/18,5</td>
<td>30/22 30/22 30/22</td>
</tr>
<tr>
<td>Input IP</td>
<td>54 54 54</td>
<td>54 54 54</td>
<td>54 54 54</td>
<td>55 55 55</td>
<td>55 55 55</td>
</tr>
<tr>
<td>Protection rating S</td>
<td>S 1 S 1 S 1</td>
<td>S 1 S 1 S 1</td>
<td>S 1 S 1 S 1</td>
<td>S 1 S 1 S 1</td>
<td>S 1 S 1 S 1</td>
</tr>
<tr>
<td>Service N°</td>
<td>10 10 10</td>
<td>10 10 10</td>
<td>10 10 10</td>
<td>10 10 10</td>
<td>10 10 10</td>
</tr>
<tr>
<td>Ambient temperature limits dB (A)</td>
<td>65 65 65</td>
<td>67 67 67</td>
<td>68 68 68</td>
<td>69 69 69</td>
<td>70 70 70</td>
</tr>
</tbody>
</table>

Sound level measured in a free range at a distance of 1 m: ±3dB(A) at the maximum working pressure.

The sound level may increase by 1 to 10 dB(A) depending on the room in which the compressor is installed.

Note! The technical data and dimensions of the machine are subject to variations at any time without notice.
3 Transport, Handling, Storage

In order to use the compressor in complete safety read the safety standards given in section 1.3. before reading this section.

3.1 Transporting and handling the packed machine

The packed compressor must be transported by qualified personnel using a forklift truck.

Before moving the machine ensure that the load-bearing capacity of the forklift truck is sufficient to take the weight to be lifted. Position the forks exclusively as illustrated below. Once the forks have been positioned in the points indicated, lift slowly without jerking.

Never stand near the area where the compressor is being handled and never stand on the crate while it is being moved.

3.2 Packing and unpacking

To avoid damages and to protect the compressor during transport it is usually placed on a wooden pallet, to which it is secured by screws and covered with cardboard. All the shipping and handling information and symbols are printed on the compressor packing. Upon consignment remove the top part of the packing and check if any damages have been encountered during transport. If any damages are found, caused during transport, immediately make a written claim, backed up with photos of the damaged parts if possible and forward everything to your insurance company, with copy to the Manufacturer and transporter.
Using a forklift truck take the compressor as near as possible to the place where it is to be installed then carefully remove the protective packing without damaging it, following the instructions below:

- Remove the packing 1, by sliding it away upwards.
- Unscrew screws 2 that block the feet that secure the compressor to the pallet (only for models with tank).

**Note!** The compressor can be left on the packing pallet to make it easier to move.

Carefully ensure that the contents correspond with all written in the consignment documents. Dispose of the packing in compliance with current standards in force in the country of installation.

**Note!** The machine must be unpacked by qualified personnel using appropriate tools and equipment.

### 3.3 Storing the packed and unpacked compressor

For the whole time that the compressor is not used before unpacking it, store it in a dry place at a temperature between +5°C and +45°C and sheltered away from weather.

For the whole time that the compressor is not used after unpacking it, while waiting to start it up or due to production stoppages, place sheets over it to protect it from dust, which may settle on the components. The oil is to be replaced and the operational efficiency of the compressor is to be checked if it is not used for long periods.
4 Installation

In order to use the compressor in complete safety read the safety standards given in section 1.3. before reading this section.

4.1 Admitted surrounding conditions

Position the machine as established when the order was placed. Failing this the Manufacturer is not liable for any inconveniences that may possibly arise.

Unless pointed out otherwise when placing the order, the compressor must work regularly in the surrounding conditions indicated below:

ROOM TEMPERATURE
The room temperature must not be lower than 5°C or higher than 45°C to ensure the ideal operational efficiency of the compressor.

If the compressor works at a room temperature lower than the minimum value, the condensate could be separated within the circuit and therefore the water would mix with the oil, thus deteriorating the quality of the latter, failing to guarantee the even formation of the lubricating film between the moving parts with the possibility of seizure.

If the compressor works at a room temperature higher than maximum value, the compressor would take in air that is too hot, which would prevent the heat exchanger from adequately cooling the oil in the circuit, raising the working temperature of the machine, thus causing the thermal safety device to trip, which stops the compressor due to an excessive temperature of the air/oil mixture at the screw outlet.

The maximum temperature of the room is to be measured while the compressor is running.

LIGHTING
The compressor has been designed in compliance with legal prescriptions and in the attempt to minimise shadow zones to facilitate the operator’s job.

The lighting system of the factory is to be considered as crucial for the operator’s safety.

The room in which the compressor is installed must have no shadow zones, dazzling lights or stroboscopic effects due to the lighting.

ATMOSPHERE WITH RISK OF EXPLOSION AND/OR FIRE
The standard compressor is not pre-arranged or designed to work in rooms subject to the risk of explosion or fire. The performance of the compressor may decrease at the maximum permitted ambient temperature, with relative humidity higher than 80% and at an altitude of more than 1,000 mt.

4.2 Space required for maintenance

The compressor must be installed in a large room that is well-aired, dust-free and sheltered away from rain and frost. The compressor takes in a large amount of air that is required to ventilate it internally. A dusty atmosphere would in time cause damages and inefficient performance.

Part of the dust once inside is taken in by the air filter causing it to clog rapidly and another part of dust will settle on the components and will be blown against the cooling radiator, consequently compromising the efficiency of the heat exchanger. It is therefore obvious that the cleanliness of the area in which the compressor is installed is crucial for the correct efficiency of the machine, avoiding excessive running and maintenance costs. To facilitate maintenance jobs and to create a favourable circulation of air, the compressor must have a sufficient free space all around it (see fig.).
The room must be provided with outlets that lead outdoors near the floor and ceiling that will allow the natural circulation of air. If this is impossible, some fans or extractors must be fitted to ensure an air flow rate 20% higher than the cooling air flow rate. Minimum recommended fan capacity: 2500 m³/h.

Ducts for the inlet and outlet of the air can be used in unfavourable environments. These ducts must be the same size as the in-take and delivery grid. If these ducts are longer than 3 meters contact the Authorised Service Centre.

**Note!**

A conveyance system can be fitted to recover the hot ventilation air delivered, which can be used to heat the room or for other purposes. It is crucial that the cross section of the system that recovers the hot air is greater than the total cross section of the grid slots plus the system must be equipped with a forced extraction system (extractor fan) to favour a constant downflow. (minimum cross section 1200 cm²).

### 4.3 Positioning the compressor

Once the position in which the compressor is to be installed has been identified ensure that the compressor is set on a flat surface.

No special foundations or bases are required for the machine.

Lift the compressor using a forklift truck (forks at least 900 mm long) and fit the vibration-damping feet 1 and block with the nuts 2 under the four resting points where established.

![Diagram of feet 1 and 2](image)

**Do not secure the compressor rigidly to the floor.**

### 4.4 Connecting the compressor to the sources of energy and relative inspections.

#### 4.4.1 Connecting the compressor to the electrical mains power supply

The compressor is to be connected to the electrical mains by the customer, to his exclusive liability, employing specialised personnel and in compliance with the Accident Prevention Norms EN 60204.

**INSTRUCTIONS FOR CONNECTING TO EARTH**

This compressor must be connected to earth while in use in order to safeguard the operator against electrical shocks. The electrical connection must be carried out by a skilled engineer. It is advisable never to dismantle the compressor or even to make any other connections. All repairs must be carried out exclusively by authorised service centres or other qualified centres. The earth wire of the power supply cable of the compressor must be connected only and exclusively to the PE pin of the terminal board of the actual compressor. Before replacing the plug of the power supply cable ensure that the earth wire is connected.

**EXTENSION CABLE**

Use only extension cables with plug and earth connection. Never use damaged or squashed extension cables. Ensure that the extension cable is in a good state of wear. When using an extension cable, ensure...
that the cross section of the cable is sufficient to convey the current absorbed by the product to be connected. If the extension cable is too thin there could be drops in voltage and therefore loss in power and overheating of the equipment. The extension cable of the three-phase compressors must have a cross section in proportion with its length: see table below:

**CORRECT CROSS SECTION FOR THE MAXIMUM LENGTH OF 20M**

<table>
<thead>
<tr>
<th>HP</th>
<th>kW</th>
<th>220/240V 50/60 Hz 3 ph</th>
<th>380/415V 50/60 Hz 3 ph</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>7.5</td>
<td>10 mm²</td>
<td>4 mm²</td>
</tr>
<tr>
<td>15</td>
<td>11</td>
<td>16 mm²</td>
<td>10 mm²</td>
</tr>
<tr>
<td>20</td>
<td>15</td>
<td>25 mm²</td>
<td>16 mm²</td>
</tr>
<tr>
<td>25</td>
<td>18</td>
<td>35 mm²</td>
<td>16 mm²</td>
</tr>
<tr>
<td>30</td>
<td>22</td>
<td>50 mm²</td>
<td>25 mm²</td>
</tr>
</tbody>
</table>

Avoid all risks of electrical shocks. Never use the compressor with damaged electrical cables or extension cables. Regularly check the electrical cables. Never use the compressor in or near water or near a hazardous area where electrical shocks may be encountered.

**ELECTRICAL CONNECTION**

The three-phase compressors (L1+L2+L3+PE) must be installed by a qualified engineer. The three-phase compressors are supplied without plug and cable. The power supply cable must be fed into the electrical cabinet through the dedicated cable clamps 1 situated on the left side of the compressor.

Ensure that the cable cannot accidentally come into contact with moving or hot components, possibly secure with clips. The cross section of the wires of the power supply cable (for lengths of 4 m and ambient temperatures of 50°C at the most) must be as follows:

<table>
<thead>
<tr>
<th>Power Hp</th>
<th>Rated voltage 380/415V</th>
<th>Rated voltage 220/240V</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>4 mm²</td>
<td>6 mm²</td>
</tr>
<tr>
<td>15</td>
<td>6 mm²</td>
<td>10 mm²</td>
</tr>
<tr>
<td>20</td>
<td>10 mm²</td>
<td>16 mm²</td>
</tr>
<tr>
<td>25</td>
<td>10 mm²</td>
<td>25 mm²</td>
</tr>
<tr>
<td>30</td>
<td>16 mm²</td>
<td>35 mm²</td>
</tr>
</tbody>
</table>

It is advisable to install the connector, magneto thermal switch and fuses near the compressor (3 m away at the most). The magneto thermal switch and the fuses must have the characteristics indicated in the table below:

<table>
<thead>
<tr>
<th>Power Hp</th>
<th>Rated voltage 380/415V</th>
<th>Rated voltage 220/240V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Magneto thermal switch</td>
<td>Fuse</td>
</tr>
<tr>
<td>10</td>
<td>25 A</td>
<td>30 A</td>
</tr>
<tr>
<td>15</td>
<td>40 A</td>
<td>40 A</td>
</tr>
<tr>
<td>20</td>
<td>50 A</td>
<td>50 A</td>
</tr>
<tr>
<td>25</td>
<td>63 A</td>
<td>63 A</td>
</tr>
<tr>
<td>30</td>
<td>80 A</td>
<td>80 A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power Hp</th>
<th>Rated voltage 220/240V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Magneto thermal switch</td>
</tr>
<tr>
<td>10</td>
<td>40 A</td>
</tr>
<tr>
<td>15</td>
<td>63 A</td>
</tr>
<tr>
<td>20</td>
<td>80 A</td>
</tr>
<tr>
<td>25</td>
<td>80 A</td>
</tr>
<tr>
<td>30</td>
<td>125 A</td>
</tr>
</tbody>
</table>

**Note!** The fuse parameters indicated in the table above refer to the gl type (standard). If cartridge fuses type aM are used (delayed) the parameters in the table are to be reduced by 20%. The parameters of the magneto thermal switches refer to switches type K.
Ensure that the installed power in kW is at least double the input of the electric motor. All **silent rotary screw compressors** avail of Star/Delta starting, which enables the motor to start with as little electrical energy consumption upon start-up as possible. The mains voltage must correspond with that indicated on the electrical data nameplate of the machine; the admitted tolerance must remain within +/- 5%.

**EXAMPLE:**
Voltage, 400 Volt: minimum tolerance 380 Volt - maximum tolerance 420 Volt

The plug of the power supply cable must never be used as a switch but must be plugged into a power socket that is controlled by an adequate differential switch (magneto thermal switch).

---

**CHECK THE ROTATION DIRECTION**

When connecting the compressor to the electrical mains for the first time ensure that the STOP ALARM is not triggered, which is pointed out by the red LED lit steady, by a buzzer and by a warning on the display 1 stating: **ROTATION ALARM**.

This alarm points out the incorrect connection order of the electrical power supply cables (relative to the three phases) that causes the incorrect rotation direction of the screw unit. Once the cable connection has been rectified press the **RESET** key 3.

**Warning!** The incorrect rotation direction for more than 20 seconds will irreparably damage the compressor.

4.4.2 **Connecting to the pneumatic mains**

**Always use pneumatic hoses for compressed air with the maximum pressure characteristics and cross section suitable for those of the compressor.**

Do not try to repair a faulty hose.

Connect the compressor to the pneumatic mains using the fitting 1 pre-arranged on the compressor. Use hosing with a greater or same diameter as the compressor outlet. Install two ball taps with capacity suitable for the compressor between the compressor and tank and between the tank and line. Do not install non-return valves between compressor and tank. The non-return valve is already installed inside the compressor.
5 Using the compressor

In order to use the compressor in complete safety read the safety standards given in section 1.3. before reading this section.

5.1 Preparing to use the compressor

5.1.1 Operational principle

The air taken-in by the filter passes through a valve that controls its flow rate to the screw where, mixing with the oil, it is compressed.

The air/oil mix produced by compression reaches a tank where the initial separation by gravity is achieved; as the oil is heavier, it settles on the bottom, it is then cooled and sent through a heat exchanger, filtered and injected into the screw again.

The oil is required to reduce the heat produced by compression, to lubricate the bearings and to maintain the coupling of the screw lobes. The air is sent through an oil separator filter to be additionally purified from residue oil particles. It is cooled by means of another heat exchanger and is finally outlet to be used at low temperature and with acceptable water and oil residues (-3p.p.m.). A safety system controls the crucial points of the machine and points out any abnormal conditions. The temperature of the air/oil mix at the screw outlet is controlled by a thermostatic probe, which stops the compressor if the temperature is too high (105°C).

A thermal protection device is fitted on the electric motor, which stops the machine if necessary.
5.2 Controls, indicators and safety devices of the compressor

5.2.1 Control panel

The control panel is made up of a set of buttons required for the main operational and control functions of the compressor.

1. **GREEN LED**
   - This points out that the compressor is powered.

2. **START (I)**
   - This button is used to turn the compressor on.

3. **STOP (O)**
   - This button is used to turn the compressor off.

4. **PUSH BUTTON CONTROL PANEL**
   - This is used to program the compressor.

5. **DEFAULT**
   - Compressor programming is exited by pressing this push button.

6. **PROGRAM**
   - Programming is enabled by pressing this push button.

7. **MENU SCROLLING PUSH BUTTON**
   - These four push buttons are used to scroll the menus displayed.

8. **RESET**
   - Any procedure being performed is cancelled by pressing this push button.

9. **RED LED**
   - This points out that an alarm has tripped.

10. **DIGITAL DISPLAY**
    - The various menus are displayed and the parameters are monitored in this display.

11. **EMERGENCY PUSH BUTTON**
    - This mechanically blocking push button is used to immediately stop the compressor in the case of emergency. With the push button blocked it is impossible to start the compressor. To be able to start the compressor again, turn and pull the emergency push button up then press the **RESET** button.

5.2.2 Auxiliary control devices

1. **AIR CIRCUIT PRESSURE CONTROL GAUGE**

2. **OIL THERMAL PROTECTION SWITCH RESET BUTTON**
   - This is positioned on the side of the electrical cabinet inside the compressor.
   - Press this button to reset the oil thermal protection switch.

3. **MOTOR THERMAL PROTECTION SWITCH RESET BUTTON**
   - This is positioned inside the electrical cabinet.
   - Press this button to reset the motor thermal protection switch.
CHECKING THE SETTINGS ON THE CONTROL PANEL
When the compressor is ready “PRESS START TO START” appears on the display. The general settings of the control unit can be checked using the MENU SCROLLING PUSH BUTTONS and the following will appear on the display: “AL TEMPERATURE (105)”, “TYPE OF SENSOR (17.8)”, SELECT LANGUAGE (0-4) (1)”, “SELECT PSI/BAR 2/1 (BAR)”, “SELECT FAH./CELS 2/1 (CELS)”, C.R. (2/1) (Y/N) (NO)”, “ALARM PRESSURE (10.5)”, STAR-DELTA T (4)”, “IDLE RUN T (240)”, “SET-UP CLI.P.MAX (10.0)”, SETUP CLI.MIN(8-0)”, MAINTENANCE T (3000)”, TEMPER.ALARM NO. 2”, PRESSURE ALARM NO. 0”, THERM.PROT.ALARM NO. 1”, RUNNING HOURS (150), “HOURS OF COMPRESSION (100)”.

Note! Refer to the menu descriptions for the meaning of the parameters indicated above.

Press the DEFAULT key to exit this function.
The total running hours (R.H), the hours of compression (H.C.) and the time left to the next maintenance interval (MAINT.) can be displayed for a few seconds by pressing the left and right arrow keys together at the same time.

MENUS THAT CAN BE ACCESSED BY THE CUSTOMER:

<table>
<thead>
<tr>
<th>PASSWORD</th>
<th>MENU</th>
<th>TO ACCESS</th>
<th>TO EXIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>“12”</td>
<td>AUTO TEST</td>
<td>Keys 1 and 2 pressed together</td>
<td>STOP (O) Key</td>
</tr>
<tr>
<td>“92”</td>
<td>CUSTOMER</td>
<td>Keys 9 and 2 pressed together</td>
<td>DEFAULT Key</td>
</tr>
</tbody>
</table>

AUTO-TEST MENU (12)
To enter the Auto-test menu press keys 1 and 2 of the PUSH BUTTON CONTROL PANEL together at the same time.
The Auto-test function automatically checks the electrical connections of the machine. “TEST RUNNING, PRESS STOP TO EXIT” appears on the display.
To exit from the Auto-test function press the STOP push button as indicated on the display.

CUSTOMER MENU (92)
To enter the Customer menu press keys 9 and 2 of the PUSH BUTTON CONTROL PANEL together at the same time.
The Customer menu is used to calibrate the following parameters:
• Cut-in pressure (min.P) of the compressor
• Cut-off pressure (max.P) of the compressor
• Idle running Time.

To scroll the parameters shown on the display use the arrow keys to scroll the menus and press the DEFAULT key to exit.
To modify the min.P value enter the new value in decimals, without comma, then press PROGRAM (i.e. to set 7.5 bar, type-in 75).
To modify the max.P value enter the new value in decimals, without comma, then press PROGRAM.
Note!: Max.P must be at least 0.5 bar/7.2 psi less than the alarm P.
Max.P - min. P must be higher than or equal to 1 bar/14.5 psi.

To modify the idle running time of the compressor in seconds, enter the new value (in seconds) and then press PROGRAM.
Note! The minimum idle running time is 120 seconds and the maximum time is 600 seconds.
Press the DEFAULT key to exit from the menu.

ALARMS
The alarms that may possibly occur are grouped in two categories:
• Stop ALARM (Red LED lit steady)
• Warning ALARM (Red LED flashing)

STOP ALARM
This type of alarm stops and blocks the compressor. It is pointed out by the red LED lit steady (ALARM), by a buzzer and by a flashing warning on the display pointing out the cause for the alarm itself.

Pressure alarm
When the Pressure exceeds the limit alarm Pressure (this may occur if the pressure rises so rapidly that the max. cut-off Pressure fails to trip), the following appears on the display:
“PRESSURE ALARM”
The compressor stops. Once the Pressure drops (P<alarm.P) press RESET to set the compressor ready.
to start again and at this stage the following appears on the display:
“PRESS START TO START”

Temperature alarm
When the maximum oil-air temperature is exceeded (T>105°C/221°F) the following appears on the display:
“TEMPERATURE ALARM”
The compressor stops. To reset the machine proceed as follows:
• Press the oil thermal protection switch RESET push button situated inside the compressor in the in-between
  panel after the temperature has dropped by at least 10°C/18°F compared to the maximum temperature.
• Then press the RESET key in the control panel.

Thermal protection alarm
When the electric motor overheats the following appears on the display:
“THERMAL PROTECTION ALARM”
The compressor stops. To reset the machine proceed as follows:
• Open the electrical cabinet and press the RESET push button.
• Then press the RESET key in the control panel.

Rotation alarm
The compressor does not start. This alarm points out that the machine has been incorrectly connected to
the electrical mains.
Rectify the connection.

WARNING ALARM
This type of alarm does not stop the compressor. It is pointed out by the red LED that flashes (ALARM on
front control panel), by a buzzer and a warning on the display pointing out the warning.
“MAINTENANCE TIME WARNING”
This points out that the pre-set time for maintenance has expired. The compressor must be serviced.

5.3 Check the efficiency of the safety devices before starting

OIL LEVEL
Check the oil level as indicated in Section 6 “Compressor maintenance”.

DO NOT START THE COMPRESSOR WITH THE GUARDS OPEN TO AVOID INJURY DUE TO MOVING COMPONENTS OR ELECTRICALLY POWERED EQUIPMENT.

5.4 Starting the compressor

Following an electrical shortage the compressor will start only if the START (I) button is pressed.
Ventilation must occur as illustrated below.
It is of crucial importance that the compressor works with all the panels firmly closed.
The failed observance of these and the following standards may lead to accidents that could cause personal injury and serious damages to the compressor or its equipment.
Before initially starting the compressor or following extended inoperative periods, start the machine intermittently by pressing the **START(I)-STOP(O)** buttons on and off for 3 or 4 seconds. After this it is advisable to run the compressor for a few minutes with the air outlet tap open. Then gradually shut-off the air tap and load to maximum pressure, checking if the inputs on each phase of the power supply are within the limits and also if the pressure switch trips. At this stage ensure that the compressor runs idle for roughly 4 minutes. The pressure on the gauge on the panel must be between 2 and 3 bar. After this amount of time the compressor will stop as the timer will trip. Discharge the air from the tank until the starting pressure is reached (2 bar difference compared to maximum pressure). Shut-off the air outlet tap and wait for the pressure switch to trip, which will shut-on the in-take valve and close the internal discharge.

**CALIBRATION AND SETTINGS MADE BY THE MANUFACTURER**

The **thermal relay** is set according to the table below:

<table>
<thead>
<tr>
<th>Power Hp</th>
<th>Rated voltage 380/415V-3ph</th>
<th>Rated voltage 220/240V-3ph</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>9 A</td>
<td>15,5 A</td>
</tr>
<tr>
<td>15</td>
<td>13,5 A</td>
<td>23,3 A</td>
</tr>
<tr>
<td>20</td>
<td>17,2 A</td>
<td>30,4 A</td>
</tr>
<tr>
<td>25</td>
<td>22 A</td>
<td>38,2 A</td>
</tr>
<tr>
<td>30</td>
<td>25,4 A</td>
<td>43,9 A</td>
</tr>
</tbody>
</table>

Disconnect the electrical power supply form the compressor before opening the electrical cabinet. The setting of the thermal relay **1** must not differ from all indicated in the table above. If the thermal relay should trip, check the input, the voltage on the line terminals L1+L2+L3 while the compressor is running and the power connections inside the electrical control panel and the motor terminal board.

![Thermal Relay](image)

**USEFUL TIPS FOR CORRECT COMPRESSOR PERFORMANCE**

For the correct operational performance of the machine under full continuous load at the maximum working pressure, ensure that the temperature of the work area in a closed room does not exceed +45°C. It is advisable to use the compressor with a maximum service of 80% in one hour under full load in order to ensure the correct efficiency of the product in time.

### 5.5 Stopping the compressor

Press the **STOP (O)** push button and the compressor will stop immediately.

**Note!** By disconnecting the power supply from the external switch the compressor is completely without power.
6 Compressor maintenance

In order to use the compressor in complete safety read the safety standards given in section 1.3. before reading this section.

6.1 Instructions relative to inspections and maintenance jobs.

The table that follows summarises the periodic and preventative maintenance jobs required to keep the compressor in an efficient operational state in time. A brief description of the running hours after which the type of maintenance job is required.

Before performing any jobs within the sound-proof cabinet, ensure that:
• The main line switch is turned off (position “0”)
• The electrical compressor switch is Off in position “0”
• The compressor is disconnected from the compressed air system
• All the pressure has been released from the compressor and internal pneumatic circuit.

The compressor has been especially designed to facilitate maintenance jobs by simply opening the side panel with quick-release locks.

Weekly: it is advisable to inspect the compressor, paying special attention to oil leaks and scale due to settled dust and oil.

Note! If the compressor is used for more than 3000 hours/year the jobs indicated herewith are to be performed more often.
<table>
<thead>
<tr>
<th>Interval (hours)</th>
<th>Jobs to be performed</th>
<th>See section</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>Change the oil</td>
<td>6.1.1</td>
</tr>
<tr>
<td></td>
<td>Replace the oil filter cartridge</td>
<td>6.1.2</td>
</tr>
<tr>
<td></td>
<td>Tighten screws, cables, remote switches K1-K2-K3</td>
<td>6.1.4</td>
</tr>
<tr>
<td></td>
<td>Tighten the belt</td>
<td>6.1.5</td>
</tr>
<tr>
<td></td>
<td>Check hydraulic seals</td>
<td></td>
</tr>
<tr>
<td>2500÷3000</td>
<td>Change the oil</td>
<td>6.1.1</td>
</tr>
<tr>
<td></td>
<td>Replace the oil filter cartridge</td>
<td>6.1.2</td>
</tr>
<tr>
<td></td>
<td>Replace the filter cartridge of the oil separator</td>
<td>6.1.3</td>
</tr>
<tr>
<td></td>
<td>Replace the air filter cartridge</td>
<td>6.1.4</td>
</tr>
<tr>
<td></td>
<td>Tighten screws, cables, remote switches K1-K2-K3</td>
<td>6.1.5</td>
</tr>
<tr>
<td></td>
<td>Clean the air/oil radiator</td>
<td>6.1.7</td>
</tr>
<tr>
<td></td>
<td>Clean the dust-removal pre-filter</td>
<td>6.1.8</td>
</tr>
<tr>
<td>5000÷6000</td>
<td>Change the oil</td>
<td>6.1.1</td>
</tr>
<tr>
<td></td>
<td>Replace the oil filter cartridge</td>
<td>6.1.2</td>
</tr>
<tr>
<td></td>
<td>Replace the filter cartridge of the oil separator</td>
<td>6.1.3</td>
</tr>
<tr>
<td></td>
<td>Replace the air filter cartridge</td>
<td>6.1.4</td>
</tr>
<tr>
<td></td>
<td>Tighten screws, cables, remote switches K1-K2-K3</td>
<td>6.1.5</td>
</tr>
<tr>
<td></td>
<td>Tighten the belt</td>
<td>6.1.5</td>
</tr>
<tr>
<td></td>
<td>Check the hydraulic seals</td>
<td>6.1.6</td>
</tr>
<tr>
<td></td>
<td>Overhaul the in-take valve</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clean the air/oil radiator</td>
<td>6.1.7</td>
</tr>
<tr>
<td></td>
<td>Clean the dust-removal pre-filter</td>
<td>6.1.8</td>
</tr>
<tr>
<td></td>
<td>Test the motor thermal protection switch</td>
<td>6.1.8</td>
</tr>
<tr>
<td></td>
<td>Test the oil thermal protection switch</td>
<td>6.1.8</td>
</tr>
<tr>
<td>8000÷9000</td>
<td>Change the oil</td>
<td>6.1.1</td>
</tr>
<tr>
<td></td>
<td>Replace the oil filter cartridge</td>
<td>6.1.2</td>
</tr>
<tr>
<td></td>
<td>Replace the filter cartridge of the oil separator</td>
<td>6.1.3</td>
</tr>
<tr>
<td></td>
<td>Replace the air filter cartridge</td>
<td>6.1.4</td>
</tr>
<tr>
<td></td>
<td>Tighten screws, cables, remote switches K1-K2-K3</td>
<td>6.1.6</td>
</tr>
<tr>
<td></td>
<td>Replace the belt</td>
<td>6.1.6</td>
</tr>
<tr>
<td></td>
<td>Check the hydraulic seals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clean the air/oil radiator</td>
<td>6.1.7</td>
</tr>
<tr>
<td></td>
<td>Clean the dust-removal pre-filter</td>
<td>6.1.8</td>
</tr>
<tr>
<td>11000÷12000</td>
<td>Change the oil</td>
<td>6.1.1</td>
</tr>
<tr>
<td></td>
<td>Replace the oil filter cartridge</td>
<td>6.1.2</td>
</tr>
<tr>
<td></td>
<td>Replace the filter cartridge of the oil separator</td>
<td>6.1.3</td>
</tr>
<tr>
<td></td>
<td>Replace the air filter cartridge</td>
<td>6.1.4</td>
</tr>
<tr>
<td></td>
<td>Tighten screws, cables, remote switches K1-K2-K3</td>
<td>6.1.6</td>
</tr>
<tr>
<td></td>
<td>Tighten the belt</td>
<td>6.1.6</td>
</tr>
<tr>
<td></td>
<td>Check the hydraulic seals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Check flexible hoses and replace if necessary</td>
<td>6.1.6</td>
</tr>
<tr>
<td></td>
<td>Overhaul the oil separator flange</td>
<td>6.1.6</td>
</tr>
<tr>
<td></td>
<td>Lubricate the minimum pressure valve</td>
<td>6.1.6</td>
</tr>
<tr>
<td></td>
<td>Overhaul the in-take valve</td>
<td>6.1.6</td>
</tr>
<tr>
<td></td>
<td>Clean the air/oil radiator</td>
<td>6.1.7</td>
</tr>
<tr>
<td></td>
<td>Clean the dust-removal pre-filter</td>
<td>6.1.8</td>
</tr>
<tr>
<td></td>
<td>Replace the Rilsan hoses 6x4 and 8x10</td>
<td>6.1.8</td>
</tr>
<tr>
<td></td>
<td>Replace screw oil guard</td>
<td>6.1.9</td>
</tr>
<tr>
<td></td>
<td>Maintenance the electric motor</td>
<td>6.1.9</td>
</tr>
</tbody>
</table>
The above described maintenance schedule has been planned bearing in mind all the installation parameters and recommended use of the Manufacturer.

The Manufacturer advises the customer to keep a record of all maintenance jobs performed on the compressor, see Section 7 – Drawings and diagrams.

<table>
<thead>
<tr>
<th>Interval (hours)</th>
<th>Jobs to be performed</th>
<th>See section</th>
</tr>
</thead>
<tbody>
<tr>
<td>14000÷15000</td>
<td>Change the oil</td>
<td>6.1.1</td>
</tr>
<tr>
<td></td>
<td>Replace the oil filter cartridge</td>
<td>6.1.2</td>
</tr>
<tr>
<td></td>
<td>Replace the filter cartridge of the oil separator</td>
<td>6.1.3</td>
</tr>
<tr>
<td></td>
<td>Replace the air filter cartridge</td>
<td>6.1.4</td>
</tr>
<tr>
<td></td>
<td>Tighten screws, cables, remote switches K1-K2-K3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Check LEDs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Check cables</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tighten the belt</td>
<td>6.1.5</td>
</tr>
<tr>
<td></td>
<td>Check the hydraulic seals</td>
<td></td>
</tr>
<tr>
<td>17000÷18000</td>
<td>Change the oil</td>
<td>6.1.1</td>
</tr>
<tr>
<td></td>
<td>Replace the oil filter cartridge</td>
<td>6.1.2</td>
</tr>
<tr>
<td></td>
<td>Replace the filter cartridge of the oil separator</td>
<td>6.1.3</td>
</tr>
<tr>
<td></td>
<td>Replace the air filter cartridge</td>
<td>6.1.4</td>
</tr>
<tr>
<td></td>
<td>Tighten screws, cables, remote switches K1-K2-K3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Replace the belt</td>
<td>6.1.6</td>
</tr>
<tr>
<td></td>
<td>Check the hydraulic seals</td>
<td></td>
</tr>
<tr>
<td>20000÷21000</td>
<td>Change the oil</td>
<td>6.1.1</td>
</tr>
<tr>
<td></td>
<td>Replace the oil filter cartridge</td>
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<td>Replace the filter cartridge of the oil separator</td>
<td>6.1.3</td>
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<td></td>
<td>Replace the air filter cartridge</td>
<td>6.1.4</td>
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<td>Tighten screws, cables, remote switches K1-K2-K3</td>
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<td></td>
<td>Check the hydraulic seals</td>
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<td></td>
<td>Replace bearings and screw oil guard</td>
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<tr>
<td></td>
<td>Maintenance the electric motor</td>
<td>6.1.9</td>
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<td>23000÷24000</td>
<td>Change the oil</td>
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<td>Replace the oil filter cartridge</td>
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<td>Replace the filter cartridge of the oil separator</td>
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<td>Tighten screws, cables, remote switches K1-K2-K3</td>
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<td>Tighten the belt</td>
<td>6.1.5</td>
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<td>Replace flexible hoses</td>
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<td></td>
<td>Clean air/oil radiator</td>
<td>6.1.7</td>
</tr>
</tbody>
</table>
6.1.1 Changing the oil

Read all the information provided in Section 6.1 before proceeding with any maintenance jobs. Change the oil following the initial **500 hours** of use and then every **2500/300 hours** and in event once a year.

Open the top and front panels to access inside the compressor.

Unscrew the red cap 1 on the bottom of the screw unit.

Take cap 2 off.

Screw the knurled fitting 3 (supplied with the compressor).

⚠️ As the knurled fitting 1 is turned oil starts to seep out from the screw unit, therefore use a hose and container to collect the oil.

Once all the oil has been drained remove the knurled fitting 3 and screw cap 2 manually.

Fill-up with oil up to the rim of the port 4, then re-screw the dedicated cap 1 back in place and close the compressor.

Once the oil and oil filter have been changed leave the compressor to run for roughly 5 minutes then turn it off and check the oil level again.

Check the oil level each month and check that it is up to the rim of the port 4.

⚠️ Never mix different types of oil, therefore always ensure that the circuit is completely empty before filling-up with oil. Each time the oil is changed the filter is also to be replaced.
6.1.2 Replacing the oil filter cartridge

Read all indicated in Section 6.1 before starting any maintenance jobs.
Replace the oil filter cartridge after the first 500 hours of use then every 2500 hours and in any event each time the oil is changed.
Open the front panel.
Disassemble filter cartridge 1, using a chain spanner and replace with a new one.
**Lubricate the sealing gasket before screwing the filter cartridge tight.**
Manually tighten the new filter cartridge.

6.1.3 Replacing the filter cartridge of the oil separator

Read all indicated in Section 6.1 before starting any maintenance jobs.
Open the front panel to gain access to inside the compressor.
Disassemble filter cartridge 1, using a chain spanner and replace with a new one.
Lubricate the sealing gasket before screwing the filter cartridge tight.
Manually tighten the new filter cartridge.

6.1.4 Replacing the air filter cartridge

Read all indicated in Section 6.1 before starting any maintenance jobs.
Open the top panel to access inside the compressor.
Unscrew the cover 1 anti-clockwise.
Replace the air filter cartridge 2 and fit the cover back in place by screwing it clockwise.
6.1.5 Tightening the belt

Read all indicated in Section 6.1 before starting any maintenance jobs. Open the side right panel to gain access to inside the compressor. Every 500 hours of use it is advisable to check and maybe tighten the belt if necessary. Using a dynamo meter apply a perpendicular force in point A of between 25N and 35N, the belt must give by roughly 5mm. Turn the nut 1 to tighten the belt.

6.1.6 Replacing the belt

Read all indicated in Section 6.1 before starting any maintenance jobs. Open the side right and front panel. Turn the nut 1 to slacken the belt. Slide the belt out, replace it with a new one and tighten as described in the previous section.

6.1.7 Cleaning the air/oil radiator

Read all indicated in Section 6.1 before starting any maintenance jobs. It is advisable to clean the radiator 1 on a weekly basis to remove impurities, blowing it with an air gun from inside. Open the left panel and blow compressed air from the inside of the radiator.

6.1.8 Cleaning the dust-removal pre-filter

Read all indicated in Section 6.1 before starting any maintenance jobs. Clean the pre-filter 2 from impurities on a weekly basis. Slide the pre-filter 2 out and blow with compressed air or replace if necessary.

6.1.9 Maintenance the electric motor

The bearings of the electric motor are already lubricated and are maintenance free. In normal surrounding conditions (ambient temperature up to 30°C) replace the motor bearings every 12000 hours of use. In more severe surrounding conditions (ambient temperature higher than 30°C) replace the motor bearings every 8000 hours of use. The bearings are to be replaced in any event every 4 years at the most.

Warning! Before replacing the motor bearings, contact our customer service department, as established by the maintenance schedule.
6.2 Diagnosing the alarm status/inconveniences-faults

Before doing any job on the compressor ensure that:
• The main ON/OFF switch is turned Off (position “0”)
• The electric compressor switch is disabled in position “0”
• The compressor is shut-off from the compressed air system
• The compressor and the internal pneumatic circuit are completely de-pressurised

If you are unable to rectify the anomaly encountered on your compressor contact your nearest authorised service centre.

### COMPRESSOR

<table>
<thead>
<tr>
<th>Anomaly</th>
<th>Cause</th>
<th>Solution</th>
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<tbody>
<tr>
<td>Machine stopped-oil alarm triggered (Red LED lit).</td>
<td>Excessive temperature of air/oil mix at screw outlet (105°).</td>
<td>Check the oil level, check if radiator is clean, check if dust-removal pre-filter is clean. Check the ambient temperature, check the minimum distance of compressor from walls of room, check if sound-proof panels of cabinet are secured firmly in place (pressurisation of ventilation air). To start the machine again, disconnect the power supply, open the front panel of the compressor and press the reset key on the cover of the electrical system (see push button 2 – section 5.2.2.).</td>
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<tr>
<td>Machine stopped-motor thermal protection switch tripped (Red LED lit).</td>
<td>The thermal protection switch of the motor has tripped.</td>
<td>Check if the electrical powers supply is correct, check if the three power supply phases are more or less at the same value. Check if the cables are firmly fitted to the terminal board, check if the electrical cables have melted. Check if the fan in-take grid is clean or obstructed (paper, leaves, rags). To start the machine again, disconnect the power supply, open the panel of the electrical cabinet and press the reset key on the electrical cabinet (see push button 3 – section 5.2.2.).</td>
</tr>
<tr>
<td>The compressor is running but fails to load.</td>
<td>The in-take valve fails to open.</td>
<td>Check if the pressure probe is working correctly, check if the solenoid valve fitted on the in-take regulator is working correctly (solenoid valve normally closed).</td>
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<tr>
<td>Machine stopped-pressure safety switch tripped (Red LED lit).</td>
<td>The pressure has exceeded the alarm pressure.</td>
<td>Check the line pressure, release the pressure and take it back to the set normal working pressure.</td>
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<tr>
<td>The machine fails to start upon first-time starting.</td>
<td>The rotary screw unit is turning in the incorrect direction.</td>
<td>Invert the phases.</td>
</tr>
<tr>
<td>Maintenance alarm (Red LED flashing).</td>
<td>The set maintenance time setting has been reached.</td>
<td>Proceed as described in Section 6.1 of this document.</td>
</tr>
</tbody>
</table>
7 Drawings and diagrams

7.1 Wiring diagrams

**KEY:**
- F2-F3: FUSES 5x20 1A (T)
- KR: PHASES SEQUENCE RELAY
- K1: COMPRESSOR MOTOR STARTER LINE CONTACT MAKER
- K2: COMPRESSOR MOTOR DELTA CONTACT MAKER
- K3: COMPRESSOR MOTOR STAR CONTACT MAKER
- F1+S1: COMPRESSOR MOTOR TRIP SWITCH RELAY+RESET

**KEY:**
- F2-F3: FUSES 5X20 1A (T)
- F4: FUSE 5X20 1A (F)
- F5: FUSE 5X20 630MA (T)
- T: TRANSFORMER
- KR: PHASES SEQUENCE RELAY
- K1: COMPRESSOR MOTOR STARTER LINE CONTACT MAKER
- K2: COMPRESSOR MOTOR DELTA CONTACT MAKER
- K3: COMPRESSOR MOTOR STAR CONTACT MAKER
- Y1-Y2: SOLENOID VALVE
- D: CHECK CONTROL ECU
- BT: OIL TEMPERATURE SENSOR
- BP: PRESSURE SENSOR
- SE: EMERGENCY PUSH BUTTON
- SR: OIL ALARM RESET BUTTON
- F1+S1: COMPRESSOR MOTOR TRIP SWITCH RELAY+RESET
COMPRESSORS FOR HOT/WET COUNTRIES

RECOMMENDED LUBRICANTS
You are recommended to use synthetic oils rather than mineral oils to better protect the compressor when working in countries with hot climates.

MAINTENANCE PROGRAMME
When the compressor is used in countries with tropical climates you need to reduce the frequencies given in the scheduled maintenance table of the use and maintenance manual by 20%.
## MAINTENANCE SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
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<th>Hours of use</th>
<th>Operator’s signature</th>
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