

# S&D Series

## User Manual (V.2)

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### Oil-Free Compressors

**BaseVac S3.0    Basevac D3.0**

You've grown to love the power, efficiency & dependability of our dry vacuum systems. Now it's time to see how we have brought that engineering to our oil-free compressors. Our engineers have designed our compressors for years of reliable service with performance you can trust.



## Contents

1.	Introduction .....	1
2.	CE directives conformity.....	1
3.	Warning information and symbols.....	1
4.	Transport and storage.....	3
5.	General Check .....	3
6.	Warranty.....	3
7.	Technical datasheet and dimensions .....	3
8.	Products drawings and parts list .....	3
9.	Product information.....	4
10.	Where to install the compressor .....	5
11.	Pressure gauges installation .....	5
12.	Electrical connection .....	6
13.	Compressor running .....	6
14.	Maintenance scheduling.....	7
15.	Ordinary maintenance periodical checks. ....	8
15.1	Condensate draining .....	8
15.2	Cleaning/replacement suction filter .....	8
15.3	Safety valve check.....	8
15.4	Air line and air dryer filter cartridge replacement.....	8
16.	Troubleshooting .....	9-10

- APPENDIX A - Compressors dimensions and technical datasheet
- APPENDIX B - Electrical diagrams.
- APPENDIX C - Automatic drain
- APPENDIX D - Electromagnetic compatibility.
- APPENDIX E - EC Declarations.

**Base**  
VAC



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## Introduction

### This manual applies to following BaseVac Oil-Free Compressors:

- BaseVac D3.0 (Duplex)
- BaseVac S3.0 (Triplex)

Strict attention should be paid to the contents of this manual to ensure a correct and economical operation of the compressor and the maximum safety for the operator. We strongly recommend the use of original spare parts which will guarantee the efficiency and service life of the compressor.








## 1. CE directives conformity

Electric oil free air compressors described in this manual are manufactured in conformity with the following EC directives ( see enclosed copy of the document):

2006/42 CE	CEE for Machines
2006/95 CE	CEE for Machines
2004/108 CE	CEE Electromagnetic Compatibility
2009/105 CE	CEE for air receivers
93/42 CE	CEE for medical devices (where applied)

## 2. Warning information and symbols

In the instructions for assembly and use, as well as the packaging and the product itself, use is made of the following terms or symbols to denote data or information of special importance:

	Information, instructions and warnings for the prevention of damage to health or materials
	Caution! Dangerous electric voltage!
	Caution! Hot surface
	Caution! Compressor can automatically start
	CE mark of compliance
	Handling mark on package: fragile, handle with care
	Handling mark on package: protect against moisture

### 3. Transport and storage

The compressor is shipped in cardboard that protects the product from damage during transport.



Caution! Always use the original packaging to secure the compressor in the upright position.



Protect the compressor from humidity and extreme temperatures during transport and storage. A compressor in its original packaging can be stored in a warm, dry and dust free area. Max humidity: 70%. Minimum Temperature -10°C, Max. Temperature: +40°C.

### 4. General Check

Remove compressor from the package and check that there are no evident signs or damage and immediately notify to the carrier.

### 5. Warranty

BaseVac Dental provides a standard manufacturers warranty of 24 months. During the warranty period, BaseVac Dental will replace or repair parts damaged by faulty material or bad workmanship at no added cost. This is conditional on the system being properly installed according the provided instructions in this manual. Parts that have been subject to wear or damage unrelated to manufacturers error or deformatities will not be included in this warranty.

### 6. Technical datasheet and dimensions

For technical datasheet (dimensions and weight) information please check Appendix A, placed in the end of this manual.

### 7. Products drawings and parts list

For the detailed drawing and parts list of the required model, contact your authorized dealer. Documentation is available from Basevac Dental directly as well.

## 8. Product information

### 8.1 Use for the Intended Purpose

The compressor is intended to be used for generating compressed air required for operating dental units of, for similar dental applications and other applications where oil-free compressed air is required. Installation in medical care facilities:

In designing and constructing the compressor, allowance has been made for the requirements of medical products where applicable. Accordingly, the unit can be used for installation in medical care facilities. If the unit is installed in medical care facilities, the requirements stipulated in Directive 93/42 EEC IEC 601-1 as well as the relevant norms must be observed as applied to installation and assembly.

### 8.2 Use other than that for the Intended Purpose

The compressed air produced by the compressor is unsuitable for operating breathing equipment or similar facilities without additional filters required for the operating area.

- The compressors are designed to be operated in dry, ventilated rooms, ambient temperature +5 to +40 °C.
- Do not expose the compressor to rain. The machine must not be operated in a damp or wet environment. Use is also prohibited in proximity to gases or combustible liquids.
- Prior to installing the compressor in medical facilities, it must be ensured that the available medium complies with the requirements stipulated for the relevant purpose in each individual case. Observe the particulars given in Appendix A "Compressors dimensions and technical datasheet".

When installing, classification and conformity rating must be carried out by the manufacturer of the ultimate product.

- When installed in medical care facilities, the electrical equipment needs special precautions regarding EMC and needs to be installed according to EMC information
- The compressor should not be used adjacent to or stacked with other equipment and if adjacent or stacked use is necessary, the compressor should be observed to verify normal operations in the configuration in which it will be used
- Please consider that mobile RF communications equipment can effect the compressor electrical equipment
- Any other use or use beyond what is specified is deemed to be not for the intended purpose. The manufacturer accepts no liability for damage resulting there from. All risk is borne solely by the operator/user.

### 8.3 Product Description

The compressor generates an oil-free, dry (versions with air dryers only) and filtered compressed air required for operating units or dental equipment

## ASSEMBLY

### 9. Where to install the compressor

Room where compressor has to be installed should be large, well ventilated and protected from dust and intense cold; a dusty environment will cause damages and difficulties in operation.



If dust goes inside, it may reach the air filter, causing rapid clogging and part will be deposited over the components thereby preventing heat exchange. It is therefore evident that the cleanliness of the installation location is extremely important for the proper operation of the machine, as this will avoid excessive operation and maintenance costs.

To facilitate maintenance operations and create favorable air circulation compressor must have a good amount of free space surrounding it ( Min. 30 cm). The room should be equipped with openings towards the outside placed in proximity of the floor and the ceiling, which will allow the natural circulation of the air. If this is not possible, fans or extractors must be installed.

It is not necessary to provide for special foundations or bases. The machine may be simply placed on a level floor. Compressors fitted on fixed standing tanks should not be secured to the ground. BaseVac Dental recommends installing 4 vibration-damping supports.



Climatic operating conditions:

- Temperature: from +5°C to +40°C
- Air relative humidity: max 70%

#### Note:

The reduction of air density in relation with altitude H is directly proportional to the reduction of Outlet Air efficiency of the compressor.

Calculating formula for loss of efficiency (l/min) in relation with altitude :

$$\rho_H = \rho_0 \left( 1 - \left( \frac{6,5}{288} \right) \cdot H \right)^{4,255}$$

Consider  $\rho_0 = 1,226 \text{ Kg/m}^3$

$H$  [Km] = Operating altitude of the compressor  
 $\rho_H$  [Kg/m<sup>3</sup>] = Air density at altitude H  $\rho_0$  [Kg/m<sup>3</sup>]  
= Air density at sea level

### 10. Pressure gauges installation

For safety reasons some models are provided with pressure gauges not installed. To correctly fix them on the pressure regulator and the pressure switch, always use teflon material to avoid any air leak risk.

## 11. Electrical connection

The electrical supply line must stand the load indicated on the motor rating. Earthing must always be used for installer safety.



Earth connection is necessary. Before connecting the compressor to the control panel, a high sensitivity switch should be installed on the wall. Never connect the earthing wire to the neutral pole.

Electric drawing of BaseVac Dental compressors are in Appendix B at the end of the manual



**If any electric cable or air hose is damaged it must be immediately replaced. Electric cable may not contact hot parts of the compressor, insulation could be damaged!**

## 12. Compressor running

Connect the electric line by plug and the compressor to the air line connecting it to the outlet placed on the filter (position number 19 - see exploded view).

In case of soundproofed cabinet versions (CS, MINI BOX) compressor feeding plug is the cabinet one, whereas the general switch is placed on the front of the cabinet. This switch feeds both the cabinet ventilation system (permanent on MINI BOX and thermostat controlled on CS) and the pressure switch.

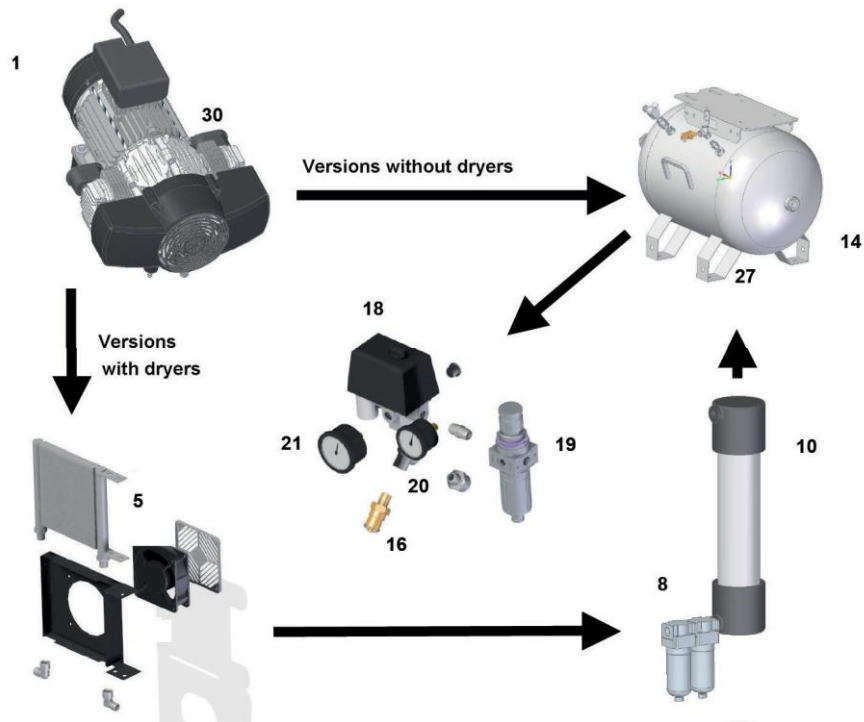


**Power plug**



**General switch**

Turn the switch of the pressure switch (18) in position "1". Running of the compressor is fully automatic and controlled by the pressure switch, which stops it when pressure in the tank (14) reaches a maximum value (approximately 7 bar), allowing compressor to start again when it descends under a fixed pressure value (~5 bar). Read the receiver pressure value on pressure gauge (21). When compressor receiver is under pressure, operator may regulate operating pressure acting on the pressure regulator situated on the filter (19 - if present): to fix pressure required is necessary to rotate the hand-grip regulator in clockwise direction to increase pressure, in counter clockwise direction to reduce it and read the value on its pressure gauge (20). When delivery air pressure required is reached, push on the handgrip in order to block it.



M versions are equipped with membrane air dryers. The system is composed by a cooler with forced ventilation, a double 5 micron and 0,01 micron filtration system to guarantee the best air purity and a fully automatic membrane dryer. The correct use of the compressor and the periodical maintenance of the filters (annual cartridges replacement) will guarantee to the membrane dryer a free of maintenance operating. For further details please check the Technical Handbook.



**In case of emergency , disconnect the compressor from the main supply.**



**Compressors have hot surfaces, contact may cause burns or fire.**



**Automatic start: compressors automatically start when minimum pressure is reached and stop when maximum pressure is reached.**



**If during pressure regulation the handgrip doesn't move, do not force it! It's enough to pull it upside.**



## MAINTENANCE

### 13. Maintenance scheduling

Operation	Chapter	Periodicity	Performed by
Switch off the compressor at the end of the use		Daily	User
Release condensate (versions without dryer or automatic drain)	15.1	Weekly	User
Suction filter check/replacement	15.2	Yearly / Check every 500 hours	User/Qualified technician
Safety valve check	15.3	Yearly	User/Qualified technician
Periodical ordinary maintenance. Air filter cartridge replacement (if present, versions without air dryer)	15.4	Yearly / 1000 hours	User/Qualified technician
Check tightness of joints, overall device examination	Technical Handbook	Yearly	Qualified technician
Cleaning/check or replacement of the non return valve pad	15.5	Every 2 years/check every year	User/Qualified technician
Periodical ordinary maintenance. Dryer air filters cartridges replacement (versions with air dryer)	15.4	Every 2 years/1.500 hours	User/Qualified technician
Periodical extra-ordinary maintenance. Piston rings replacement - GENESI	Technical Handbook	Every 2 years/1.500 hours	Qualified technician
Periodical extra-ordinary maintenance. Piston rings replacement - PRIME	Technical Handbook	Every 4.000 hours or 4 years	Qualified technician

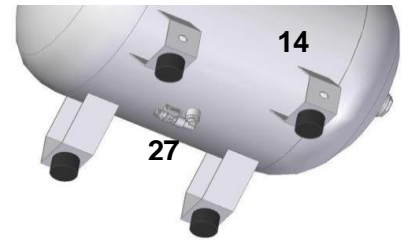
## 14. Ordinary maintenance periodical checks



Before performing any maintenance on the compressor make sure that the power supply is switched off. disconnect the plug after having turned in "0" position the switch of the pressure switch (pos. 18 in the exploded view). Make also sure that the air tank (14) is released of any pressure check the pressure gauge (21).

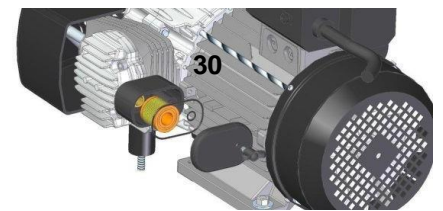
### 14.1 Condensate draining

Control condensate in the air tank (14). Release it at least once a week, switching off the compressor and reducing line pressure till 1 bar. Place a container under the air receiver or close to the drain system, open the drain valve (27) till the complete condensate draining.



### 14.2 Cleaning/replacement suction filter

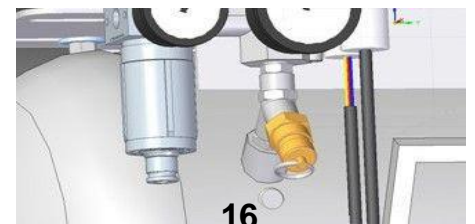
Cleaning the intake air filters (30) placed on the proper filter holder on the top of cylinders, removing the holder cover with its seals (unscrew the butterfly screw). Clean them every month with compressed air or water, replace it if necessary



In case of soundproofed versions (CS, MINI BOX or SKY) it's important to grant a regular compressor cleaning inside the cabinet or the soundproofing shell

### 14.3 Safety valve check

Check the proper safety valve (16) operating at the first compressor running. Pull the ring placed at the top of the safety valve, verifying the correct air exit



**Warning! Safety valve must not be used to relief air from the air receiver! Always protect eyes from compressed air using eye glasses**

### 14.4 Air line and air dryer filter cartridge replacement.

Dryer pre-filtration and line filters cartridges (if present) must be replaced according to the maintenance scheduling (Par. 14). Follow the present instructions:

- I. Disconnect the compressor from the main supply
- II. Open the air drain cock or the condensate relief from the air receiver and relief residual pressure contained in the air receiver
- III. Manually unscrew the filter receiver
- IV. Unscrew the cartridge as shown in the picture above and replace it with the
- V. Fix again the filter receiver



**Carefully place the o-ring on the lip of the filter receiver, replace the o-ring if necessary**



**Models with air dryer are equipped with a pressure safety valve placed before dryer filters, when it operates filters cartridges replacement is required.**



### 14.5 Replacement of the non return valve pad

Remove the valve closing nut with o'ring, spring and pad using a 22mm wrench. Check that the rubber pad is clean; if there are small metal parts or dust, remove them all and clean the flat work surface or replace the pad and secure it carefully to the spring. When finished, tighten the nut to the valve body.



## 15. Troubleshooting

PROBLEM	PROBABLE CAUSE	REMEDY
Compressor does not start, or stops and does not start again.	Bad connections. Blown fuse. Overload cut-out switch has tripped.	Check connections, verify standard line tension
	No tension or tension too low	Check connections, verify standard line tension
	Air receiver charged	Open drain valve to expel air. Compressor should start again when pressure reduces to 5 or 6 BAR (72 or 86 psi).
	Solenoid valve does not empty the delivery pipe	Control the solenoid valve, clean or replace it.
	Electric motor capacitor damaged or not properly fitted	Check the tension at the capacitor, in case replace it

Compressor does not reach set pressure and overheats easily.	Inlet air filter is blocked. NOTE: It is also possible that more air is being required than compressor is capable of delivering.	Replace aspiration filter.s.
Compressor does not build pressure or very low performance	Compressor valve damaged	Replace the complete valve block including gaskets.
Compressor does not build pressure or very low performance	Compressor piston ring consumed	Verify compressor performance and replace the piston rings
Air leaking from pressure switch valve when compressor is not running (versions without solenoid valve?).	Faulty non-return valve.	Clean or replace the non return valve
Air leaking from solenoid valve when compressor is not running.	Faulty non-return valve.	Clean or replace the non return valve
Air leaking from pressure switch valve when compressor is running (compressors without solenoid valve only)	Faulty pressure switch valve	Clean or replace the pressure switch valve
Air pressure from regulator does not adjust.	Diaphragm inside regulator body is broken	Replace regulator.
Compressor operating, but no air from outlet.	Inlet air filter blocked. Pressure regulator closed. Drain valve open	Replace oil filler/air filter plug. Turn regulator clockwise to set required pressure. Close drain valve.
Safety valve placed before dryer filters is active	Filters are blocked and over pressure condition in the delivery pipe	Replace the cartridges of the dryer's filters.
Electric motor cuts off during normal operating	Electric motor temperature probe switches off the compressor to protect the moto	Too high temperature: verify general conditions
Thermal switch stops the compressor in standard conditions	<ul style="list-style-type: none"> <li>- Thermal switch is damaged</li> <li>- Problem with piston rings</li> <li>- Electric motor damaged</li> </ul>	<ul style="list-style-type: none"> <li>- Replace the thermal switch</li> <li>- Check rings conditions</li> <li>- Check if compressor starting is regular, replace the motor.</li> </ul>