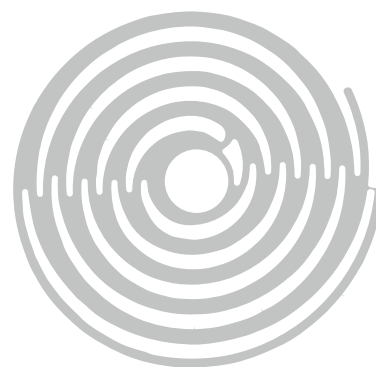


# Instruction Manual

## Fossa

Scroll Vacuum Pumps  
FO 0015 A, FO 0035 A



CE EAC

Ateliers Busch S.A.  
Zone industrielle, 2906 Chevenez  
Switzerland

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# 1 Safety

Prior to handling the machine, this instruction manual should be read and understood. If anything needs to be clarified, please contact your Busch representative.

Read this manual carefully before use and keep for future reference.

This instruction manual remains valid as long as the customer does not change anything on the product.

The machine is intended for industrial use. It must be handled only by technically trained personnel.

Always wear appropriate personal protective equipment in accordance with the local regulations.

The machine has been designed and manufactured according to state-of-the-art methods. Nevertheless, residual risks may remain. This instruction manual highlights potential hazards where appropriate. Safety notes and warning messages are tagged with one of the keywords DANGER, WARNING, CAUTION, NOTICE and NOTE as follows:

## DANGER

... indicates an imminent dangerous situation that will result in death or serious injuries if not prevented.

## WARNING

... indicates a potentially dangerous situation that could result in death or serious injuries.

## CAUTION

... indicates a potentially dangerous situation that could result in minor injuries.

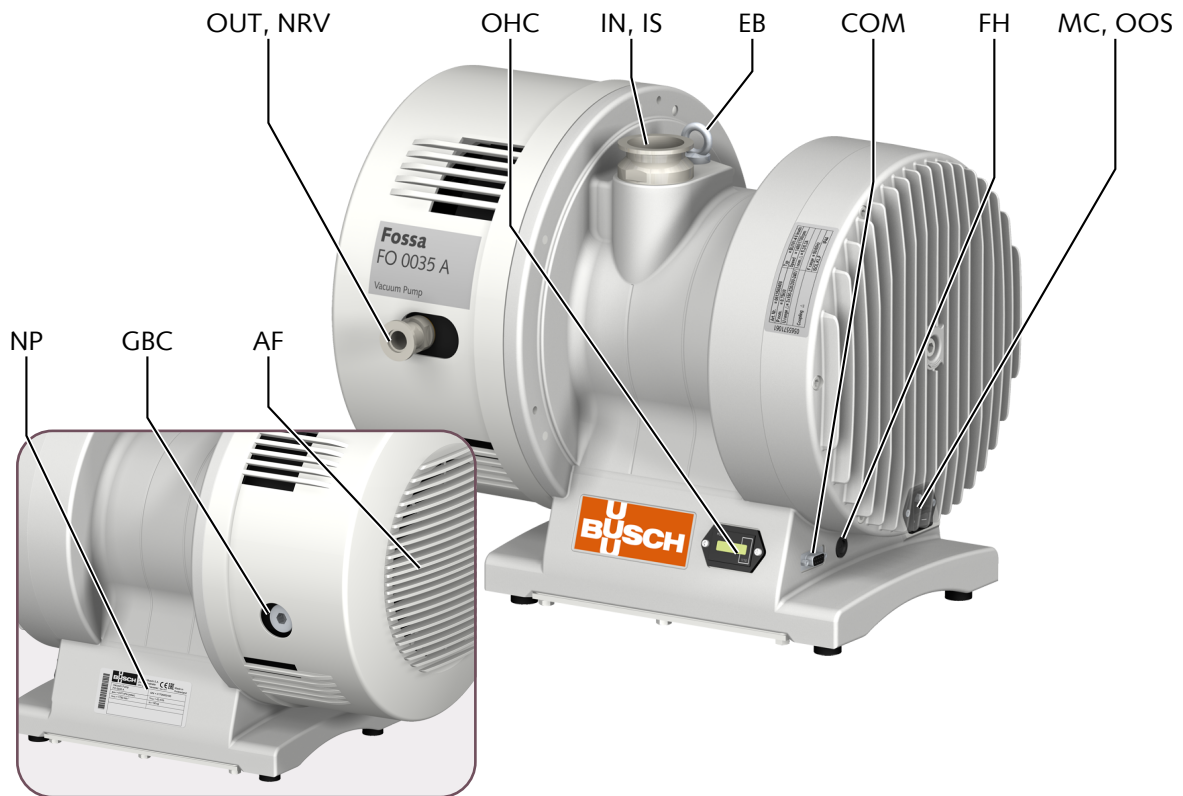
## NOTICE

... indicates a potentially dangerous situation that could result in damage to property.

## NOTE

... indicates helpful tips and recommendations, as well as information for efficient and trouble-free operation.

## 2 Product Description



AF	Axial fan	COM	I/O and communication port (single-phase version only)
EB	Eye bolt	FH	Fuse holder
GBC	Gas ballast valve connection	IN	Suction connection
IS	Inlet screen	MC	Mains connection
NP	Nameplate	NRV	Non-return valve
OHC	Operating hours counter	OOS	On/off-switch (single-phase version only)
OUT	Discharge connection		

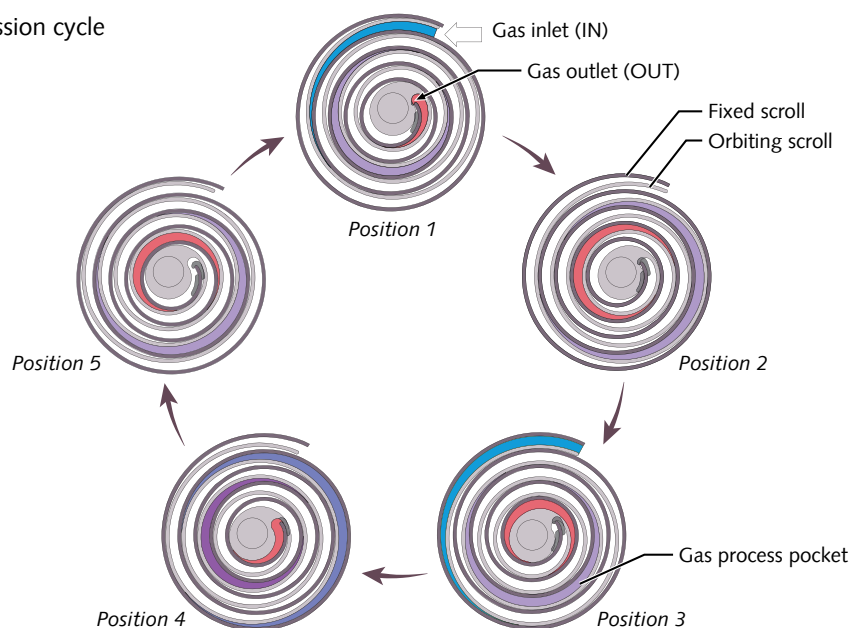
### NOTE

#### Technical term.

In this instruction manual, we consider that the term 'machine' refers to the 'vacuum pump'.

## 2.1 Operating Principle

Compression cycle



Scroll vacuum pumps consist of both a fixed and an orbiting scroll. As the orbiting scroll moves, voids are created at the inlet of the pump, drawing in the gas. As the rotor further moves, the gas is steadily compressed until it is discharged to atmosphere at the pump exhaust.

The compression is made without the use of any lubrication whatsoever.

### ! NOTICE

Lubricating a dry running machine (process chamber).

#### Risk of damage to the machine!

- Do not lubricate the process chamber of the machine with oil or grease.

## 2.2 Application

The machine is intended for the suction of air and other dry, toxic, non-aggressive and non-explosive gases.

Conveying of other media leads to an increased thermal and/or mechanical load on the machine and is permissible only after a consultation with Busch.

Depending on the optional variant, the machine may be used for ATEX or oxygen applications, see Optional Variants [► 7].

The machine is gas tight when a gas ballast valve is not installed.

The machine is intended for the placement in a non-potentially explosive environment.

The machine is suitable for continuous operation.

The continuous operation of FO 0035 A is limited to a suction pressure of 100 hPa (mbar) abs..

Permitted environmental conditions, see Technical Data [► 20].

The machine is capable of conveying gases which contain a certain percentage of water vapour if the gas ballast valve (accessory) is installed and open. See chapters Conveying Condensable Vapours [► 14] and Technical Data [► 20].

## 2.3 Standard Features

### 2.3.1 Non-return Valve

The non-return valve (NRV), integrated to the discharge connection (OUT), protects the process against suckback.

### 2.3.2 Inlet Screen

The inlet screen (IS), integrated to the suction connection (IN), prevents large solid particles from entering into the machine.

### 2.3.3 Operating Hours Counter

The operating hours counter allows the reading of the total operating time that the machine has run.

### 2.3.4 Variable-Frequency Drive (Single-phase Version Only)

The machine is equipped in standard with a variable-frequency drive.

### 2.3.5 I/O and Communication Port (Single-phase Version Only)

The D-Sub9 allows the interface with the instrument or the system for both remote control and monitoring.

## 2.4 Optional Accessories

### 2.4.1 Inlet Filter

The inlet filter protects the machine against dust and other solids in the process gas. The inlet filter is available with a cartridge.

### 2.4.2 Exhaust Filter

The exhaust filter reduces the exhaust noise and retains the tip seal dust when the machine cannot be connected to a house exhaust system.

### 2.4.3 Gas Ballast Valve

The gas ballast valve mixes the process gas with a limited quantity of ambient air to counteract the condensation of vapour inside the machine.

### 2.4.4 Purge Gas Adapter

The purge gas adapter can be fitted in place of the gas ballast valve. It allows you to connect a controlled supply of inert gas to the pump.

### 2.4.5 Wheels

Four wheels can easily be fitted to the bottom of the machine to facilitate transportation and installation.

## 2.5 Optional Variants

### 2.5.1 ATEX (Optional)

According to ATEX classification, refer to the nameplate (NP), explosive gases and vapour mixtures (zone 2) can be drawn in according to the scope of the Directive ATEX 2014/34/EU.

### 2.5.2 Oxygen (Optional)

The machine is designed for conveying gases with an increased oxygen content (volume content greater than 21% and up to 100%) if the following label is stuck on the machine body:

**Cleaned for  
Oxygen service**

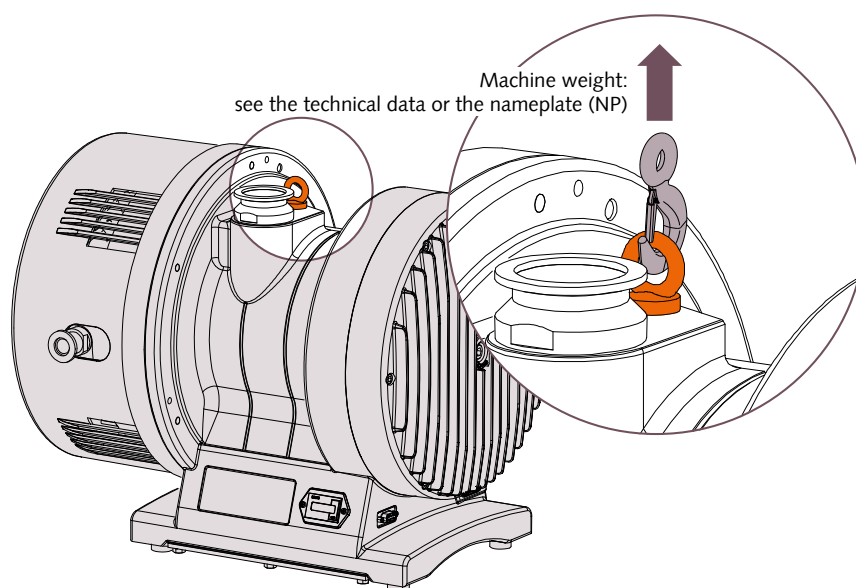
## 3 Transport

### **WARNING**

Suspended load.

**Risk of severe injury!**

- Do not walk, stand or work under suspended loads.
- Make sure that the eyebolt (EB) is in faultless condition, fully screwed in and tightened by hand.



- Check the machine for transport damage.
- If the machine is secured to a base plate:
- Remove the machine from the base plate.

## 4 Storage

- Seal all apertures with adhesive tape or reuse provided caps.

### ! NOTICE

Long storage time.

#### Risk of damage to the machine!

- Due to a long storage time the capacitors of the drive can lose efficiency because of electrochemical processes. In worst case it can lead to a short-circuit and therefore to a damage to the drive of the machine.
- Connect the machine every 18 months for 30 minutes to the mains.

If the machine is to be stored for more than 3 months:

- Wrap the machine in a corrosion inhibiting film.
- Store the machine indoors, dry, dust free and if possible in original packaging preferably at temperatures between -20 ... 60 °C.

## 5 Installation

### 5.1 Installation Conditions

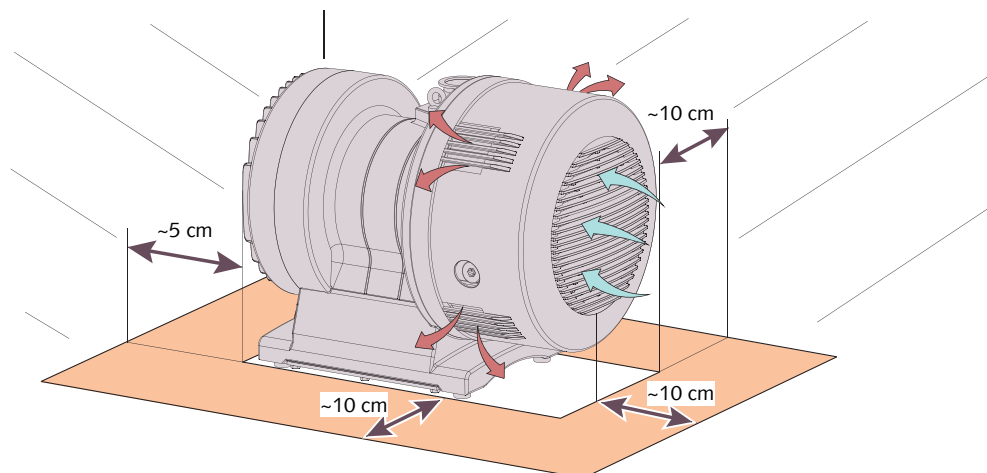
### ! NOTICE

Use of the machine outside of the permitted installation conditions.

#### Risk of premature failure!

#### Loss of efficiency!

- Take care that the installation conditions are fully complied with.



- Make sure that the environment of the machine is not potentially explosive.
- Make sure that the ambient conditions comply with the Technical Data [► 20].
- Make sure that the installation space or location is vented such that sufficient cooling of the machine is provided.
- Make sure that cooling air inlets and outlets are not covered or obstructed and that the cooling air flow is not affected adversely in any other way.



- Make sure that enough space remains for maintenance work.
- Make sure that all provided covers, guards, hoods, etc. are mounted.

If the machine is installed at an altitude greater than 1000 meters above sea level:

- Contact your Busch representative, the motor should be derated or the ambient temperature limited.

## 5.2 Connecting Lines / Pipes

- Remove all protective caps before installation.
- Make sure that the connection lines cause no stress on the machine's connection; if necessary use flexible joints.
- Make sure that the line size of the connection lines over the entire length is at least as large as the connections of the machine.

In case of very long connection lines it is advisable to use larger line sizes in order to avoid a loss of efficiency. Seek advice from your Busch representative.

### 5.2.1 Suction Connection

#### **WARNING**

Unprotected suction connection.

#### **Risk of severe injury!**

- Keep long hair, loose articles of clothing, etc. away from suction connection.

#### **NOTICE**

Ingress of foreign objects or liquids.

#### **Risk of damage to the machine!**

If the inlet gas contains dust or other foreign solid particles:

- Install a suitable filter (5 micron or less) upstream from the machine.

Connection size:

- ISO-KF 40

If the machine is used as part of a vacuum system:

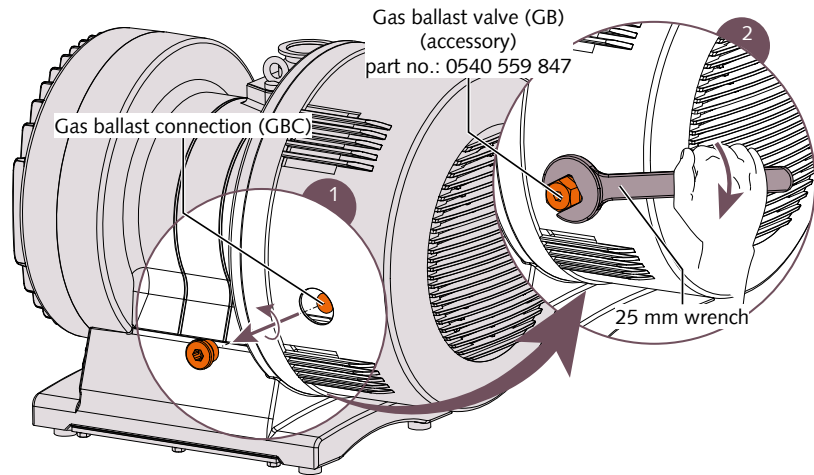
- Busch recommends the installation of an isolation valve in order to prevent the process gases and debris flowing back to the vacuum system.

### 5.2.2 Discharge Connection

Connection size:

- ISO-KF 16
- Without connection if an exhaust filter is installed.

## 5.3 Gas ballast Valve Installation (Optional)



## 5.4 Electrical Connection

### DANGER

Live wires.

#### Risk of electrical shock.

- Electrical installation work must only be executed by qualified personnel.
- Make sure that the power supply for the motor is compatible with the data on the nameplate of the motor.
- Make sure that the motor of the machine will not be affected by electric or electro-magnetic disturbance from the mains; if necessary seek advice from Busch.
- Connect the protective earth conductor.

Single-phase version:

- Electrically connect the machine directly to the mains connection (MC).

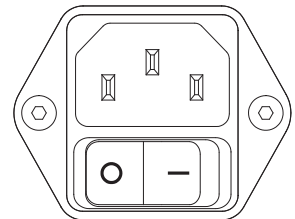
**Connector:** EN 60320-C14

**On/off-switch (OOS):**

○ OFF = Variable-frequency drive (VFD) not powered

⊏ ON = Variable-frequency drive (VFD) powered

**Fuse holder (FH):** 12.5 A, type F (F12.5)

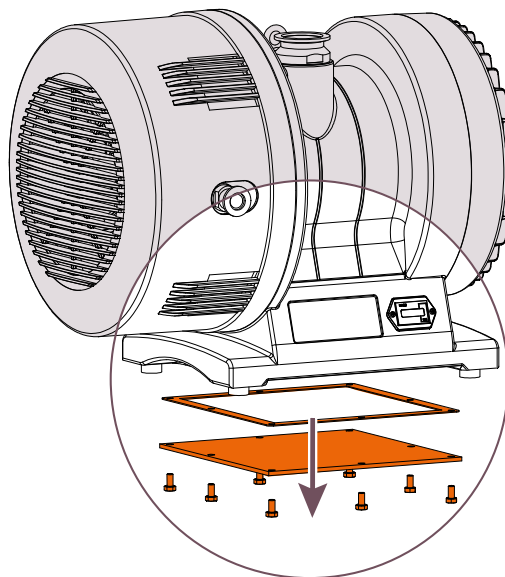


Three-phase version:

- Provide overload protection according to EN 60204-1 for the motor.
- Electrically connect the machine, see Wiring Diagram Three-Phase Motor [▶ 11].

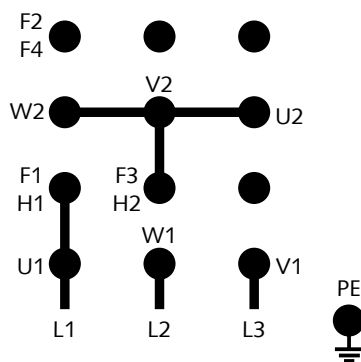
### 5.4.1 Wiring Diagram Three-Phase Motor

Accessing terminals:



Star connection (high voltage):

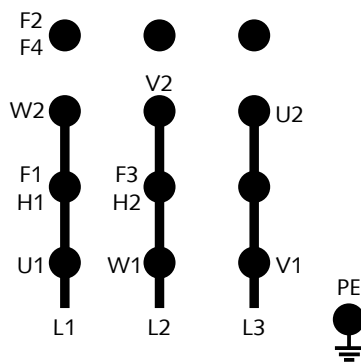
380-415 V (50 Hz), 380-480 V (60 Hz) ▶ Factory default setting



- F1 ▶ motor fan wire 1 = White
- F2 ▶ motor fan wire 2 = Brown
- F3 ▶ motor fan wire 3 = Green
- F4 ▶ motor fan wire 4 = Yellow
- H1 ▶ counter wire 1
- H2 ▶ counter wire 2

Delta connection (low voltage):

190-220 V (50 Hz), 200-240 V (60 Hz)



- F1 ▶ motor fan wire 1 = White
- F2 ▶ motor fan wire 2 = Brown
- F3 ▶ motor fan wire 3 = Green
- F4 ▶ motor fan wire 4 = Yellow
- H1 ▶ counter wire 1
- H2 ▶ counter wire 2

**! NOTICE**

Incorrect direction of rotation.

**Risk of damage to the machine!**

- Operation in the wrong direction of rotation can destroy the machine in a short time! Prior to start-up, ensure that the machine is operated in the right direction.

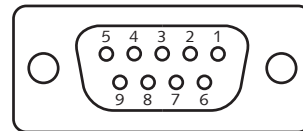
- Determine the intended direction of rotation with the arrow (stuck on or cast).
- Jog the motor briefly.
- With a phase rotation tester, check if the wiring corresponds to the correct direction of rotation.

If the rotation of the motor must be changed:

- Switch any two of the motor phase wires.

## 5.5 I/O and Communication Port Schematic (Single-phase Version Only)

Connector: D-Sub9, 9-pin, female



Pin Nr.	Description	Signal
1	24 V Out	Power supply (max. 100 mA)
2	0 V / Ground	Ground
3	Digital Input 1	Open: Stop Closed: Start
4	Digital Input 2*	Preset speed DI2 / DI3 0 / 0 ► Standard speed
5	Digital Input 3*	1 / 0 ► Boost speed 0 / 1 ► Idle speed 1 / 1 ► Boost speed
6	RS485, D+	For reading status values (current, voltage, operating hours, etc...) or parameters.
7	RS485, D-	
8	Fault relay IN	Contact NC (normally closed)
9	Fault relay OUT	$U_{max} = 100 \text{ VDC} / I_{max} = 5 \text{ A}$

\* "Logic 0" ► input voltage = 0 ... 4 VDC  
 "Logic 1" ► input voltage = 8 ... 30 VDC

**Communication port via Modbus (RS485):**

Ask your Busch representative for more information.

## 6 Commissioning

### WARNING

FO 0035 A operates at 100 hPa (mbar) in continuous operation.

**Risk of damage to the machine!**

**ATEX ► Risk of explosion and injuries!**

- Make sure to comply with the maximum continuous suction pressure, see Technical Data [► 20].

### CAUTION

During operation the surface of the machine may reach temperatures of more than 70°C.

**Risk of burns!**

- Avoid contact with the machine during and directly after operation.

### NOTE

A small amount of tip seal dust may collect in the exhaust duct of the machine. The dust may be blown out when the machine is vented.

- Make sure that the installation conditions (see Installation Conditions [► 8]) are complied with.
- Switch on the machine.
- Make sure that the maximum permissible number of starts does not exceed 6 starts per hour.

### NOTE

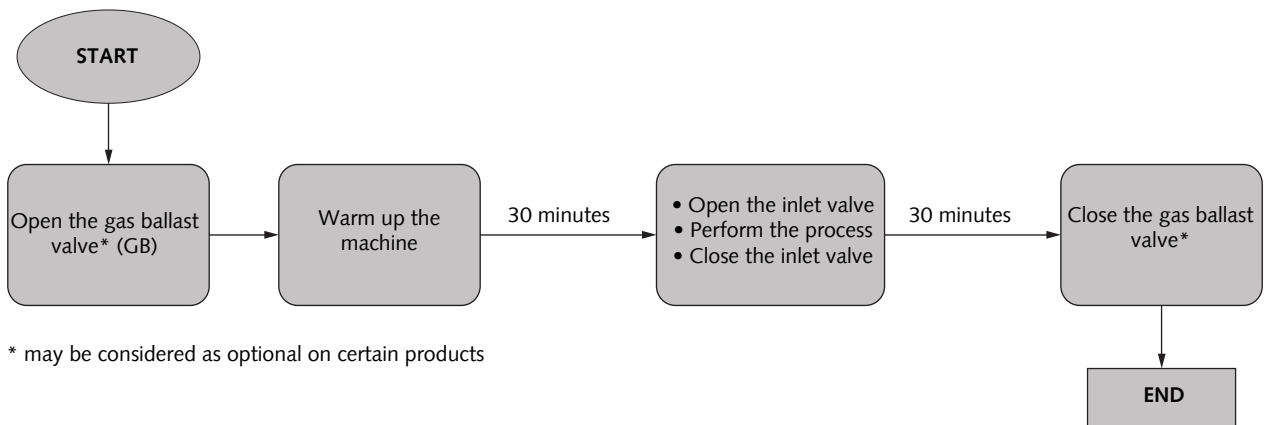
For the single phase version, take into account a delay of 5 seconds between power-up and the machine start up.

- Make sure that the operating conditions are complied with, see Technical Data [► 20].

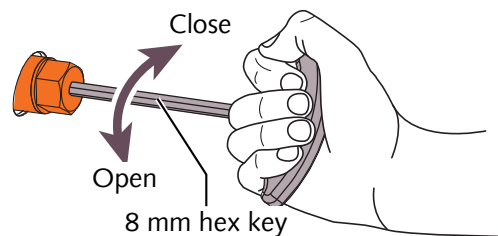
As soon as the machine is operated under normal operating conditions:

- Measure the motor current and record it as reference for future maintenance and troubleshooting work.

## 6.1 Conveying Condensable Vapours



### 6.1.1 Gas Ballast Valve Adjustment



#### **i** NOTE

Risk of back-flow when the gas ballast is open.

## 7 Maintenance



#### **⚠** WARNING

Machines contaminated with hazardous material.

**Risk of poisoning!**

**Risk of infection!**

If the machine is contaminated with hazardous material:

- Wear appropriate personal protective equipment.

#### **⚠** WARNING

Version intended for oxygen application.

**Risk of fire!**

- Do not perform maintenance task before being informed about oxygen requirements.
- Ask your Busch representative for more information.


**CAUTION**

Hot surface.

**Risk of burns!**

- Prior to any action requiring touching the machine, let the machine cool down first.
- Shut down the machine and lock against inadvertent start up.
- Vent the connected lines to atmospheric pressure.

If necessary:

- Disconnect all connections.

## 7.1 Maintenance Schedule

The maintenance intervals depend very much on the individual operating conditions. The intervals given below are desired to be considered as starting values which should be shortened or extended as appropriate. Particularly harsh applications or heavy duty operation, such as high dust loads in the environment or in the process gas, other contamination or ingress of process material, can make it necessary to shorten the maintenance intervals significantly.

Interval	Maintenance work
Every 6 months or as required	<ul style="list-style-type: none"> <li>• Clean the machine from dust and dirt.</li> <li>• Check the inlet screen (IS), clean if necessary.</li> <li>• Flush the machine by running it at atmospheric pressure for about 1 minute.</li> </ul> <p>In case of an inlet filter being installed:</p> <ul style="list-style-type: none"> <li>• Check the inlet filter cartridge, clean if necessary.</li> </ul> <p>In case of a gas ballast valve being installed:</p> <ul style="list-style-type: none"> <li>• Clean the filter of the gas ballast valve.</li> </ul>
Annually or as required	<ul style="list-style-type: none"> <li>• Replace the tip seal and the non-return valve (NRV), see Tip Seal and Non-return Valve Replacement [▶ 15].</li> </ul>
Every 4 years, the latest after 20000 hours	<ul style="list-style-type: none"> <li>• Have a major overhaul on the machine (contact Busch).</li> </ul>

## 7.2 Tip Seal and Non-return Valve Replacement


**NOTICE**

Changing the tip seals without training.

**Loss of Busch liability!**
**Loss of efficiency!**

- Ask your Busch representative before performing this maintenance task.
- Order the Busch genuine service kit.
- Follow the service instructions (document ref. 0870 202 845) delivered with the service kit (see Spare Parts) before performing this maintenance task.

## 8 Overhaul

### NOTICE

Improper assembly.

**Risk of premature failure!**

**Loss of efficiency!**

- It is highly recommended that any dismantling of the machine that goes beyond anything that is described in this manual should be done through Busch.



### WARNING

Machines contaminated with hazardous material.

**Risk of poisoning!**

**Risk of infection!**

If the machine is contaminated with hazardous material:

- Wear appropriate personal protective equipment.

In case of the machine having conveyed gas that was contaminated with foreign materials which are dangerous to health:

- Decontaminate the machine as well as possible and state the contamination status in a 'Declaration of Contamination'.

Busch will only accept machines that come with a completely filled in and legally binding signed 'Declaration of Contamination'.

(Form downloadable from [www.buschvacuum.com](http://www.buschvacuum.com))

## 9 Decommissioning

- Shut down the machine and lock against inadvertent start up.
- Vent the connected lines to atmospheric pressure.
- Disconnect all connections.

If the machine is going to be stored:

- See Storage [▶ 8].

### 9.1 Dismantling and Disposal

- Separate special waste from the machine.
- Dispose of special waste in compliance with applicable regulations.
- Dispose of the machine as scrap metal.



# 10 Spare Parts Kits

## ! NOTICE

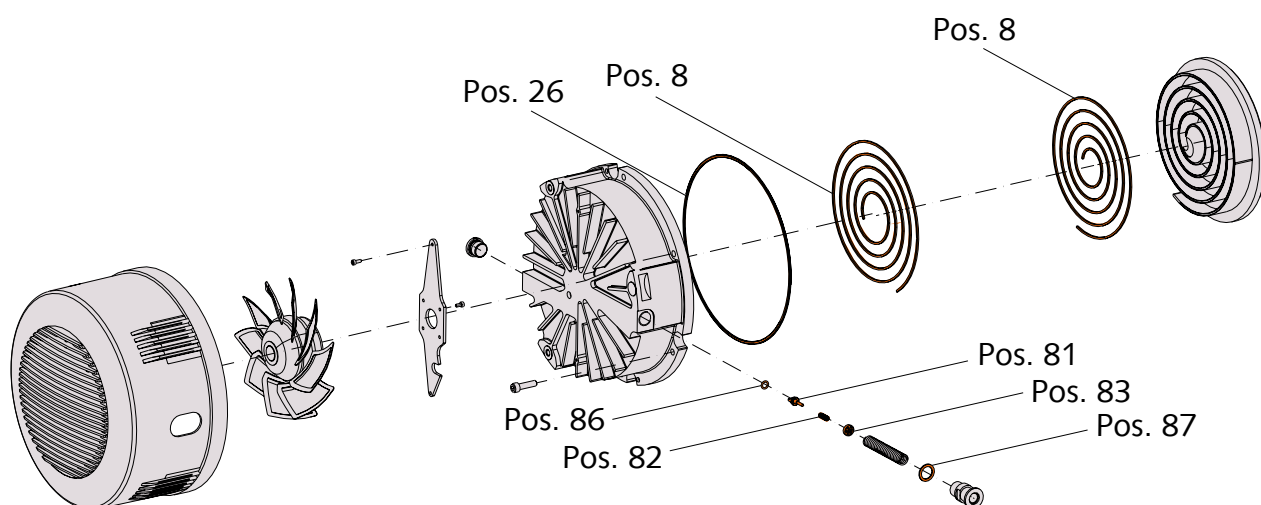
Use of non-Busch genuine spare parts.

**Risk of premature failure!**

**Loss of efficiency!**

- The exclusive use of Busch genuine spare parts and consumables is recommended for the proper function of the machine and for granting of warranty.

## 10.1 Overview



## 10.2 Available Kits

Spare parts kit	Description	Part no.
Service kit (FO 0015 A)	Includes: 1x o-ring (pos. 26) 2x tip seal (pos. 8) non-return valve parts (pos. 81/82/83/86/87)	0992 205 441
Service kit (FO 0035 A)	Includes: 1x o-ring (pos. 26) 3x tip seal (pos. 8) non-return valve parts (pos. 81/82/83/86/87)	0992 205 442
Service kit (FO 0035 A for oxy- gen application)	Includes: 1x o-ring (pos. 26) 3x tip seal (pos. 8) non-return valve parts (pos. 81/82/83/86/87) Specifically prepared for oxygen application	0992 205 443

# 11 Accessories

Accessory	Part No.
Inlet filter	0530 566 434
Exhaust Filter	0562 566 435
Gas ballast adapter	0916 566 457
Gas ballast valve	0540 559 847
Kit of wheels	0999 569 268

# 12 Troubleshooting

Problem	Possible Cause	Remedy
The machine does not start.	The motor is not supplied with the correct voltage.	<ul style="list-style-type: none"> <li>• Check the power supply.</li> </ul>
	Internal parts are worn or damaged	<ul style="list-style-type: none"> <li>• Repair the machine (contact Busch).</li> </ul>
	The fuse has blown.	<ul style="list-style-type: none"> <li>• Check the electrical installation.</li> <li>• Replace the fuse.</li> </ul>
	The motor is defective.	<ul style="list-style-type: none"> <li>• Repair the machine (contact Busch).</li> </ul>
The machine does not reach the usual pressure on the suction connection.	The inlet screen is partially clogged.	<ul style="list-style-type: none"> <li>• Clean the inlet screen.</li> </ul>
	The inlet filter cartridge (optional) is partially clogged.	<ul style="list-style-type: none"> <li>• Replace the inlet filter cartridge.</li> </ul>
	Measurement method or reading is false.	<ul style="list-style-type: none"> <li>• Check gauge, check final pressure without installation connected.</li> </ul>
	Leak in the system.	<ul style="list-style-type: none"> <li>• Repair leak.</li> </ul>
	Worn tip seal.	<ul style="list-style-type: none"> <li>• Replace tip seal, see Tip Seal and Non-return Valve Replacement [▶ 15].</li> </ul>
	Internal parts are worn or damaged.	<ul style="list-style-type: none"> <li>• Repair the machine (contact Busch).</li> </ul>
The machine runs very noisily.	The machine runs too hot.	<ul style="list-style-type: none"> <li>• See problem “The machine runs too hot”.</li> </ul>
	Internal parts are worn or damaged.	<ul style="list-style-type: none"> <li>• Repair the machine (contact Busch).</li> </ul>
The machine runs too hot.	Insufficient cooling.	<ul style="list-style-type: none"> <li>• Check the ventilation.</li> </ul>
	Ambient temperature too high.	<ul style="list-style-type: none"> <li>• Observe the permitted ambient temperature.</li> </ul>
	The machine is contaminated by process residuals.	<ul style="list-style-type: none"> <li>• Repair the machine (contact Busch).</li> </ul>
	Discharge pipe obstructed.	<ul style="list-style-type: none"> <li>• Check the discharge line.</li> </ul>
	The motor is defective.	<ul style="list-style-type: none"> <li>• Repair the machine (contact Busch).</li> </ul>

# 13 Technical Data

		FO 0015 A	FO 0035 A
Nominal pumping speed	m <sup>3</sup> /h	15 / 18	35 / 42
Single-phase version: (normal / boost)*	l/min	250 / 300	583 / 700
Three-phase version: (50Hz / 60Hz)	cfm	8.8 / 10.6	20.6 / 24.7
Ultimate pressure (gas ballast closed)	hPa (mbar) abs. Torr	0.025 0.018	0.02 0.015
Ultimate pressure (gas ballast open)	hPa (mbar) abs. Torr	0.09 0.067	
Max. continuous suction pressure	hPa (mbar) abs. Torr	1000 1125	100 75
Max. allowable gas inlet temperature	°C	70	
Max. allowable discharge pressure	hPa (mbar) rel. PSIG	500 7.3	200 2.9
Water vapour capacity	g/h	300	400
Leak rate (helium)	mbar·L·s <sup>-1</sup> (sccs)	≤1 x 10 <sup>-6</sup>	
Nominal motor rating	W HP	400 0.5	750 1
Operating voltages (single-phase version)*	V (50/60 Hz)	100-240, 50/60 Hz	
Operating voltages (three-phase version)	V (50 Hz) V (60Hz)	190-220 / 380-415 200-240 / 380-480	
Nominal motor speed	min <sup>-1</sup>	1480 / 1780	
Noise level (EN ISO 2151) (idle speed)*	dB(A)	42	43
Max. noise level (EN ISO 2151)	dB(A)	59	60
Vibration level at inlet (EN ISO 10816-1)	mm s <sup>-1</sup>	Class 1B, < 1.5 mm/sec	
Ambient temperature range	°C	5 ... 40	
Dimensions (L x W x H)	mm	450 x 338 x 369	462 x 338 x 369
Weight approx.	kg	48	50

\* with integrated variable-frequency drive

Certifications	
TÜV Süd NRTL mark (cTÜVus)	UL 61010-1 CAN/CSA C22.2 No. 61010-1
TÜV Süd CB-certificate and report	IEC 61010-1 with all national deviations

# 14 EU Declaration of Conformity

This Declaration of Conformity and the CE-mark affixed to the nameplate are valid for the machine within the Busch scope of delivery. This Declaration of Conformity is issued under the sole responsibility of the manufacturer. When this machine is integrated into a superordinate machinery the manufacturer of the superordinate machinery (this can be the operating company, too) must conduct the conformity assessment process for the superordinate machine or plant, issue the Declaration of Conformity for it and affix the CE-mark.

The manufacturer

**Ateliers Busch S.A.**  
**Zone Industrielle**  
**CH-2906 Chevenez**



declare that the machine(s): **Fossa FO 0015 A; FO 0035 A**

has (have) been manufactured in accordance with the European Directives:

- 'Machinery' 2006/42/EC
- 'Electromagnetic Compatibility' 2014/30/EU
- 'RoHS' 2011/65/EU, restriction of the use of certain hazardous substances in electrical and electronic equipment
- 'ATEX Directive' 2014/34/EU, for use in potentially explosive areas according to classification written on the machine nameplate <sup>(2)</sup> and following the standards.

Standard	Title of the Standard
EN ISO 12100:2010	Safety of machinery - Basic concepts, general principles of design
EN ISO 13857:2008	Safety of machinery - Safety distances to prevent hazard zones being reached by the upper and lower limbs
EN 1012-1:2010 EN 1012-2:1996 + A1:2009	Compressors and vacuum pumps - Safety requirements - Part 1 and Part 2
EN ISO 2151:2008	Acoustics - Noise test code for compressors and vacuum pumps - Engineering method (grade 2)
CFR 47 FCC Part 15 ; Class A (industry)	The FCC 47 CFR Part 15 from the Federal Communications Commission: rules and regulations for EMC
ICES-001	Industrial, Scientific and Medical (ISM) Radio Frequency Generators
EN 61000-6-4:2007 + A1:2011	Electromagnetic compatibility (EMC) - Generic standards. Emission standard for industrial environments
EN 61000-6-2:2005	Electromagnetic compatibility (EMC) - Generic standards. Immunity for industrial environments
EN 61326-1:2013 Table 2	Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements
EN 61000-3-2:2014 Class A (industry)	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current $\leq 16$ A per phase)
EN 61000-3-3:2014	Electromagnetic compatibility (EMC). Limits. Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current $\leq 16$ A per phase and not subject to conditional connection
EN 60204-1:2006	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
EN 61010-1:2010	Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements
EN ISO 13849-1:2015 <sup>(1)</sup>	Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design
EN 1127-1:2011 <sup>(2)</sup>	Explosive atmospheres - Explosion prevention and protection - Basic concepts and methodology
EN ISO 80079-36:2016 <sup>(2)</sup>	Explosive atmospheres - Non-electrical equipment for explosive atmospheres - Basic method and requirements
EN ISO 80079-37:2016 <sup>(2)</sup>	Explosive atmospheres - Non-electrical equipment for explosive atmospheres - Non-electrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k"

Person authorised to compile the technical file:

Gerd Rohweder  
 Busch Dienste GmbH  
 Schauinslandstr. 1  
 DE-79689 Maulburg

Chevenez, 11.01.2018

**Christian Hoffmann, General director**

<sup>(1)</sup> In case control systems are integrated.

<sup>(2)</sup> Only if an ATEX classification is written on the nameplate.

Note

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A large, empty rectangular box with a thin gray border, occupying most of the page. It is intended for writing a note.

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