




# AD-SP

- Air Dryer  
Maintenance Manual  
Version 001



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# 1 About This Manual

This manual is intended to be a reference guide for operators and service technicians. It provides detailed information about the user level maintenance and service, as well as overall use of the Bruker device.

**Before starting any work, personnel must read the manual thoroughly and understand its contents.** Compliance with all specified safety and operating instructions, as well as local accident prevention regulations, are vital to ensure safe operation.

The figures shown in this manual are designed to be general and informative and may not represent the specific Bruker model, component or software/firmware version you are working with. Options and accessories may or may not be illustrated in each figure.

## 1.1 Policy Statement

It is the policy of Bruker to improve products as new techniques and components become available. Bruker reserves the right to change specifications at any time.

Every effort has been made to avoid errors in text and figure presentation in this publication. In order to produce useful and appropriate documentation, we welcome your comments on this publication. Support engineers are advised to regularly check with Bruker for updated information.

Bruker is committed to providing customers with inventive, high quality products and services that are environmentally sound.

## 1.2 Symbols and Conventions

Safety instructions in this manual are marked with symbols. The safety instructions are introduced using indicative words which express the extent of the hazard.

In order to avoid accidents, personal injury or damage to property, always observe safety instructions and proceed with care.

### DANGER



**DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.**

This is the consequence of not following the warning.

1. This is the safety condition.
- ▶ This is the safety instruction.

### WARNING



**WARNING indicates a hazardous situation, which, if not avoided, could result in death or serious injury.**

This is the consequence of not following the warning.

1. This is the safety condition.
- ▶ This is the safety instruction.



### CAUTION

**CAUTION** indicates a hazardous situation, which, if not avoided, may result in minor or moderate injury.

This is the consequence of not following the warning.

1. This is the safety condition.
  - ▶ This is the safety instruction.

### NOTICE

**NOTICE** indicates a property damage message.

This is the consequence of not following the notice.

1. This is a safety condition.
  - ▶ This is a safety instruction.

### SAFETY INSTRUCTIONS

**SAFETY INSTRUCTIONS** are used for control flow and shutdowns in the event of an error or emergency.

This is the consequence of not following the safety instructions.

1. This is a safety condition.
  - ▶ This is a safety instruction.



**This symbol highlights useful tips and recommendations as well as information designed to ensure efficient and smooth operation.**

## 2 Introduction

This document provides information for the maintenance of the air dryer AD-SP:

P/N W1215319 - 230V/50 Hz or P/N W1215320 - 115 V/60 Hz.

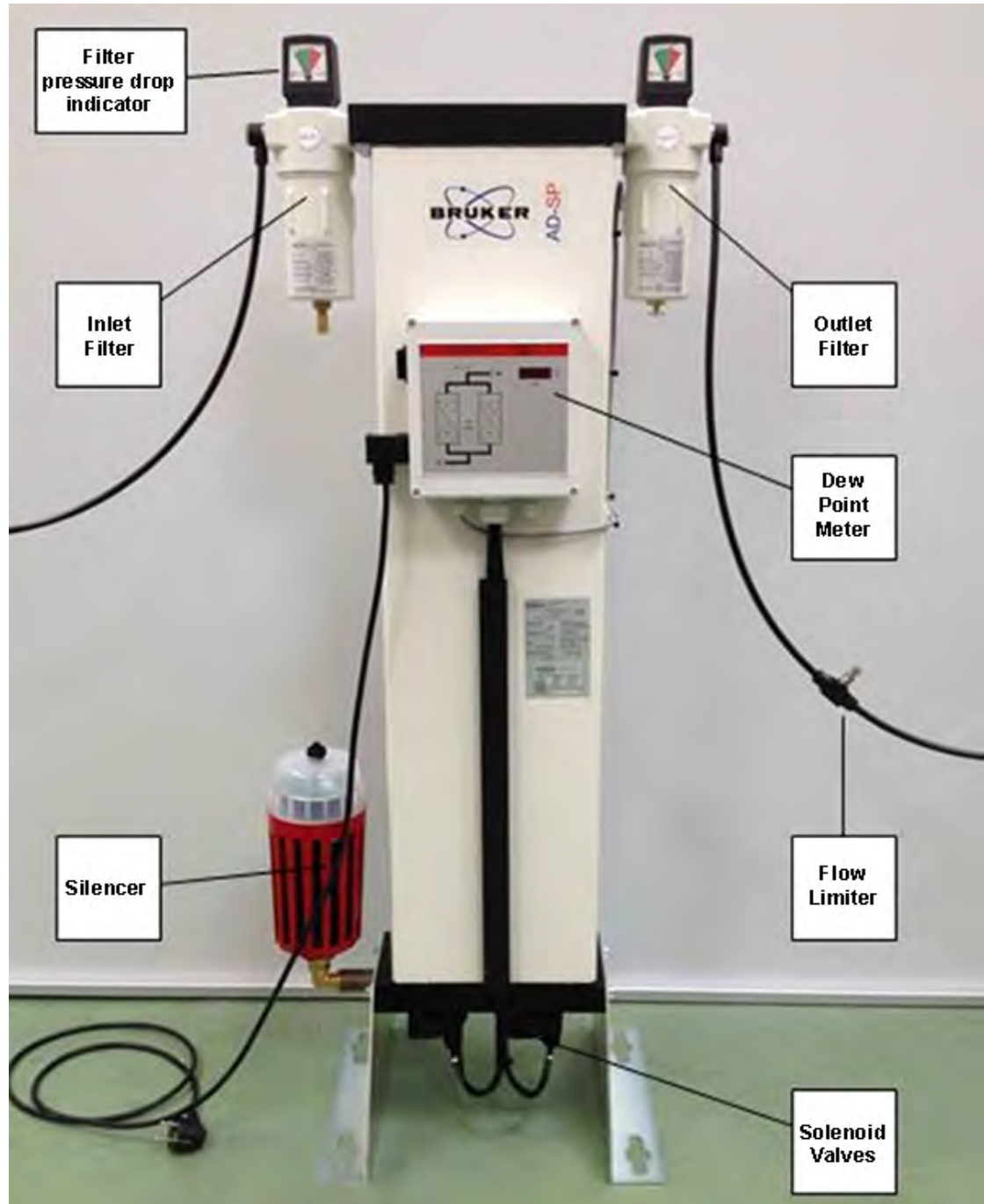


Figure 2.1: Components Identification

## 2.1 Maintenance Kit 12 Months: P/N W117567

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Bruker P/N W117567 is the 12 months maintenance kit for the air dryer AD-SP.

The kit contains the following items:

- Dryer gas inlet filter P/N W117288.
- Dryer gas outlet filter P/N W117289.
- Silencer filtering element P/N 1801843.
- An electronic chip with a connector P/N 1801850 (called “Reset Key” in the document).

The service of the dryer is required whenever the message “**SEr.**” blinks on the display of the dryer. This message appears after about 8000 hours of operation.

After servicing the drier you will have to install the **RESET KEY** on a printed circuit in the electronic housing to reset the service counter.

## 2.2 Gas Filter Replacement

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### **NOTICE**

**Equipment under pressure can become dangerous when parts are dismantled.**

Projectiles can produce severe injuries. Pressurized air can damage eyes and can rupture an eardrum.

1. The air drier must not be under pressure before doing maintenance on filters.
  - ▶ Place the power switch to position **0 = OFF**. Make sure the air pressure is removed before doing any maintenance



## 2.3 Inlet Filter Replacement

Open the gas inlet filter housing with a tool (water pump pliers, for example) and unscrew the filter housing.

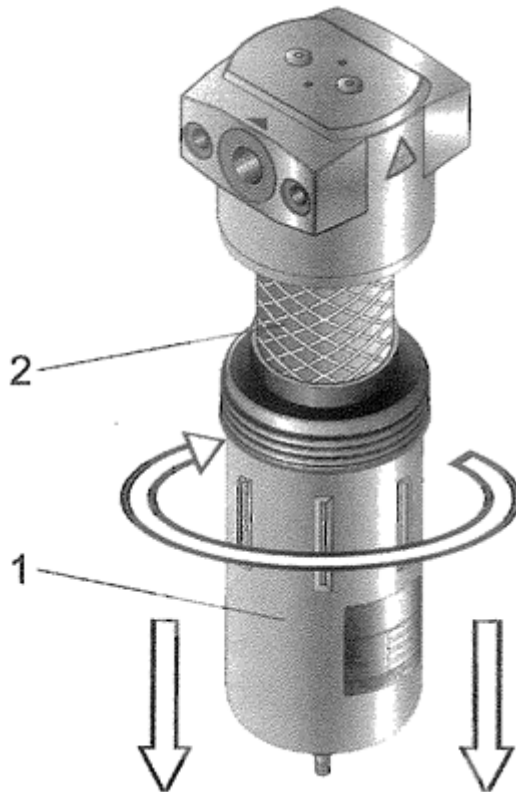


Figure 2.2: Gas Filter

1. Remove the used filter (2) (unscrew the filter) and install the new inlet filter **W117288** with the O-ring seal placed on top.
2. Replace the holder O-ring seal, located in the holder (1) base block, if it is damaged.
3. Reinstall the filter housing.

## 2.4 Outlet Filter Replacement

1. Open the outlet filter housing with a water pump pliers and unscrew the filter housing. Remove the used filter (unscrew the filter) and install the new filter **W117289** with its O-ring seal placed on top.
2. Replace the large holder O-ring if it is damaged.
3. Reinstall the filter housing.

## 2.5 Silencer Filter Replacement

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The silencer is located at the base of the dryer unit. To remove the transparent plastic cap of the silencer housing, turn it to unlock the soft plastic clips and pull it out.



*Figure 2.3: Silencer Filtering Element*

Unscrew the filter and remove it. Install the new filtering element and reinstall the silencer housing cap.

## 2.6 Maintenance Kit 24 Months: P/N W117569

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The kit contains the same components as 12 months maintenance kit plus:

- Drilled plate with dryer tank gasket P/N 1829899 (2x)
- Drying agent pack 1 molecular sieve P/N 1801837 (1x)
- Drying agent pack 4 molecular sieve P/N 1801838 (3x)

The maintenance operations are the same as with the 12 months maintenance kit, but the replacement of the drying agent is added.

After servicing the AD-SP you will have to use the **RESET KEY** to reset the service counter.

## 2.7 Drying Agent Replacement

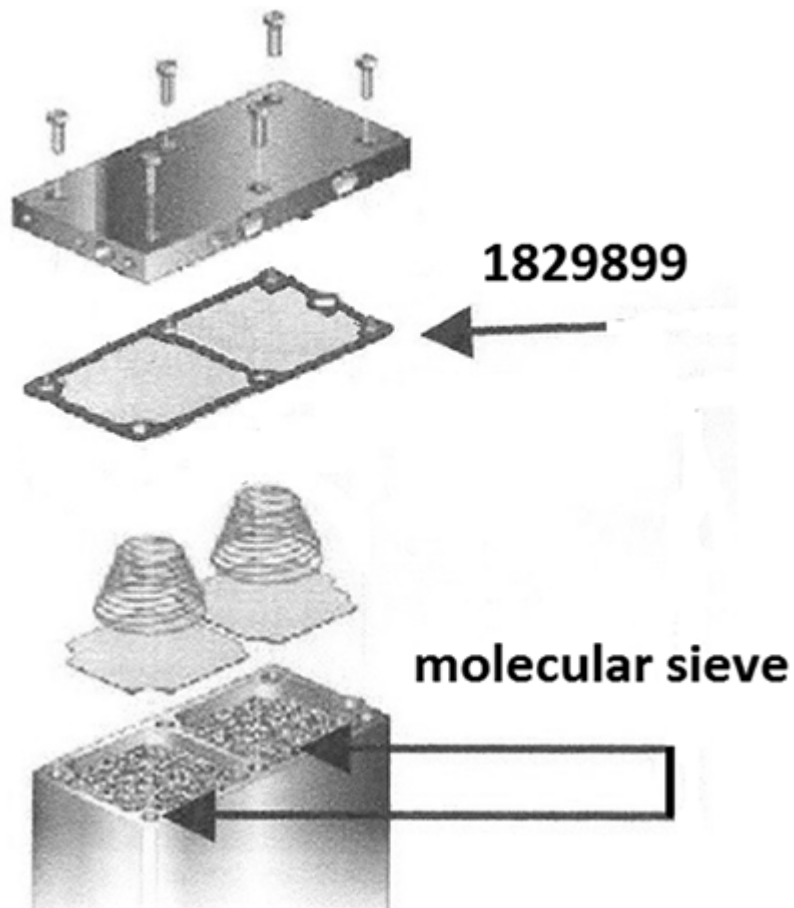


Figure 2.4: Drying Agent, Drilled Plate with Gasket

### NOTICE

**The room can be soiled with dust when opening the dryer.**

During drying agent replacement dust can be produced.

- ▶ Wear a dust mask and goggles.

### INSTRUCTIONS:

1. Power off the unit. Unit must not be under pressure.
2. Unscrew the 6 screws on top of unit and remove upper cover plate.
3. Remove drilled plate with tank gasket.
4. Remove pressure springs of both columns.
5. Remove the drying agent of both chambers with an industrial vacuum cleaner.
6. Fill both chambers with the drying agent. Use a funnel and a rubber hammer (for example) to tap against the air dryer to compact the drying agent in the chambers while filling.
7. Install plates and springs.
8. Install upper drilled plate.
9. Install upper plate and screws. Alternatively tighten screws of diagonal opposite corners. Tighten to 25 Nm with a torque wrench.

## 2.8 Replacement of Valve Diaphragms

The replacement kit has the part number: **1801833**. It contains a set for four valves pistons with diaphragms.

It is necessary to replace the valves diaphragms and pistons (items 2, 3, 4) when the valves continuously emit an abnormal noise or if the performance of the unit is diminished.

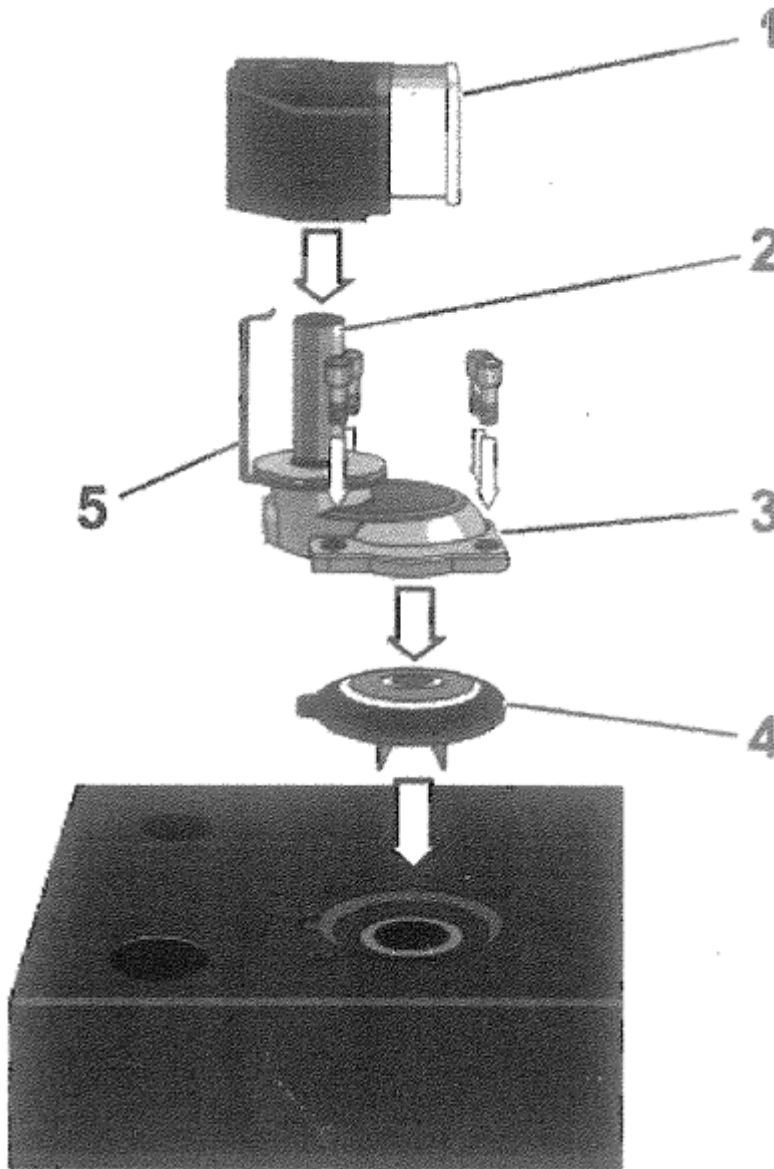


Figure 2.5: Valve Diaphragm Installation

Item	Description
1	solenoid coil
2	piston
3	diaphragm holder
4	diaphragm
5	coil spring holder

Solenoid Coil 230V/50Hz = P/N 1801849

Solenoid Coil 115V/60Hz = P/N 1801953



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Two types of solenoid valves are installed on the unit. They are located on the bottom plate of the unit.

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- The valves on the rear side Y1 and Y2 are normally **OPEN** (the piston DOESN'T have a notch, on part 2).
- The front valves Y3 and Y4 on the front type are normally **CLOSED** and HAVE a notch, on part 2).

### Instructions:

1. Power off the unit.
2. Open spring holder (5) and disconnect the solenoid coil (1). Note the position and type of valve (with or without notch on piston -part 2).
3. Open the 4 screws and remove diaphragm holder (3) and the diaphragm (4).
4. Install new diaphragm (please note that the diaphragm has a lug that faces a hole in the base plate). Install same type of piston and tighten the four screws.
5. Install solenoid coil and lock it with the spring holder.



## 3 Resetting the Service Timer

 **DANGER****DANGER of electrical shock.**

Live electrical cables can cause electrical shocks and serious injuries. The electric feed cable remains live even then unit is switched **OFF**

- ▶ DO NOT touch live parts!
- ▶ Disconnect power cord before doing maintenance on solenoid valves.

### How to reset the service timer

1. SWITCH OFF the power of the dryer unit. Place the power switch to position **0 = OFF**.
2. Open the cover of the MULTITRONICS controls housing (remove four screws), you will access to the electronic board inside.
3. Plug the **Reset** Key into the interface connector (ref: X9 PC on electronic board).
4. **PRESS AND HOLD** the reset button (ref: S3 RESET on electronic board) **AND** switch on the dryer unit (switch in position **I = Fix**).
5. The display will show the following message briefly **0.SET**, then a flashing **OFF**. It indicates that service time counter has been cleared.
6. Switch off the unit and unplug the dongle (reset chip) and install the housing cover of the electronics.



The reset key can only be used **ONCE** to reset the service counter. A used reset key will show briefly **FAIL** when installed.



Figure 3.1: AD-SP Drier Installed with Buffer Tank



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Please refer to the Model No., Serial No. and Internal Order No. in all correspondence regarding the NMR system or components thereof.

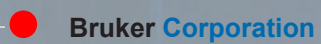


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