

Measure what you see.

byko-drive



Manual



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Dear customer,
thank you for purchasing a BYK-Gardner product. BYK-Gardner is committed to providing you with quality products and services. We offer complete system solutions to solve your problems in areas of gloss and physical properties. As the basis of our worldwide business, we strongly believe in total customer satisfaction. Therefore, in addition to our products, we offer many VALUE-ADDED services:

- Technical Sales Force
- Technical & Application Support
- Application and Technical Seminars
- Repair & Certification Service

BYK-Gardner is part of Altana AG and a direct subsidiary of BYK-Chemie GmbH, a leading supplier of additives for coatings and plastics. Together, we offer complete and unique solutions for you, our customer.

Thank you for your trust and confidence. If there is anything we can do better to serve your needs, do not hesitate to let us know.

Your BYK-Gardner Team

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1. Safety instructions



Warning!

This manual cannot address all of the safety considerations associated with its use. It is the responsibility of the user to consult this manual and establish appropriate safety practices for use with this equipment and the individual material being tested.

Warning!

The byko-drive Automatic Film Applicator is designed and intended for the use described in this manual. Using the Automatic Film Applicator for other purposes for which it was not designed may reduce or eliminate the protection offered by the features of the applicator. Serious injury may result.

Warning!

Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.

Warning!

Ultimate disposal of this product should be handled according to all national laws and regulations.

Attention

The byko-drive Automatic Film Applicator works with a moving traverse carriage. No parts of the carriage may be touched or held during operation. Once the Forward key is pressed no work should be carried out within the travel area of the carriage.

Please note the following points:

- During the film application process the applicator is driven from left to right.
- Familiarize yourself with the layout and operation of the controls.
- Pressing the Forward or Reverse key will immediately stop the carriage at any point of its travel.
- Ensure the operator has no loose clothing or jewelry which could become caught in the moving parts.

2. Preparations

Unpack the unit being careful to check all packaging for items. Some accessories may be found in a separate box within the main box. Within the package are the following standard items:

Quantity	Description
1	byko-drive Applicator unit
1	Power Supply
1	Power Cord
1	Weight
1	Drip Pan
1	*Brass Barb Fitting
2	Spare O-Rings for Weight

*This item is only included with vacuum plate equipped models

Locate a suitable location free from obstructions and clutter. The byko-drive should be at a convenient height for the operator.

Plug the power supply into the DC input jack on the left side, next to the power switch. A power cord appropriate for your area's power connector is supplied to connect the power supply with AC power. The system will operate on power from 100-240 V~ at 50-60 Hz.

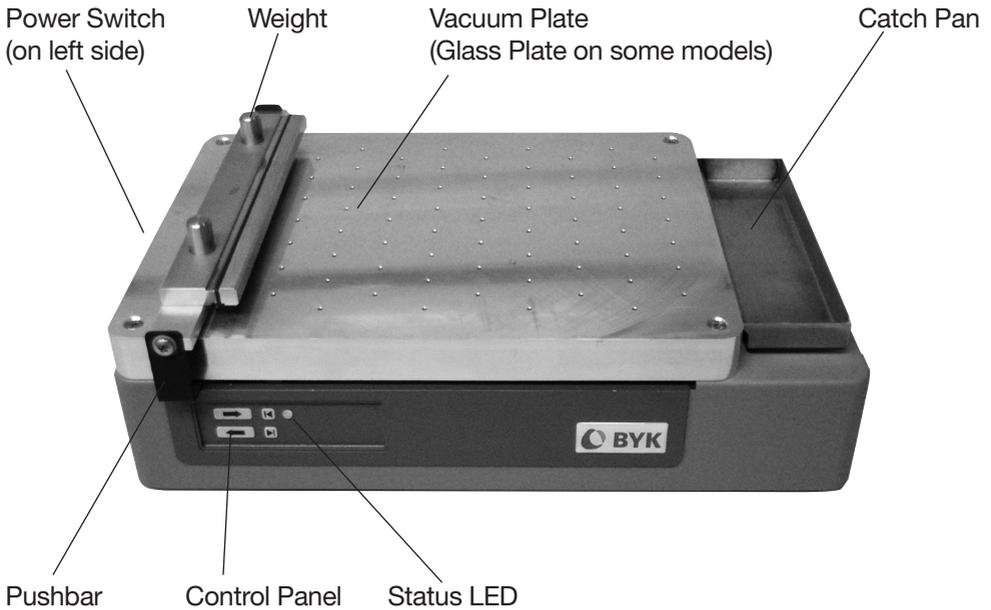
If you have the model with the built in vacuum plate, install the provided barb fitting and attach a vacuum source. If the provided fitting is not appropriate for your vacuum source, a customer supplied fitting may be used that is compatible with the ¼ NPT thread in the vacuum plate.

Place the drip pan in the provided indentation on the right of the vacuum plate.

The weight is used to provide additional pressure on an applicator or hold a wire-wound rod in the proper position. If needed, place the weight on the pins of the pusher bar.

3. System Description

The byko-drive is designed to assist the user in achieving consistent film application by maintaining a fixed speed and drawdown pressure. Manual drawdowns are often inconsistent, especially between operators. This makes test comparisons between samples either difficult or unreliable.



Some of the factors affecting the drawdown are the shear rate and the pressure placed on the applicator tool. The byko-drive employs a precise speed control along with a consistent weight to suit the particular material being applied.

The byko-drive is compatible with most applicators, both bar and wire types. The applicator is placed in front of the Pushbar so that the applicator is pushed along the test surface once the byko-drive is started. With both the speed and weight controlled, a consistent and uniform film is produced.

The byko-drive is equipped with either a vacuum plate or a glass plate with clamp. The vacuum plate uses an external vacuum source to hold a test sample in place. The glass plate model uses a spring-loaded clamp to hold the sample.

There are two application speeds available, 1 inch/sec (25 mm/sec) and 10mm/sec. The micro-controller electronics of the byko-drive ensures accurate speed control under all operating conditions.

The start and stop positions of the carriage may be modified by the operator to speed repetitive drawdowns that use smaller sizes test samples.

4. Start Up

Plug the external power supply into the connector on the left side near the power switch. Plug the other end into an appropriate electrical outlet as described in Section 2.

Turn on the power switch. The power switch is located on the left side of the instrument, near the power cord.

The carriage will cycle to the start point and the LED will turn green, the instrument is now ready to operate.

The three states of the LED are as follows:

Green – Power on, waited for a command

Amber – Carriage is moving

Red – An error has occurred

5. Operation

There are four buttons on the front panel, the top left is the Forward button and the bottom left is the Reverse button. The top right is the Set Start Position button and the bottom right is the Set End Position button. The system is initially set from the factory for maximum travel and an application speed of 1 inch/sec (25 mm/sec).

Forward Button



Reverse Button



Set Start Position



Set End Position



To Set a New Start Position

Press the Forward button and release, when the carriage is in the desired position, press the Forward button again to stop the carriage. If you miss your desired position, use the Reverse and Forward buttons until the carriage is in the correct place. Now press and release the Set Start Position button. The LED will blink and the position is stored in memory. This position will remain stored even with the power off.

To Set a New End Position

Follow the same procedure as above, except press and release the Set End Position button to set the end point. The LED will blink and the position is stored in memory. This position will remain stored even with the power off.

To Clear the Set Start or End Position

To clear the memorized position, hold down the Set Start or Set End position button for 5 seconds. When you release the button, the LED will blink and the position will be reset to the default.

To Change Speeds

The byko-drive has two speeds, 1 inch/sec (25 mm/sec) and 10 mm/sec. The unit is shipped set to the 1 inch/sec setting. Hold down both the Forward button and the Set End Position button for 5 seconds. When you release the buttons the LED will blink twice to indicate Speed 2 (10 mm/sec) has been selected, and the carriage will return to the home position. To change back to Speed 1 (1 inch/sec), press the Forward and the Set End Position buttons for 5 seconds. Release the buttons and the LED will blink once and the carriage will return to the home position.

To Make a Drawdown

Place a test chart or other substrate material on the vacuum plate. Turn on the vacuum source. (For models with the glass plate, simply place the substrate on the glass, under the sample clamp)

Once the substrate is held in place, position an appropriate Bird applicator, wire rod, square applicator or other applicator bar in front of the Pushbar. To keep wire rods from rotating and when additional weight is needed for other applicators, set the Weight over the pins of the Pushbar allowing the rubber strips to hold the applicator in place. The narrow space is for 10 mm diameter rods, the wider space is for 1/2" (12.6 mm) diameter rods.

Apply an appropriate amount of coating immediately in front of the applicator. Press the forward button and the application will begin.

At the end of the travel, the Applicator will stop automatically. Remove the applicator for cleaning and press the Reverse button. Once the carriage has returned to the start position, remove the coated substrate.

6. Maintenance and Repair

Cleaning and Routine Maintenance

Care should be taken to avoid letting coating materials into the vacuum plate holes. If cleaning is needed the holes can be cleaned with a solvent appropriate for the coating material and a wooden toothpick. Metal tools should be avoided as they may damage the aluminum vacuum plate.

Clean the rest of the instrument with a mild commercial cleaning solution or plain soapy water. Avoid solvents on the cover and the keyboard area as they may be discolored or otherwise damaged by strong solvents.

Troubleshooting

If the Pushbar becomes obstructed during movement it will stop and the Status LED will turn red. Turn off the Power Switch and remove the obstruction. Turn the Power Switch back on and the bykdrive will reset to the home position.

If the Pushbar will not move when either the Forward or Reverse buttons are pushed and the LED remains green, the start position and end positions may have been mistakenly set in the same place. Simply push and hold the Set Start Position button for more than 5 second and release, the LED will blink when the button is released. Repeat this step for the Set End Position button. This will clear the set points so the Forward and Reverse button again function as expected.

Service and Spare Parts

For all service and spare parts requirements, please contact your local BYK-Gardner office.

7. Components

Catalog Number	Description
PA-2121	byko-drive Automatic Film Applicator w/Vacuum Plate
PA-2122	byko-drive Automatic Film Applicator w/Glass Plate
PA-2126	Replacement O-Rings (pkg of 4 for the weight)
PA-2127	Glass Plate accessory (replaces vacuum plate)

8. Technical Data

Weight	13.50 pounds	6.1 kg
Height	4.50 inches	114 mm
Width	14.50 inches	368 mm
Depth	9.25 inches	235 mm
Temperature - Storage	0° – 150° F	-18° – 66° C
Temperature - Operating	35° - 100° F	1° - 38° C
Power	Power supply input: 100-240V ~ 50-60 Hz Power supply output: 24V $\overline{=}$ 1.25 Amp	

All technical data is subject to change.

9. Accessoires

PA-3869 Vacuum pump

PA-3876 Vacuum plate

PA-2123 Weight-bar fixture, 454 g (1 lb)

PA-2128 Weight-bar fixture 908 g (2 lb)

PA-2129 Weight-bar fixture 1.36 kg (3 lb)

PA-2124 External power supply with electrical cord

PA-2125 Drip pan

PA-2127 Glass plate with clamp

PA-2126 O-ring, pk of 4

10. Service and Certification

Service

Besides the repair of your instrument we offer the following additional services:

First diagnosis on the telephone or by e-mail

Call us or send us an e-mail and we will try to solve your problem. If this is not successful, please send us the instrument for repair.

Preventive maintenance, calibration, and recertification

For precautionary reasons we recommend regular preventive maintenance. We carry out this preventive maintenance automatically when you send us your instrument for maintenance and recertification.

Loaners

During the period of repair we furnish you with a loaner on request and availability.

Maintenance agreement

To assure the proper maintenance is performed on a regular basis, BYK-Gardner recommends a preventative maintenance agreement.

Ordering information:

SP-2121 byko-drive 115 V / 230 V
with vacuum plate

SP-2122 byko-drive 115 V / 230 V with glass plate

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11. Copyright

This instruction manual is an important part of this instrument. It contains essential information about setting up, placing in service and use. If you pass the device on to another user, please ensure that the instruction manual is included with the instrument. The manual must be studied carefully before working with the equipment. Please contact your regional service office if you have any questions or require additional information about the device.

The technology and fittings are based on state-of-the art electronic technology. New developments and innovations are constantly being integrated into the equipment. Thus, the diagrams, dimensions, and technical data used in this manual may have changed as a result of adapting the device to new information and improvements.

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BYK-Gardner GmbH offers no guarantee that the software will function without error or that the functions incorporated therein can be executed in all applications and combinations selected by you.

No liability other than as provided by law is assumed for direct or indirect damage sustained in association with the use of the instrument, the software or documentation.

BYK-Gardner GmbH reserves the right to update the software and written documentation without prior notice.

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