9 Operation

In This Chapter

9.1 Start System

9.1.1 Check Facilities

1 Open TechDocu.pdf on the machine DVD that was delivered with the system. Click "Utility Requirements" on the first page.

2 All utilities must meet the requirements so that the system runs correctly.

9.1.2 Check Circuit Breakers

1 Open TechDocu.pdf on the machine DVD that was delivered with the system. Click "Electronic Drawings" on the first page.

2 Find circuit breakers for the system in "Electronic Drawings".

3 Check that all circuit breakers on the main switch rack are turned on.

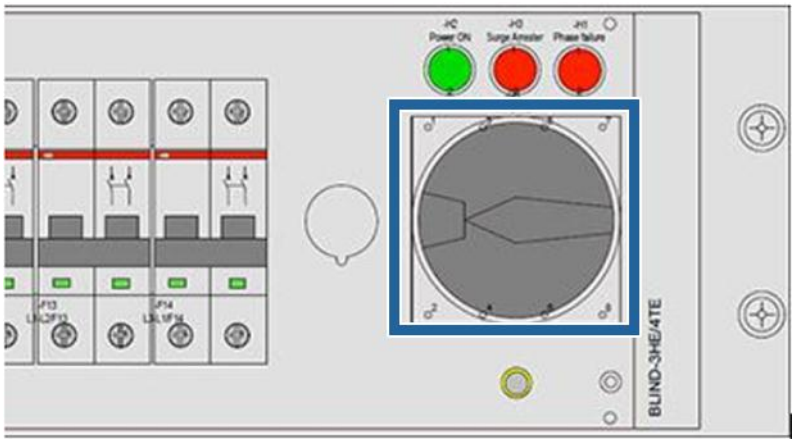
9.1.3 Check Interlocks

1 Make sure that all EMO buttons are released.

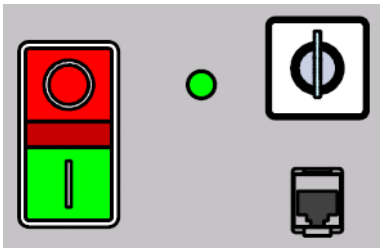
- If a EMO button is not released turn the EMO button clockwise to release it.

9.1.4 Switch On Power

1 Turn the **main switch** on the main power rack clockwise to ON. The green lamp turns on. The light indicates that the system is supplied with main voltage.



2 Press the green **power ON button**.

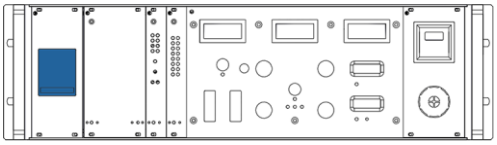


9.1.5 Switch on Lamphouse Power Supply

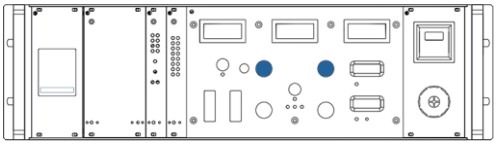
1 Make sure that the exhaust tube is connected correctly according to lamp house specifications in the Technical Documentation > Utility Requirements before starting EVG®620.

2 Make sure that the power control switch of the electronics is at the OFF position, otherwise you cannot ignite the lamp.

3 Turn the **circuit breaker** on the universal lamp power controller (ULPC) ON. After initialization of the ULPC the error LEDs of the ULPC safety shut down will be off.

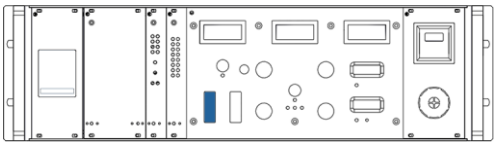


4 Set the **power/ intensity setpoint** of the current lamp.

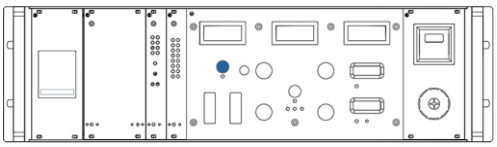


9.1.6 Start Lamp

1 Press the **start** button on the lamp power supply.



2 Turn the knob **U/I/T** to T.

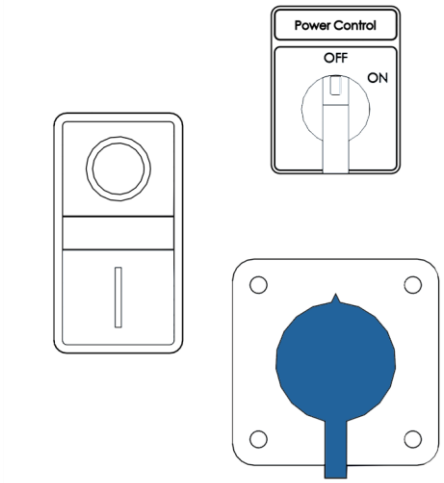


3 NOTICE! Wait about 10 minutes until the lamp has reached the working temperature and full power before starting exposure. When the lamp is ON, the LED ENA of the lamp hours counter is ON.

4 If the start lamp fails, the ignition attempts are stopped after 30 seconds; press the **start** button again to reattempt the ignition of the lamp.

9.1.7 Switch on Electronics

1 Turn the **power control switch** clockwise.



2 Press the **PC switch** of the PC equipment rack after the lamp is ignited.

9.1.8 Start EVG 6Series Software

1 In EVG Explorer, open **EVG Control Software > EVG 6Series**.
2 Enter the user **ID** and **Password** and click **Login**.

9.1.9 Initialize System

1 Go to **System** > **Overview** and click **Initialize Machine**. The **Initialize Machine** window appears**.** The system initializes automatically.The **Initialize Machine** window appears during this process.
2 Find the initialization status in th title panel in the message window.

9.2 Switch Tooling

9.2.1 Replace Objectives

1 Click **System** in the bottom navigation.
2 Click **Change Objectives** in the information panel, the **Change Objectives** window will appear.
3 Move the loading tray in.
4 Move the left optic with the joystick and click **Continue**.
5 Move the right optic with the joystick and click **Continue**.
6 Change the objectives and click **Continue**.
7 Move the loading tray out.

9.2.2 Insert wafer chuck

Insert wafer chuck

1 Make sure that the type of the wafer chuck is correct what was activated in the **Machine Components** (on page 66) window before.

2 Insert the wafer chuck on the loading tray.

3 Connect the vacuum tube.

9.2.3 Optic Configuration

To open this window 2 ways are available:

1 **Recipes** > **General > Run** after starting the process.

2 **System > High LeveL > Configuration** in the title panel.

NOTE: The configuration of the top and bottom side optics must be equal to the configuration of the system.

Adjust optic configuration

1 Click with the mouse cursor on the selected area to change following :

a) Turrets (e.g. 2 position turret, 3 position turret, E-ring ...)

- 2nd position turret can rotate and allows to adjust the 2nd position.
- 3rd position turret can rotate as well and allows to adjust the 2nd and 3rd position.

a) Objectives (e.g. `10x` objectives, `5x` objective, ring lights, flat objectives...)

- Some objectives can rotate for `45°` (e.g. flat objectives, IR - lights)

1 If the text NOT AVAILABLE is shown, there is no adjustment possible.

Available optic configuration depends on each customized system. Only available for engineer level.

9.2.4 Remove Wafer Chuck

Remove wafer chuck

1 Unload the loading tray.

2 Disconnect the vacuum tube.

3 Remove the wafer chuck.

9.2.5 Replace Mask Holder

1 Loosen the 3 knurled head screws that secure the mask holder on the cover unit.

2 Remove the mask holder from the cover unit.

3 Install the mask holder what was activated in the **Machine Components** window before.
4 Fix the 3 knurled head screws clockwise.

9.2.6 Replace Tooling

IMPORTANT! All required tooling must be activated before initializing the system. EVG 6Series software must be restarted after a new tooling has been activated.

1 Start the EVG 6Series software.
2 Select a recipe **General** > **Process**.
3 Click on the mask holder or the wafer chuck icon, the **Machine Components** window will appear.
4 Activate a new tooling profile.
5 Click **OK.**
6 Click **Init** to initialize the system.
7 Click **Run** to run the process.

9.2.7 Unload Mask

1 Click **System** in the bottom navigation panel.
2 Click **Unload Mask** in the information panel, the **Unload Mask** window will appear.
3 Move the loading tray out.
4 Insert the wafer chuck on the loading tray.
5 Connect the vacuum tube and click **Continue**.
6 Insert the loading frame on the wafer chuck.
7 Insert the loading frame and click **Continue**.
8 Move the loading tray in.
9 Unload the mask and click **Continue**.
10 Move the loading tray out.

9.3 Manage Process

9.3.1 Switch I/O

Minimum personnel qualification:

- Training Tier 2 (refer to "Personnel Qualification" on page 7)

NOTICE

Property Damage

Switching I/Os incorrectly can cause severe damage to the system. Any measures that prevent damage are bypassed and the I/O is switched directly.

- Only switch I/O if you are authorized and have sufficient training.

Check I/O list

1 Check the I/O list (see page 129) to find out what I/O must be switched.
2
3
4
5

9.3.2 Park Tray

Use the **Park Tray** function if you do not use for a longer time.

1 Click **System** in the bottom navigation panel.
2 Click **Park Tray** in the information panel, the **Park Tray** window will appear.
3 Click **Continue**.
4 Move the loading tray in.

9.3.3 IR Illumination Recipe

This example demonstrates how to generate a IR illumination recipe.

1 Select the process Man. Anodic Bond.
2 Activate IR illumination in **Misc > IR Illumination**.
3 Select the process mode and spacer mode.
4 Activate top and bottom tooling.
5 Click **RUN** to start the process.
6 Follow the instructions in the message box window.

9.3.4 Calibrate Proximity Spacer

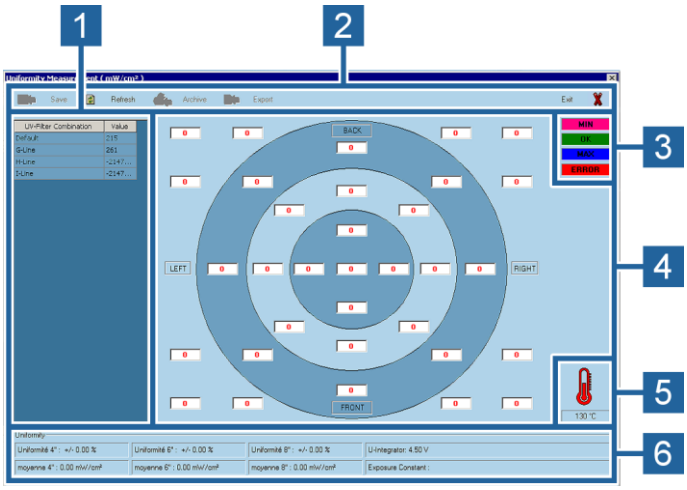
1 Click **Service** in the bottom navigation panel.
2 Click **Calibrate Proximity Spacer** in the information panel, the **Machine components** window will appear.
3 Select the mask holder.
4 Click **OK**.
5 Select the wafer chuck.
6 Click **OK**.
7 Select the wafer chuck type.

8 Click **OK**.
9 Insert the mask holder.
10 Click **Continue**.
11 Fix the mask holder.
12 Click **Continue**.
13 Insert the wafer chuck on the loading tray.
14 Connect the vacuum tube.
15 Click **Continue**.
16 Insert the loading frame.
17 Click **Continue**.
18 Insert the mask.
19 Click **Continue**.
20 Move the loading tray in and out.
21 Remove the loading frame.
22 Click **Continue**.
23 Insert the ruler.
24 Click **Continue**.
25 Insert the substrate for wedge error compensation.
26 Click **Continue**.
27 Remove the ruler.
28 Click **Continue**.
29 Move the loading tray in, wedge error compensation is performed automatically.
30 Measure the proximity pins thickness by caliper and thickness will be displayed.
31 Click **Continue**.
32 Perform the measurement 3 ÷ 4 times until you get the same thickness results. The thickness will be stored in the **Machine components** window automatically.
33 Click **Exit**.
34 Move the loading tray out.
35 Insert the loading frame.
36 Click **Continue**.
37 Move the loading tray in.
38 Move the loading tray out.
39 Click **Exit**.

9.3.5 Uniformity Check

9.3.5.1 Uniformity Measurement

Service > Uniformity Check allows calibrating uniformity.



1	**Title Panel**	Enables to perform basic commands.
2	**Table View**	Shows the current saved exposure constants.
3	**Measured Area**	Shows an overview of all measured points.
4	**Intensity Indicator**	Shows a state of the measured intensity.
5	**Temperature Indicator**	Shows the current UV temperature; travel range 150° ÷ 200°C.
6	**Uniformity Panel**	Shows an average of all measurements.

9.3.5.2 Check Uniformity

▸▸ ***Check Uniformity***

1 Make sure there is no tooling or substrate on the system.
2 Click **Service** in the bottom navigation panel.
3 Click **Uniformity Check** in the command panel.
4 Remove the mask holder and click **Continue**.
5 Remove the objectives and click **Continue**.
6 Load the adjustment plate and click **Continue**.
7 Move the loading tray in.
8 Move the left optic with the joystick and press **Continue**.
9 Move the right optic with the joystick and press **Continue**.
10 Use the UV power meter to measure the uniformity.
11 Click **Calculate** and the Uniformity measurement (see page 95) window will appear.
12 Double-click a UV-Filter Combination (e.g. Default).
13 Start to measure first shown point in the Uniformity Measurement window.
14 Enter the measured value into the Uniformity Measurement window.

- The values must be between 18 and 22.

1 Perform the measurement for all points.

2 After entering the software calculate the `Uniformity` and the `Average` automatically.

- Average 4" should not be more than 2%
- Average 6" should not be more than 4%
- Average 8" should not be more than 5%

1 After measuring last point click **Save** and **Archive**.

2 Close the Uniformity Measurement window and click **Continue**.

3 Move the loading tray out.

4 Remove the adjustment plate and press **Continue**.

5 The Procedure "Check uniformity" is finished.

9.4 Analyze Process

9.4.1 Open Log Files

EVG Control Software log files

1 Open EVG Explorer.

2 Go to **Maintenance Tools** and double-click **Logfile Folder**.

Each day a new log file is created in the log file folder D:\Log\EVG Machine and named as "log_DD.MM.YYYY.log".

3 Open the log file.

EVG Vision log files

1 Open EVG Explorer.

2 Go to **Maintenance Tools** and double-click **Logfile Folder**.

Each day a new log file is created in the log file folder D:\Log\EVG MachineVison\ and named as "log_DD.MM.YYYY.log".

3 Open the log file.

Windows application and system event log files

1 Open EVG Explorer.

2 Go to **Service Tools** > **Event Viewer**.

3 Open folder **Windows Logs**.

4 Right-click on **Application** and select **Save all Events As....**

5 Open the log file.

9.5 Shut Down System

9.5.1 Exit EVG 6series Software

1 Finish all processes on EVG®620.
2 Click **Log in** button in the title panel.
3 Click **Log out** to log out from EVG 6 series software.
4 In EVG Explorer, click with the right mouse button on EVG6XX application in the task bar.
5 Click **Close** to close EVG 6series software.

9.5.2 Power OFF 62x Electronics

1 Turn the **power control switch** of the electronics counter clockwise to position OFF.

9.5.3 Switch off Lamp

1 Press the **stop** on the lamp power supply. The lamp will be switched off immediately.
2 The cooling of the lamp socket and lamp house will be ON for `~10 min`.

9.5.4 Power off ULPC

1 Turn the **circuit breaker** on the ULPC to OFF. The lamp house and lamp socket will be switched off.

NOTICE! Be aware a delay between OFF and ON is about 30 seconds!

9.5.5 Power OFF EVG62x

1 Push the **STOP** button on the control panel.
2 Turn the **main switch** on the control panel to OFF.

9.6 Read Schematics

9.6.1 Technical Drawings

Minimum personnel qualification:

- Training Tier 1 (refer to "Personnel Qualification" on page 7)