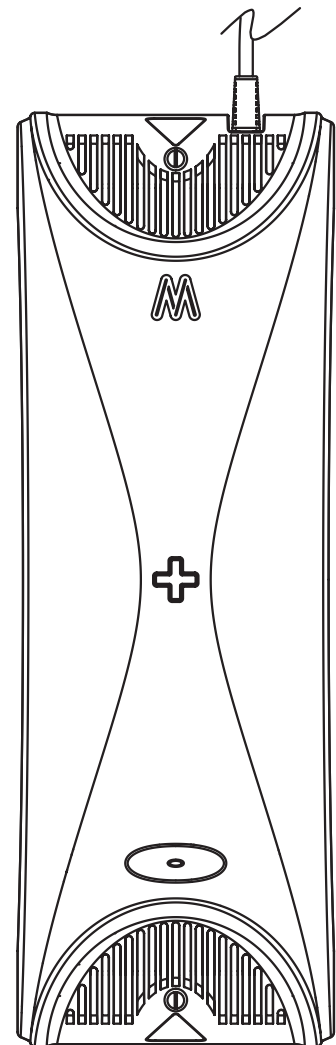


## CONTENTS:

Chapter	Description	Page
1.	Introduction .....	1
2.	Ratings and Specifications .....	2
3.	Product Safety.....	3
4.	Structure .....	5
5.	Location Advice.....	5
<b>INSTALLATION INSTRUCTIONS</b>		
6.	Unit.....	6
7.	Lamp and Battery.....	7
8.	Model Information .....	9
9.	Operating Instructions.....	10
10.	On-Going Machine Requirements .....	15
11.	After Sales and Service Support .....	15



## Chapter 1. INTRODUCTION

Thank you for purchasing Mechline’s HyGenikx<sup>TM</sup> air & surface steriliser system. When correctly installed, and operated in accordance with this Operator Manual, it will provide many years of service.

HyGenikx is an advanced and compact, wall mounted steriliser system, proven to eradicate viruses and bacteria throughout foodservice and hospitality environments, washrooms, changing rooms and beyond.

Utilising a combination of the most effective air and surface sterilisation technologies available - Germicidal Oxidation, Germicidal Irradiation, Dual waveband Plasma Quatro - HyGenikx provides round-the-clock hygiene and safety protection, controls odours and has also significantly been proven to prolong the life of fresh perishable foods.

Mechline’s HyGenikx system has been through rigorous testing, providing customers with the utmost confidence in its effectiveness and quality.

LEAVE THIS MANUAL WITH THE OPERATOR AFTER INSTALLATION

Chapter 2. RATINGS and SPECIFICATIONS

<b>Model numbers</b>	Commercial FOOD SERVICE models: <b>HGX-W/T-10/20/30/15-S/F/R</b>	OFFICE models: <b>HGX-W/T-05/25-O</b>
<b>Region</b>	UK and EUROPE	
<b>Air purifying technology</b>	Nano-titanium dioxide photocatalytic oxidation + UV-C	
<b>UV-C lamp tube</b>	1 x 18w PLL composite tube	
<b>UV-C intensity inside chamber</b>	15000 $\mu\text{W}/\text{cm}^2$	
<b>UV-C lamp tube life</b>	Approx. 8000 hours	
<b>Air residence time inside chamber</b>	> 0.5 seconds	
<b>Number of photocatalytic baseplates</b>	4 pieces	
<b>Noise level @ 1 metre</b>	<39dB	
<b>Air flow rate</b>	20 m <sup>3</sup> /hr	
<b>Suggested coverage</b>	10 - 30 m <sup>2</sup>	10 - 40 m <sup>2</sup>
<b>Installation</b>	Wall mount	
<b>Housing material</b>	Aluminium alloy – internal, polycarbonate front, ABS base	
<b>Colour</b>	Front – White/Titanium, Back – Grey	
<b>UV-C lamp tube model</b>	S – 18/27/54mg F – 27/54/80 mg R – 100 mg	O – 9/18 mg
<b>BATTERY SPECIFICATIONS</b>		
Mechline’s models <b>HGX-W/T...</b> are powered by ER14250 battery		
<b>Type</b>	Lithium Thionyl Chloride	
<b>Voltage</b>	3.6V	
<b>ELECTRICAL SPECIFICATIONS</b>		
<b>Power consumption</b>	9-13W	
<b>Voltage</b>	220V	
<b>Frequency</b>	50Hz	
<b>Input supply requirements</b>	To be connected to suitably isolated socket or fused spur	
<b>Cordset</b>	2 Core 0.75mm <sup>2</sup> (L+N), 1.8m total length, IEC 60227-5	
<b>Input protection</b>	3A protection	
<b>DIMENSIONS &amp; WEIGHTS</b>		
<b>Dimensions</b>	400mm(L) X 135mm(W) X 110mm(D)	
<b>Weight</b>	1.9 kg	

**Chapter 3. PRODUCT SAFETY**

**3.1 GENERAL ADVICE**





**Electrical** – All HyGenikx products require an electrical connection via a fused switch spur or a plug socket. Power must always be disconnected prior to carrying out any work. If you are unsure how to disconnect the power, or if there is any damage to sockets, cables, connections, or the unit itself please stop work immediately and request advice from Mechline or a qualified electrician.

**Ultraviolet light** – Due to the HyGenikx unit design, UV exposure is not possible during standard operation. Be aware direct exposure to Ultraviolet light can be harmful to skin and eyes causing irritation or even temporary blindness. If there is any damage to the unit please disconnect power and contact Mechline.

**Ozone** – Whilst HyGenikx is not an ozone generator, a very small volume of ozone is released as a by-product by the combination of technologies used. At the low levels produced there is no potential health risk during correct operation. Our HGX-W-15-R/HGX-T-15-R refuse model is our only unit designed for use in **unoccupied** areas. At higher levels ozone can cause irritation to throat, cough, headaches or shortness of breath, these symptoms should only be short term and be resolved when the individual is removed to fresh air. If there are any concerns about the ozone produced please disconnect power to the unit and contact Mechline. *More about ozone on page 13.*

**Injury** – HyGenikx units should always be securely mounted in a safe position, ensuring cables are not a potential trip hazard and that every unit can be easily reached for servicing, with any relevant electrical outlets easily accessible. In the event of a broken lamp, care must be taken to avoid cuts to hands (the complete unit can be returned to Mechline for this work to be carried out if required) and appropriate protection should also be worn.

**3.2 SYMBOLS**

MEANING/DESCRIPTION	SYMBOL
<p><b>Dangerous Voltage</b> To indicate hazards arising from dangerous voltages.</p>	
<p><b>Totally Insulated</b> To indicate the equipment is double insulated and therefore has no earth wire. All internal electrically energised components are totally enclosed within an insulated body that prevents any contact with “live” parts.</p>	
<p><b>Warning/Caution</b> An appropriate safety instruction should be followed or caution to a potential hazard exists.</p>	
<p><b>Refer to Manual</b> Refer to the relevant instructions detailed within the product manual.</p>	

Before operating the unit, read these instructions carefully. Correct installation and operation will provide optimum performance and a longer life for this high-quality air & surface steriliser system.

### 3.2 SAFETY INSTRUCTIONS

- 3.2.1 Ensure the unit is installed, operated and maintained by trained and authorised personnel.
- 3.2.2 Children should not be allowed to play with the unit.
- 3.2.3 The unit should be used as provided and not be altered or tampered with as the safety of the unit may be compromised.
- 3.2.4 Only connect the unit to a single-phase socket or a suitably fused and isolated spur with mains voltage, as specified on the “Ratings and Specifications” section.
- 3.2.5 Before attempting servicing or maintenance tasks, the unit **MUST** be isolated from the power source and disconnected.
- 3.2.6 Should a fault occur with the unit, immediately isolate and disconnect from the power source.
- 3.2.7 Ensure safe storage/positioning of the electrical cabling when not in use. Should the electrical cable become damaged at any time, do **NOT** operate the unit.
- 3.2.8 Do not use the unit outdoors where it can be exposed to moisture.
- 3.2.9 Do not handle the plug or the unit with wet hands.
- 3.2.10 Do not operate the unit near water. If the unit comes into contact with liquid, isolate the power immediately.
- 3.2.11 Any modifications to the electrical supply or connections to the unit must only be carried out by a qualified electrician in accordance with the appropriate Codes of Practice.
- 3.2.12 The mains socket or fused outlet must be installed in an accessible location close to the unit to enable disconnection.
- 3.2.13 Mechline recommends periodic inspection and verification of the integrity of the electrical connections in accordance with recommendations of BS 7671, IEE Wiring Regs.
- 3.2.14 Keep foreign objects away from the unit’s air inlet and outlet areas – this may cause electrical problems and damage the unit.
- 3.2.15 In public areas we would recommend the unit be hard wired into a fused spur.
- 3.2.16 Keep the unit and its power cable away from hot surfaces.
- 3.2.17 Do not use the unit where combustible gases or vapours may be present.

### 3.3 PRODUCT CONFORMITY

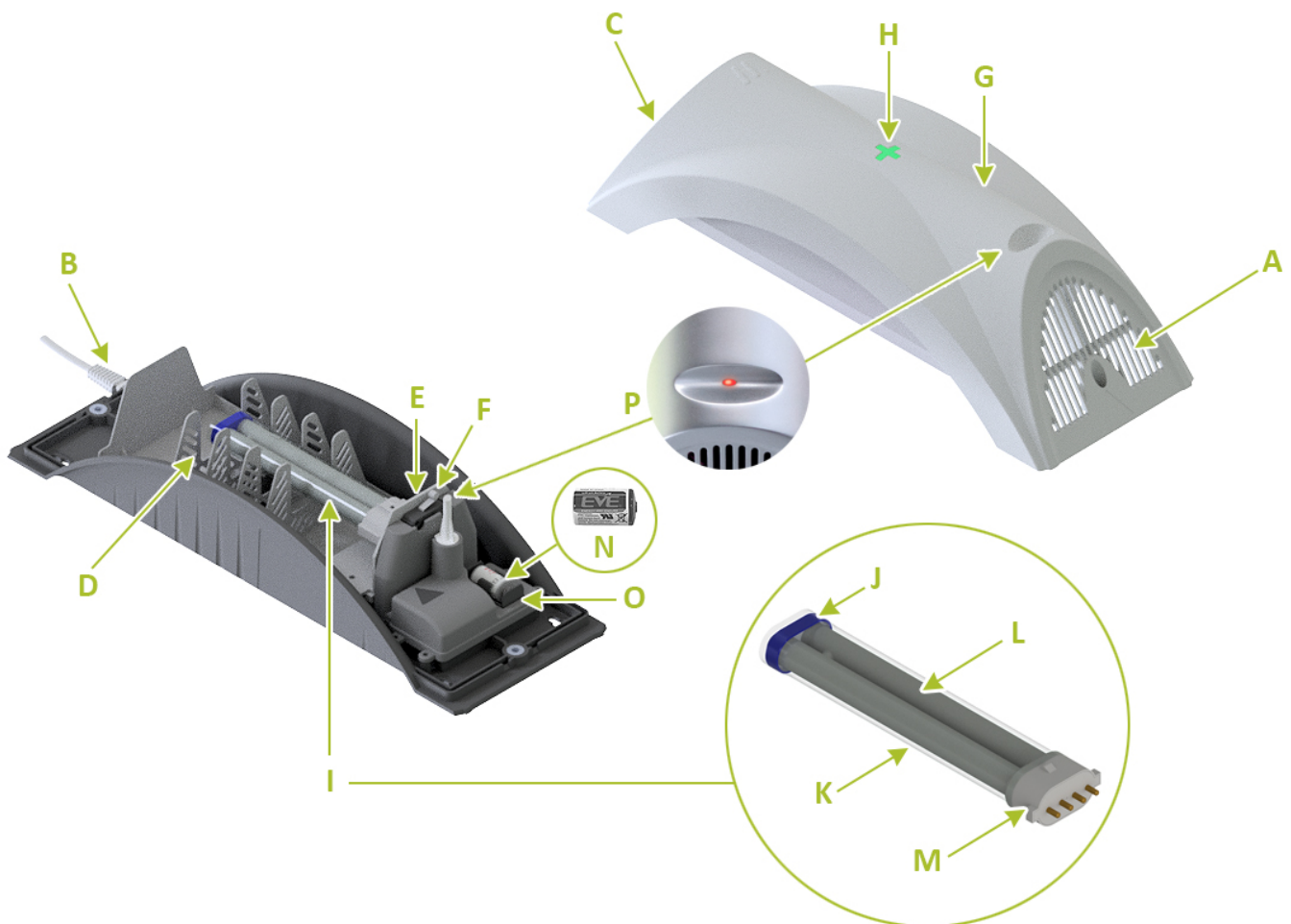
- 3.3.1 Mechline’s HyGenikx air & surface steriliser system conforms to the essential safety requirements of the Low Voltage Directive (LVD) 2014/35/EU, Electromagnetic Compatibility Directive (EMC) 2014/30/EU and is manufactured in accordance with following standards: EN 60335-1:2012+A11:2014+A13:2017+A14:2019, EN 60335-2-65:2003+A1:2008+A11:2012, EN 55014-1:2017, EN 61000-3-2:2014, EN 61000-3-3:2013, EN 55014-2:2015.

Designed and manufactured to EUOTA (European Ozone Trade Association) requirements.

Mechline’s HyGenikx air & surface steriliser system is supplied to the marketplace having been produced under the control of our comprehensive BSI ISO 9001:2015 Quality Management System (certificate FS 616985).

Chapter 4. STRUCTURE

	HYGENIKX UNIT		LAMP		BATTERY
A	Air inlet vent	I	UV lamp	N	ER14250 battery
B	Power cable	J	Cap – colour coded	O	Battery compartment
C	Air outlet vent	K	Sheath ( <i>food safe lamps only</i> )	P	LED battery warning light ( <i>with audible alarm</i> )
D	Aluminium air diffuser plates	L	Quartz part of lamp		
E	UV lamp base	M	End terminal		
F	Safety microswitch				
G	Lid				
H	On/Off indicator light				



Chapter 5. LOCATION ADVICE

**For general advice – refer to Section 9.4.11**

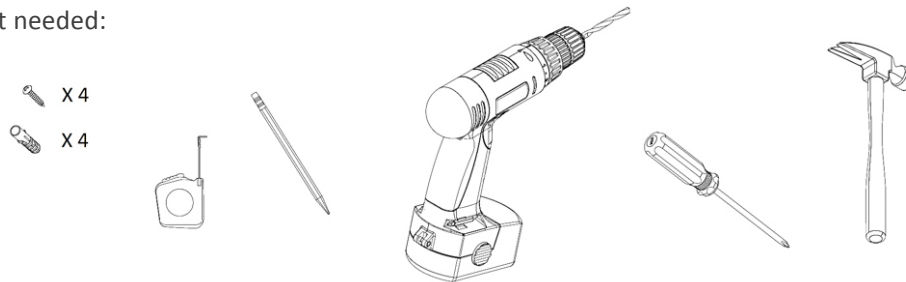
The unit should be placed in a ventilated area. Some initial odour caused by the electrical components will be released. After one or two days the odour will disappear. The HyGenikx unit is designed to be wall mounted, vertically installed, with the logo and cable at the top of the unit. The bottom of the unit should be at a minimum height of 1.8m AFFL.

- Do not install the unit in a position where the air inlet and outlet could be blocked. This will affect its efficiency.
- Avoid installing in close proximity to mechanical extraction and open windows.

**Chapter 6. INSTALLATION INSTRUCTIONS**

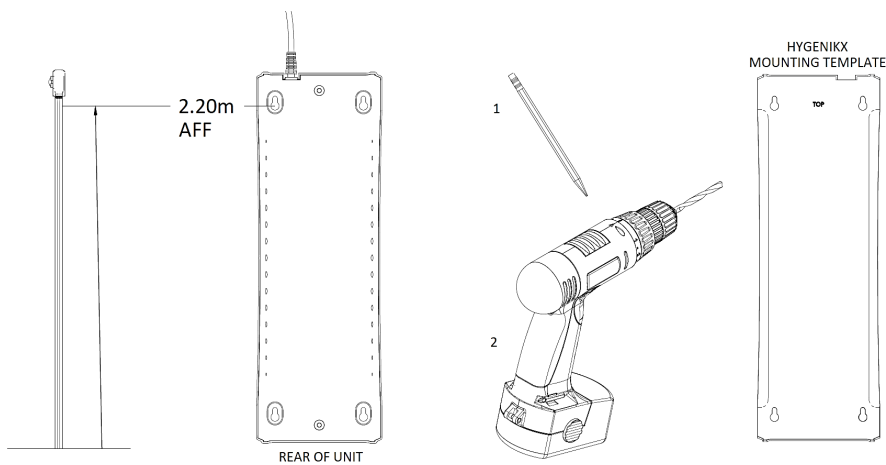
**6.1 INSTALLATION STEPS**

**6.1.1 Equipment needed:**



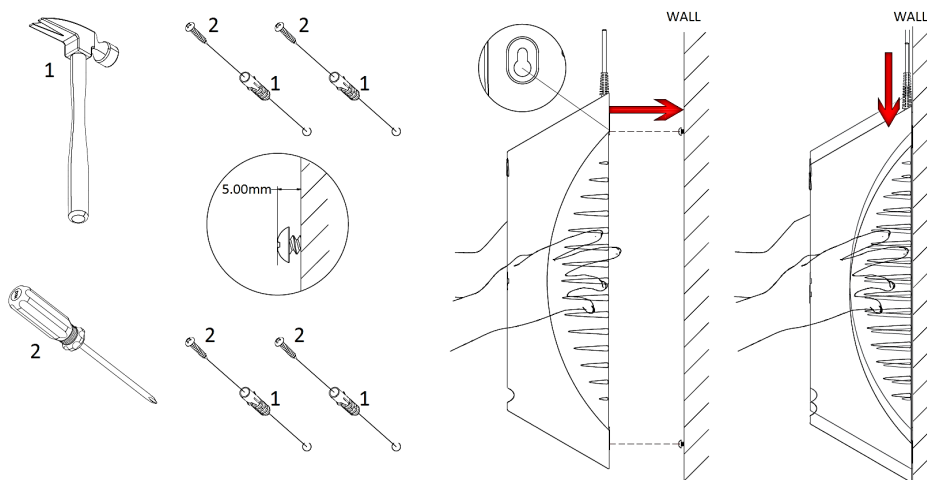
6.1.2 It is important to first identify the best location for the unit. *Ensure you have read Chapter 5 Location Advice.*

6.1.3 Measure 2.2 metres AFFL. Mark and drill holes using template provided on packing box.



6.1.4 Insert wall plugs into drilled holes. Use hammer to fit wall plugs into position. Insert screws provided into wall plugs and screw into position, leaving 5mm to hang the HyGenikx unit.

6.1.5 Align pockets on the back panel with screws and hang the HyGenikx unit into position as shown.



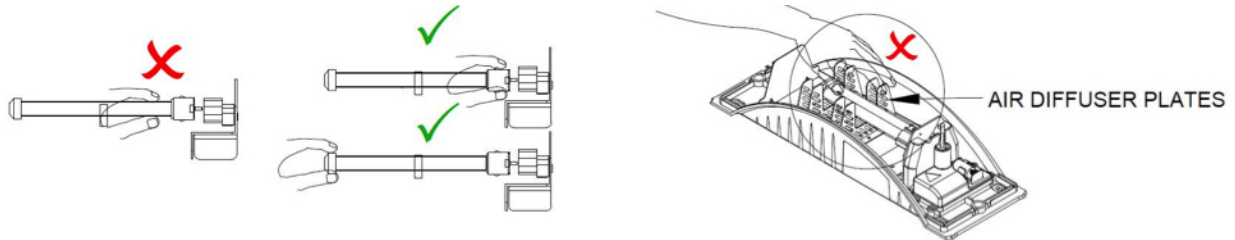
6.1.6 Connect the power cable to a suitably isolated socket or fused spur.

6.1.7 Before the unit is ready to use, you will need to install the lamp and battery. *Proceed to Chapter 7.*

Chapter 7. UV-C LAMP and BATTERY

7.1 IMPORTANT ADVICE

- **Do not** touch the anodized aluminium air diffuser plates.
- **Do not** touch the quartz part of the UV lamp. Handle the UV lamp by the cap and end terminal only.
- Any dirt on the quartz part of the lamp can be cleaned with a dry cloth.

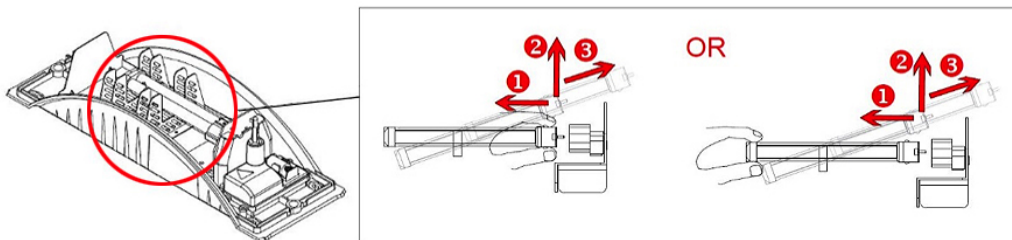
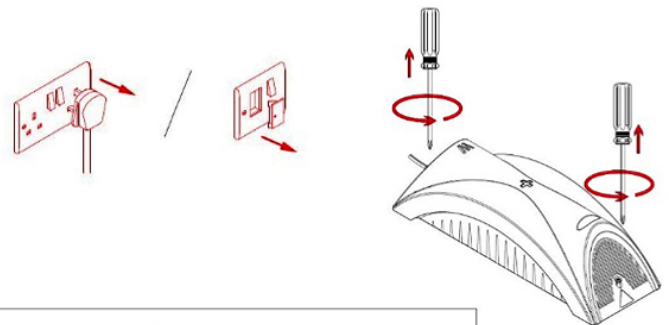


- After approximately 8000 hours or 12 months of continuous burning, the UV-C lamp will lose 20% to 30% of its power and must be replaced.
- The lamps and battery must be replaced every 12 months to ensure optimum performance of the system.
- If the indicator light (shown in Chapter 4 as part P in the diagram) is flashing and an audible alarm is heard it is time for the lamp and battery to be replaced.

7.2 LAMP AND BATTERY REPLACEMENT/INSTALLATION

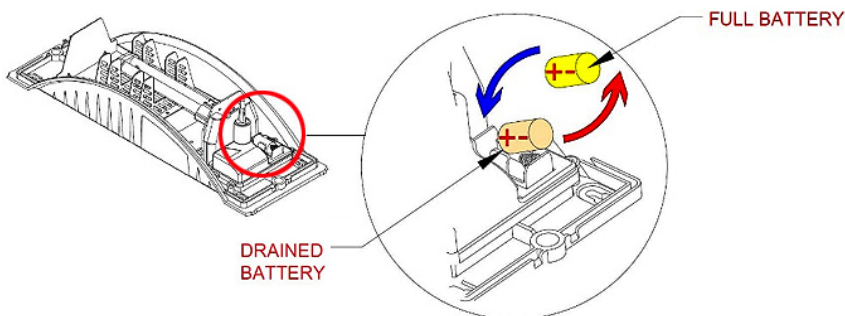
7.2.1 Disconnect from power. Unscrew 2x front cover captive screws and detach cover.

7.2.2 **If you are removing an OLD lamp**, firmly grip lamp terminal/connector end (or end cap) and carefully slide lamp out of the socket. Carefully lift lamp away from the spring clip and socket.



**If you are fitting a NEW lamp**, firmly grip lamp terminal/connector end (or end cap) and carefully slide lamp into the socket and spring clip.

7.2.3 Remove **OLD battery** and/or fit **NEW battery** as shown.



7.2.4 Replace the front cover using the 2x captive screws. Reconnect the power to the unit.

## 7.2 SERVICING INFORMATION

### 7.2.1 Inspection of area:

- **If you are carrying out a service check on a HyGenikx unit some time after installation please ensure the area is safe and secure to work in.**  
*Appropriate signage should be visible to warn public that work is being carried out.*
- **Are there any obvious bad odour sources?**  
*The HyGenikx unit will help to control odours but it is important that bad odour sources on site continue to be addressed. Overflowing bins, unflushed toilets, leaks etc. should all be rectified. Refer to Section 9.2 for some useful check points.*

### 7.2.2 Inspection of each unit:

- **Is the indicator illuminated on unit front, with lamp light also visible through the vents of unit?**  
*If not please refer to Section 9.3 Lamp/Unit Failure Checklist.*
- **Is there an odour present in the environment that you think is coming from the unit?**  
*After installation it is not unusual for the unit to produce a slightly metallic odour within the first 48 hours of use due to the lamp bedding in. If the unit is working correctly but odour remains after this time please refer to Section 9.1.3.*
- **Is the unit operational 24/7?**  
*It is important to confirm with the site that the unit/power to the area is not disconnected at any point (with units connected to lighting circuits – check turning lights off does not disconnect unit).*

For technical assistance e-mail [technical@mechline.com](mailto:technical@mechline.com), quoting the HyGenikx model number. The model number can be found on both sides of the unit.



Chapter 8. MODEL INFORMATION

8.1 MODEL REFERENCE CHART

COMMERCIAL FOOD SERVICE & HOSPITALITY MODELS						
	GENERAL*		FOOD*†		REFUSE*	
	WHITE finish	TITANIUM finish	WHITE finish	TITANIUM finish	WHITE finish	TITANIUM finish
10m <sup>2</sup>	HGX-W-10-S	HGX-T-10-S	HGX-W-10-F	HGX-T-10-F	X	X
20m <sup>2</sup>	HGX-W-20-S	HGX-T-20-S	HGX-W-20-F	HGX-T-20-F	X	X
30m <sup>2</sup>	HGX-W-30-S	HGX-T-30-S	HGX-W-30-F	HGX-T-30-F	X	X
NON-OCCUPIED	X	X	X	X	HGX-W-15-R	HGX-T-15-R

\* GENERAL: for use in areas such as washrooms, front of house and changing areas / FOOD: for use in areas such as cold rooms and food prep areas / REFUSE: NOT for use in areas of continuous occupation.  
 † FOOD area models are supplied with food safe shatter-proof lamps.

OFFICE & SMALLER AREA MODELS			
	WHITE finish	TITANIUM finish	These two models are available for use in constantly occupied areas such as offices with low ventilation and air movement.
10-20m <sup>2</sup>	HGX-W-05-O	HGX-T-05-O	
20-40m <sup>2</sup>	HGX-W-25-O	HGX-T-25-O	

Note: These units can be used in multiples, covering a maximum area of 80m<sup>2</sup>.

8.2 REPLACEMENT LAMP & BATTERY KITS

Reference	Description
HGX-10-S	LAMP (YELLOW) + BATTERY for 10m <sup>2</sup> GENERAL hospitality areas
HGX-20-S	LAMP (GREEN) + BATTERY for 20m <sup>2</sup> GENERAL areas
HGX-30-S	LAMP (RED) and BATTERY for 30m <sup>2</sup> GENERAL areas
HGX-10-F	LAMP (ORANGE with food safe shatterproof sheath) + BATTERY for 10m <sup>2</sup> FOOD SERVICE areas
HGX-20-F	LAMP (BLUE with food safe shatterproof sheath) + BATTERY for 20m <sup>2</sup> FOOD area
HGX-30-F	LAMP (PURPLE with food safe shatterproof sheath) + BATTERY for 30m <sup>2</sup> FOOD areas
HGX-15-R	LAMP (GREY) + BATTERY for use in REFUSE (non-occupied) areas
HGX-05-O	LAMP (BROWN) + BATTERY for OFFICE & SMALLER areas up to 10-20m <sup>2</sup>
HGX-25-O	LAMP (WHITE) + BATTERY for OFFICE & SMALLER areas up to 20-40m <sup>2</sup>

8.2.1 EXAMPLES of lamp and battery kits:



## Chapter 9. OPERATING INSTRUCTIONS

### 9.1 GENERAL ADVICE and TROUBLESHOOTING

The following are general guidelines for the operator of the unit. If any questions arise, please do not hesitate to contact Mechline or your Mechline dealer.

#### 9.1.1 Unit not operating at all

- Ensure that the power supply is connected and working
- Check unit power plug connections
- Try alternative lamp

#### 9.1.2 Excessive metallic/electrical odour from HyGenikx unit

- This is harmless and quite normal during the first few days of installation
- If odour continues check lamp is clean - this can be wiped with an alcohol based cleaner
- Change for lower output lamp

#### 9.1.3 Unit is working correctly but the room odour remains!

- Check that the unit is the right type and strength for the area. Contact Mechline if you are unsure
- Replace/upgrade lamp
- If unit previously worked well, clean thoroughly following the manufacturer's instructions
- Refer to Section 9.2 Checklist if Room Odour Remains

### 9.2 CHECKLIST IF ROOM ODOUR REMAINS (washrooms, refuse, etc.)

#### 9.2.1 Check the unit is correctly sized for the room area

Measure length x width of room to give m<sup>2</sup>

#### 9.2.2 Confirm electrical supply is continuous and not being switched off in error

Some locations such as shopping centres have a central switch off

#### 9.2.3 Check the unit location

- At a minimum height of 1.8 metres – units must be wall mounted vertically
- Keep in mind sources of strong airflow which may disrupt the unit distribution
- Refer to Chapter 5 Location Advice

#### 9.2.4 Washroom specific points

- Confirm the individual cistern/water management system to each urinal is flushing correctly
- Ensure traps are clean, draining correctly and water seals are intact
- Rectify any leaks, key areas to check are behind melamine panels and connections between earthenware pipes from plastic urinal waste
- With Stainless steel urinals check for calcium build-up, bacteria levels can be higher than normal with these urinals so consider upgrading lamp
- Check floor below urinals is not porous and that grouting has not broken down
- Check that there are no missing seals around drain or manhole covers

#### 9.2.5 General points

- Can the output air from the unit access the odour? Check and rectify any possible source of the bad odour that could be trapped behind panels or subfloors (i.e. unsealed concrete floors).
- Is strong external airflow preventing air from the unit distributing correctly
- Is the odour source wet - leaks must be completely dried out in order to eradicate odours
- Is the odour extreme and ongoing – may need to increase unit output
- Confirm standard cleaning practices are in place

### 9.3 LAMP/UNIT FAILURE CHECKLIST

- 9.3.1 **Unit wired to shared spur (i.e. hand dryer) can mean power surges causing lamp failure**  
*This is incorrect, the unit requires a dedicated spur*
- 9.3.2 **Intermittent power supply or power switched off at night can shorten lamp life**  
*Relocate unit or unit will require additional lamp changes*
- 9.3.3 **Debris blocking air intakes can reduce airflow causing lamps, or electrical ballasts to overheat**  
*Reduce period between unit cleans to prevent re-occurrence*
- 9.3.4 **Unit fitted in a high moisture environment or directly above a water source such as urinals can lead to water vapour ingress**
- *Re-site away from moisture source*
  - *Increase ventilation of environment*
  - *Consider switching to a fan-powered unit. E-mail Mechline for further advice\**
- 9.3.5 **Lamp not pushed fully home can cause short circuits**
- *Check and connect lamp correctly. Refer to Chapter 7 Lamp and Battery*
- 9.3.6 **Touching the glass of lamps with bare fingers can shorten lamp life**
- *Use gloves or tissue when changing lamps*
  - *If touched in error, clean glass with alcohol based cleaner*
  - *When fitting lamp please refer to Chapter 7 Lamp and Battery*
- 9.3.7 **Loose connection in power supply to unit or internal wiring**
- *Check all visible connections*
  - *If problems persist the unit may need to be returned to Mechline for inspection\**
- 9.3.8 **Unidentified fault, suspected part failure**
- *Check lamp, for other parts return to Mechline for inspection\**

\*For technical assistance e-mail [technical@mechline.com](mailto:technical@mechline.com), quoting the HyGenikx model number. The model number can be found on both sides of the unit.

## 9.4 QUESTIONS and ANSWERS

The following are general guidelines for the operator of the unit. If any questions arise, please do not hesitate to contact Mechline or your Mechline dealer.

### 9.4.1 How do I know the HyGenikx unit is working?

Firstly, the green cross light indicator will be illuminated on the front of the unit to show the product is operating. After 12 months of use the built-in warning system will tell you when the lamp (and battery) requires replacement to ensure peak efficiency.

There will be a definite change in the environmental air quality. Internal environments that have a usual lingering background odour, whether from cooking/food, body odour, cleaning products, waste material, or a combination of these, will smell noticeably fresher. This change will be most obvious at the start of a working day, clearly demonstrating the unit is working.

Areas where it is easier to monitor performance are those with obvious odour issues, such as a washroom, changing room or bin store. Here, odours will be significantly reduced or eliminated completely.

### 9.4.2 How are your products different to fragrance units?

(General) They go far beyond odour control. Rather than masking odours they remove smells by targeting and killing the root cause, which is usually microorganisms. (Food) In food storage microorganisms are responsible for spoilage and the shortening of food life. Independent testing has demonstrated how we extend food life (specifically vegetables and soft fruits) by reducing the microorganisms. **Note:** *This unit is not to replace product "use by" date.*

### 9.4.3 What do they smell like? Is there a fragrance?

The absence of unpleasant background odours is usually the first thing customers notice. The 'smell' is described as "clean and fresh" and has often been likened to mountain air. No masking fragrances are used. **Note:** *Within the first 48 hours of use it is not unusual for the unit to produce a slightly metallic odour, this is caused by the lamp bedding in. This should dissipate within 48 hours.*

### 9.4.4 In addition to odours, what are the microorganisms that are reduced by this technology?

Bacteria, Viruses, Mould, Fungi. Multiple independent tests demonstrate the efficacy against the most prevalent of these including Listeria, E coli, Staphylococcus aureus, Staphylococcus epidermis, Aspergillus fumigatus, MS-2 Coliphage, MRSA and Clostridium difficile.

### 9.4.5 Does air need to pass through a unit to be sanitised?

No, our technology uses both internal and external processes so although contaminants passing through the unit will be sanitised, it also produces cleaning air which circulates throughout. This is why HyGenikx can cover such a large area.

### 9.4.6 Will units reduce bacteria on walls and surfaces or just in the air?

Cleaning air from the unit will target and reduce all contamination wherever the 'clean' air can reach. Test results show substantial reduction in both air and surface contamination in relatively short periods of time.

### 9.4.7 How would you explain your technology in simple terms?

The specialist Germicidal UV lamp combined with Titanium Dioxide catalyst cleaning plates eliminate any odours and harmful microorganisms drawn into the unit. The lamp also produces a purifying plasma (Plasma Quatro), which convects from the unit and circulates around the room sanitising the air and surfaces. Part of the process also has an ionising effect, which will reduce the amount of airborne dust and debris.

### 9.4.8 Can you explain your technology in more depth?

HyGenikx units are fitted with powerful dual waveband Ultraviolet lamps. A high-intensity broad spectrum ultraviolet lamp, with UVC 254 nm germicidal light wavelengths is the first part of photocatalytic air purification technology. A wider set of ultraviolet wavelength 185 nm are employed for catalyst activation. Although UV light alone will degrade toxic organic compounds, reaction rates are much faster with photocatalytic assistance.

The catalyst material in the HyGenikx [photocatalytic purifier] is Titanium Dioxide, TiO<sub>2</sub>.

Titanium dioxide is also a semiconductor. When a semiconductor is bombarded with light of certain wavelengths, electrons in the material's valence band are excited into the conduction band. This means they are free to move and their energy ends up splitting nearby water molecules into two parts, hydroxyl radicals and super-oxide ions. Free radicals are uncharged atoms or molecules with unpaired electrons. Unpaired electrons are highly reactive, so free radicals quickly engage in chemical reactions. Hydroxyl radicals are among the most powerful oxidizers in the world, stronger than chlorine, ozone, and peroxide, and also very short lived.

Superoxide is created by the addition of one electron to oxygen. This free radical has a relatively long half-life: less than one second.

Bacteria, viruses and volatile organic compounds (VOCs), are held together by carbon-carbon, carbon-oxygen or carbon-hydrogen bonds. Oxidizers destroy these bonds and fragment the molecule into smaller compounds which are broken down until only carbon dioxide and water are left.

A photocatalytic purifier can eliminate particles down to 0.001 microns from air, including the very tiny lung penetrating particles. Most HEPA air filters cannot remove particles smaller than 0.3 microns.

Pollens, dust mite allergens, pet dander, mould, bacteria, and viruses in the air, are on the list of items removed through Photocatalytic reaction. HyGenikx, incorporating this technology, can eliminate toxic gas VOC pollutants including formaldehyde, exhaust fumes, benzene, toluene, and odours like ammonia and hydrogen sulphide from our air.

- **Germicidal Irradiation** by dual UV light (Ultraviolet) kills microorganisms (bacteria, viruses and mould) by disrupting their DNA and removing their reproductive capabilities.
- **PCO – Photocatalytic Oxidation**, UV reacts with our Catalyst (TiO<sub>2</sub> Titanium Dioxide) to form highly reactive but short lived oxidising Hydroxyl Radicals (OH) which break down Volatile Organic Compounds (VOCs).
- Interaction of the Dual waveband UV with the TiO<sub>2</sub> heterogeneous catalyst both creates and breaks down Oxygen molecules transforming Oxygen into a highly reactive states of Ozone and Superoxide Ions which leave the unit as “**Plasma Quatro**”.
- **Plasma Quatro** is the gas energized by the high intensity UV light. It leaves the unit with the airflow and consists of a mixture of activated oxygen, triatomic oxygen and superoxide ions. These interact with each other giving a very efficient purification of the air and all exposed surfaces. Many times more efficient than ozone or UV light working alone.

#### 9.4.9 The unit produces ozone. Is this dangerous?

Whilst HyGenikx is not an ozone generator, a very small volume of ozone is released as a by-product of the combination of technologies used. This unique combination of technologies is guaranteed to both achieve results and be completely safe in operation. In every case the ozone levels present fall well below the lowest international safety levels worldwide (World Health Organization - 0.05ppm), as stipulated by EUOTA. This has been verified for all unit variations with independent laboratory testing carried out by “Odournet”.

We all breathe ozone, every day of our life, in fact what we perceive to be fresh air is approximately 0.013ppm of ozone.

If there was a thunderstorm nature would produce **between 0.3/0.05ppm** which gives us that nice fresh smell that follows.

Ozone (O<sub>3</sub>) is a form of oxygen. It is a colourless gas with a distinctive odour and is a normal constituent of the earth's atmosphere. It is about 1.6 times heavier than air (density 2.144 g/l). Ozone is produced naturally from oxygen whenever sufficient ultraviolet (UV) radiation or electrical discharges occur, for example at high altitudes or by the action of lightning. Such natural occurrences are unlikely to produce hazardous concentrations at ground level. The majority of ozone found near ground level is formed by photochemical reactions involving oxides of nitrogen and hydrocarbons.

**HSE UK - COSHH** – For areas of Continuous occupation – **HSE limit 0.1ppm**

**World Health Organization** – Continuous occupation desired level – **0.05ppm**

*Questions and Answers continued overleaf...*

The **US OSHA** [Occupational Safety Health Act] website cites several ACGIH (American Conference of Governmental Industrial Hygienists) guidelines for ozone in the workplace:

- 0.2ppm for no more than 2 hours exposure
- 0.1ppm for 8 hours per day exposure doing light work
- **0.08ppm for 8 hours per day exposure doing moderate work**

**‘Fresh Air’** – Ozone level **0.013ppm**

After a **Thunderstorm** – Ozone levels measured between **0.3 and 0.05ppm**

**HyGenikx units** – Sized for appropriate areas – Ozone levels 0.03ppm [Max 0.04ppm].

[Kiel Laboratories Germany. ISO Sensory / Odour Test. ISO Audited].

HyGenikx units, will create ozone enriched areas, less concentrated than after a thunderstorm.

There has never been a known proven health issue from any HyGenikx UV devices that produces trace ozone. Other devices that use a ceramic disc and electrical charge system [Corona discharge] known as Ozone Generators can produce massive amounts of ozone also produce nitrous oxide another greenhouse gas. HyGenikx is **not** an ozone generator and the UV catalytic reaction does not produce these gases. Ozone produced by UV is often referred to as **‘Clean Ozone’**.

#### 9.4.10 **How do you install a unit?**

Units must always be vertically installed with the logo and cable at the top of the unit. The bottom of the unit should be at a minimum height of 1.8m AFFL. Air is circulated throughout the area via thermal convection and incorrect installation will reduce performance. Please follow enclosed instructions. *Refer to Chapters 5 and 6.*

#### 9.4.11 **Where do you install a unit?**

Locating the unit close to extraction systems or open windows will vastly reduce performance as sanitising air will be prevented from circulating correctly. Always be conscious of movement of air throughout the room. Location close to incoming ventilation (air input) will assist air from the unit in circulating throughout the environment. Avoid installing directly within a cooking zone where levels of heat and grease are elevated.

In areas of lower air circulation, installing the unit as close as is practical to the strong odour, or contamination source, is recommended (i.e. next to food storage in cold store, above preparation areas in kitchen, next to urinals or toilets in a washroom or above locker areas in changing room). Air from the unit will disperse throughout, but this allows the key areas to be treated first.

#### 9.4.12 **Why are there different unit variations and lamp options?**

One size does not fit all. We supply several product variations to ensure the best results in each environment and area size (a washroom presents a very different challenge to a cold store). Anything in a food environment must be “food safe” so units for these areas have a specialist food safe sheath for the lamp.

Different units are set up for different environments and their anticipated bacteria levels and outputs vary.

It is important to understand that units need to be suitably sized to ensure correct operation. **If you are unsure how to size the HyGenikx unit please refer to chapter 8, or email [technical@mechline.com](mailto:technical@mechline.com)**

#### 9.4.13 **What do the numbers and codes refer to on the unit?**

For the food service models the numbers represent the square meterage the unit is set up for, (length x width - height is not included in this calculation as the sanitising air will fall to ground level where the highest contamination is present).

“W” or “T” is simply a colour choice option our White or Titanium finish to best suit your personal preference.

“F” indicates a product suitable for a food safe environment as the lamp is sheathed (shatterproof).

“S” is a standard general use product suitable for most areas, including washrooms and changing rooms. Standard lamps are not shatterproof.

“R” is refuse, a higher output variation for areas with strong odours. “R” versions should **not** be used in areas of general occupation.

“O” is a model for use in constantly occupied areas such as offices with low ventilation and air movement.

#### 9.4.14 **How often do the battery and lamp need to be changed?**

Lamp and battery should be replaced every 12 months. The unit has a reminder system built-in with a flashing indicator followed by an audible alarm to ensure this does not get missed. *Please refer to Chapter 7 for full lamp and battery replacement instructions.*

## Chapter 10. ON-GOING MACHINE REQUIREMENTS



Refer to Chapter 3 of this manual, relating to safety.

### 10.1 GENERAL CLEANING MAINTENANCE

There is little cleaning required. A vacuum cleaner may be needed to clean dust or debris accumulated on the inlet and outlet openings.



- Do not use a wet cloth to clean inlet and outlet openings of the unit.
- Please be careful when cleaning is in progress, switch off all power.
- Do not touch the quartz part of the UV lamp and the anodized aluminium air diffuser plates at all. These plates are self-cleaning.

## Chapter 11. AFTER SALES and SERVICE SUPPORT

For technical assistance, please contact Mechline [technical@mechline.com](mailto:technical@mechline.com) or your dealer. Please have the HyGenikx unit model number to hand.

### 11.1 WARRANTY

Mechline's air & surface hygiene steriliser system has a one year manufacturer's warranty from the date on invoice, against defective parts or faulty workmanship. Terms and conditions apply.

**NOTE:** *Lamp and battery packs are basic 'consumable' goods and are not subject to warranty.*

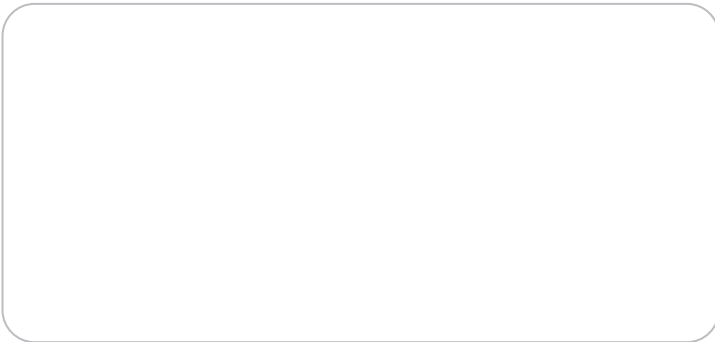
### 11.2 SPARE PARTS

Individual parts can be replaced in all units, rather than removing the unit from site. For spare parts contact Mechline [technical@mechline.com](mailto:technical@mechline.com) or your dealer.



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