

# ECO SERIES

## Installation, Operating & Maintenance Manual



### For Models:

ECO 1/15

ECO 2/30

ECO 3/55

ECO 5/55



 **Designed & Manufactured in the UK**

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Unit 9 Ballingdon Hill Ind. Est.  
Sudbury Suffolk CO10 2DX

Systems designed and manufactured by Daro UV in the UK, other requirements considered. Daro UV is a company registered in England & Wales.  
Registration Number: 06070435.

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# GENERAL

## Description

The Daro UV ECO series ultraviolet (UV) disinfection units use a single high efficiency UV lamp mounted in a single water chamber. The lamp is sleeved by a high-purity quartz sleeve.

The ECO units can be fitted anywhere in a water system provided the maximum pressure and peak flow requirements are less than the maximum ratings (see specifications). The slower the water flow, the more effective the unit will be. Fitting isolation valve, a bypass pipe and a drain tap with the unit is recommended. The unit must be protected from frost when not operating.

For applications where the water to be treated passes through the UV chamber only once, it is recommended that the unit is installed close to the point of use, without storing large volumes of treated water.

## Water Quality and Filtration

Ultraviolet light penetrates cloudy or coloured water much less than clear water, therefore, it is essential to ensure the water is clear prior UV treatment. A filter removing particles down to 5-10 micron in size will ensure the water is suitable. Filtration will also extend cleaning intervals. Dissolved organic matter and metallic salts, mainly iron, will also absorb UV light and reduce the unit's effectiveness. If parameters exceed the EEC maximum admissible concentrations, suitable pre-treatment should be used to ensure water purity and effective UV treatment. Individual sites and requirements vary, therefore, a site survey is recommended to determine the necessary ancillary equipment and filtration required before the UV equipment can be specified. If in doubt, please contact the manufacturer for advice.



To uphold peak performance,  
it is essential to schedule  
annual maintenance for this  
product. Kindly liaise with our  
sales team on either:  
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or  
info@darouv.co.uk

# SAFETY

Read the instructions fully before use –  
installation and maintenance should be carried out by qualified individuals.

Do not operate the unit if any part appears damaged.

Fit a residual current circuit breaker (RCCB) for maximum protection.

The control box is provided with a trailing earth lead – **this must be connected to the stud on the chamber body**. If the installation of the chamber has interrupted a water pipe, bond these together again.

UV-C radiation is harmful to eyes and skin, care should be taken when using UV-C.

***The UV lamp must never be illuminated outside of the reaction chamber.***

UV lamps contain various gasses and mercury. Care must be taken not to touch any of the glass (quartz) part of the lamp. It is recommended that gloves are used in case of lamp breakages.

If the lamp becomes damaged/broken ensure the area is well ventilated.

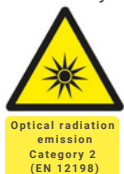
Professional help should be sought in the event of any mercury spillage.

The reaction chamber must be correctly earthed.

## Safe Disposal and Risk Due to Damaged Lamps

The lamps used in the ECO series are filled with gas and mercury vapour at low pressure. Although they will not explode if broken there is a toxicity risk from mercury contaminated glass.

In the unlikely event that mercury is released from a broken lamp, evacuate the area and ventilate it. Seek professional help to clean up the spilled mercury. Do not use a vacuum cleaner as this will heat the mercury causing it to vaporize and create a greater widespread hazard.



# INSTALLATION

When installing the chamber it is advisable to add isolation valves to enable water shutdown and simplify routine cleaning and maintenance.

All chambers should be flushed through thoroughly with water once fitted to eliminate any debris that may have collected in the chamber during fitting.

## Access to the unit

To enable replacement of the lamp, ensure there is adequate space at one end of the unit; equal to the length of the chamber, whether mounted vertically or horizontally to enable lamp removal. Always ensure that the unit is secured firmly to the wall; do not rely on inlet/outlet pipes to secure the chamber.

## Temperature

Do not install the unit where, when the power is switched off it will be likely to freeze. Under no circumstances lag or insulate the unit as it requires constant ventilation. Do not install units in hot water systems.

## Mounting

The unit is supplied with the chamber already fitted to the mounting bracket. If the orientation of the chamber is inconvenient, it can be changed by loosening the two worm drive clips (a large slotted screwdriver or M4 socket) and rotating the chamber to the desired orientation.

Fit the chamber/mounting bracket assembly in the desired position using the four mounting holes in the corners of the mounting bracket.



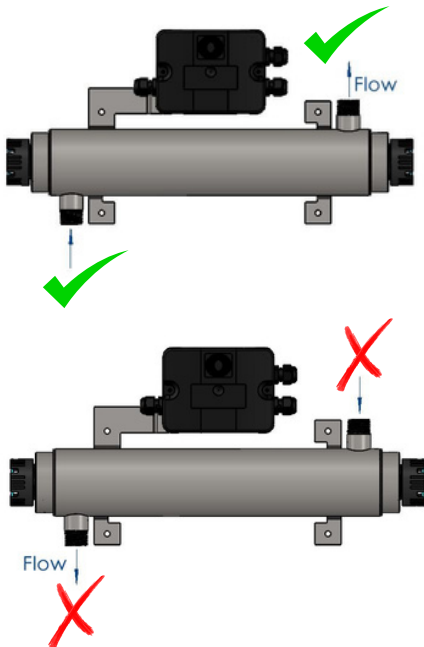
# INSTALLATION

Installation must be carried out prior to making any electrical connections.

See the general arrangement drawings, supplied at the end of this document.

## Horizontal Orientation

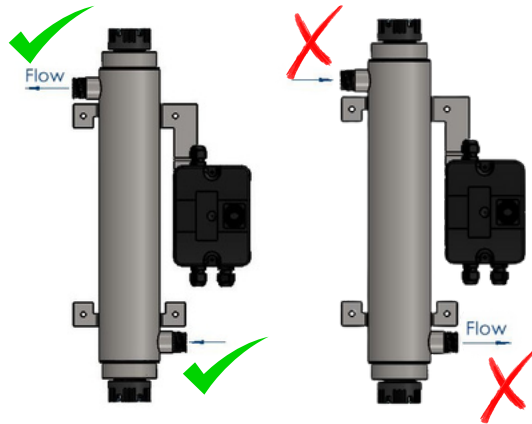
Water flow should enter at the bottom and exit at the top – this prevents air pockets which reduce the effectiveness of the unit. The unit should always be fitted with the electrical control box above the chamber (see the general arrangement drawing) this prevents any condensation that forms on the chamber dripping onto the electrics.



## Vertical Orientation

Water should enter at the bottom and exit at the top of the chamber. The electrical box can be positioned on either side of the chamber.

Beware of the lamp or quartz sleeve falling out of the chamber during maintenance. This may result in a breakage and require a replacement.



# INSTALLATION

## Electrical

The unit is supplied with a 2m cable fitted with a standard UK mains plug, fused at 3A and should be connected to a convenient, standard switched socket outlet.

Fit the electrical box to the chamber/ bracket assembly. Slip the tabs on one side of the box into the two slots in the mounting bracket and clip the two pillars, on the bracket, into the holes in the tabs on the other side of the box. The box can be orientated as required.

Fit the lamp into the quartz sleeve – take care not to damage the quartz sleeve or lamp when sliding the lamp into the sleeve.

Keep the lamp parallel to the length of the chamber.

Clip the lamp holders to the ends of the lamp – make sure they are pushed fully on. Route the cable in one of the slots in the black-end nut and push the lamp on indicator plate into three slots (avoiding the slot where the cable is routed).

Plug the unit into the mains and turn on - there is no other on/off switch. Isolation from the mains is provided by unplugging the unit.

## Earth Bonding

Using the earth wire, earth bond the chamber to a suitable earth point.

# SERVICING & MAINTENANCE

It is not possible to gauge the amount of UV being produced by the lamps by visual inspection, therefore, a regular routine of lamp replacement is the only way to guarantee effective performance. Lamps should be replaced after 12-months of continuous use. Where the lamp is switched on and off regularly lamps will require more regular replacement.

## To replace the lamp:

1. Turn off electrical supply to the unit and unplug from the mains (as the unit is switched on and off at the mains, suggest the following) Turn off at the wall socket and unplug the unit.
2. Remove lamp on indicator plate.
3. Carefully pull off lamp holders from ends - if the unit has been fitted in a vertical position ensure the lamp does not fall out.
4. Gently slide the lamp straight out of the quartz sleeve without applying any side-pressure.
5. Warning - levering the lamp against the quartz will result in damage to the sleeve.
6. Reverse the above to fit new lamp.



Daro UV Systems provides a lamp replacement service which includes the safe disposal of the used lamp. Please contact our sales team on either  
**+44(0)1787 370187**  
or  
**info@darouv.co.uk**



# CLEANING

In the event that sediment builds up on the surfaces of the quartz sleeve, occasional cleaning will be required. This is dependent on the nature of the water supply and its pre-treatment; therefore, no firm guidelines can be given on how regular this is will be needed. Less sediment may be experienced when the unit is vertical. The unit should be inspected after a few months use to give an indication to the amount of cleaning necessary. Where possible look into the unit using a torch once the lamp has been removed.

Where this is not possible the quartz sleeve will need to be removed as follows:

1. Turn off the power and remove the lamp as above.
2. Turn off the water supply, isolate the input and output and drain the unit.
3. Unscrew the black quartz clamp nuts and remove shim washers and o-rings. Note: Care must be taken when removing quartz tube, as it is not supported inside the chamber. To avoid breakage, it must be kept parallel with the axis of the unit when being changed.
4. To prevent the quartz from falling into the chamber, thread a dowel through the quartz and draw it off the pole.
5. The quartz may have a build up of scale which will be firmly adhered; clean it with domestic scouring pad or wire wool. Vigorous scrubbing will remove the scale but will not scratch the quartz sleeve it will feel slippery when the scale is removed. For extra cleanliness, clean the outside of the quartz sleeve with an alcohol cleaner. Make sure the inside is completely dry.

6. Do not use any cleaning products other than those that are alcohol based – non-alcohol based products can leave residues that absorb UV and reduce the unit's effectiveness.
7. Replace the quartz centrally in the chamber, fit the o-rings and the shim washers, and tighten the black clamping nuts with firm hand pressure and about another quarter turn.
8. Dry the unit, turn on the water and check for leaks.
9. Replace the lamps and switch on.

## WARNING

**Care must be taken  
when handling the  
quartz sleeves.**



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# WARRANTY

## 12-month warranty for Water Disinfection Unit:

Daro UV Systems provides a twelve (12) month warranty from the date of purchase for this ultraviolet water disinfection unit, provided that it is installed and maintained in accordance with the manufacturer's instructions. Faults regarding the material and workmanship of this unit will be repaired or replaced free of charge.

## Warranty Terms

This warranty will become void if the unit(s) are not installed and operated according to the instructions in the manual. It will not be valid for damage(s) which has (have) been caused by misuse, accidents, negligence, frost, fire, flood, or force majeure. This warranty will not be applicable to parts from which the label with the original manufacturing date code has been removed or made illegible. This warranty will only be valid if approved Daro UV Systems spare parts are used. All models are to be operated and maintained in accordance with the owner's operating instructions. This warranty will become void if the ultraviolet system is removed from its original place of installation, or if the operating pressure exceeds 10 bar, or if the temperature of the fed water exceeds 25 °C or falls below freezing point. All faulty parts must be returned to Daro UV Systems for inspection and repair or replacement. Daro UV Systems will check and test the faulty parts and identify the reason for the defect. Faulty parts will be replaced free of charge. Daro UV Systems will not be liable for any labour costs but only for repairs which have been carried out according to the works standards. Collateral or consequential damage(s) will not be covered by this warranty. All complaints should be notified in writing to Daro UV Systems within thirty (30) days from identifying any damage. The receipt of the plant must be presented to ensure the validity of this warranty.

# SPECIFICATIONS & SPARES

Model	ECO 1/5	ECO 2/30	ECO 3/55	ECO 5/55
Chamber material - 304 stainless steel	✓	✓	✓	✓
Control box material - 304 stainless steel	✓	✓	✓	✓
Pressure rating - bar	10	10	10	10
Lamp life - hours	8760	8760	8760	8760
Power supply - VAC/PH/Hz	220-240/1/50-60	220-240/1/50-60	220-240/1/50-60	220-240/1/50-60
Typical application	Up to two taps (small property or outbuilding)	Whole house (family home)	Multiple user (Guest house)	Multiple user (Small hotel)
Domestic flow rate - litre per minute*	8	19	36	51
Lamp type	GER15	GER30	GER55	GER55
Connection (BSPT male)	¾"	¾"	¾"	1"
Power consumption - watts	18	33	50	50

\*Flow based on 40 mJ/cm<sup>2</sup> UV dose applied of 98% per cm at end of lamp life.

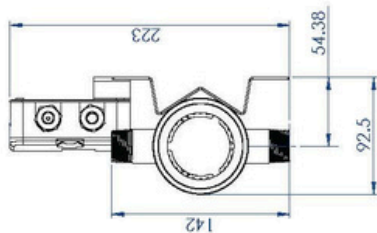
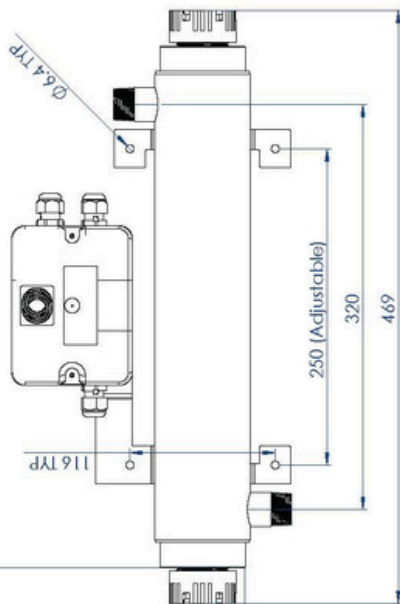
STOCK CODE/ MODEL	ECO 1/15	ECO 2/30	ECO 3/55	ECO 5/55
UV Lamp	GER15	GER30	GER55	GER55
Quartz Sleeve	QTZ15	QTZ30/55	QTZ30/55	QTZ30/55
Seal Kit	USK15/30/55/75	USK15/30/55/75	USK15/30/55/75	USK15/30/55/75
Quartz Clamp	QTZCLAMP30	QTZCLAMP30	QTZCLAMP30	QTZCLAMP30
Control Panel	ENCZ049	ENCZ050	ENCZ051	ENCZ051

Please contact our friendly sales team for advice and any queries on either :  
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or  
info@darouv.co.uk



ORIGINAL SHEET 12/21/21  
REVISIONS

Allow 500mm for extraction of kump and quartz.

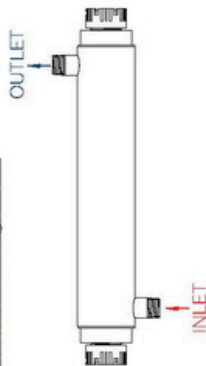


UV Chamber should not be allowed to drain under operating conditions



OUTLET

Chamber & Flow Arrangements



INLET

INLET

NOTES:

1. REMOVE ALL BURRS AND SHARP EDGES WITH A MAX 0.5mm RAO OR CHAMFER
2. ALL BENDS 90° UNLESS OTHERWISE STATED
3. ALL BEND DIMENSIONS EXTERNAL UNLESS OTHERWISE STATED
4. QUANTITY: 1 PER UNIT
5. MATERIAL: Stainless Steel - 316L TYP

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**Daro UV Systems**

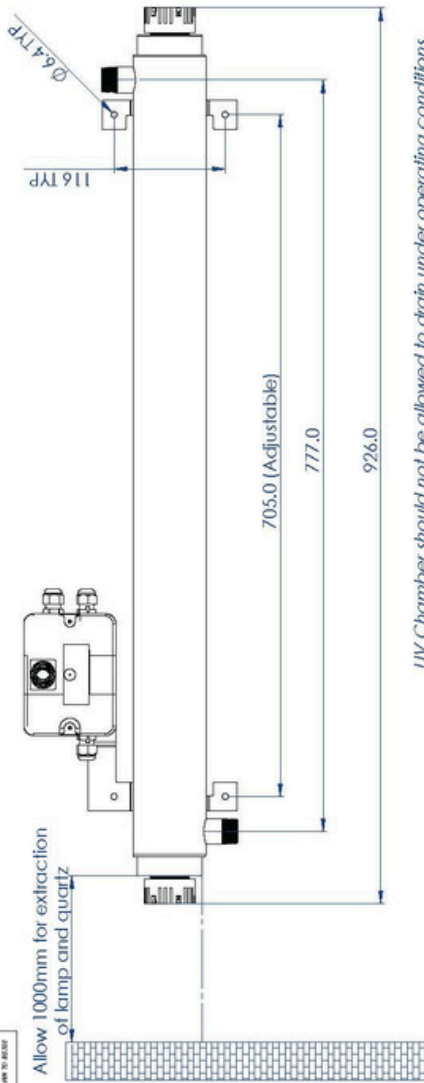
Unit 9 Balfour Hill Rd. E.  
Balfour Hill, QLD 4074  
Australia  
Phone: 07 555 1234  
Fax: 07 555 1234  
Email: info@darosystems.com.au

**ECO 1 Chamber G.A.**  
REVISED: 11/06/2024  
DESIGNED BY: J. Mulvey  
CHECKED BY: C. Hearn  
DATE: 1.0

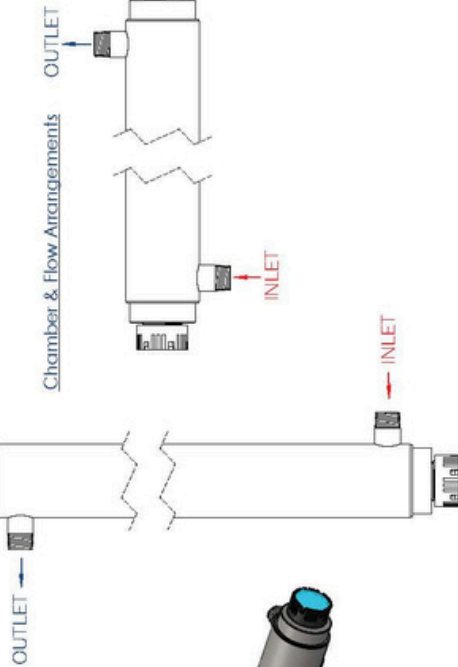
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ANGULAR DIMS ±0.5°



DRAWN TO SCALE



*UV Chamber should not be allowed to drain under operating conditions*



# NOTES:-

1. REMOVE ALL BURRS AND SHARP EDGES WITH A MAX 0.5mm RAD OR CHAMFER
2. ALL DIMENSIONS ARE UNLESS OTHERWISE STATED
3. ALL ROUND DIMENSIONS EXTERNAL UNLESS OTHERWISE STATED
4. QUANTITY : 1 PER UNIT
5. MATERIAL : Stainless Steel

ORIGINAL SHEET F1027 AD  
SERIAL NO. 32

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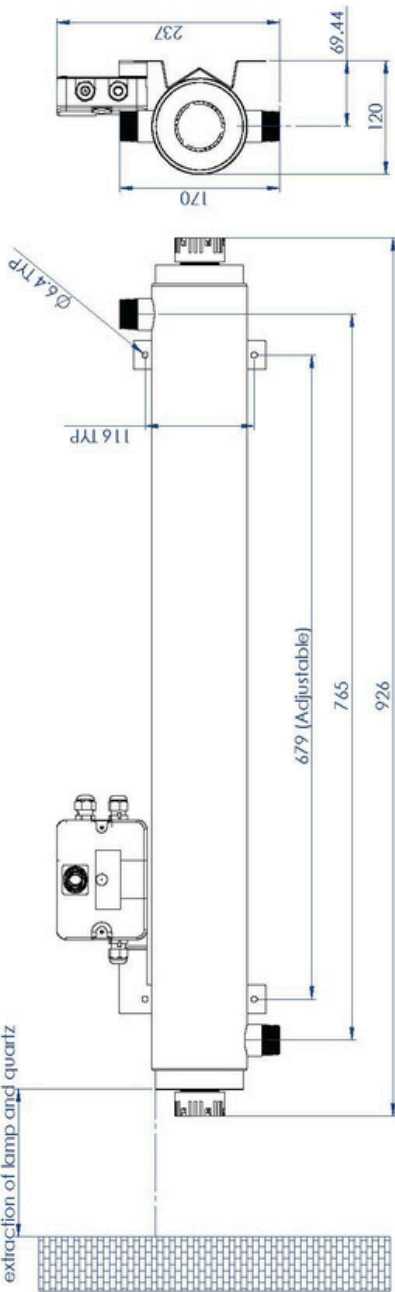
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Basingstoke, Hants,  
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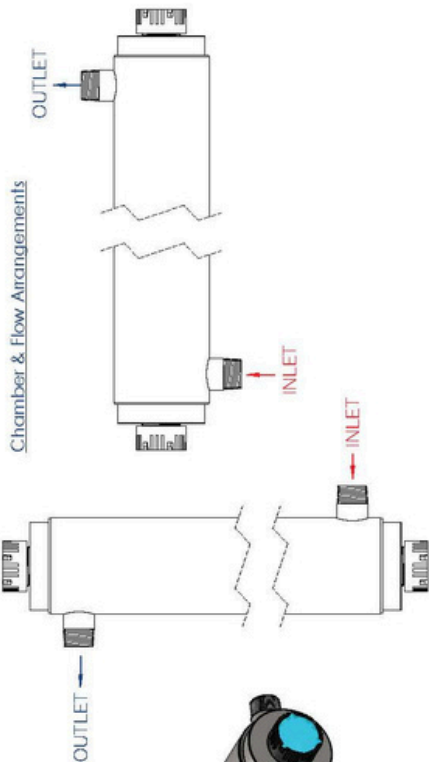


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Allow 1000mm for  
extraction of karp and quartz



*UV Chamber should not be allowed to drain under operating conditions*



NOTES:

1. REMOVE ALL BURRS AND SHARP EDGES WITH A MAX 1mm RAD OR CHAMFER
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED
3. ALL DIMENSIONS ARE EXTERNAL UNLESS OTHERWISE STATED
4. QUANTITY: 1 PER UNIT
5. MATERIAL: Stainless Steel

ORIGINAL SHEET 1 OF 1

REVISIONS

REV. NO. 1

DATE 07/07/2024

DESIGNER J. Mulvey

CHECKED C. Hearn

DATE 07/07/2024

PROJECT J. Mulvey

REV. NO. 1

DATE 07/07/2024

DESIGNER J. Mulvey

CHECKED C. Hearn

DATE 07/07/2024

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DATE 07/07/2024

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Telephone: 0181 871 3186

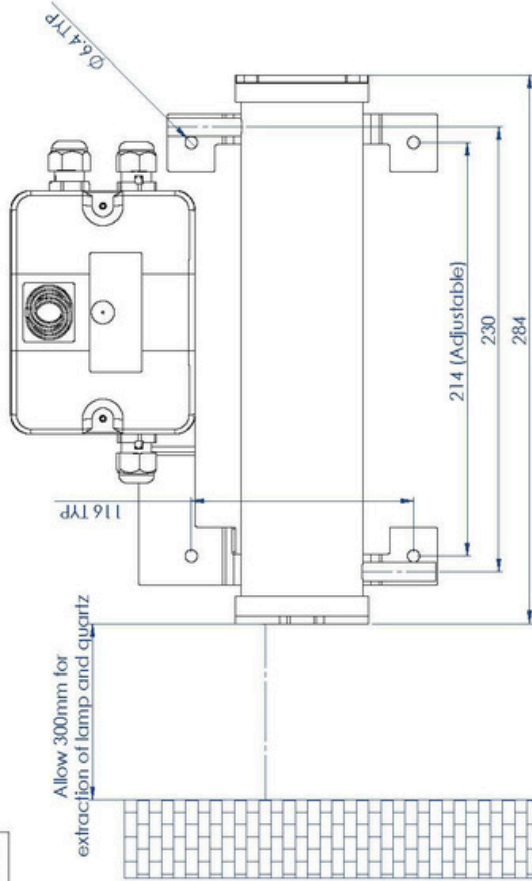
Telex: 950000 DARO

FAX: 0181 871 3186

EMAIL: info@darosystems.co.uk



Allow 300mm for  
extraction of lamp and quartz



*UV Chamber should not be allowed to drain under operating conditions*



OUTLET

Chamber & Flow Arrangements

OUTLET

INLET

INLET

- NOTES:
1. REMOVE ALL BURRS AND SHARP EDGES WITH A MAX 0.1mm RAD OR CHAMFER
  2. ALL SIZES 60° UNLESS OTHERWISE STATED
  3. ALL ROUND DIMENSIONS EXTERNAL UNLESS OTHERWISE STATED
  4. MATERIAL: STAINLESS STEEL

ORIGINAL PART 102143

REVISIONS

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[darouv.co.uk](http://darouv.co.uk)

Unit 9 Ballingdon Hill Ind. Est.  
Sudbury Suffolk CO10 2DX



**Designed &  
Manufactured in the UK**

Systems designed and manufactured by Daro UV in the  
UK, other requirements considered. Daro UV is a  
company registered in England & Wales.  
Registration Number: 06070435.