



**TYPHON**  
TREATMENT SYSTEMS Ltd.

# An Introduction to Typhon UV LED



- ✦ **Typhon Treatment Systems – who are we**
- ✦ **LED Technology**
- ✦ **Benefits of the Typhon solution**
- ✦ **BIO-310 Reactor Design**

# Typhon Treatment Systems



*LED technology has revolutionised the white lighting industry and has long been seen as the future for UV applications as well.*

*Typhon has developed the solution to applying LED's to a UV System for treating continuous high flow rates of water suitable for industrial and municipal applications.*

**2014**

Concept development

**2016**

Field Trials

Product refinement

**2018**

The worlds first validation of a UV LED system

Commercialisation

**2020**

The worlds first municipal scale installation of a UV LED system

*"LED technology will change the face of the UV Disinfection..."*

*Typhon is delivering that change"*

Typhon Treatment Systems Ltd.  
registered in the UK

# UVC-LED Technology

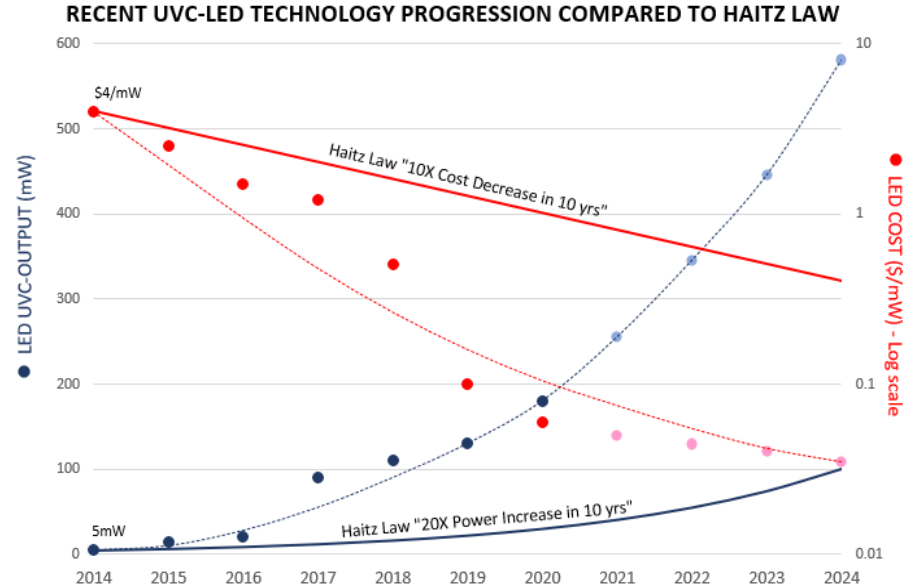


*A Light Emitting Diode (LED) is a semiconductor light source*

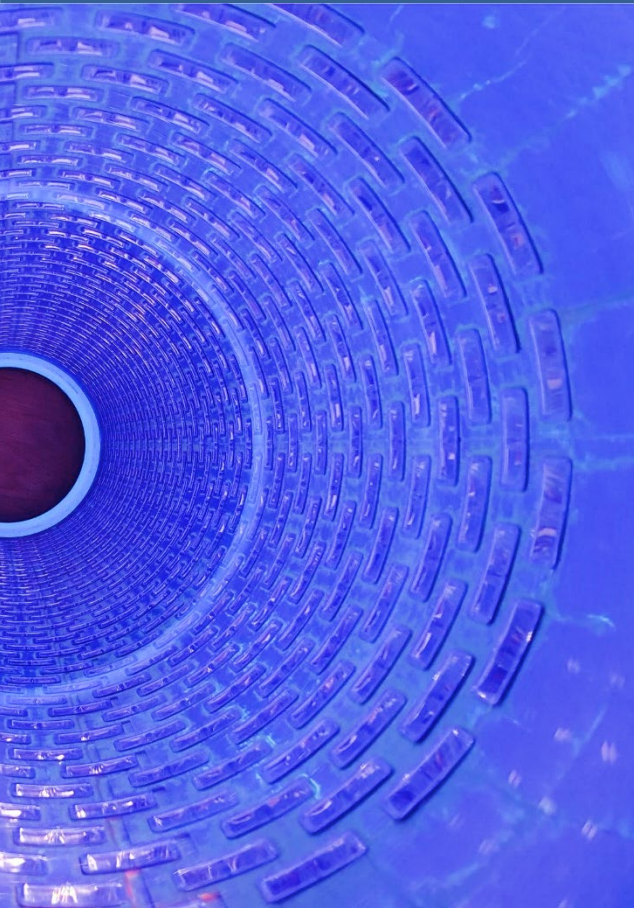


*LED's deliver an exact output based on Temperature & Input*

	LED	Hg Lamp
Lifetime (hrs)	20,000+	8,000 to 15,000
ON/OFF Cycles	Unlimited	4 per Day
Operating Temp	Ambient	100 to 600°C
Warm-up Time	100mS	Up to 10 min
Mercury Content	None	20-600mg+



# Customer Benefits



- ✿ Proven Performance
  - ✿ USEPA UVDGM Validated
- ✿ Instant ON/OFF
  - ✿ Realtime Dose Control & Dynamic LED Switching
- ✿ Low Maintenance
  - ✿ No quartz scaling and in-built redundancy
- ✿ LED Evolution
  - ✿ Increasing Asset Capacity and Decreasing Operating Costs
- ✿ Simple Installation
  - ✿ Fully built and tested in the factory with no separate Control Panel
- ✿ Environmentally Friendly
  - ✿ Mercury Free, Chemical Free Disinfection



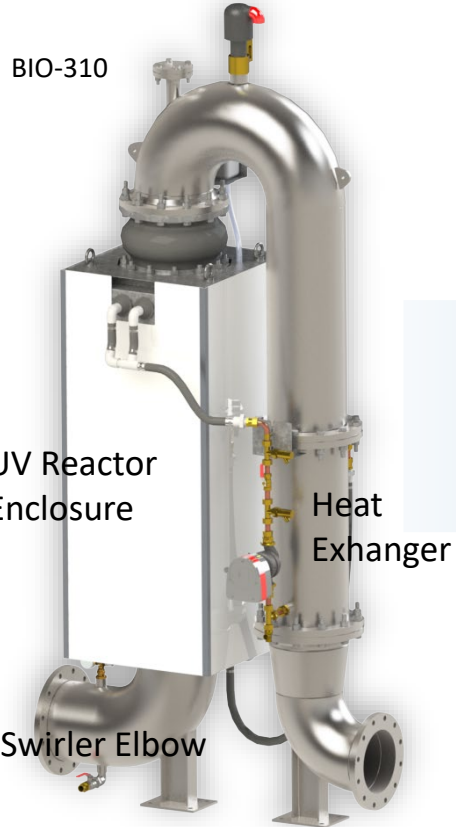
# Typhon UV LED Reactor Design

BIO-310

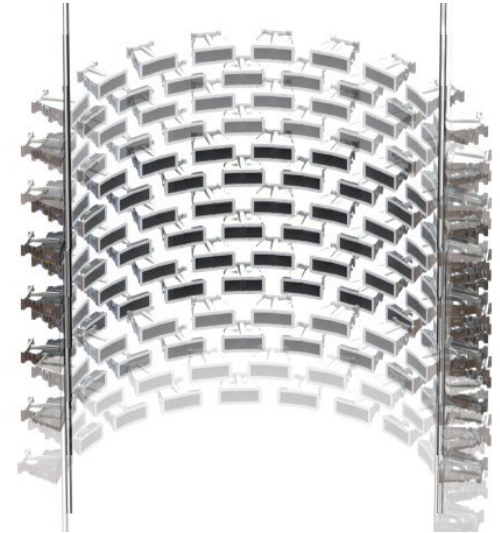
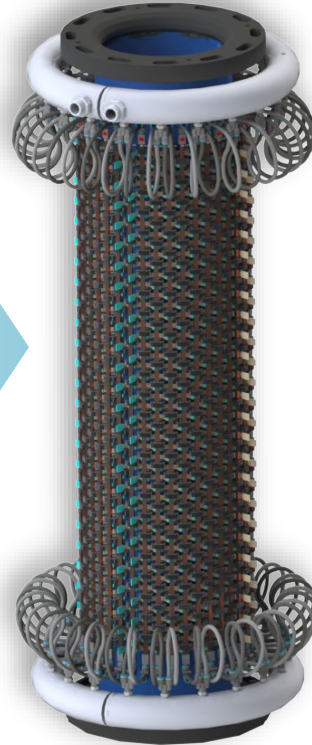


- ✿ **HIGH EFFICIENCY REACTOR** maximising Germicidal, Optical and Hydraulic efficiencies
- ✿ **LOW MAINTENANCE** with no quartz scaling and inbuilt redundancy.
- ✿ **DESIGNED TO INCORPORATE FUTURE GENERATIONS OF LEDS** increasing performance and reducing costs through the operating life of the system.
- ✿ **SIMPLE INSTALLATION** with no separate Control Panel

# Typhon UV LED Reactor Design

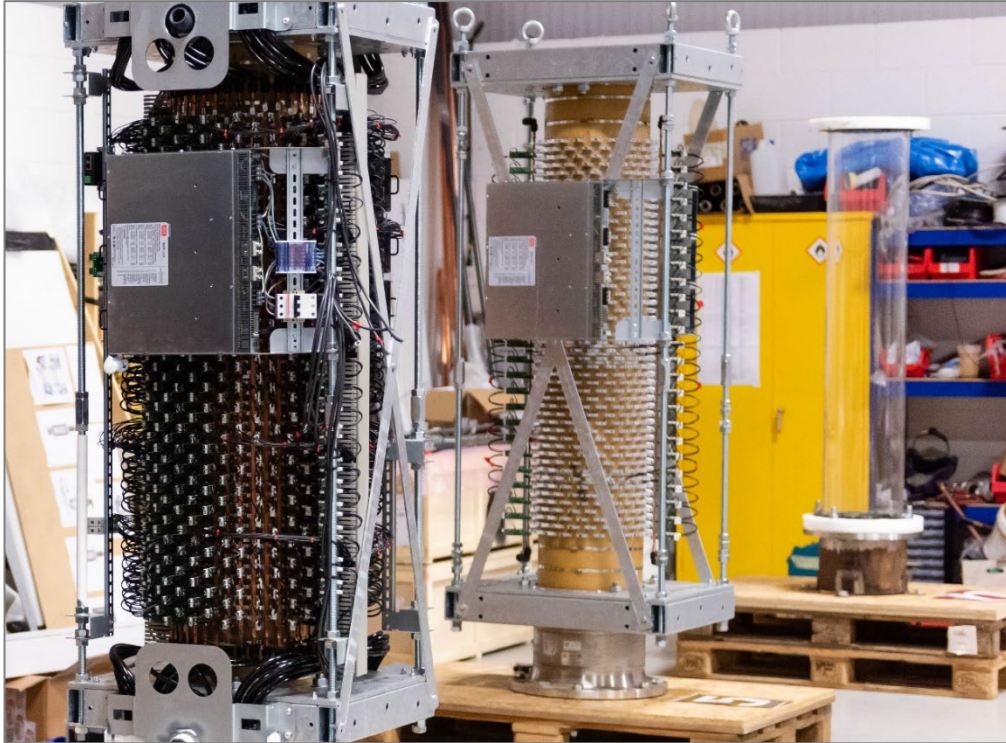


300mm DIA, completely open, Quartz tube

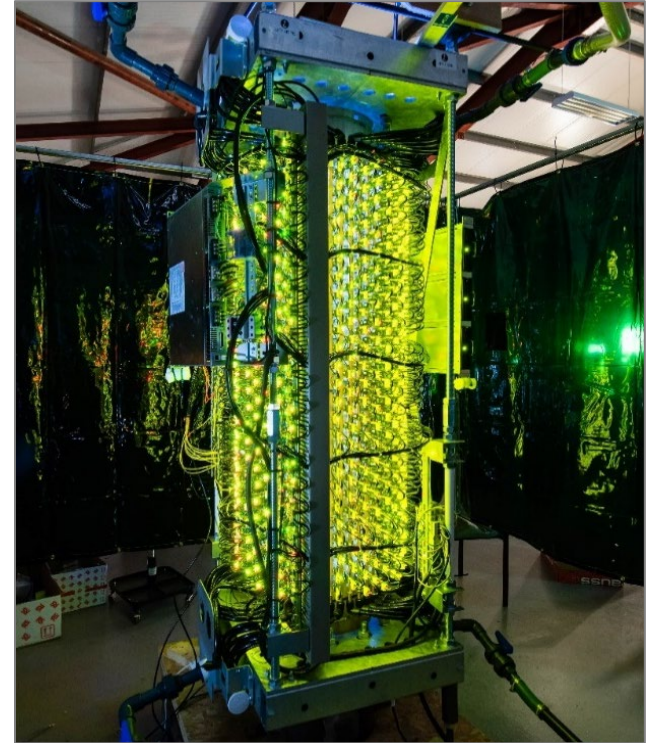


Optical cone system focuses the UV light from 1,000 LED's towards the reactor centre

# Typhon UV LED Reactor Design



Reactor manufacture...



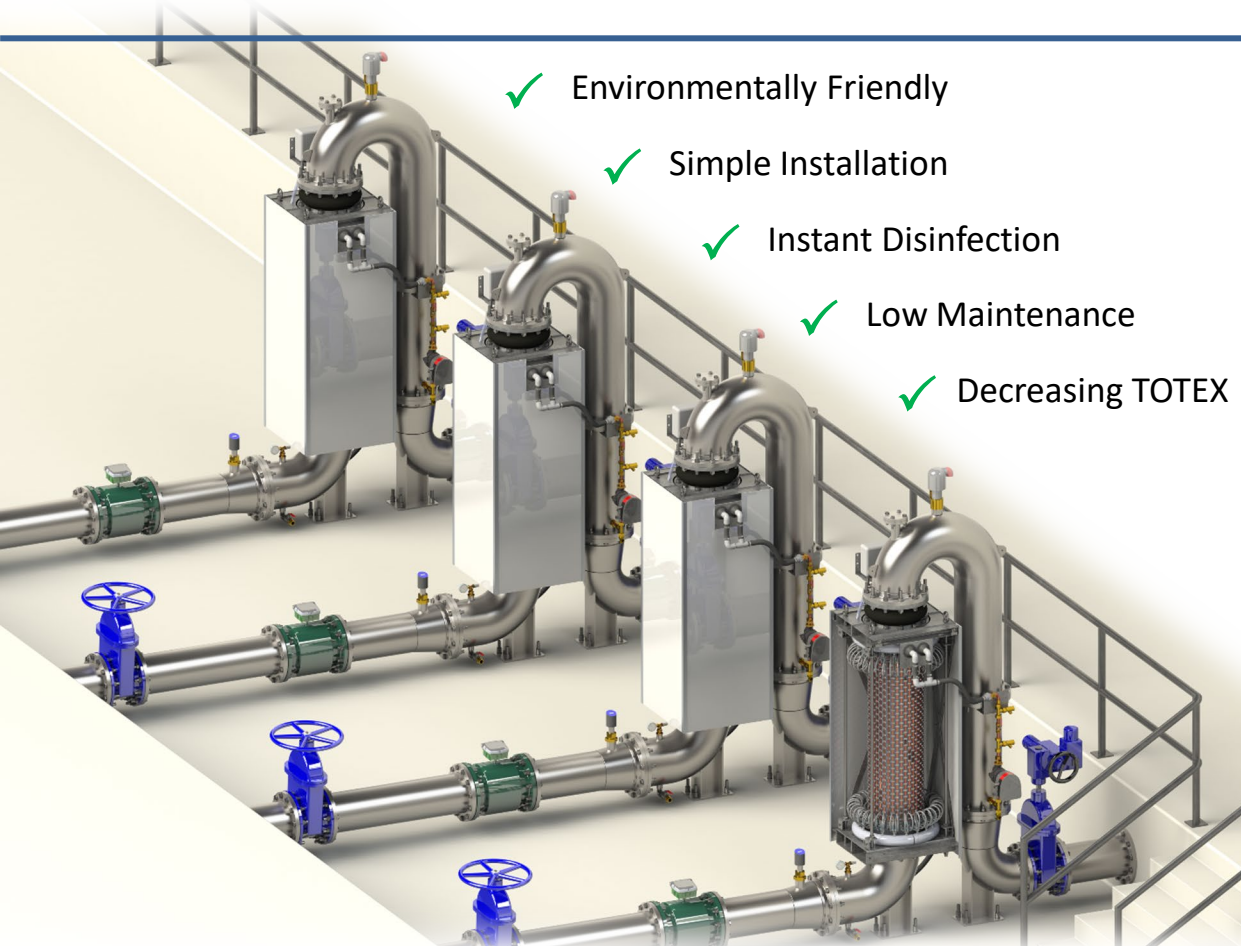
...and testing



# Typhon UV LED



- ✓ Environmentally Friendly
- ✓ Simple Installation
- ✓ Instant Disinfection
- ✓ Low Maintenance
- ✓ Decreasing TOTEX



**Typhon UV LED delivers Sustainable and Environmentally Friendly Drinking Water Disinfection**

**UVC-LED technology is developing, in terms of power and efficiency... very quickly**

**A Typhon system installed today will deliver Operational savings and Reliability in the short term...**

**...and an increasing asset capacity and decreasing operating costs through its Operational life.**

*For further information please email: [info@typhontreatment.com](mailto:info@typhontreatment.com)*