



# Bubbler System

Integrated Solution



**Bubbling Systems for Liquid Source Evaporation**  
Design & manufacturing according to UHP Semi Standards and European notice 97/23/CE.

## Bubbler System

In CVD processes, the chemicals which are used are often in the liquid state and are called liquid sources. Liquid sources have to be brought into the vapour phase, i.e. they have to be evaporated.

- If the vapour pressure of a liquid source is high enough, evaporation can be achieved by heating the liquid source in an evaporator and by using a mass-flow controller between the evaporator and the process to control the vapour flow.

- If the liquid source vapour pressure is too low to create a sufficient pressure drop across the mass-flow controller, a carrier gas is bubbled through the liquid source to enhance evaporation. Such a system is called bubbler system.

The control of bubbler system can be achieved by using a mass-flow controller on the carrier gas (opened loop) or by regulating directly the vapour flow with a Qualiflow Liquid Vapour Controller LVC414 (closed loop).

## Benefits

Proven results with chemical reactants such as SiCl<sub>4</sub>, GeCl<sub>4</sub>, POCl<sub>3</sub> or BBr<sub>3</sub>.

Particles and contamination free due to internal surface finish and ultra clean manufacturing process.

Excellent efficiency by using a multi-hole diffuser for carrier gas.

All welded technology and metal seals preventing for leakage.

## Applications

Optical fibre manufacturing

Mechanical coating

Many CVD processes

## Options & Accessories

Inlet and outlet valves, including bypass for purging process line.

Heating system by silicone jacket (or stainless steel rods for 60L model).

PT100 probes for liquid and vapour temperature reading.

## Overall Dimensions & Weight

	Outer Diameter / Height (incl. fittings) / Weight
3 litres	OD 168mm / H 363mm / 7kg
10 litres	OD 219mm / H 405mm / 13kg
15 litres	OD 273mm / H 449mm / 18kg
20 litres	OD 273mm / H 498mm / 20kg
60 litres	OD 406mm / H 685mm / 55kg

*Custom volumes upon request.*

## Temperature

Working temperature .....ambient to 50°C  
*Temperature depends on vapour pressure of liquid source.*

## Pressure

Working pressure ..... 1.6 to 2.6 Bar  
Maximum pressure ..... 9 Bar

## Liquid Source Level

Type of reading ..... analog  
Accuracy ..... ± 4mm  
Working zone ..... from 30 to 80% of total capacity

## Materials

Material .....stainless steel 316L  
Internal surface finish.....electropolished Ra < 0.2 μm (8 μin)  
Helium leak test under vacuum ..... < 2.10<sup>-9</sup> atm.cm<sup>3</sup>/s  
Helium pressure test .....3 Bar

## Fittings

Carrier gas inlet ..... 1/4" VCR Male  
Vapour outlet ..... 1/4" VCR Male  
Refill inlet ..... 1/4" VCR Male  
Vent outlet ..... 1/4" VCR Male  
Waste outlet ..... 1/4" VCR Male