NEW

DOCKWEILER

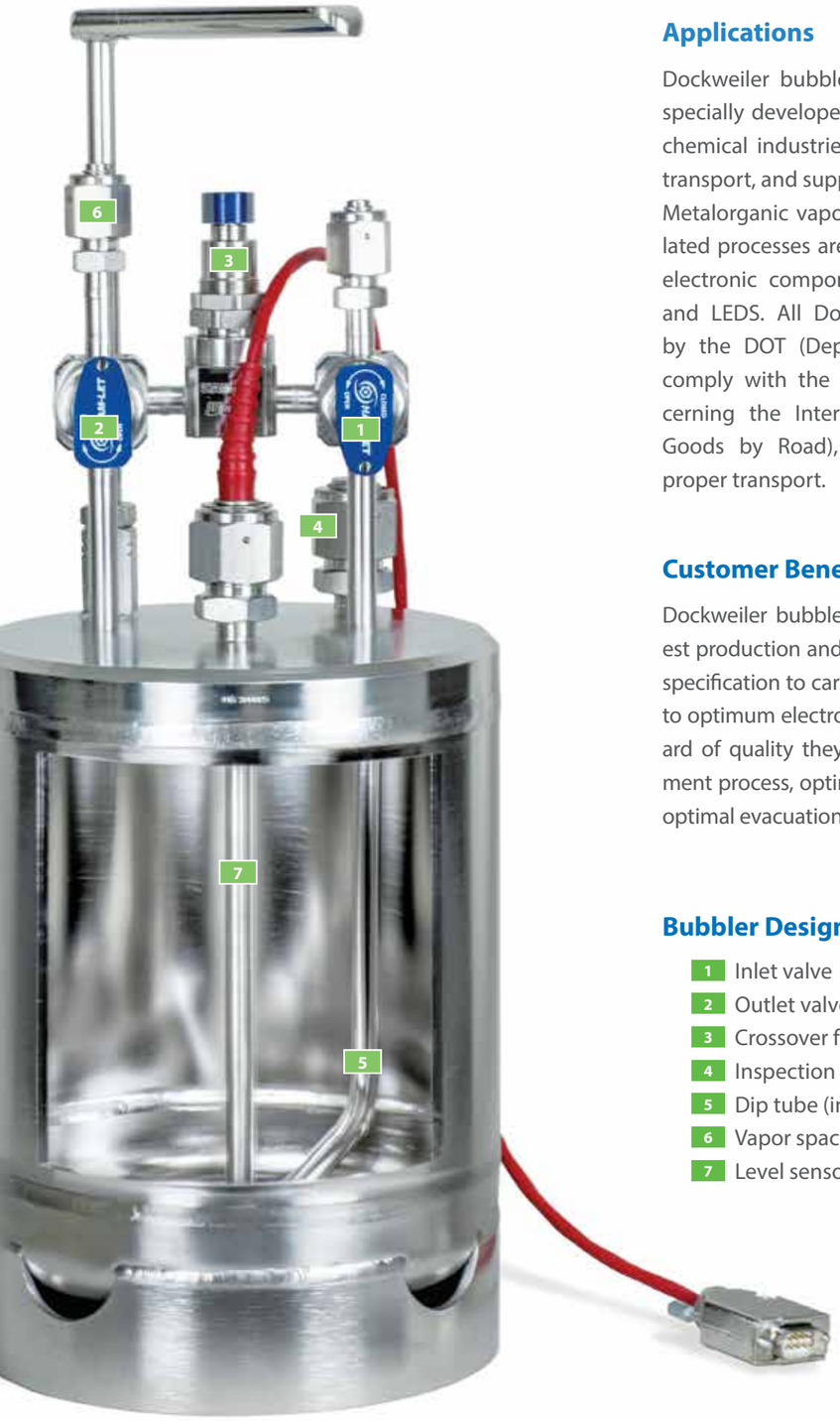
TUBE SYSTEMS IN STAINLESS STEEL

BUBBLER SYSTEMS
HPL, HPS AND ECO SERIES

Process vessels for the storage, transport,
and removal of organometallic compounds.

FOR HIGHEST QUALITY STANDARDS.

Use and Customer Benefits



Applications

Dockweiler bubblers are process vessels (MOCVD) specially developed for the semiconductor and fine chemical industries. They are used for the storage, transport, and supply of organometallic compounds. Metalorganic vapor phase epitaxy (MOVPE) and related processes are used in the production of optoelectronic components such as lasers, photocells, and LEDS. All Dockweiler bubblers are approved by the DOT (Department of Transportation) and comply with the ADR (European Agreement concerning the International Carriage of Dangerous Goods by Road), meeting the requirements for proper transport.

Customer Benefits and Advantages

Dockweiler bubblers are manufactured to the highest production and quality standards – from the melt specification to carefully executed orbital weld seams to optimum electropolished surface finish. The standard of quality they offer ensures an optimal enrichment process, optimal utilization of the medium, and optimal evacuation, cleanability, and reusability.

Bubbler Design & Components

1. Inlet valve
2. Outlet valve
3. Crossover function (optional)
4. Inspection Port
5. Dip tube (inlet)
6. Vapor space tube (sampling tube)
7. Level sensor (optional)

Options

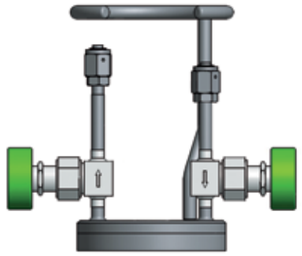
Dockweiler's HPL and HPS series bubblers can be customized with a wide range of options to create the ideal match for your application.

Valves
We use Ham-Let 90° monolever rotating diaphragm valves as standard for our bubblers. Valves from the following manufacturers are also optionally available: Swagelok, Carten Controls, Parker and other valves on request.

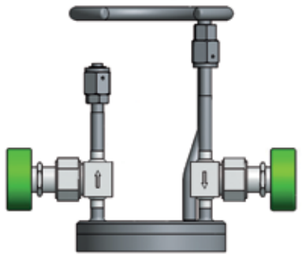
Crossover Function
The crossover function is a purging option, with no dead space, for eliminating oxygen from the system (including the inlet and outlet valves) during filling on the chemical manufacturer's premises or while the bubbler is connected to a process. It thus offers a simple, efficient solution for cleaning the gas path.

Level Sensor
The level sensor is a signal generator that, together with a fill level indicator, reliably displays the residual amount of organometallic compound in the bubbler. Dockweiler offers an ultrasonic sensor for the bubbler, featuring specified switching points (90%, 70%, 30%, 10%) for signaling the fill level.

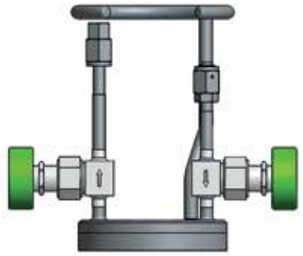
Polarized Connectors
The standard design features male face seal for both connectors. To prevent confusion when connecting, Dockweiler offers male and female connectors in the following configuration:



Standard Dip Tube
Inlet: Male
Vapor Space Tube
Sampling tube: Male



PFD Dip Tube
Inlet: Polarized Female
Vapor Space Tube
Sampling tube: Male



PMD Dip Tube
Inlet: Polarized Male
Vapor Space Tube
Sampling tube Female

The ZeroCon© connections can also be used optionally instead of the face seal connection, at no charge.

IN A CLASS OF ITS OWN.

The advantages at a glance

Completely leak-proof
Helium leak rates of ≤ 4.0 x 10^{-9} mbar l s^{-1}.

No dead space
Orbital welding techniques ensure there is virtually no dead space.

Robust design
All types of Dockweiler bubbler have undergone destructive pressure testing and high-altitude drop tests.

Temperature-stable
from -50°C to +100°C (-58°F to +212°F)

Optimal dip tube size and shape
In collaboration with industry, the course and dimensions of the dip tubes have been optimized for saturation and throughput.

Highest surface quality
Ra ≤ 0.4 µm (16 µin) and Ra ≤ 0.25 µm (10 µin) for electropolished version.

No outgassing of material
All wetted components available in stainless steel 1.4404/316L or special material.

Easy installation
Clear labeling and manageability make installation easy.

Optimum yield
The optimized bubbler design ensures a maximum yield of 95% of the organometallic compound in the process.

Easy integration with auxiliary equipment
Easy integration with most existing auxiliary systems and temperature control systems.

Refillable
The high quality materials and production processes used ensure that cleaning, conditioning, and refilling can be carried out with ease.

Series	HPL							
Type	HPL200	HPL400	HPL600	HPL1000	HPL2000	HPL4000	HPL8000	HPL22000
Diameter [mm]	63.5	63.5	114.3	114.3	168.3	168.3	168.3	168.3
Connection height [mm]	238	297	224	297	259	368.5	527.2	1,197
Volume [ml]	192	356	688	1,363	1,982	4,000	7,505	21,295
Filling volume (90 %) [ml]	173	320	619	1,227	1,784	3,600	6,754	19,166
Valve options	■	■	■	■	■	■	■	■
Crossover	■	■	■	■	■	■	■	■
DOT	on request	on request	on request	on request	on request	on request	■	■
ADR	on request	on request	on request	on request	on request	on request	■	■
ZeroConn connection	■	■	■	■	■	■	■	■
PMD/PFD	■	■	■	■	■	■	■	■
Level sensor			■	■	■	■	■	■
Additional connection			■	■	■	■	■	■
Surface P (Pickled)	■	■	■	■	■	■	■	■
Surface HP (EP)	■	■	■	■	■	■	■	■
Surface UHP (EP)	■	■	■	■	■	■	■	■
Special materials	■	■	■	■	■	■	■	■
Heat exchanger HE8002					■	■	■	■

Series	HPL	HPS				ECO		
Type	HPL56000	HPS600	HPS1800	HPS3000	HPS6000	ECO1500	ECO4000	ECO8000
Diameter [mm]	273	114.3	114.3	168.3	168.3	168.3	168.3	168.3
Connection height [mm]	1,197	292	451	372	546.3	223.6	340.1	513.1
Volume [ml]	56,294	594	1,795	2,881	5,814	1,586	3,985	7,548
Filling volume (90 %) [ml]	50,665	535	1,615	2,593	5.232	1,428	3,587	6,793
Valve options	■	■	■	■	■			
Crossover	■	■	■	■	■			
DOT	■	on request	on request	on request	■			■
ADR	■	on request	on request	on request	■			■
ZeroConn connection	■	■	■	■	■			
PMD/PFD	■	■	■	■	■			
Level sensor	■							
Additional connection	■	■	■	■	■			
Surface P (Pickled)	■	■	■	■	■	■	■	■
Surface HP (EP)	■	■	■	■	■	■	■	■
Surface UHP (EP)	■							
Special materials	■	■	■	■	■			
Heat exchanger HE8002				■	■	■	■	■

IT'S ALL ABOUT THE CONTENT.

Product overview with features

HPL SERIES

The Dockweiler HPL series stands out from the competition by offering the most efficient utilization of the medium (e.g. trimethylgallium/TMG) .

Electropolishable orbital welding seams, optimal vessel size and shape, and the elimination of dead space ensure the highest level of saturation of the carrier gas.

The following versions are available in the HPL Series: Pickled Purity (P), High Purity (HP), and Ultra High Purity (UHP).

HPS SERIES

With the patented HPS solids bubbler, Dockweiler has developed a completely new bubbler design.

To ensure continuous saturation of the carrier gas with the filling medium, the HPS bubbler has a patented chamber system through which the flow of carrier gas is channeled.

The following versions are available in the HPS series: Pickled Purity (P) and High Purity (HP).

ECO SERIES

The Dockweiler ECO series offers a variant of the HPL bubbler designed for the evaporation of liquids.

Dockweiler has systematically standardized the components used to offer an inexpensive alternative to the HPL bubbler.

The ECO series has fewer versions, offering Pickled Purity (P) and High Purity (HP).

AUXILIARY EQUIPMENT

HE8002 temperature control unit

Larger bubblers cannot be used in conventional temperature baths. Dockweiler offers the flexible HE8002 temperature control unit for this. This is connected and supplied via a pump to the supply, temperature, and control unit.

The HE8002 temperature control unit is compatible with the following types of Dockweiler bubbler: HPL2000, HPL4000, HPL8000, HPL22000, HPS3000, HPS6000, and the entire ECO series.

Supply, temperature, and control unit

In the sensitive production process, keeping the temperature of the medium constant is a must. To ensure a constant process temperature, Dockweiler offers a supply, temperature, and control unit. This ensures a constant and stable flow of gas.

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