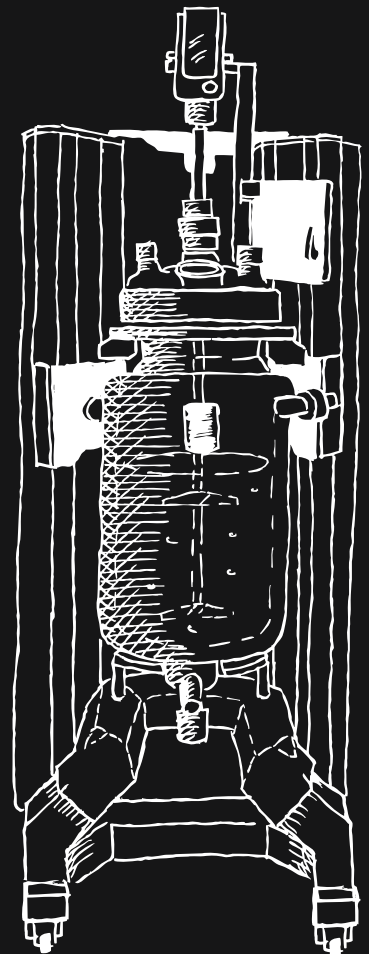




SYRRIS
Orb Pilot

Product information



Pilot scale modular jacketed reactor offering
multiple setups in one footprint

Orb Pilot

Orb Pilot is a flexible and versatile floor-standing jacketed reactor system for scaling up of batch processes. Designed with the help of scale-up chemists and chemical engineers, Orb Pilot offers a wealth of user-friendly benefits, such as quick vessel changes, easy height adjustments, and a self-adjusting spring-loaded base frame, making it incredibly easy to use.

With 10 to 50 L vessels in a range of profiles, temperature range of -40 to 235 °C, powerful stirrer motors, and a selection of PTFE and stainless steel stirrers, Orb Pilot is easily configured to match your exact requirements. It's this versatility that truly provides multiple reactor setups in one footprint.

syrris.com/orb-pilot



Why Orb Pilot?

To ensure Orb Pilot performs the tasks required by chemists and chemical engineers, extensive market research was undertaken. All of the features users told us they wanted are present in the design of Orb Pilot.

Orb Pilot's key features and benefits include:

1. **High-performance stirring**
2. **Easy vessel changes in under an hour**
3. **Maximum stirring efficiency with top-loaded baffles**
4. **Rapid, tool-free motor adjustment**
5. **Force-limited, secure vessel sealing**
6. **Save lab space with 1 frame for all vessels**
7. **Adapt to suit your needs with a large range of accessories**








“ With vessel changes in under an hour, and simple preset height adjustments, Orb Pilot is significantly easier to use than any other scale-up batch reactor currently on the market.”

Mark Gilligan, CEO & Group Chairman



Specifications

	Vessel range	10 to 50 L* / 10 to 30 L**
	Temp. range	-40 to 235 °C
	Pressure range	Vacuum: ≤50 mbara. Max. pressure: 250 mbar
	rpm	500 continuous / 800 intermittent
	Torque	Up to 400 Ncm

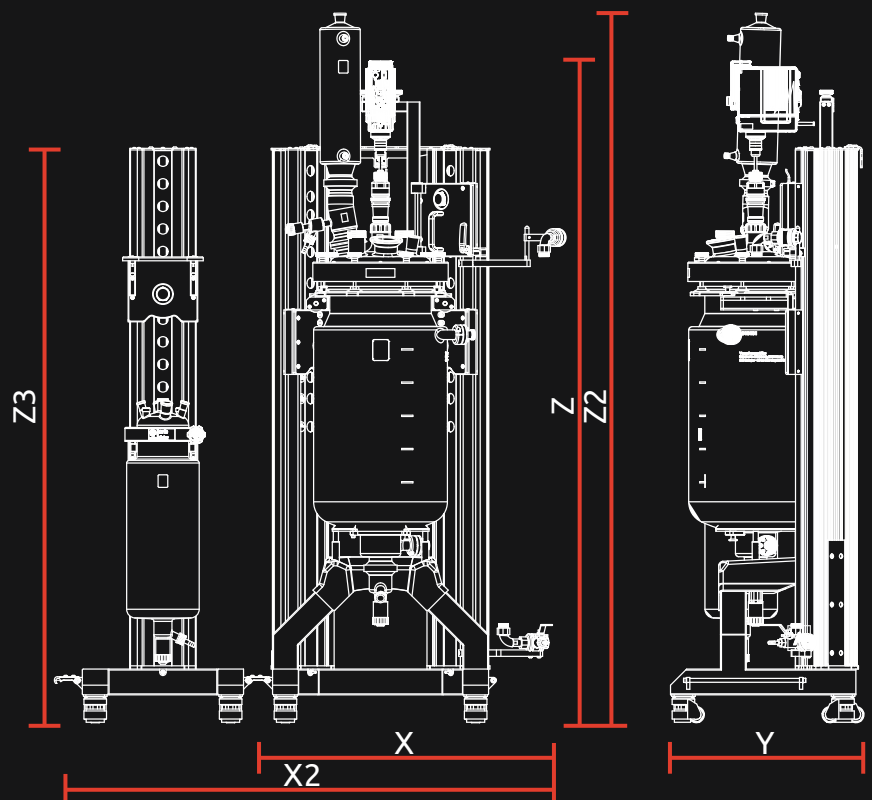
Dimensions

System	X	Y	X2	Z [^]	Z ²	Z ³
10 L	950	610	1540	1800	1975	1800
10 L VJ / 20 L	950	610	1540	1900	2050	1800
20 L VJ / 30 L	950	610	1540	1950	2115	1800
30 L VJ / 50 L	950	610	1540	2060	2220	1800

* Jacketed vessels
 ** Vacuum jacketed vessels
 ^ Z dimension requires 80 mm additional height for lifting the motor. The System will run without this height, but to remove the stirrer, lid, and vessel, this additional height is essential.

All dimensions in mm. Please allow a tolerance of +/- 20 mm.

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Vessels

	10 L	10 L VJ	20 L	20 L VJ	30 L	30 L VJ	50 L
Vessel kit catalogue number	2201178	2201182	2201179	2201183	2201180	2201184	2201181
Working capacity (mL)	10,000	10,000	20,000	20,000	30,000	30,000	50,000
Flange inside diameter (mm)	235	235	235	235	235	235	300
Internal diameter (mm)	215	215	270	270	315	315	365
External diameter (mm)	250	315	315	365	365	415	415
Depth to nominal volume (mm)	318	318	395	395	443	443	542
Jacket volume (L)	3.85	3.85	7.3	7.3	11	11	15
Heat transfer surface area (m ²)	0.27	0.27	0.40	0.40	0.50	0.50	0.71
Vessel mass (kg)	11	20	17	28	25	38	31
Oil jacket connection thread	M30 x 1.5 (20 mm internal diameter)						
Bottom outlet valve diameter (mm)	40						
Reactor material of construction	Borosilicate glass 3.3						
Other wetted parts materials	PTFE, FEP, PFA & FFKM						

Lids

	DN235 (EU)	DN235 (US)	DN300 (EU)	DN300 (US)
Catalogue number	2201174	2201176	2201175	2201177
Vessel compatibility	10, 20, 30 L	10, 20, 30 L	50 L	50 L
Flange inside diameter (mm)	235	235	300	300
Center port	1 x Rodaviss 45			
Condenser & solid charging ports	2 x DN60 flange			
Baffle ports	2 x Rodaviss 45			
Probe ports	2 x B19	2 x A19	2 x B19	2 x A19
Liquid addition	1 x B29	1 x A29	1 x B29	1 x A29



Components

Base Frame	The Orb Pilot Base Frame is the foundation of the system. The Orb Pilot Frame Kit includes a Base Frame, Stirrer Seal and Guide, Flange Seal, and Location Ring.
Vessel Kit	The Orb Pilot Vessel Kit includes a Reaction Vessel, detachable BOV Assembly, RTD Temperature Probe, PTFE Anchor Stirrer, and matching lower support spring cases.
Stirrer motors	High-specification motors offer performance and durability for the most demanding applications.
Lids	The Orb Pilot Lid is available in two sizes; both sizes include a DN60 Charging Port, DN60 Condenser Coupling, 2 x B19 & B34 Probe Ports, and 2 x Baffle Ports.
Baffles	Easy install of Orb Pilot Baffles - no need to remove the lid or other system parts. Available in both high and low shear geometries.
Reflux Kit	Includes a 3500 cm ² condenser, condenser support, coupling component, and fittings.
Accessory Tower	The Accessory Tower couples directly to the Base Frame and accepts a wide range of accessories. The tower also doubles as a base for an automated dosing system, ideal for a mount feed vessel and pump shelf.
Oil drain/pipes	Orb Pilot features 20mm ID jacket connectors. Maximize the efficiency of your system by specifying these high-performance insulated hoses and quick drain equipment.
Stirrers	Optimize the stirring performance by matching the perfect stirrer to your application. Industry-standard A310 hydrofoil impellers are highly recommended where chemical compatibility allows.
Outlet valves	Includes a detachable glass section for easy cleaning. Bottom valve is available with integrated RTD using LEMO connection terminated cable compatible with most circulator manufacturers



Why choose Syrris?

R&D

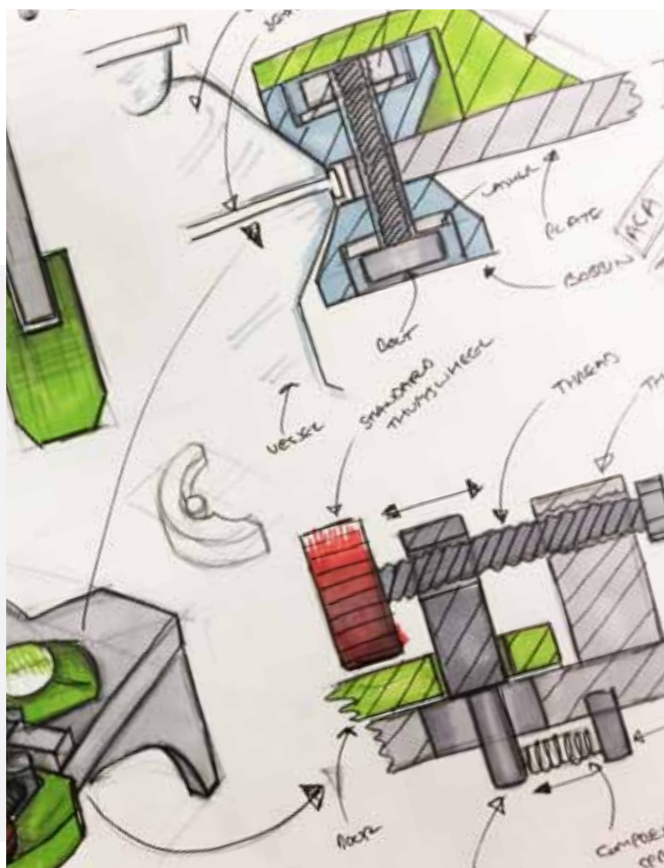
With 32 scientists and engineers and 2 R&D 100 Awards, the Syrris R&D team is comprised of world-leading experts in batch and flow chemistry, and calorimetry product development. To ensure products are finished to the highest quality, Syrris runs its development in a 4-phase system; each stage of development is checked by members of various teams.

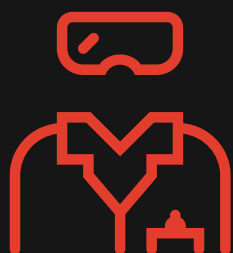
In addition to continuous product improvement and development, the R&D Team regularly work with customers to create custom solutions tailored to the exact needs of the lab.

Support

Syrris is on hand to help when you need it. From feasibility studies and proof of concept, through to on-site support by a Syrris engineer, our team are experienced chemists and are supported by a network of well-trained distributors in over 40 countries.

Built by our UK production team to the highest standard, with chemically resistant materials, Syrris products ensure years of continued service. A 1-year warranty as standard and the option to extend this further for complete peace of mind.





// We receive good support from our local distributor and Syrris, which we really appreciate; they always care about the little things that are important to the customer"

S. Korboonsungserm, PTT, Thailand

// One key to our success with the system apart from the strength of the product itself is the highly responsive nature of Syrris as a company"

Dr. Sunil S. Nadkarni, VP, Product Development Torrent, India



350

Publications

Syrris products have been cited in over 350 peer-reviewed publications, demonstrating their viability for real-world chemistry

40

Distributors

Syrris works in partnership with over 40 distributors worldwide, offering expert knowledge and local support

1000s

of Users

Thousands of chemists and chemical engineers use Syrris products in their ground-breaking research and development, including at the world's top 20 pharmaceutical, chemical, and food and fragrance companies

Get in touch

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