Asynt Flow Coil Reactors

For homogeneous reactions

Change coils in seconds with our patented reactor design

Asynt Flow Coil Reactors provide flexible, high-performance solutions for flow chemistry from milligram to kilogram scale. The grooved aluminium mandrel design delivers rapid heat transfer and excellent temperature uniformity while allowing users to rapidly exchange or rewind coils.

The coil reactors are specially designed to allow you to rapidly switch between different sizes and materials for different reactions. Choose smaller volume coil reactors for fast, exothermic or small-scale reactions, and larger volume coil reactors for scale up experiments or longer residence times.

For optimum mixing and temperature control, you can combine your flow experiment with a Asynt Flow GSM Reactor for reagent pre-heating and pre-mixing.

Coil Reactor Materials for all Applications.

Asynt Flow coil reactors are manufactured in a range of materials for different applications. These range from PFA and PTFE which gives a high degree of visibility to allow the user to see whats going on in their flow reactor to SS with greater temperature and pressure capabilities and Hastelloy for applications where chemical compatibility is an issue.

Reactor construction	Volumes	Application
1/16" OD PTFE	2.5, 5, 10, 20 mL	General fluoropolymer coils; high chemical compatibility and visibility
1/16" OD PFA	2.5, 5, 10, 20 mL	Clearer, more mechanically robust fluoropolymer option; strong solvent compatibility
1/16" OD Stainless Steel 316L	2.5, 5, 10, 15, 20, 30 mL	Higher pressure and higher temperature operation with broad solvent compatibility
1/16" OD Hastelloy C-276	2.5, 5, 10, 20 mL	Excellent corrosion resistance for more aggressive chemistry
1/8" OD PTFE / PFA	10, 25, 52 mL	Larger volume fluoropolymer coils for longer residence times and scale-up
1/8" OD stainless steel 316L	40, 60 mL	Scale-up coils for higher pressure and temperature work
1/8" OD Hastelloy C-276	40 mL	Scale-up coils for aggressive higher duty chemistry
Copper	8, 12, 30 mL	Specialist heat-transfer and application-specific coils

Operating Limits

The wide range of tubing options available for the Asynt Flow Coil Reactors enable a variety of reaction conditions to be achieved.

The table below are suggested operational limits for maximum temperature and pressure.

Coil Reactor Option	Max Temperature	Max Pressure
PTFE 1/16" OD coils	100 °C	20 bar
PFA 1/16" OD coils	100 °C	20 bar
HT PTFE / PFA coils	150 °C	20 bar
Stainless steel 316L coils	260 °C	100 bar
Hastelloy C-276 coils	260 °C	100 bar
Copper coils	150 °C	10 bar

Part Numbers

1/16” OD Coil Reactor Options

Part No.	Description
UQ2101	PTFE 2.5 mL coil reactor
UQ2102	PTFE 5 mL coil reactor
UQ2103	PTFE 10 mL coil reactor
UQ2104	PTFE 20 mL coil reactor
UQ2105	PTFE 2 mL high temperature coil reactor
UQ2107	PTFE 5 mL high temperature coil reactor
UQ2106	PTFE 14 mL high temperature coil reactor
UQ2301	Stainless steel 316L 2.5 mL coil reactor
UQ2302	Stainless steel 316L 5 mL coil reactor
UQ2303	Stainless steel 316L 10 mL coil reactor
UQ2311	Stainless steel 316L 15 mL coil reactor
UQ2304	Stainless steel 316L 20 mL coil reactor
UQ2307	Stainless steel 316L 30 mL coil reactor
UQ2401	Hastelloy C-276 2.5 mL coil reactor
UQ2402	Hastelloy C-276 5 mL coil reactor
UQ2403	Hastelloy C-276 10 mL coil reactor
UQ204	Hastelloy C-276 20 mL coil reactor
UQ2501	PFA 2.5 mL coil reactor
UQ2502	PFA 5 mL coil reactor
UQ2503	PFA 10 mL coil reactor
UQ2504	PFA 20 mL coil reactor
UQ2505	PFA 2 mL high temperature coil reactor

UQ2507	PFA 5 mL high temperature coil reactor
UQ2506	PFA 14 mL high temperature coil reactor
UQ2511	Copper coil reactor, 1.0 mm ID copper tubing, total volume = 8 mL
UQ2512	Copper coil reactor, 1.75 mm ID copper tubing, total volume = 30 mL
UQ2514	Copper coil reactor, 1.75 mm ID copper tubing, total volume = 12 mL

1/8” OD Coil Reactor Options

Part No.	Description
UQ2109	PTFE 10 mL high temperature coil reactor 1/8” OD tubing
UQ2108	PTFE 25 mL high temperature coil reactor 1/8” OD tubing
UQ2508	PFA 52 mL coil reactor 1/8” OD tubing
UQ2305	Stainless steel 316L 40 mL coil reactor 1/8” OD tubing (needs adapter 2x UQ2308)
UQ2306	Stainless Steel 316L 60 mL coil reactor 1/8” OD tubing (needs adapter 3x UQ2308)
UQ2406	Hastelloy C-276 40 mL coil reactor 1/8” tube (needs adapter 2x UQ2308)

Coil Reactor Kit Option

Part No.	Description
UQ3001	PTFE coil reactor kit (2.5 mL, 5 mL, 10 mL, 20 mL)
UQ3003	Stainless steel 316L coil reactor kit (2.5 mL, 5 mL, 10 mL, 20 mL)
UQ3004	Scale up coil reactor kit (25 mL HT PTFE, 52 mL HT PFA, 40 mL and 60 mL SS 316L (needs adapter 2 x UQ2308)
UQ3005	General coil reactor kit (2 mL, 14 mL HT PTFE and 2.5 mL, 5 mL and 20 mL stainless steel 316L)

Accessories

Part No.	Description
UQ2308	Adapter, 316L, converts 1/8” tapered (swaged) fitting to ¼-28 flat bottom (for 1/8” coil reactors), pack of 2.

Please Note:

Coil reactors can be produced using any 1/16” or 1/8” OD tubing on request.

All coil reactors are wound on cylindrical aluminium mandrels with helical hemi-spherical grooves to locate the tubing. The exception are the High Temperature (HT) coil reactors where the grooves are replaced with slots of the same depth as the tubing OD. These grooves act as micro-ovens and better accommodate flexing of the perfluoropolymer tubing as it is heat cycled.

Learn More About Asynt Flow

Discover more about Asynt Flow, chemistry-first flow chemistry platforms.

Visit: www.asynt.com

Or contact the Asynt team to discuss your flow chemistry applications.