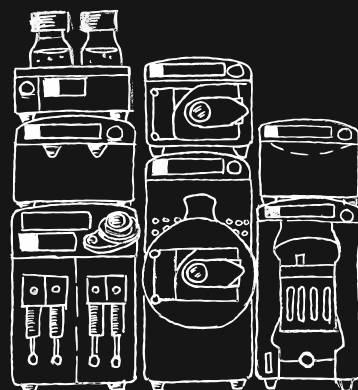




**SYRRIS**

Asia

# Product information



Award-winning flow chemistry solutions

# Asia

Asia is the award-winning flow chemistry range from Syrris. Designed by chemists for chemists, it enables the widest variety of chemical reactions with ultimate ease of use.

Chemists have complete control with Asia. Run manual or automated experiments, with production scales of mg to kg, with a range of temperatures, pressures, and reaction times to suit your needs.

With all wetted materials offering maximum chemical resistance, you'll receive years of continuous service.

Asia received an R&D 100 Award in recognition of advanced functionalities, ease of use, and applicability to a wide range of chemistries.

[syrris.com/asia](http://syrris.com/asia)



# Why Asia?

Asia is a modular range of flow chemistry systems available in regular or advanced configurations. Suitable for beginners and experts, the benefits of flow make it applicable to a wide range of applications.

When using an Asia flow system, you can expect:

1. **Access to novel chemical space and methodologies to perform a wider range of chemistries**
2. **Flexibility to meet all your lab's flow chemistry needs**
3. **Integration of synthesis, work-up, and analysis**
4. **Safer, cleaner reactions, and rapid reaction optimization**
5. **Maximum chemical resistance**
6. **Robust and easy to use**



//

**I have worked with flow chemistry for 15 years. Asia is the most advanced system available which enables me to perform chemistry I previously couldn't."**

**Andrew Mansfield, Asia Product Manager**



# Specifications



Flow rate

1  $\mu$ L/min to 10 mL/min per pump channel



Temp. range

-100 to 250 °C



Pressure range

Up to 20 bar

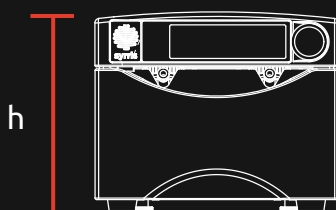
## Dimensions

|                            | h (mm) | w (mm) | d (mm) |
|----------------------------|--------|--------|--------|
| Asia Manager PC Software   | N/A    | N/A    | N/A    |
| Automated Reagent Injector | 505    | 160    | 300    |
| Automated Collector        | 270    | 470    | 300    |
| Chip Climate Controller    | 130    | 160    | 310    |
| Cryo Controller            | 335    | 160    | 455*   |
| FLLEX                      | 130    | 160    | 280    |
| FLUX                       | 257    | 160    | 495    |
| Heater                     | 255    | 160    | 260    |
| Pressurized Input Store    | 220    | 160    | 255    |
| Pressure Controller        | 130    | 160    | 275    |
| Reagent Injector           | 130    | 160    | 260    |
| Sampler and Dilutor        | 260    | 160    | 270    |
| Syringe Pump               | 260    | 160    | 260    |

\* Not including measurement of reactor. Dimension will depend on choice of reactor.

w

d



t: +44 (0)1763 242555 (UK)  
 t: +1 617 848 1211 (US)  
 t: 045-263-8211 (JP)  
 t: +91 (0)9892 327462 (IN)  
 e: [info@syrris.com](mailto:info@syrris.com)  
 w: [syrris.com](http://syrris.com)

# Modules

## Pressurized Input Store

Pressurizes four bottles with an inert gas enabling the use of air sensitive reagents and eliminates cavitation when pumping. **Input pressure: 1-10 bar. Output pressure: 1 bar.**

## Automated Reagent Injector

Two independent chemically-resistant channels allow aspiration of reagents under inert conditions for reaction optimization and library generation.

## Reagent Injector

2 extremely chemically resistant injection valves with sample loops. 0.1 mL, 1 mL, 5 mL or 10 mL, manual or automated control, 0 to 20 bar. Ideal for rapid reaction optimization.

## Heater and Chip

This module has adaptors that can be changed in seconds to heat the full Asia range of reactors. **Temperature range: room temperature to 250 °C.**

## FLLEX

Flow Liquid Liquid EXtraction (FLLEX) offers continuous flow aqueous work up. FLLEX can be used anywhere within the flow setup. **Internal volume: 100 µL.**

## Pressure Controller

Automatically pressurizes the reaction up to 20 bar (300 psi) for ultra-fast reaction rates and control of gas / liquid reactions.

## Automated Collector

Allows automated collection of multiple reactions in separate vials or vessels. Waste is automatically diverted.

## Asia Manager Software

Easy to use for total walk-away control of the Asia System.

## Syringe Pump

Extremely chemically resistant continuous flow pumps for ultra smooth flow. **Flow rate from 1 µL/min to 10 mL/min each channel. Maximum pressure: 20 bar.**

## Cryo Controller

Rapidly cool a selection of fluoropolymer or stainless steel tube reactors to -70 °C, or a range of glass or quartz microreactors to -100 °C. Requires only mains power; no need for cryogenic media.

## Sampler and Dilutor

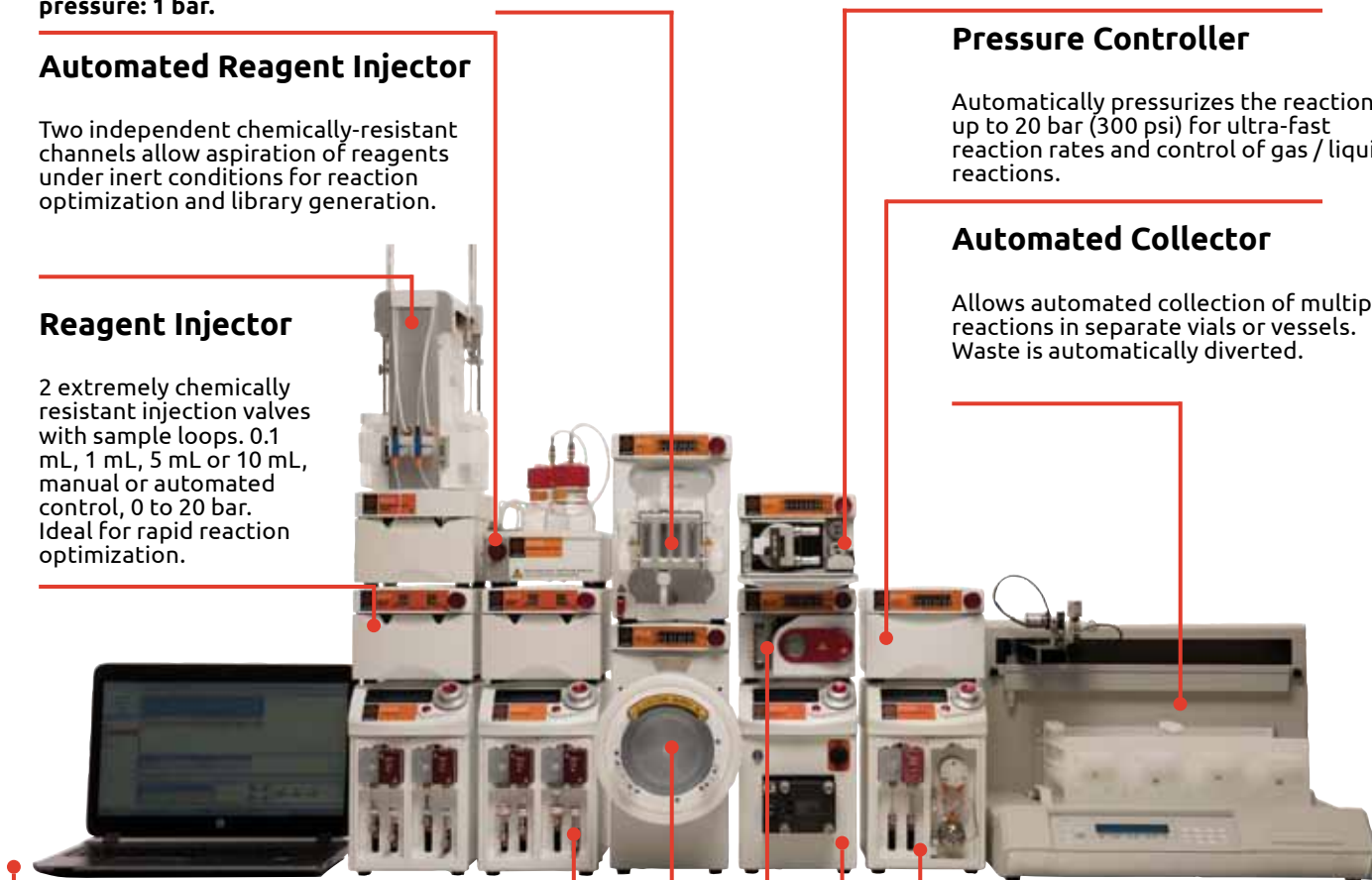
Enables on-line reaction analysis by automated sample extraction, dilution and transfer to an analytical system e.g. LCMS or UPLC. **Dilution factor: 5 to 250.**

## FLUX - Flow Electrochemistry

Enables a wide range of electrode materials to be changed in seconds, tool-free. Includes a power supply and electrochemical flow cell with minimal electrode gap. **Internal reaction volume: 225 µL.**

## Chip Climate Controller

Enables glass microreactors to be cooled or heated from -15 °C to +150 °C. No need for circulator or cold water supply.





# Systems

## Starter Systems



**The Asia Starter Systems are ideal for chemists eager to begin using flow chemistry as well as academics interested in introducing flow chemistry to their group.**

The easy-to-use systems contain all essential flow system parts: an Asia Syringe Pump, an Asia Chip Climate Controller, a glass microreactor, and an Asia Pressure Controller. The systems are future-proof and can be seamlessly upgraded with additional features and modules as the user experience with flow chemistry grows.

|                              | Regular                       | Advanced      |
|------------------------------|-------------------------------|---------------|
| Flow rate                    | 1.0 $\mu$ L/min to 10 mL/min* |               |
| Pressure (bar)               | 0 to 20 bar                   | 0 to 20 bar** |
| System temp. ( $^{\circ}$ C) | -15 to +150                   | -15 to +250   |
| Pump channels                | 2                             |               |
| Chip reactors                | ✓                             | ✓             |
| Tube reactors                | ✗                             | ✓             |
| Column reactors              | ✗                             | ✓             |
| Electrochemistry             | ✗                             | ✗             |
| FLUX volume                  | N/A                           | N/A           |
| Product collection           | ✗                             | MANUAL        |
| Aqueous work-up              | ✗                             | ✗             |
| Pressurized inputs           | ✗                             | ✓             |
| Injection valves             | ✗                             | 2             |
| Auto injection valves        | ✗                             | ✗             |
| Analysis interface           | ✗                             | ✗             |
| Automation                   | ✗                             | ✗             |

## Scale-up Systems



**Flow chemistry offers an easy way for scaling up reactions.**

Flow reaction parameters can be optimized using a small microreactor on a few milligrams before moving onto a large tube reactor system for synthesizing multi-gram quantities of product. The systems enable exploratory reactions to be performed and optimized on a few mgs scale. The manufactured amount can then be increased to kgs per day on the same system, with minimal changes to setup.

|                              | Regular                       | Advanced     |
|------------------------------|-------------------------------|--------------|
| Flow rate                    | 1.0 $\mu$ L/min to 10 mL/min* |              |
| Pressure (bar)               | 0 to 20 bar**                 |              |
| System temp. ( $^{\circ}$ C) | -70 <sup>^</sup> to amb.      | -100 to +250 |
| Pump channels                | 2                             | 4            |
| Chip reactors                | ✗                             | ✗            |
| Tube reactors                | ✓                             | ✓            |
| Column reactors              | ✓                             | ✓            |
| Electrochemistry             | ✗                             | ✗            |
| FLUX volume                  | N/A                           | N/A          |
| Product collection           | ✗                             | ✗            |
| Aqueous work-up              | ✗                             | ✓            |
| Pressurized inputs           | ✓                             | ✓            |
| Injection valves             | ✗                             | ✗            |
| Auto injection valves        | ✗                             | ✗            |
| Analysis interface           | ✗                             | ✓            |
| Automation                   | ✗                             | ✓            |

\* Depending on the syringe size.  
 \*\* 10 bar when using fluoropolymer tube reactors.  
 ^ Depending on cooling solution.

## Nanoparticle Systems



**Flow chemistry is ideal for nanoparticle synthesis, producing narrow particle size distribution and increased control over shape and structure.**

The systems offer fast and reproducible mixing, efficient heat transfer, and accurate temperature control. The systems are ideal for rapid optimization and production of nanoparticle synthesis.

|                                     | Regular                                                     | Advanced    |
|-------------------------------------|-------------------------------------------------------------|-------------|
| Flow rate                           | 1.0 $\mu\text{L}/\text{min}$ to 10 $\text{mL}/\text{min}^*$ |             |
| Pressure (bar)                      | 0 to 20 bar**                                               |             |
| System temp. ( $^{\circ}\text{C}$ ) | amb. to +250                                                | +25 to +250 |
| Pump channels                       | 2                                                           | 4           |
| Chip reactors                       | ✓                                                           | ✓           |
| Tube reactors                       | ✓                                                           | ✓           |
| Column reactors                     | ✗                                                           | ✗           |
| Electrochemistry                    | ✗                                                           | ✗           |
| FLUX volume                         | N/A                                                         | N/A         |
| Product collection                  | MANUAL                                                      | AUTO        |
| Aqueous work-up                     | ✗                                                           | ✗           |
| Pressurized inputs                  | ✓                                                           | ✓           |
| Injection valves                    | ✗                                                           | 4           |
| Auto injection valves               | ✗                                                           | ✗           |
| Analysis interface                  | ✗                                                           | ✗           |
| Automation                          | ✗                                                           | ✓           |

## Electrochemistry Systems



**Electrochemical activation of chemical reagents enables selectivity and transformations impossible by other techniques. The Asia Electrochemistry Systems give easy access to electrochemical reactions in continuous flow.**

The Asia FLUX module and cell can accommodate a wide range of electrodes, assembled without the need for tools. Users can operate in either constant current (Galvanostatic) or constant voltage (Potentiostatic) mode to achieve reductions and oxidations.

|                                     | Regular                                                     | Advanced          |
|-------------------------------------|-------------------------------------------------------------|-------------------|
| Flow rate                           | 1.0 $\mu\text{L}/\text{min}$ to 10 $\text{mL}/\text{min}^*$ |                   |
| Pressure (bar)                      | 0 to 5 bar                                                  |                   |
| System temp. ( $^{\circ}\text{C}$ ) | 0 to +60                                                    |                   |
| Pump channels                       | 2                                                           | 4                 |
| Chip reactors                       | ✓                                                           | ✓                 |
| Tube reactors                       | ✗                                                           | ✓                 |
| Column reactors                     | ✗                                                           | ✓                 |
| Electrochemistry                    | ✓                                                           | ✓                 |
| FLUX volume                         | 225 $\mu\text{L}$                                           | 225 $\mu\text{L}$ |
| Product collection                  | MANUAL                                                      | AUTO              |
| Aqueous work-up                     | ✗                                                           | ✗                 |
| Pressurized inputs                  | ✓                                                           | ✓                 |
| Injection valves                    | 2                                                           | 4                 |
| Auto injection valves               | ✗                                                           | ✗                 |
| Analysis interface                  | ✗                                                           | ✗                 |
| Automation                          | ✗                                                           | ✓                 |

\*

Depending on the syringe size.

\*\*

10 bar when using fluoropolymer tube reactors.

^

Depending on cooling solution.

# Systems

## Discovery Chemistry Systems



**For limited quantities of starting material or expensive reagents, Asia Discovery Chemistry Systems offer setups capable of running flow experiments using very small amounts of reagents.**

Users can design a list of experiments, each requiring just hundreds of microliters of reagents, and run them in sequence. Using a range of modules, the system will automatically inject the required amount for each reaction and collect the resulting solution in a small vial.

|                                     | Regular                                                     | Advanced      |
|-------------------------------------|-------------------------------------------------------------|---------------|
| Flow rate                           | 1.0 $\mu\text{L}/\text{min}$ to 10 $\text{mL}/\text{min}^*$ |               |
| Pressure (bar)                      | 0 to 20 bar                                                 | 0 to 20 bar** |
| System temp. ( $^{\circ}\text{C}$ ) | -15 to +150                                                 | -100 to +250  |
| Pump channels                       | 2                                                           | 4             |
| Chip reactors                       | ✓                                                           | ✓             |
| Tube reactors                       | ✗                                                           | ✓             |
| Column reactors                     | ✗                                                           | ✓             |
| Electrochemistry                    | ✗                                                           | ✗             |
| FLUX volume                         | N/A                                                         | N/A           |
| Product collection                  | AUTO                                                        | AUTO          |
| Aqueous work-up                     | ✗                                                           | ✓             |
| Pressurized inputs                  | ✓                                                           | ✓             |
| Injection valves                    | 2                                                           | 4             |
| Auto injection valves               | ✗                                                           | 2             |
| Analysis interface                  | ✗                                                           | ✗             |
| Automation                          | ✓                                                           | ✓             |

## Premium Systems



**Ideal for chemists who are interested in the utmost functionality and access to the widest range of chemistry.**

The Asia Premium Systems offer a full range of Asia modules and enable standard flow chemistry operations (reaction optimization, scale-up, etc.) as well as advanced use (electrochemistry, multi-step reactions, cryogenic reactions, etc.). These exhaustive systems include the benefits of all other systems.

|                                     | Regular                                                     | Advanced |
|-------------------------------------|-------------------------------------------------------------|----------|
| Flow rate                           | 1.0 $\mu\text{L}/\text{min}$ to 10 $\text{mL}/\text{min}^*$ |          |
| Pressure (bar)                      | 0 to 20 bar**                                               |          |
| System temp. ( $^{\circ}\text{C}$ ) | -100 to +250                                                |          |
| Pump channels                       | 4                                                           | 6        |
| Chip reactors                       | ✓                                                           | ✓        |
| Tube reactors                       | ✓                                                           | ✓        |
| Column reactors                     | ✓                                                           | ✓        |
| Electrochemistry                    | ✓                                                           | ✓        |
| FLUX volume                         | N/A                                                         | N/A      |
| Product collection                  | AUTO                                                        | AUTO     |
| Aqueous work-up                     | ✓                                                           | ✓        |
| Pressurized inputs                  | ✓                                                           | ✓        |
| Injection valves                    | 4                                                           | 4        |
| Auto injection valves               | ✗                                                           | 2        |
| Analysis interface                  | ✓                                                           | ✓        |
| Automation                          | ✓                                                           | ✓        |

\*

\*\*

^

Depending on the syringe size.  
10 bar when using fluoropolymer tube reactors.  
Depending on cooling solution.



# A new dimension in drug discovery for Gedeon Richter

Research Scientist, Dr. György Túrós, explains how the pharmaceutical giant is using Asia to access new chemistries

**The Discovery Chemistry Department at Gedeon Richter in Budapest, Hungary, invested in an Asia flow chemistry system to aid researchers involved in the design and synthesis of original CNS drugs. Research scientist Dr. György Túrós explained:**

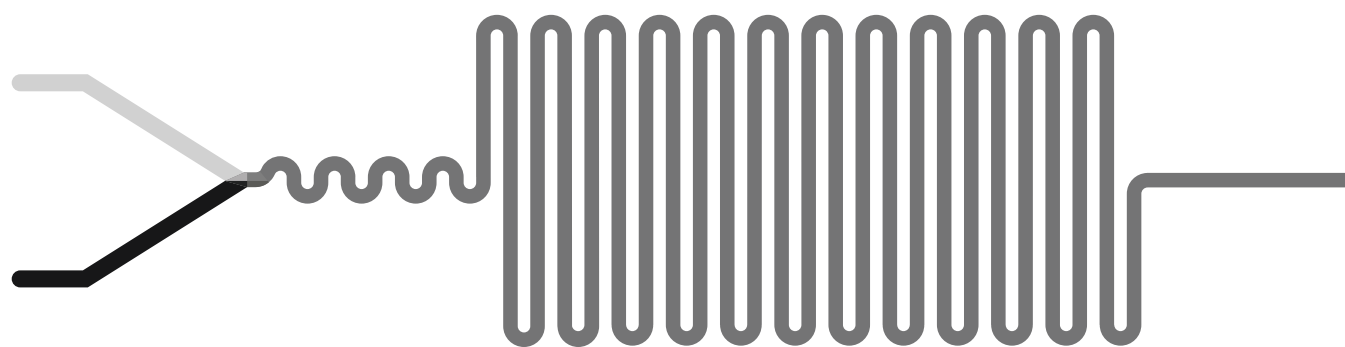
"In discovery chemistry research, we need to perform a lot of very interesting and complex chemical syntheses and, until now, have relied on classical batch chemistry methods.

We purchased an Asia flow chemistry reactor in June 2012, and are reaping the benefits of using flow chemistry techniques. The system has extended the range of chemistries available to us, allowing us to work at much higher pressures and temperatures –

sometimes above a solvent's boiling point – to create completely new heterocyclic scaffolds.

We can combine the Asia modules in a variety of different ways to meet changing needs, and will also be able to add additional modules at a later date if required. This was an important consideration, and one of the main reasons for choosing Asia.

Syrris has been very supportive, giving us some valuable ideas and flow chemistry tips during our training, and we can now do chemistry which was absolutely impossible before. In my opinion, Syrris is as innovative in the synthetic chemistry arena as Google or Apple in the informatics field."

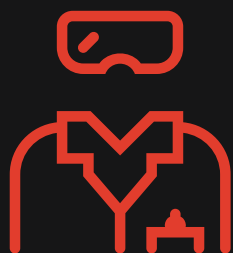


REACTANTS

INTERMEDIATES

PRODUCTS

# Why choose Syrris?

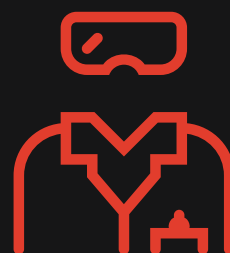


**// We chose the Asia flow chemistry system because of its ability to provide options for multiple setups in a single platform: this level of flexibility is unique to Asia products"**

Florin Oancea, Director at ICECHIM

**// The system is running seven days a week and is so popular that people are queuing up to use it"**

Dr. Rodrigo Souza, Associate Professor in Organic Chemistry, UFRJ, Brazil



## 350

### Publications

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

## 120

### Employees

Over 120 employees work on behalf of the Syrris brand and its products, including over 25 qualified Chemists and Chemical Engineers

## 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

## 2

### R&D 100 Awards

The Syrris R&D Team have been awarded 2 R&D 100 Awards in recognition of superior product design and innovation

## 40

### Distributors

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

## 4

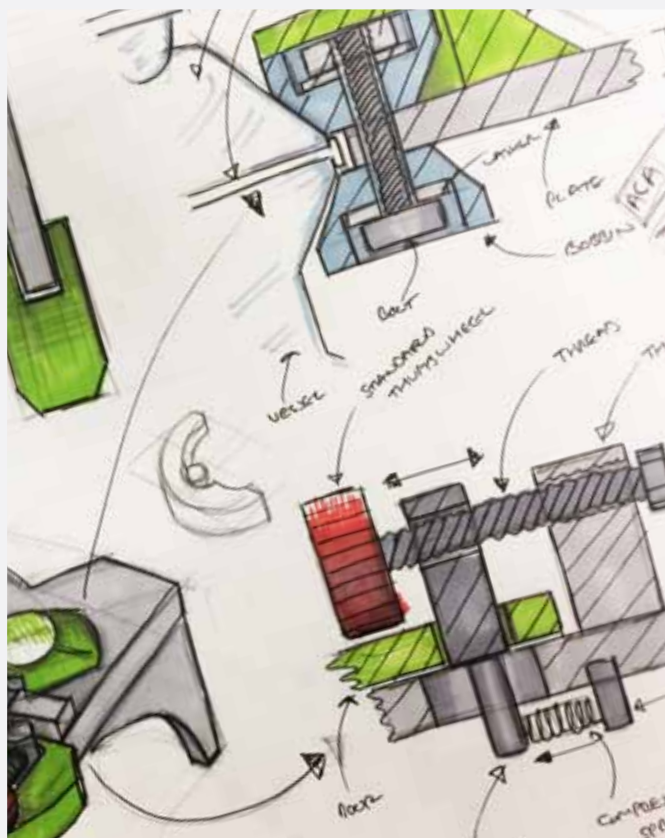
### Global offices

Syrris operates from 4 global offices, spanning the UK, USA, Japan, and India

# 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.



# 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.

# Get in touch

**UK Head Office (Europe,  
S.E. Asia, Australasia,  
China, Middle East, Africa)**

t: +44 (0)1763 242555  
e: [info@syrris.com](mailto:info@syrris.com)  
w: [syrris.com](http://syrris.com)

## **Japan Office**

t: +81 45 263 8211  
e: [info@syrris.co.jp](mailto:info@syrris.co.jp)  
w: [syrris.co.jp](http://syrris.co.jp)

## **North America Office**

t: +1 (617) 848 1211  
e: [info-usa@syrris.com](mailto:info-usa@syrris.com)  
w: [syrris.com](http://syrris.com)

## **India Office**

t: +91 22 256 00 262  
e: [info@syrris.com](mailto:info@syrris.com)  
w: [syrris.com](http://syrris.com)

## **Brazil Office**

e: [info@syrris.com](mailto:info@syrris.com)  
w: [syrris.com.br](http://syrris.com.br)

