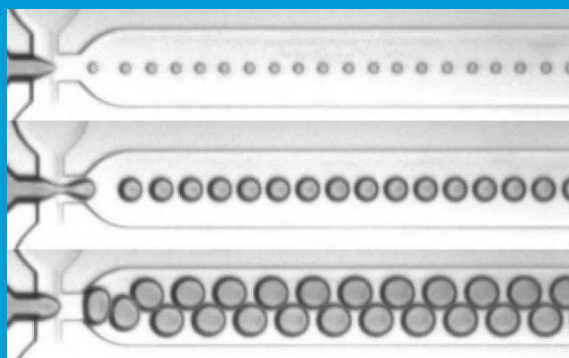
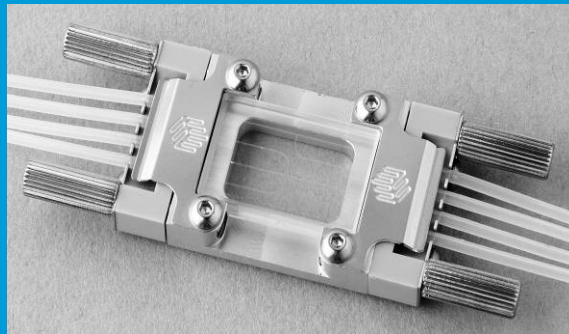


Syringe-based Droplet Starter System



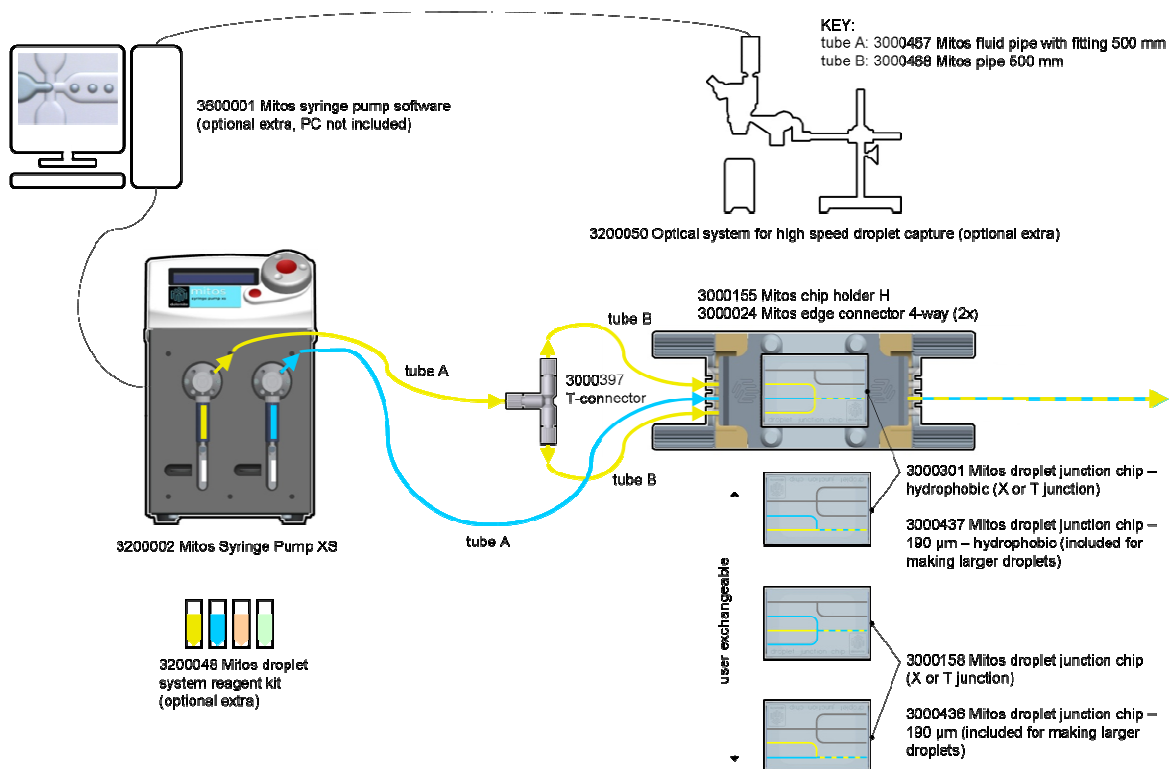
content	page
Product Description	2
Main Benefits and Applications	3
System Components	3
Product Specification	4
Accessories and Custom Options	5

Product Description

Designed for users new to microfluidics and droplet research, the Syringe-based Droplet Starter System provides a complete solution for the generation of monodispersed droplets (aqueous or organic) ranging from \varnothing 10 to 250 μ m. Operating over a wide flow range, from 0.1 μ l/min to 10ml/min, this chemically resistant system is ideal for initial concept work and experimentation towards the development of a high throughput droplet system.

Including a range of Droplet Junction Chips with different geometries, channel sizes and surface properties, the Syringe-based Droplet Starter System enables the formation of both water-in-oil and oil-in-water droplets.

This easy-to-use system comprises of two independent syringes, with rotary valves, enabling fast automatic refill from up to 3 different sources, as well as an independent control of each liquid channel. As a modular system, the pump and droplet generation components are quick and simple to connect, ensuring that reliable and accurate data is obtained within a short time-span.



Syringe-based Droplet Starter System

Main Benefits and Applications

Benefits

- Monodispersed droplets ranging from \varnothing 10 to 250 μ m
- Syringes refill automatically from up to 3 different sources
- Wide flow range 0.1 μ l/min to 10ml/min
- Excellent chemical resistance

Applications

The Syringe-based Droplet Starter System is ideal for users new to microfluidics and droplet research allowing applications such as:

- General research into the generation of droplets;
- Droplet studies into the wetting properties of sample liquids, droplet stability, droplet production rates, influence of surfactant and junction geometries;
- Feasibility testing and development of concepts in droplet microfluidics.

System Components

The Syringe-based Droplet Starter System is built around Dolomite's industry leading microfluidic pumps, connectors and chips:

- 1 x Mitos Duo XS-Pump (Part No. 3200057)
- 2 x 100 μ l Syringe (Part No. 3000249)
- 2 x 4 port Valves (Part No. 3000246)
- 1 x Chip Interface H (Part No. 3000155)
- 2 x Linear Connector 4-way (Part No. 3000024)
- 4 x Droplet Junction Chips: Part No. 3000158 - hydrophilic chip with channel depth of 100 μ m, Part No. 3000301 - hydrophobic chip with channel depth of 100 μ m, Part No. 3000436 - hydrophilic chip with channel depth of 190 μ m, Part No. 3000437 - hydrophobic chip with channel depth of 190 μ m
- Mitos Syringe PC software (Part No. 3600001)
- Syringe-based Droplet Starter Kit containing a selection of tubing and fittings (Part No. 3200074)

The Mitos Duo-XS Pump is ideal for general droplet applications due to simplicity of use and extra smooth syringe drive technology.

The Linear Connector ensures that a quick and reliable seal is made every time, so downtime is minimised. This connection system is well suited to droplet microfluidics as the tube interfaces directly to micro-channels at the chip edge. The result is a straight fluidic path, eliminating the flow disruption seen with 90° bends.

All Dolomite droplet generation chips are double etched to give a near circular channel profile, which is important for the generation of consistent, spherical droplets. The chip fabrication process results in highly accurate channel dimensions with very smooth surfaces ($R_a = 5\text{nm}$). These glass chips have excellent optical transparency for clear imaging of droplets. Advanced hydrophobic coating treatments enable water-in-oil droplets to be generated instead of the oil-in-water droplets formed in the untreated chips.

Product Specifications

Technical information	Syringe-based Droplet Starter System
Droplet size range	10 – 250µm
Monodispersity	Good
Droplet production rate	>10,000 per second
Junction types	X-junction and T-junction (alternative geometries available on request)
Sample volume	100µl (up to 5ml available)
Max pressure	6bar
Pump type	Extra smooth syringe pump
Independent control of fluid channels?	Yes
Flow resistors required?	No
Speed of liquid refill	Fast
Speed of connections	Fast
Flexibility of experimentation	High

Accessories

There is a broad range of accessories available including:

- Droplet System Reagent Kit – Part No. 3200048
- High Speed Optical System – Part No. 3200050
- Syringe for Duo-XS Pump 50 μ l – Part No. 3000248
- Syringe for Duo-XS Pump 250 μ l – Part No. 3000250
- Syringe for Duo-XS Pump 500 μ l – Part No. 3000251
- Syringe for Duo-XS Pump 1ml – Part No. 3000252
- Syringe for Duo-XS Pump 2.5ml – Part No. 3000253
- Syringe for Duo-XS Pump 5ml – Part No. 3000254

The Syringe-based Droplet Starter System is part of Dolomite's Micro Droplet System range which also includes:

- The Pressure-based Droplet Starter System: a basic toolkit for initial work in droplet microfluidics, and
- The Droplet Advanced System which benefits a wide range of development work in droplet microfluidics with potential applications in high throughput chemistry and biology.

Custom Options

Other chip configurations are available on request. If you would like to generate droplets of a different size, operate without surfactant or create Janus particles, Dolomite can design the junction geometry required. The range of Dolomite services available covers all aspects of the development process from characterization of liquids for droplet generation to the design of commercial instruments in the field of droplet microfluidics. Please contact Dolomite to discuss your application.



The Dolomite Centre Ltd.

Unit 1, Anglian Business Park, Royston,
Hertfordshire, SG8 5TW, United Kingdom

T: +44 (0)1763 242491

F: +44 (0)1763 246125

E: info@dolomite-microfluidics.com

W: www.dolomite-microfluidics.com

Dolomite Microfluidics

29 Albion Place
Charlestown, MA 02129

F: 617 848 1211

F: 617 500 0136

E: salesus@dolomite-microfluidics.com

W: www.dolomite-microfluidics.com