



asia

fast, clean, safe  
flow chemistry

technical note

System :	Asia
Module :	Tube Reactors
Version :	1.0
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## Asia Tube Reactors Datasheet

This document provides specifications and information for Syrris Asia Tube Reactors.

### 1. Description

The Asia Tube Reactors are large volume microfluidic reactors designed for preparative scale solution phase chemistry. The tube reactor contains a long length tube giving higher volumes than the glass microreactors and therefore allows higher flow rates for a given residence time.

The tube reactors are available in 4ml or 16ml in fluoropolymer, stainless steel or hastelloy. It fits on an Asia Heater with an Asia Tube Adaptor.



Figure 1 - 4ml fluoropolymer tube reactor on an Asia Tube Adaptor and Asia Heater

### Benefits

- Rapid mixing across a range of flow rates
- Large volume
- 2 or 3 inputs
- Quick connect/disconnect
- Wide temperature and pressure range
- Excellent chemical compatibility

### 2. Technical information for Asia Tube Reactors Fluoropolymer

#### a. General specification

	Specification	Value
1	Number of inputs	3
2	Number of outputs	1
3	Reaction volume	4ml, 16ml
4	Outside diameter of tubing	1.6mm
5	Inside diameter of tubing	0.5mm (for 4ml Tube Reactor) 1.0mm (for 16ml Tube Reactor)
6	Tubing material	PFA
7	Connectors material	PTFE
8	Non-wetted parts materials	Anodised aluminium, glass, PTFE
9	Max operating pressure	10 bar
10	Max operating temperature	125°C

b. Detailed volume information

4ml Fluoropolymer Tube Reactor

Fluid Part	Volume (µl)	Zone	Total Volume (µl)
Input 1	5	Inputs	5
Input 2	2		2
Input 3	5		5
Output	13	Before Temp Controlled Zone	63
Tube Length from input bloc to entry hole in tube reactor	30		
Tube length through tube reactor body to start of first loop	20		
Loop volume*	4000	Temperature Controlled Zone	4000
Cooling Coil tube length from tube exiting reactor body up to pipe clamp	344	Cooling Zone	377
Tube Length from pipe clamp to Output bloc	30		
Output bloc	3		

\*tolerance on the loop volume is +/-4%

16ml Fluoropolymer Tube Reactor

Fluid Part	Volume (µl)	Zone	Total Volume (µl)
Input 1	5	Inputs	5
Input 2	2		2
Input 3	5		5
Output	13	Before Temp Controlled Zone	210

Tube Length from input bloc to entry hole in tube reactor	118		
Tube length through tube reactor body to start of first loop	79		
Loop volume*	16000	Temperature Controlled Zone	16000
Cooling Coil tube length from tube exiting reactor body up to pipe clamp	1375	Cooling Zone	1496
Tube Length from pipe clamp to Output bloc	118		
Output bloc	3		

\*tolerance on the loop volume is +/-4%

### 3. Technical information for Asia Tube Reactors Stainless Steel

#### a. General specification

	Specification	Value
1	Number of inputs	3
2	Number of outputs	1
3	Reaction volume	4ml, 16ml
4	Outside diameter of tubing	1.6mm
5	Inside diameter of tubing	0.5mm
6	Tubing material	Stainless steel
7	Connectors material	Stainless steel
8	Non-wetted parts materials	Anodised aluminium, stainless steel, glass fibre, PTFE
9	Max operating pressure	30 bar
10	Max operating temperature	250°C

#### b. Detailed volume information

##### 4ml Stainless Steel Tube Reactor

Fluid Part	Volume (µl)	Zone	Total Volume (µl)
Input 1 to entry point of reactor	6	Cold Inputs	6
Input 2 to entry point of reactor	6		6
Input 3 to entry point of reactor	6		6
Input 1 feed tube to mixer	99	Temperature Controlled Inputs	325
Input 2 feed tube to mixer	103		
Input 3 feed tube to mixer	108		
Mixing T	15		

Tube length from mixing T to start of main loop volume	25	Temperature Controlled Zone	4000
Loop volume*	3975		
Cooling Coil tube length from tube exiting reactor body up to start of cooling coil	38	Cooling Zone	2175
Cooling coil	2125		
Output bloc	12		

\*tolerance on the loop volume is +/-4%

16ml Stainless Steel Tube Reactor

Fluid Part	Volume (µl)	Zone	Total Volume (µl)
Input 1 to entry point of reactor	6	Cold Inputs	6
Input 2 to entry point of reactor	6		6
Input 3 to entry point of reactor	6		6
Input 1 feed tube to mixer	99	Temperature Controlled Inputs	325
Input 2 feed tube to mixer	103		
Input 3 feed tube to mixer	108		
Mixing T	15		
Tube length from mixing T to start of main loop volume	25	Temperature Controlled Zone	16000
Loop volume*	15975		
Cooling Coil tube length from tube exiting reactor body up to start of cooling coil	38	Cooling Zone	2175
Cooling coil	2125		
Output bloc	12		

\*tolerance on the loop volume is +/-4%

## 4. List of part numbers

<b>Part description</b>	<b>Syrris part number</b>
Asia Heater	2200527
Asia Tube Reactor Adaptor (120V)	2200624
Asia Tube Reactor Adaptor (240V)	2200530
Asia 4ml Tube Reactor Fluoropolymer	2200541
Asia 16ml Tube Reactor Fluoropolymer	2200542
Asia 4ml Tube Reactor Stainless Steel	2200543
Asia 16ml Tube Reactor Stainless Steel	2200544
Plugs for 1/4"-28 ports (Pack of 6)	2110672

*If you require assistance or further explanation, please contact [support@syrris.com](mailto:support@syrris.com).*