

The Perfusion Set is part of the ibidi Pump System consisting of two reservoirs, which contain the cell culture medium, and the tubing leading to the channel slide. The Perfusion Set is mounted onto the Fluidic Unit, which enables the ibidi Pump System to generate unidirectional long term flow inside the channel. The Perfusion Set exists in multiple versions with varying volumes and tubing length to allow for a wide range of shear stresses and flow rates. The standard syringe reservoir size is 10 ml. However, the system can also be equipped with 2 ml and 50 ml syringe reservoirs.

Material

The Perfusion Set consists of silicone tubing, polypropylene adapters, sterile air filters, and high-quality transparent syringes. The syringes contain no natural rubber and are latex-free.

We do not recommend reutilization of the Perfusion Set as substances may adhere to the surface of the tubing and repeated sterilization and utilization of the tubing may lead to leakages.

Nevertheless, the silicone tubing and adapters are autoclavable. The syringes and filters are not temperature stable above 60°C.

Please note that the tubing will breakdown with time and use. As an example, an oscillatory experiment running at 1 Hz will have tubing breakdown after approximately 3 straight full days running. To prolong the lifetime of the tubing, it is recommended to change the positioning of the tubing within the pinch valve (by pulling up or down).

Shipping and Storage

The Perfusion Sets are shipped at room temperature and are packaged individually. Store them in a dry place at room temperature away from direct sunlight.

Geometry

The Perfusion Set is manufactured in multiple versions. There are three different inner diameters of the tubing (1.6, 0.8 and 0.5 mm), varying tube lengths (15 and 50 cm, respectively), and three reservoir sizes (10 ml, 2 ml and 50 ml). The possible combinations that are available (marked with a color code) are listed in the following tables:

Perfusion Sets with ID 1.6 mm

	RED	YELLOW/ GREEN
ID in mm	1.6	1.6
Length in cm	15	50
Total volume in ml	12.3	13.6
Dead volume in ml	1.5	2.8

Perfusion Sets with ID 0.8 mm

	BLUE	WHITE
ID in mm	0.8	0.8
Length in cm	15	50
Total volume in ml	11.3	11.7
Dead volume in ml	0.5	0.9

The Perfusion Set for small volumes consist of the 2 ml syringes as reservoirs and the tubing with inner diameter of 0.5 mm.

Perfusion Sets with ID 0.5 mm

	YELLOW	BLACK
ID in mm	0.5	0.5
Length in cm	15	50
Total volume in ml	2.5	2.7
Dead volume in ml	0.5	0.7

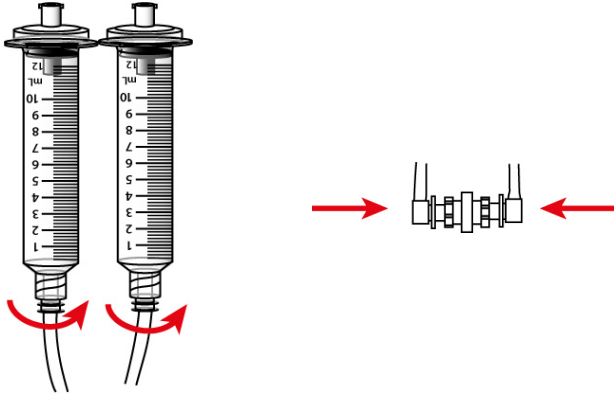
In principle, the 50 ml syringes can replace any of the other reservoir types, as reservoirs, if big volumes are needed. A combination with the 1.6 mm inner diameter tubing is recommended.

Handling

The Perfusion Set comes in sterile packaging. To degas the silicone tubing and plastic parts, leave the Perfusion Set in the packaging and place it in the incubator overnight.

When taking out the Perfusion Set of the packaging, place the Fluidic Unit into the laminar flow hood. Insert the reservoirs into the holder on the Fluidic Unit and check the tightness of the adapters. It is recommended to secure the

adapters connecting the reservoirs to the tubing and the two Elbow Luer Connectors in the Female Luer Coupler.



Check the tightness of the connections!

Flow Assays

The Perfusion Sets are designed to perform flow assays in combination with the ibidi Pump System and the ibidi channel slides. A detailed instruction on how to use the Perfusion Sets is given in the [ibidi Pump System instruction manual](#). To perform an assay with cells, please refer to the [Application Note 13 "Cell Culture under Flow"](#). Depending on the slide, a certain range of shear stress can be applied using the ibidi Pump System:

Shear Stress Perfusion Set RED (#10962)

	Min.	Max.
μ -Slide I ^{0.2} Luer	7.5 dyn/cm ²	83.3 dyn/cm ²
μ -Slide I ^{0.4} Luer	4.0 dyn/cm ²	37.1 dyn/cm ²
μ -Slide I ^{0.6} Luer	1.9 dyn/cm ²	17.9 dyn/cm ²
μ -Slide I ^{0.8} Luer	1.1 dyn/cm ²	10.4 dyn/cm ²
μ -Slide VI ^{0.4}	5.6 dyn/cm ²	52.9 dyn/cm ²
μ -Slide y-shaped	6.8 dyn/cm ²	62.1 dyn/cm ²

Shear Stress Perfusion Set YELLOW/GREEN (#10964)

	Min.	Max.
μ -Slide I ^{0.2} Luer	6.1 dyn/cm ²	74.1 dyn/cm ²
μ -Slide I ^{0.4} Luer	2.9 dyn/cm ²	29.0 dyn/cm ²
μ -Slide I ^{0.6} Luer	1.4 dyn/cm ²	14.0 dyn/cm ²
μ -Slide I ^{0.8} Luer	0.8 dyn/cm ²	8.9 dyn/cm ²
μ -Slide VI ^{0.4}	4.2 dyn/cm ²	43.3 dyn/cm ²
μ -Slide y-shaped	5.1 dyn/cm ²	51.4 dyn/cm ²

Shear Stress Perfusion Set BLUE (#10961)

	Min.	Max.
μ -Slide I ^{0.2} Luer	2.2 dyn/cm ²	19.9 dyn/cm ²
μ -Slide I ^{0.4} Luer	0.79 dyn/cm ²	6.7 dyn/cm ²
μ -Slide I ^{0.6} Luer	0.38 dyn/cm ²	3.1 dyn/cm ²
μ -Slide I ^{0.8} Luer	0.22 dyn/cm ²	1.8 dyn/cm ²
μ -Slide VI ^{0.4}	1.1 dyn/cm ²	9.0 dyn/cm ²
μ -Slide y-shaped	1.4 dyn/cm ²	11.8 dyn/cm ²

Shear Stress Perfusion Set WHITE (#10963)

	Min.	Max.
μ -Slide I ^{0.2} Luer	1.1 dyn/cm ²	9.9 dyn/cm ²
μ -Slide I ^{0.4} Luer	0.33 dyn/cm ²	2.9 dyn/cm ²
μ -Slide I ^{0.6} Luer	0.16 dyn/cm ²	1.4 dyn/cm ²
μ -Slide I ^{0.8} Luer	0.09 dyn/cm ²	0.78 dyn/cm ²
μ -Slide VI ^{0.4}	0.42 dyn/cm ²	3.9 dyn/cm ²
μ -Slide y-shaped	0.59 dyn/cm ²	5.0 dyn/cm ²

Shear Stress Perfusion Set YELLOW (#10965)

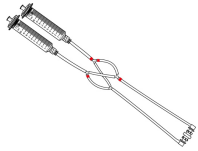
	Min.	Max.
μ -Slide VI ^{0.1}	12.8 dyn/cm ²	56.7 dyn/cm ²

Shear Stress Perfusion Set BLACK (#10966)

	Min.	Max.
μ -Slide VI ^{0.1}	5.4 dyn/cm ²	25.7 dyn/cm ²

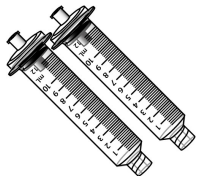
Ordering Information

Perfusion Sets



Cat. No.	Description
10961	Perfusion Set BLUE : length 15 cm, ID 0.8 mm, 10 ml reservoirs, designed for low flow rates. Ready to use tubing set for flow assays with the ibidi Pump System.
10962	Perfusion Set RED : length 15 cm, ID 1.6 mm, 10 ml reservoirs, designed for high flow rates. Ready to use tubing set for flow assays with the ibidi Pump System.
10963	Perfusion Set WHITE : length 50 cm, ID 0.8 mm, 10 ml reservoirs, designed for low flow rates and microscopy. Ready to use tubing set for flow assays with the ibidi Pump System.
10964	Perfusion Set YELLOWGREEN : length 50 cm, ID 1.6 mm, 10 ml reservoirs, designed for high flow rates and microscopy. Ready to use tubing set for flow assays with the ibidi Pump System.
10965	Perfusion Set YELLOW : length 15 cm, ID 0.5 mm, 2 ml reservoirs, designed for low volumes and μ -Slides with 0.1 mm channel height. Ready to use tubing set for flow assays with the ibidi Pump System.
10966	Perfusion Set BLACK : length 50 cm, ID 0.5 mm, 2 ml reservoirs, designed for low volumes, μ -Slides with 0.1 mm channel height, and microscopy. Ready to use tubing set for flow assays with the ibidi Pump System.

Filter/Reservoir Sets



Cat. No.	Description
10971	Filter/Reservoir Set, 10 ml : 2 replacement reservoirs with mounted filters, ready to use, sterilized
10972	Filter/Reservoir Set, 2 ml : 2 replacement reservoirs with mounted filters, ready to use, sterilized
10974	Filter/Reservoir Set, 50 ml : 2 replacement reservoirs with mounted filters, ready to use, sterilized

Reservoir Holders

Cat. No.	Description
10976	Reservoir Holder for Fluidic Unit, 10 ml
10977	Reservoir Holder for Fluidic Unit, 2 ml
10978	Reservoir Holder for Fluidic Unit, 50 ml

ibidi Pump Demo Set

Cat. No.	Description
10982	ibidi Pump Demo Set : 1 Perfusion Set and 5 μ -Slides Luer-type of your choice

For research use only!

Further technical specifications can be found at www.ibidi.com. For questions and suggestions please contact us by e-mail info@ibidi.de or by telephone +49 (0)89/520 4617 0. All products are developed and produced in Germany.
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