

Fill-Master Workstation

ultraprecise



Digitally controlled liquid handling

20 years ago Delta Scientific Medical developed the first digitally controlled precision pumps. Before this time peristaltic tube pumps were known to pump rather unprecise amounts of fluid from one container to another but, using digital technology, which the company

in Denmark has continued to develop, to the state of the art, the pumps can now dispense liquids with a precision better than 0.5 %, make dilutions with the same accuracy, calibrate in a matter of seconds, and deliver a print-out of all operations data, including calibration.

Thus the tube pump has developed into a workstation, performing many different tasks in the modern laboratory, and, with unsurpassed user friendliness.

We make your working day a lot easier

The pumps come with various accessories, developed with the purpose of making multiple dispensing and pipetting tasks easier and faster to perform. The filling robot will fill a 96-well microplate in 10 seconds, and the pipettors will deliver a precise amount of liquid with just a slight touch of your thumb.

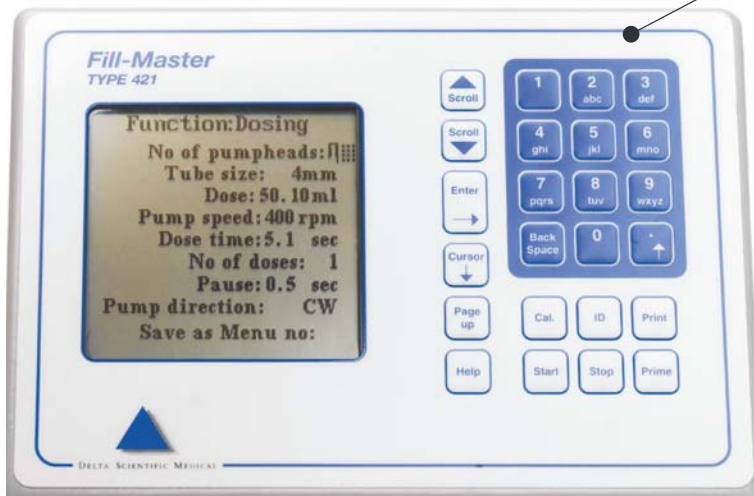
The large display lets you key-in all operating parameters in one window, using an alphanumeric keyboard. Help function directs you if you are in doubt and the operating manual appears directly from the display.

Calibration is easy and takes less than 20 seconds. Press the Cal button, and you get a self explanatory window telling you what to do.

The Memory allows you to store up to 25 of your most used set-up's and recall each of them just by keying in the set-up number.

Print-out of all operations data just by the push of a button to help you fulfil FDA and ISO requirements

Semi-Automatic calibration takes less than 20 seconds.



The color-coded start-button of the pipette indicates the size of the pipette tip:



Yellow = 200 µl tip Blue = 1 ml tip Green = 5 ml tip



Specifications pump type 421 and 431:

Sample and dose sizes:

Pipetting, Multidispense, Multisample: 20 µl - 10 ml.
 Dilutions: 20 µl - 10 ml samples, 20 µl - 1000 ml diluent.
 Dosing: 20 µl - 1000 ml.
 Flow: 12 µl - 0.8 l/min. (431: 12 µl/min - 5 l/min).

Repeatability and accuracy for various tube sizes:

Repeatability and accuracy depends on the number of pump rotations. For a given volume many rotations using a small tubing gives higher accuracy than a few rotations using a larger tubing.

Tubesize	Repeatability: ± 1% Accuracy: ± 1,6% Minimum		Repeatability: ± 0,5% Accuracy: ± 0,8% Minimum		Repeatability: ± 0,3% Accuracy: ± 0,4% Minimum	
	volume:	time:	volume:	time:	volume:	time:
0.3 mm:	60 µl	1.9 sec	120 µl	3.5 sec	600 µl	17.5 sec
0.5 mm:	200 µl	1.1 sec	400 µl	2.2 sec	2 ml	8.3 sec
1.0 mm:	800 µl	1.1 sec	1.6 ml	2.2 sec	8 ml	8.3 sec
2.0 mm:	3 ml	1.1 sec	6.0 ml	2.2 sec	30 ml	8.3 sec
4.0 mm:	10.6 ml	1.1 sec	21.2 ml	2.2 sec	106 ml	8.3 sec
6.0 mm:	25 ml	1.1 sec	50 ml	2.2 sec	250 ml	8.3 sec
8.0 mm:	35 ml	1.1 sec	70 ml	2.2 sec	350 ml	8.3 sec

Power supply:

230 V, AC, or 115 V, AC changeable. 50 W.

Dimensions:

Height: 180 mm, Depth: 190 mm, Width: 170 mm, Weight: 3,0 kg. (431: 3,5 kg.)

Remote control:

Equipped with a 9-pin SUB D socket providing input facilities for external start/stop connections, also for optoisolated start/stop connections as well as output for an optoisolated signal, when the pump is rotating.

Printer:

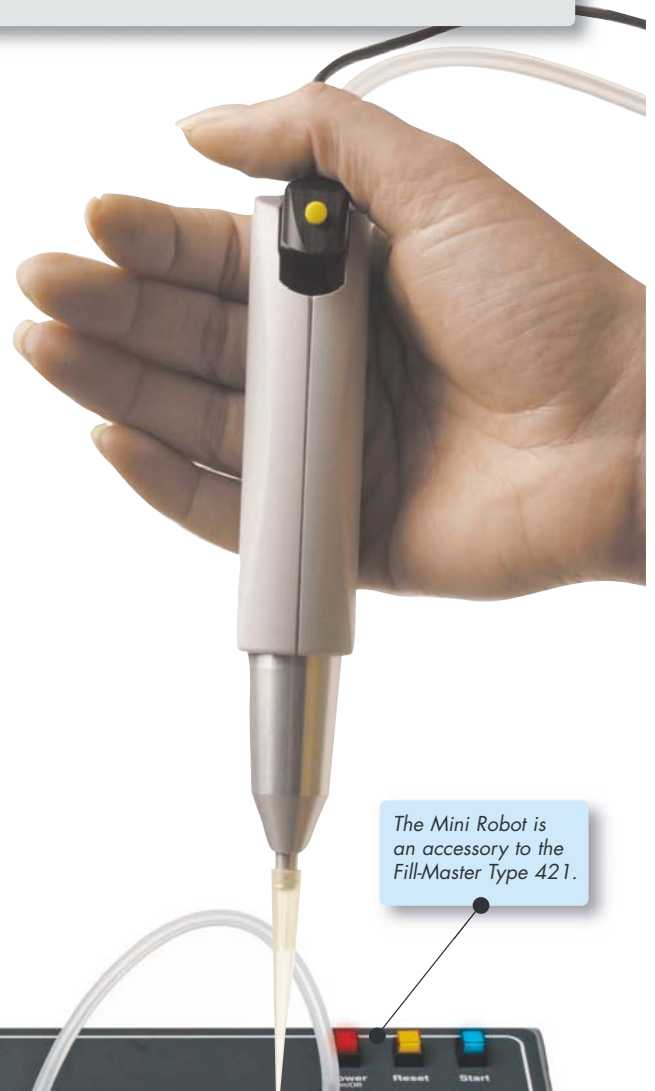
Equipped with a 25-pin SUB D socket for Centronics parallel interface.

Specifications pipette:

Repeatability and accuracy for various tube sizes:

Repeatability and accuracy depends on the number of pump rotations. For a given volume many rotations using a small tubing gives higher accuracy than a few rotations using a larger tubing.

Pipettor type	Volume	Tubesize mm	Accuracy ± %	Repeatability ± %	Time sec
TH0200	20 - 200 µl	0.3	4 - 0.6	3 - 0.3	0.7 - 2.6
	50 - 200 µl	0.5	4 - 1.6	3 - 1.0	0.5 - 1.1
TH1000	0.1 - 1 ml	0.5	3 - 0.6	2 - 0.4	0.7 - 4.3
	0.2 - 1 ml	1	4 - 1.6	3 - 1.0	0.5 - 1.3
TH5000	0.5 - 5 ml	1	2 - 0.5	1 - 0.4	0.8 - 5.1
	1.0 - 5 ml	2	4 - 1.0	3 - 0.6	0.6 - 1.7



The Mini Robot is an accessory to the Fill-Master Type 421.

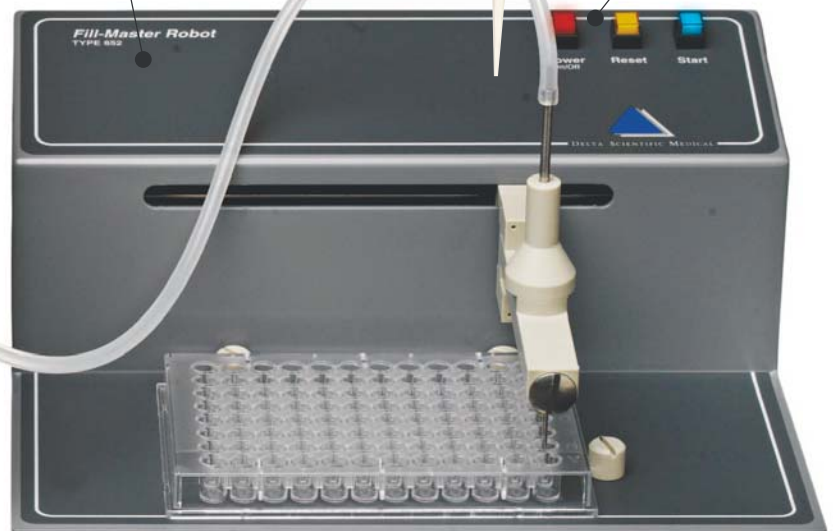
8-channel dispensator: Accuracy ± 2%

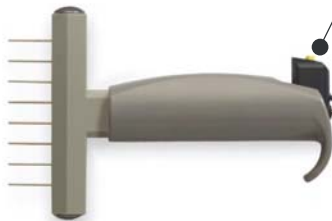
Startbutton on the robot. The process is controlled by the Fill-Master.

96-well plates are filled in 12 steps.

One half of a 384 well plate is filled in 24 steps. The plate is rotated 180° and the other half is filled in another 24 steps.

Socket for footswitch NF0004.





- Type 421 *Fill-Master Workstation (includes pumphead Type 112)*
- Type 431 *Fill-Master Workstation (6 and 8 mm tubing)*

- Type 113 *Inner pumphead for double pumphead function*
- Type 114 *Pumphead for 2.4mm wall thickness tubing*
- Type 115 *Inner pumphead for 2.4mm wallthickness*

- Type 852 *Fill-Master Minirobot (includes 8-channel distributor)*

- TH0200 *Pipettor for 200 µl tips (short shaft)*
- TH0201 *Pipettor for 200 µl tips (long shaft)*
- TH1000 *Pipettor for 1000 µl tips (short shaft)*
- TH1001 *Pipettor for 1000 µl tips (long shaft)*
- TH5000 *Pipettor for 5 ml tips*

- TH0800 *8-channel pipettor*
- TH0801 *8-channel pipettor for Minirobot*

- FN0001 *Filling needle for 0.5 and 1 mm tubing*
- FN0002 *Filling needle for 2 mm tubing*
- FN0004 *Filling needle for 4 mm tubing*
- FN0006 *Filling needle for 6 mm tubing*
- FN0008 *Filling needle for 8 mm tubing*
- FNO101 *Suction needle for 0.5 and 1 mm tubing*
- FNO102 *Suction needle for 2 mm tubing*
- FNO104 *Suction needle for 4 mm tubing*
- FNO106 *Suction needle for 6 mm tubing*
- FNO108 *Suction needle for 8 mm tubing*

- NF0003 *Footswitch for Type 421 Fill-Master*
- NF0004 *Footswitch for Type 852 Minirobot*

- DSM 0.3/1.6 *0.3 mm inner diameter tubing, 1.6 mm wallthickness*
- DSM 0.5/1.6 *0.5 mm inner diameter tubing, 1.6 mm wallthickness*
- DSM 1/1.6 *1 mm inner diameter tubing, 1.6 mm wallthickness*
- DSM 2/1.6 *2 mm inner diameter tubing, 1.6 mm wallthickness*
- DSM 4/1.6 *4 mm inner diameter tubing, 1.6 mm wallthickness*
- DSM 6/1.6 *6 mm inner diameter tubing, 1.6 mm wallthickness*
- DSM 8/1.6 *8 mm inner diameter tubing, 1.6 mm wallthickness*
- DSM 6/2.4 *6 mm inner diameter tubing, 2.4 mm wallthickness*
- DSM 8/2.4 *8 mm inner diameter tubing, 2.4 mm wallthickness*
- Package of 5 m, 10 m and 25 m*



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