

LOGAN MDS-600 & MDS-600T



Media Delivery System

Normally to prepare the dissolution media is a tedious job: The media must be pre-mixed in a polyethylene tank and then transferred into a smaller glass flask for degassing. After de-aerated the media, it has to be filled into a volumetric cylinder to measure the correct volume before filling it into dissolution vessel. After filling the media into the vessels, it has to wait for hours before media reaches 37°C for the dissolution test. Such a long process will take around 2 hours, not only that the media volume must be controlled well, otherwise the uneven media volume will make different percentages dissolving. The Logan MDS-600 Media Delivery System is designed to simplify such a tedious process. The user is able to precisely deliver pre-heated, de-aerated media into 6 dissolution vessels simultaneously within 2 minute.

Features:

- **This mobile unit brings media to the dissolution tester**
- **Fills six vessels to the same volume simultaneously**
- **Delivers ready-to-use media, de-aerated by filtration, vacuum, heat and high speed circulation**
- **Temperature accuracy controlled to $\pm 0.2^{\circ}\text{C}$**
- **Timer to automatically delay heater/pump to start over 14 hours**
- **Simultaneously delivers up to 1000ml into six vessels in two minutes**
- **It can be used with surfactants**

Optional Accessories:

10US Gal Reservoir
5US Gal Reservoir
Single delivery nozzle
8Gal. tank
8Gal. tank holder
Media Inlet Filters, Pack of 6
Delivery Manifold Assembly
Check valve
Hand Pump

Specification:

Electrical Rating	240VAC, 5AMP, 50/60Hz or 120VAC, 1 AMP, 50/60Hz
Media Delivery	Fill six dissolution test vessels simultaneously
Preset Volume	250, 500, 750, 900, or 1000ml
Filling Accuracy	$\pm 1\%$ of 500-1000ml $\pm 2\%$ of 250ml
Degassing	By vacuum, heat and high speed circulation
Temperature Range	25°C-45°C
Temperature Accuracy	$\pm 0.2\%$
Reservoir Tank Size	5gal, 10gal, or 15gal (user option)
Delivery Cycle	Max volume (1000 ml) within 2 minutes
Optional	5gal rinse tank (for changing media) Single delivery nozzle

System supplied complete with:

6-Position Measurement Module
Delivery Manifold
Media Transfer Cart
15US Gal (60 liters) Tank

Mobile unit brings media to bath:

The MDS-600 has 4 heavy-duty wheels under the cart to make it mobile. The user is able to wheel the MDS-600 to the dissolution tester. The user can then deliver the dissolution media into vessels without removing them, thereby reducing accidental breakage.

De-aeration per USP guideline:

As per USP dissolution media de-aeration guideline, the dissolution media should be de-aerated before it is filled into the dissolution vessels. The USP dissolution media degassing methods are: Heating/Stirring/Filtering/Vacuum.

Heating method: Done by using an inline heater. The dissolution media heats up to 45°C.

Stirring method: Done by a high-speed circulation pump. Dissolution media in the reservoir is constantly stirred until the air bubbles are purged.

Filtering method: Done by using in-line filters on inlet tubing. Dissolution media is filtered through before it goes into the measurement chambers.

Vacuum method: The plungers of a high-taught motor create a powerful vacuum force to pull the dissolution media through small pre-sized filters.

Delivery manifold:

The delivery manifold is designed to fit different brands of dissolution testers; it fits 3X2 vessel layouts as well as 4X2 vessel layouts.



Media tank:

In the past 30 years until now, all dissolution media is stored in a polyethylene tank. The polyethylene tank is molded, which never leaks. There is no "dead corner" in the tank and it is lightweight, the polyethylene tank is plastic and it never rusts neither. Logan Instruments' MDS-600 is using polyethylene tank as per all the customers requested.

Self-Checking system:

As soon as the user turns on the MDS-600, the CPU sends a 5V surge to the main board to test all the output ports. If the system passes the self-checking, it will go into delivery mode. If any defect accrued, the MDS-600 will report the malfunction by a long beep.

Volume setting:

There are 5 media transfer volumes that can be preset on the MDS-600 front panel; there is 250, 500, 750, 900 and 1000ml. If users request different volumes, Logan technicians will be able to re-set the volumes. The volume detection is by optical sensor; all six-measurement chambers work at the same time to make sure all the volumes are the same. One adjustment for all 6 measurement chambers, the volume accuracy is within 2% for media transfer under 500ml and better than 1% for the transfer media above 500ml.



Calibration:

USP dissolution test guideline mentions the volume of dissolution media also mentions test temperature at 37°C. Some labs prepare the media at room temperature and then fill the vessels to be heated up to 37°C, but the media volume changes due to increase of the temperature. The MDS-600 solves this problem by calibrated transfer by weight. The media heats to 37.5 ± .5°C and then is weighed; it is to insure the volume of dissolution media is within USP guidelines.

Surfactant media:

The media creates bubbles, which is the most difficult thing to handle, the eyeball measurement is never right. The MDS-600 has a special design so that it is able to transfer the media into measurement chambers without bubbles; this will give even surfactants in all 6 vessels.

Filling system:

There are 2 methods to fill the media into the MDS-600.

Manual fill: The pre-mixed media can be filled in by gravity, or the user is able to fill in the ID water from the inlet source. The media can be prepared in the tank; the circulation pump will do the mixing.

Auto fill: The MDS-600 has an automated fill pump; the user is able to fill the MDS-600 media tank by pressing a switch. When the CPU detects the highest level, it will shut-off the fill pump automatically.

High-speed circulation system:

The high-speed circulation is apart of the de-aeration; the media is pushed into a specially designed heating chamber where boiling is performed. After boiling the media goes back to the tank to cool down to the appropriate temperature.

Timer:

Each MDS-600 has a timer, which is able to program up to 99 hours. The timer is to start the de-aeration automatically, the user is able to fill in the media at the end of the day and set in the timer mode to start the de-aeration hours before he/she comes into work. The media will be pre-heated and degassed for the dissolution.

High and low liquid level with audible warning and safety shutoff:

The MDS-600 media tank has a 15 Gal capacity, with an audible warning alarm (Auto-fill mode) when the media reaches its full capacity. The low-level safety shutoff switch turns off the heater and circulator when the media nears empty; it also provides the audible warning.

Automatic media discharge:

All media can be automatically discharged when the user needs to change the media or when the user wants to clean the tank, just by switch the valve to the waste position all the media in the tank will be pump out. The pump will automatically shut-off when the tank becomes empty.

Other option:

MDS-600T: Media Delivery System-Counter top model.

