

Dissolution

DT-810 Dissolution Systems



JASCO

Performance
Innovation
Reliability



JASCO Advantage

The unique circular bath design with a magnetic stirrer ensures uniform water temperature throughout. The utilization of a round heating element equidistance to each vessel yields equivalent vessel temperatures within $\pm 0.1^{\circ}\text{C}$ which is imperative to an accurate dissolution system. The DT-810 provides excellent stability and reproducibility to comply with USP, EP and other pharmacopeia.



Round Heating Element with Magnetic Stirrer

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Features

Flexibility and Design

The DT-810 Dissolution Tester is fully automated and designed for flexibility to provide dissolution testing of up to 8 samples with either the rotating basket method (USP Apparatus 1) or paddle method (USP Apparatus 2). The Direct-Centering™ automatic centering mechanism provides hands-free positioning of the vessels and drift shafts for accurate dissolution tests with high reproducibility. Built-in automatic tablet dropping or basket lowering ensures accurate dissolution timing. All components can be controlled via the PC using simple keystroke operations with a user friendly graphic interface.



Temperature

In vessel temperature probes monitor and record the temperature of each individual vessel to ensure accurate dissolutions. A feedback temperature reading ensures a constant temperature and an equivalent temperature between the vessels of $\pm 0.1^\circ\text{C}$. There is also an available port for a 2nd monitoring temperature probe in each vessel.

Flexibility

The flexible configuration provides a customizable system for any analytical lab requirements. Starting with the DT-810 with manual sampling using a cannula, the series is future proof with the ability to add accessories at any time to further automate the system. The automated systems include the Flow System, Fraction System and Fraction-Flow System and each of these can have an automatic filtration system.



The standard DT-810 is the Apparatus 2 (paddles) with automatic tablet dropping, but can be easily converted to Apparatus 1 (baskets). The water bath, vessels and vessel lids are clear, but any or all of those can be changed to amber for light sensitive samples. The vessels are 1 liter as standard, but smaller vessels are available as well.

Flow System



For continuous automated photometric analysis during the dissolution, the flow system provides automated sampling at user determined intervals from each of the 8 vessels. The peristaltic pump continuously circulates the samples between the 8 vessels and the flow cell accessory to keep a constant vessel volume during the dissolution.

Fraction System



The fraction system provides automatic fraction collection from each of the 8 vessels at the user defined intervals. Off-line analysis of these fractions can then be performed on a UV spectrometer or other analytical instrumentation such as HPLC to monitor the progress of the dissolution. As many as 12 sets of fractions for each of the 8 vessels can be collected. Additional flow lines for solvent refills or line flushes are available using internal or external solvents.

Fraction-Flow System



For both automated on-line and off-line analysis the fraction and flow systems are combined. This system takes sample aliquots from the fractions to analyze on the UV spectrometer and the residual fraction can be analyzed offline using other techniques such as HPLC.

Automatic Filtration Option

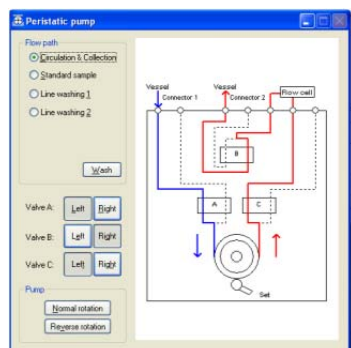


The automatic filtration accessory can be added to any of the automated systems. Filters with a pore size of $0.45\mu\text{m}$ ($0.2\mu\text{m}$ option) are inline prior to the fraction collector or UV flow cell for sample filtering. The filters are automatically exchanged in the system after each sampling.

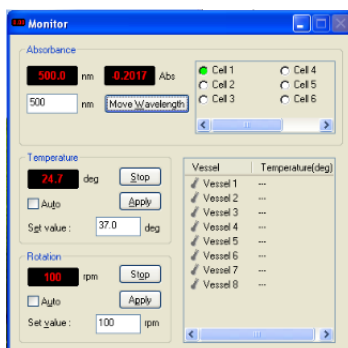
Spectra Manager Software

The dedicated dissolution testing software provides complete system control and real-time monitoring. The dissolution unit, pump, fraction collector and UV spectrometer are all controlled through Spectra Manager with a user friendly graphic interface. To comply with 21 CFR part 11 compliance, Spectra Manager CFR is an option for security and auditing functions that ensure the security, integrity and confidentiality of electronic records.

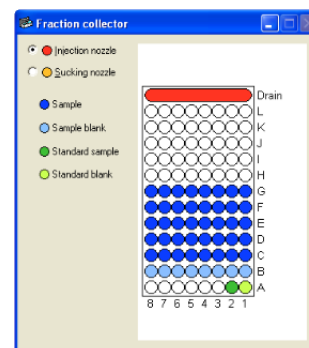
Monitoring



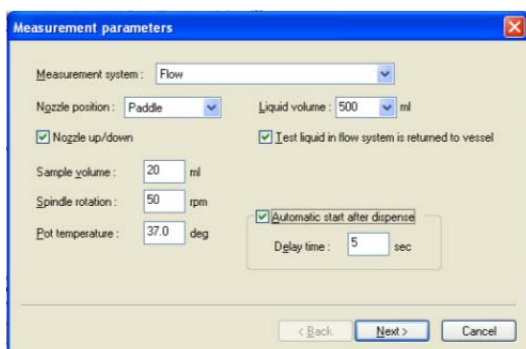
Status of the flow lines and valves for the peristaltic pump are updates during testing.



The shaft rotation speed, bath and vessel temperature are constantly displayed.

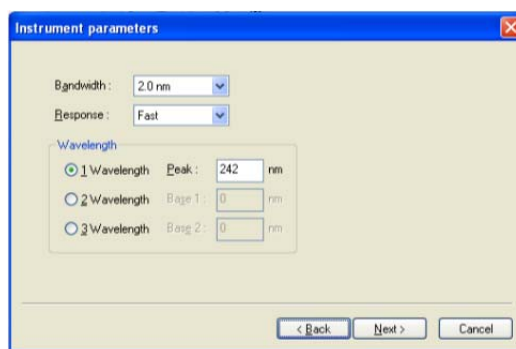


The status of the test tubes in the fraction collector is displayed using different colors.



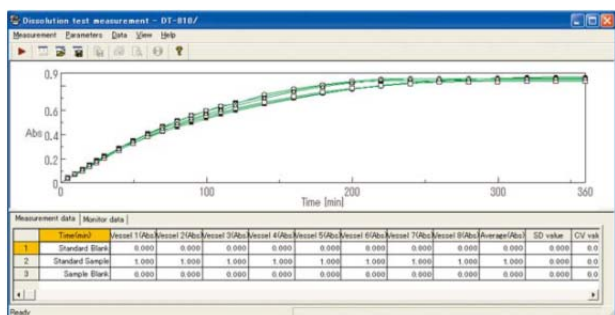
Measurement Parameters

Dissolution volumes, sampling volumes, rotation speeds, vessel temperature and other parameters are all easily set.



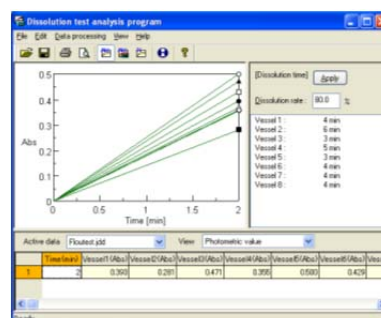
Photometric Analysis

Wavelengths, bandwidth and response are easily set for the automated analysis on the UV spectrometer.



Dissolution Curves

Dissolution curves graphically and numerically show the dissolution progress in each of the 8 vessels over time as measured by the UV spectrometer.



Test Analysis Results

Post-run analysis of the dissolution data is displayed and dissolution rate calculations can be performed.

Specifications

DT-810		
Number of Vessels	8 vessels, 1000mL each as Standard (Other volume vessels available)	
Spindles	Paddles method (Standard)	
	Rotating baskets method (Optional)	
Rotation Speed	5 to 300 rpm	
Vessel Centering	Direct-Centering™ automated mechanism	
Thermostatted Bath	Bath Design	Circular with magnetic stirring and circulator heating element
	Temperature Range	32-45°C (25°C room temperature)
	Temperature Accuracy	±0.1°C (32-45°C)
	Temperature Stability	±0.05°C (32-45°C)
	Safety	Overheating protecting using float switch, limit controller and temperature sensor
	Drain	Drain port for quick and simple cleaning
Sampling	Manual (if only DT-810)	
	Automatic user declared with sampling position software controlled (requires LH-PV3, V-700 with 8-position flow cell)	
Tablet Dropping	Automatic	
Flow System		
UV Spectrometer	V-730 (190-1100nm, 1nm Spectral Band Width) or V-750 (190-900nm, 0.1, 0.2, 0.5, 1, 2, 5, 10nm SBW)	
8-position cell	10 mm path length (Standard)	
	1, 2, 5 mm path length (Optional)	
	Reference: 10mm cuvette	
Fraction System		
Sampling Procedure	8 nozzle filling mechanism	
Sampling System	Freely moving X, Y, Z axis positioning	
Fraction Collection	96 positions (20mL test tubes)	
Maximum Volume	20mL per fraction	
Contaminant Free	Enclosure supplied as standard	
Filtration System		
Number of Filters	8 lines x 12 filters each	
Type of Filters	25mm diameter with pore size 0.45µm or optional 0.2 µm	

JASCO INTERNATIONAL CO., LTD.

11-10, Myojin-cho 1-chome, Hachioji, Tokyo 192-0046, Japan
 Tel: +81-42-649-3247, Fax: +81-42-649-3518, Web: www.jascoint.co.jp/english/
 Australia, China, Hong Kong, India, Indonesia, Iran, Japan, Korea, Malaysia, New Zealand, Pakistan, Philippines,
 Russia, Singapore, Taiwan, Thailand

JASCO, INCORPORATED

28600 Mary's Court, Easton, Maryland 21601, U.S.A.
 Tel: +1-410-822-1220, Fax: +1-410-822-7526, Web: www.jascoinc.com
 Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Mexico, Panama,
 Paraguay, Peru, Puerto Rico, United States of America, Uruguay, Venezuela

JASCO EUROPE S.R.L.

Via Luigi Cadorna 1, 23894 Cremella (LC), Italy
 Tel: +39-039-9215811, Fax: +39-039-9215835, Web: www.jascoeurope.com
JASCO Deutschland www.jasco.de | **JASCO UK** www.jasco.co.uk | **JASCO France** www.jascofrance.fr
JASCO Benelux www.jasco.nl | **JASCO Spain** www.jasco-spain.com

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