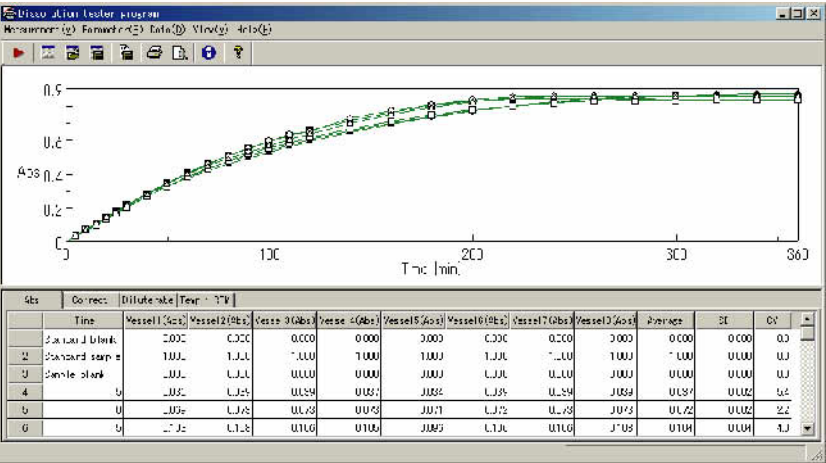


# Dedicated dissolution testing software for full system control and real-time moitoring

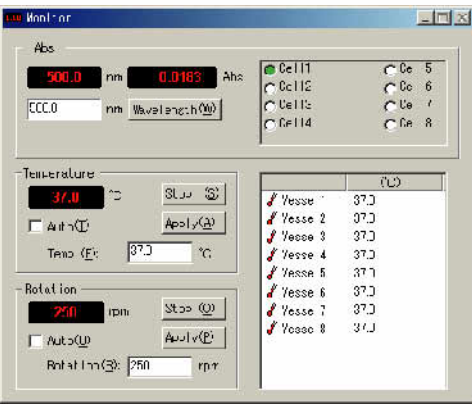
## Full system control and real-time monitoring

The DT-810 dissolution tester is controlled by a 21 CFR 11 compliant software package. The dedicated software offers easy-to-use operation for fully-automated control and monitoring of testing processes of the whole system including the the pump, the fraction collector and the UV/VIS spectrophotometer. Powerful and user- friendly features include a validation program compliant with USP, EP and Japanese Pharmacopoeia procedures, a daily self-diagnostic function, monitoring functions of the system conditions and system status such as the bath temperature, vessel temperature and the UV/Vis absorbance of the sample, among other parameters.



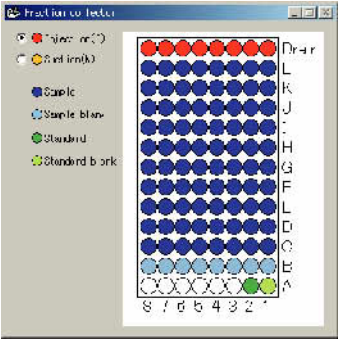
### ●Measurement window

Measurement window shows absorbance graph or dissolution curve in addition to a table of actual absorbance values of each line. During testing, monitoring window shows the system status such as bath temperature, each of vessels temperature(option), spindle speed, etc. When parameter settings, auto-saving and/or auto-printing mode can be selected.



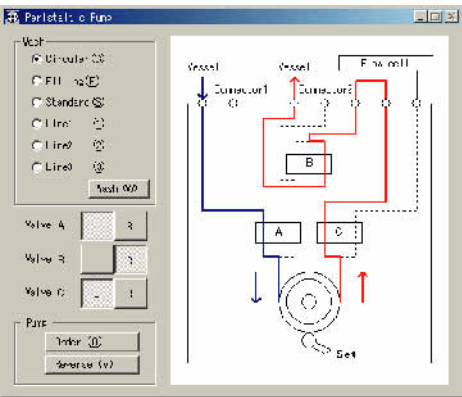
### ●Monitoring window of spindle speed and temeprature

Spindle rotational speed, temperature of bath and each of the vessels can be monitored.(Optional sensors are required to monitor the each of the vessels.) The monitored results of both rotational speed of spindle and temperature during samplings are automatically recorded. In the Flow system, UV/VIS absorbance monitoring window is displayed to check washing status of 8-position flow cell. In the systems which include UV/VIS spectrophotometer, dissolution rate are automatically saved together with rotational speed of spindle and temperature.



### ●Status of the test tube rack

Current rack status is displayed by using different colors when using FC-812AS.



### ●Monitoring flow lines

Current status of flow lines and peristaltic pump are displayed. Switching valves can be done with checking flow lines status.

## DT-810 specifications

Number of vessels	8 of 1000 mL vessel
Spindles	Test method: Paddle method (Standard) Rotation basket method (Optional) Rotation speed of spindle 5 to 350 rpm Accuracy of rotation speed of spindle: ± 1 % Drive System :stepping motor
Thermostatted bath	Stirring: Magnetic stirrer Temperature control device :circular heater Temperature setting range:32 to 45°C ( at room temperature 25°C) Temperature setting accuracy: ± 0.1°C ( at room temperature 25°C) Temperature stability: ± 0.05°C ( at room temperature 25°C) Temperature accuracy in vessels: ± 0.1 °C Safety provision: Overheat prevention by float switch, limit controller, temperature sensor Drain port for quick and simple routine cleaning
Nozzle	Automatic lifting and lowering function by stepping motor Automatic sampling at set time Sampling position: Automatic by setting test method and sample solution volume
Tablet dropping	Automatic (tablets, capsules, sinker)
Vessel centering	Automatic
Positions of temperature sensors	Thermostatted bath, each of vessels (option)
Power requirement	AC100 + 10V 50/60 Hz 1100VA(including LH-P)
Dimensions	565(W) x 720(D) x 670(H) mm
Weight	90 Kg( main unit including vessels and paddles, no water in the bath)

## Software specifications

Functions	System control and monitoring, data collection, dataanalysis DT-810: Temperature in the bath, rotation speed of drive shift, flow line, temperature in each vessel (optional)
Monitoring items	Liquid handling unit: Value position Fraction collector: Current rack status V-530DT: Absorbance value of the specified cell

## Liquid handling unit specifications

Model	LH-PV2	LH-PV3
Number of flow lines	8-line	8-line
Solvent supply procedure	8-line peristaltic pump	8-line peristaltic pump
Tubing	PharMed® tube	PharMed® tube
Roller	using stepping motor, both normal and reverse rotation	using stepping motor, both normal and reverse rotation
Sampling accuracy	± 3%( when sampling 20 mL)	± 3%( when sampling 20 mL)
Switching valve	2 valves	3 valves
Dimensions	160 (W) X 352 (D) X 311(H) mm	160 (W) X 352 (D) X 395 (H) mm
Weight	12kg	13kg

## Fraction collector specifications

Model	FC-812AS
Sampling procedure	Moving 8- position nozzle( Y axis)
Nozzle	Moving X, Y, Z axis
Fraction	8 lines 12 columns (when using 20mL test tube)
Maximum sampling volume	20mL
Minimum sampling interval	sequence measurement:4 minutes sampling: 1 minute at first, 2 minutes on and after second (depends on parameters)
Dusttight enclosure	equipped as standard
Power requirement	AC100 ± 10V 50/60Hz 50VA
Dimensions	300 (W) X 496 (D) X 415 (H) mm
Weight	23kg(main unit and rack)

## 8-position flow cell specifications

Model	TQ-801
Cell(option)	8 pcs. of 10 mm rectangular flow cell 5, 2 and 1 mm path length rectangular flow cells (optional)
Reference side	single cell holder



## JASCO INTERNATIONAL CO., LTD.

4-21, Sennin-cho 2-chome, Hachioji, Tokyo 193-0835, Japan  
Tel: +81-426-66-1322 Fax: +81-426-65-6512 Internet: <http://www.jascoint.co.jp/english/index.html>  
Australia, China, Hong Kong, India, Indonesia, Iran, Korea, Malaysia, New Zealand,  
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## JASCO INCORPORATED

8649 Commerce Drive, Easton, Maryland 2160-9903, U.S.A  
Tel:+1-800-333-5272 Tel:+1-410-822-1220 Fax:+1-410-822-7526 Internet:<http://www.jascoinc.com>  
Argentina, Brazil, Canada, Chile, Colombia, Costa Rica, Mexico, Paraguay, Peru, Puerto Rico, Uruguay

## JASCO EUROPE s.r.l.

Via Cadorna 1, 23894 Cremella (Lc), Italy  
Tel: +39-039-9215811 Fax: +39-039-9215835 [www.jasco-europe.com](http://www.jasco-europe.com)  
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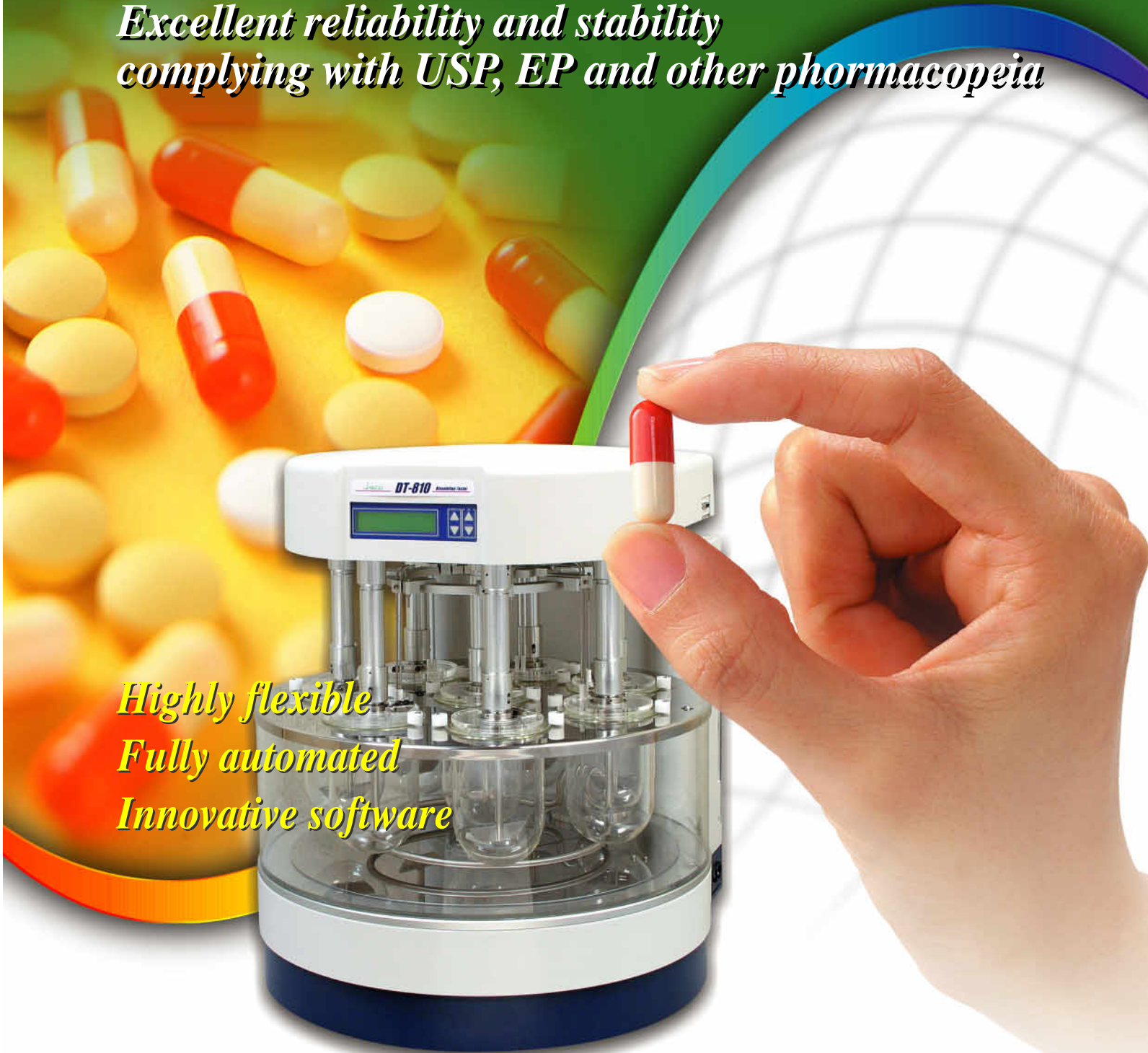
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**JASCO Corporation**  
2067-5, Inokawacho, Machida, Tokyo 194-8657, Japan  
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# DT-810 Dissolution Tester

Excellent reliability and stability  
complying with USP, EP and other pharmacopeia



Highly flexible  
Fully automated  
Innovative software





# Circular instrument design for optimum temperature uniformity



The model DT-810 Dissolution Tester is designed with full automation and high flexibility. It enables the dissolution testing of up to 8 samples with both paddle method (standard) and rotation basket method (optional). Its unique circular instrument design optimizes water temperature uniformity in the bath with a round-shape heater. The automatic centering mechanism for positioning of the vessels and drive shafts provides hands-free accurate and precise dissolution tests with high reproducibility. All components can be controlled by PC with simple key operations through user friendly graphic interface.

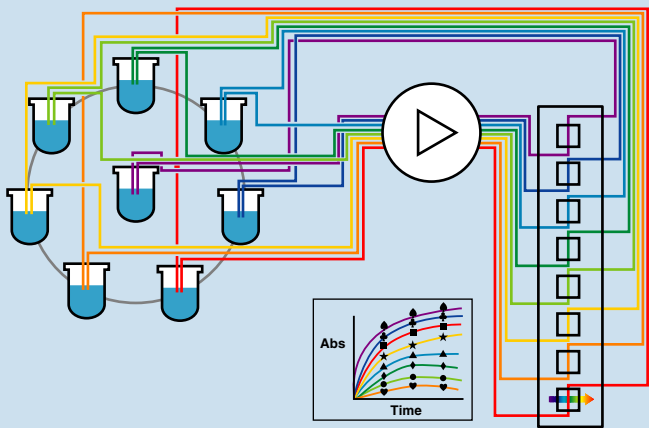
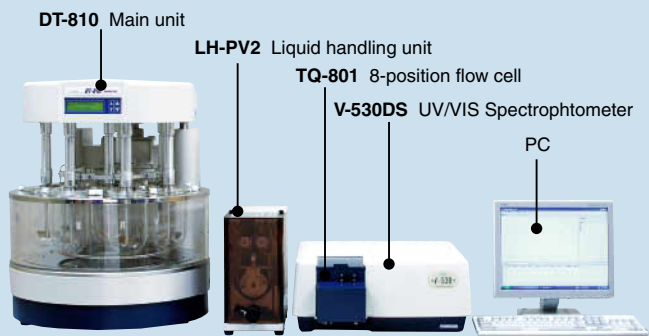
- Meets USP, EP and JP requirements
- 21 CFR Part 11 compliant
- High temperature stability by the circular type bath
- Uniformed temperature distribution between vessels located circularly
- Easy to set up and maintain
- Unique centering mechanism for automatic alignment of vessels
- Vessels with high precision on physical dimension
- Full PC control and monitoring function of the system status
- Automatic dropping capability to drop a tablet into a vessel
- Automatic nozzle lifting and lowering function



## Flow System

### Direct photometric analysis during the dissolution test

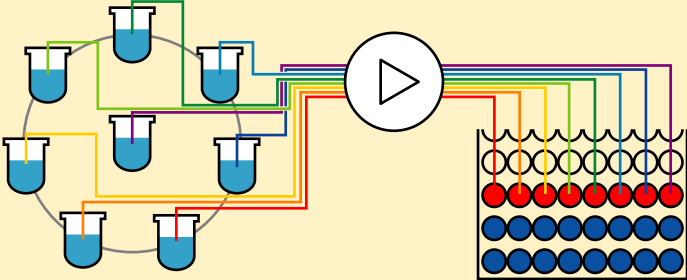
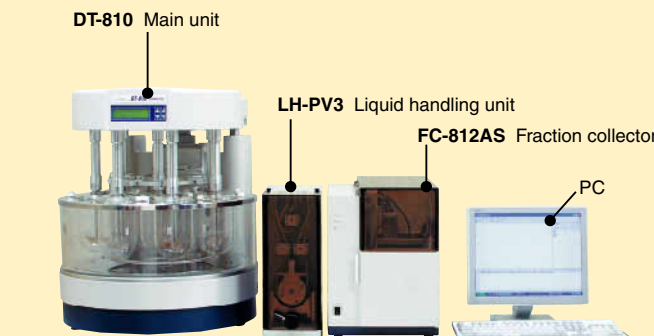
This system is combined with the 8-positioned flow through cell unit installed in a UV/VIS spectrophotometer. The liquid handling unit(peristaltic pump) continuously circulates sample solution between 8 vessels and the 8-position flow cell. At pre-set intervals, the absorbance values are measured each time and dissolution rates are calculated automatically. It is possible to introduce standard solution from outside.



## Fraction System

### Up to 8 lines at maximum 12 times for the varied test requirements

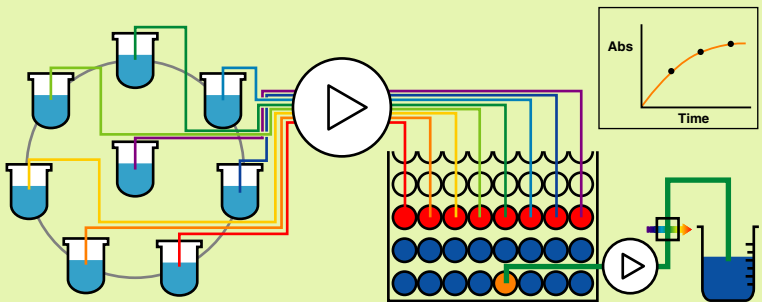
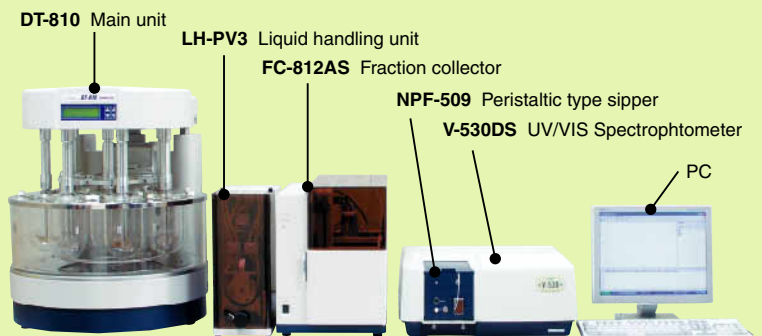
This system is combined with the fraction collector. The pre-set sampling amount up to 20 mL from each vessels will be collected to 8 independent test tubes at certain pre-set time intervals. Maximum number of the sampling is 12 times. Flow lines for the solvent refilling and for cleaning flow lines from desired vessel or outside are available.



## Fraction Flow System

### Flexibility for on-line and/or off-line testing procedures upon requirements

This system is combined with the fraction collector and the single flow through cell unit installed in a UV/VIS spectrophotometer. The sample solutions are collected to test tubes by the fraction collector. A part of the sample solutions collected in a test tube is delivered to UV/Vis spectrophotometer by using autosampling function of the fraction collector. The rest sample solutions in test tubes can be used for further analyses by using various testing methods such as HPLC.



## LH-P series Liquid handling unit (peristaltic pump unit)



The LH series are 8-channel peristaltic pump units for sampling and circulating sample solutions. The series are equipped with flow rate adjustment function.

### ●LH-PV2 (only for Flow System)

The LH-PV2 is for the Flow System to circulate sample solutions between vessels and 8-position flow cell. Extra flow lines are available to introduce standard sample solution and/or to clean flow lines.

### ●LH-PV3 (for all the systems)

The LH-PV3 can be used for both sampling and circulating sample solutions. Extra flow lines are available for refilling solvents and introducing standard and/or cleaning solutions from outside or desired vessel.

## Fraction collector



### ●FC-812AS

The FC-812AS Fraction Collector can simultaneously collect up to eight sample solutions to eight independent test tubes from vessels. Maximum number of sampling is 12 times. Additionally, the FC-812AS has an autosampler function, which enables to deliver a part of sample solution collected in a test tube to UV/VIS Spectrometer coupling with the NPF-509 peristaltic pump sipper and a single flow cell.

## UV/VIS Spectrophotometer



### ●V-530DS UV/VIS Spectrophotometer

The V-530DS is a suitable UV/VIS spectrophotometer for the DT-810 dissolution tester system. The TQ-801 8-position flow cell is equipped with the V-530 for Flow system. The NPF-509 peristaltic pump type sipper with a single flow cell is equipped with the V-530DS for Fraction Flow system. Validation software is available as standard. (Note that optional jigs are required to run the validation software.)