



Agilent 708-DS and 709-DS Dissolution Apparatus

BETTER DESIGN, BETTER RESULTS.

The Measure of Confidence



Agilent Technologies

A New Standard



Improving Your Productivity Through Superior Design

Agilent has collaborated with pharmaceutical customers worldwide to develop the new standard in dissolution apparatus. As companies standardize their equipment needs, it is critical to select a platform that provides the flexibility to meet varying applications, is easy to use and offers advanced design to minimize or eliminate variables. The 708-DS and 709-DS apparatus meet these criteria with a new global standard for dissolution.

Tailored to Your Needs

Both the 708-DS and 709-DS feature a motorized lift for reproducibility and integration with automated systems. Both apparatus can be configured to support several innovative options, including media temperature monitoring, dosage delivery and automated sampling, to allow for unattended dissolution testing. For additional convenience, customized accessory components enable you to choose specific vessels, baskets, paddles and shafts; the optional built-in printer allows you to document your testing parameters and dissolution run information.

Quality and Value Beyond the Instrument

The design of the 708-DS and 709-DS conforms to internationally harmonized pharmacopeia specifications for Apparatus 1 (basket) and Apparatus 2 (paddle) and also meets the standards for rotating cylinder, intrinsic and paddle over disk configurations. Both apparatus can be used to test tablets, capsules and a wide variety of other dosage forms. For more information on these applications, contact your Agilent representative.

Agilent offers much more than just innovative dissolution products. Agilent provides a complete solution including qualification services, training, SOP guidance and support options, as well as educational seminars, hotline and technical support for equipment, regulatory and method questions, and sponsorship for the vendor-neutral online Dissolution Discussion Group (DDG) forum.



The 708-DS with Dosage Delivery Module (DDM) and hands-free automated manifold with AutoTemp.



The 709-DS with motorized drive unit lift, Dosage Delivery Module (DDM) and AutoTemp options.

Manual and Instrument-Controlled Options

Whether you need a quick, manual solution for dissolution testing or prefer high-throughput automation options, the 708-DS and 709-DS apparatus offer complete flexibility.

Sampling Options

- **Manual Sampling.** Accessibility to your vessels is important when sampling manually. The apparatus' recessed drive unit provides vertical and horizontal accessibility, offering clearance from the vessel plate and making manual sampling through the evaporation cover port simple.
- **Automated Sampling.** The Autosampling option (when used with the Agilent 8000 Dissolution Sampling Station) controls hands-free sampling automatically. Agilent provides non-resident sampling (through the use of a motorized manifold) as well as resident cannula kits to support your existing dissolution methods.



Select the sampling options you need to support your laboratory. Left to right: manual sampling, automated non-resident sampling and resident sampling options. Note: resident sampling is not available on the 709-DS.

Temperature Monitoring Alternatives

- **Handheld Temperature Probe.** Check media vessel temperature as needed with the easy-to-use, optional temperature probe.
- **Precise In-vessel Temperature Monitoring.** Focus on other laboratory tasks while the optional AutoTemp feature (standard on the 709-DS) accurately monitors and documents vessel media temperature at pre-programmed timepoints.

Dosage Delivery Capabilities

- **Manual Delivery Ports.** Using the ports on the evaporation cover, simply drop your dosage forms as desired.
- **Automated Dosage Delivery Module (DDM).** Maintain complete visibility and control of dosage delivery with automatic introduction options.

Motorized Lift Mechanism

- The quiet, smooth movement of the drive unit is easily controlled with the touch of a single button. Magnetic sensors automatically detect when the unit is in operating position, which is ideal for reproducibility.
- Movement of the drive unit is controlled externally when automated or online systems are configured, eliminating the need for user intervention. The motorized mechanism ensures the head is lowered to precisely the correct spot, time after time. Manually operated units run the risk of slight variations which can effect the correct set point height of the paddle or basket shaft.

Designed for Ultimate Flexibility

The ideal dissolution apparatus minimizes the effects from external interferences. Our design helps ensure your results are based on your dosage form and not due to environmental influences.



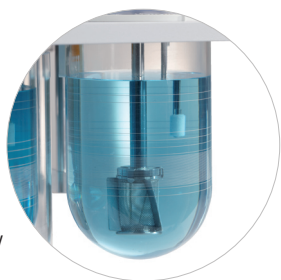
Feature	708-DS	709-DS
Open access design (recessed head)	standard	standard
Direct vessel heating (no water bath)	not available	standard
Motorized lift	optional	standard
TruAlign vessels	standard	standard
AutoTemp media temperature monitoring	optional	standard
Resident sampling probe	optional	not available
Dosage Delivery Module	optional	optional
Autosampling	optional	optional
Built-in printer	optional	optional

708-DS Water Bath Design

- Angled water bath design simplifies draining, greatly reducing cleaning time.
- Heater/circulator resides behind the water bath, saving precious bench space.
- By isolating the heater/circulator from the apparatus, no vibration is translated to the instrument.

709-DS Direct Vessel Heating

- Offers complete visibility of the vessel.
- Reduces heating time through smart vessel technology: 900 mL of media heats from 25 to 37°C in 15 minutes or less.
- Isolates vessel media temperature from environmental factors through the use of acrylic chambers.
- Incorporates a temperature feedback loop in each vessel.
- Supports longevity and safety through shatter-proof collars and clear plastic vessel coating.
- Provides a simpler cleaning routine by eliminating the water bath.



Open Access Design

The recessed drive unit with unobstructed access makes setting and verifying the physical parameters easier than ever. This is especially critical as adoption of Mechanical Qualification increases.

Workflow Enhancements

- Focus on other laboratory tasks while your media heats. Upon reaching the preset temperature, AutoTemp:
 - Notifies you to begin a manual test.
 - Prompts the optional DDM to deliver the dosage form (when configured as Apparatus 2).
 - Uses non-resident probes to monitor and record vessel media temperature at pre-programmed timepoints.
 - Documents temperatures for accurate record keeping.
- Meet regulatory guidelines and ensure maximum productivity. The Autosampling option, in combination with the Agilent 8000 Dissolution Sampling Station:
 - Lowers the sampling cannulas into the media and withdraws samples at a programmed depth (based on vessel size and media volume), ensuring reproducibility.
 - Enables completely unattended dissolution testing when used in combination with the AutoTemp and DDM options.

Accessory Component Flexibility



Further customize your instrument with interchangeable accessory components, making the switch between baskets and paddles simple and quick. A common upper shaft supports interchangeable basket and paddle options, eliminating height readjustment when switching configurations.

Dosage Delivery Accessibility



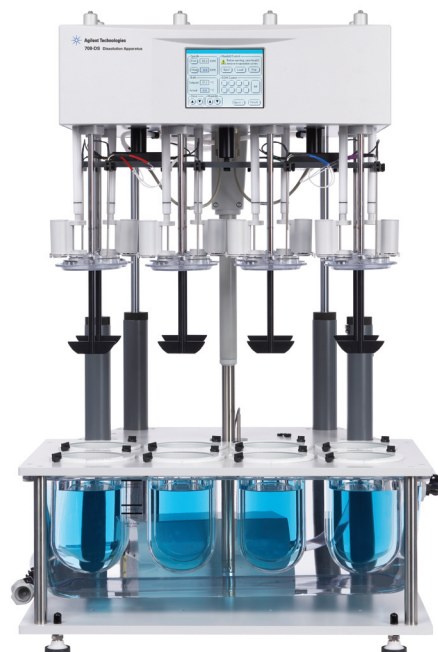
The Dosage Delivery Module (DDM) is integrated into the evaporation cover for direct accessibility. The DDM option gives you complete visibility of the dosage form while simplifying introduction into the vessel media. Automated DDM facilitates:

- Simultaneous dosage delivery into non-rotating media, or sequential delivery.
- Programmable options for instantaneous, delayed or preset water bath temperature start; or, when used with AutoTemp, media temperature start.

The DDM option may also be used to manually introduce the dosage form by simply sliding the DDM lever.

Precise Vessel Alignment

The TruAlign vessels precisely align the vessel every time. Only TruAlign vessels have a collar incorporated onto the vessel which maintains accurate center and verticality alignment with the dissolution apparatus. An indicator tab on the collar provides reproducible vessel orientation with respect to the base plate.



Hands-Free Evaporation Cover Suspension

- During a dissolution run, covers can be individually suspended in a raised position, making media addition easy.
- The integrated covers automatically travel with the apparatus drive unit when raised or lowered with the use of optional alignment posts or the DDM module, so there is no need to remove covers first.



Touch Screen Display

Method setup, storage and operation is simple and fast using the bright, easy-to-read display.

- Intuitive interface provides control of instrument settings, testing parameters and diagnostics.
- Multiple language options include English, Spanish, Japanese and Simplified Chinese.
- Screen-locking capability for added security.



Automation Integration Capabilities



Autosampling

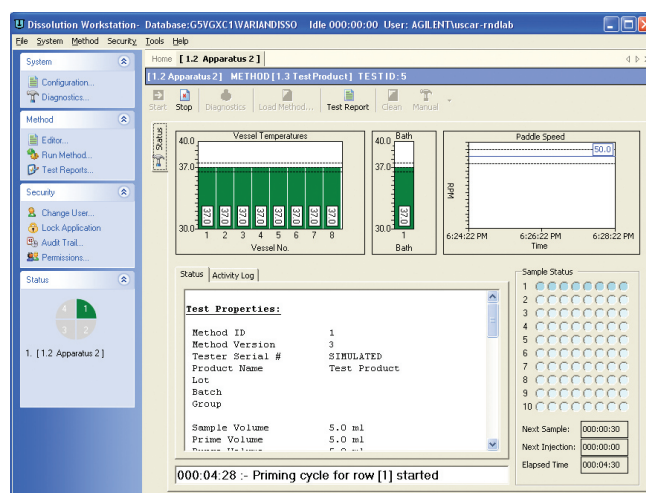
The Autosampling option, when used with the Agilent 8000 Dissolution Sampling Station, allows you to utilize either resident or non-resident cannulas for sampling with the 708-DS (resident cannulas are not available on the 709-DS). The 8000 automatically collects samples into open or closed tubes/vials via a peristaltic or syringe pump, and can accommodate sample filtration down to 0.45 μm when used with our filter changer and syringe pump.



708-DS with Agilent 8000 Dissolution Sampling Station, 806 Syringe Pump and 808 Filter Changer.

Workstation Software

Agilent's Dissolution Workstation Software facilitates complete control of up to four dissolution systems from a single PC. The software allows dissolution methods to be created, retrieved, edited, searched and archived. The software is 21 CFR Part 11 compliant to ensure electronic signature functionality, and audit logs track the methods in use and configuration changes.



Dissolution Workstation monitors run conditions during the dissolution test.

Integrated Dissolution and Analysis

Agilent is a single-source provider of the complete solution for your analytical finish requirements.

UV Dissolution with Agilent 8453 UV-visible Spectrophotometer

Agilent, former Varian and VanKel dissolution apparatus can be directly linked to the diode-array 8453 UV-visible spectrophotometer for UV analysis. The UV-visible ChemStation software integrates the apparatus, spectrophotometer and computer to a system supporting guided operation and unattended test runs with online test progress monitoring.

- Three different approaches of online sampling are offered and a maximum of four apparatus can be linked to a single spectrophotometer. The online systems offer parallel sampling for a single apparatus or sequential sampling for up to four apparatus.
- In the offline approach, the dissolution samples are collected independently of the 8453 though sample analysis and data evaluation are performed with the 8453, offering flexibility for evaluation of dissolution results.

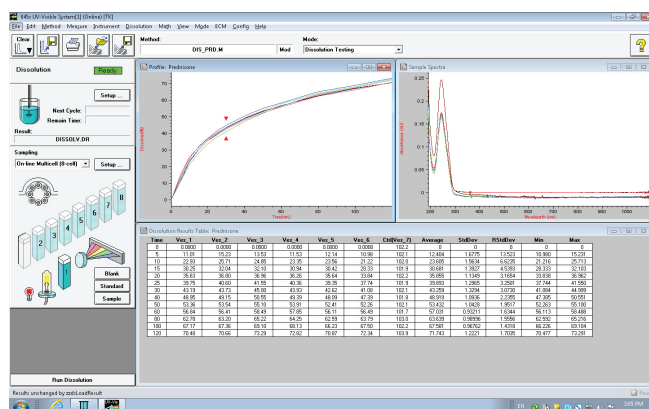


Ease of Use

The dissolution testing software builds on the Agilent UV-visible ChemStation platform. It provides the additional tasks that are required for automated sampling, data evaluation and reporting, and applies the same easy-to-use pictorial user interface. All parameters necessary to perform a dissolution test are stored in a single method file. Methods include procedures that guide the operator through the specified tasks.

Scalable Solutions for Every Workflow

Regardless of the workflow, there is an offline or online solution to meet your needs. The dissolution software allows for offline walkup analysis or configuration with a dissolution sampling system. These solutions are quite cost-effective and can analyze samples from numerous dissolution apparatus. For an online system, you have the ability to sample from one, two, three or even four apparatus in-line with a single 8453 spectrophotometer.



ChemStation software report

Multicell UV Dissolution with the Cary 60 UV-visible Spectrophotometer

The Cary 60 UV Dissolution System provides superior online UV analysis in either multicell or fiber-optic configurations with a single or dual system.

- Save time and increase productivity for precise UV analysis using the multicell system with dedicated flow cells that eliminate media cross contamination. The system can be integrated with the Agilent 8000 to allow sample archiving and filtration down to 0.45 μm prior to UV analysis (when used with the optional filter changer).
- The multicell configuration and software allows one spectrophotometer to be used with two dissolution baths running independent methods.

UV Dissolution – In Situ Fiber Optic Option

The Cary 60 spectrophotometer is ideally suited for in situ fiber optic measurement. The long-lasting Xenon lamp only flashes when acquiring a data point and provides a wide photometric range. The fully integrated software controls all aspects of the dissolution run, analysis and reporting.

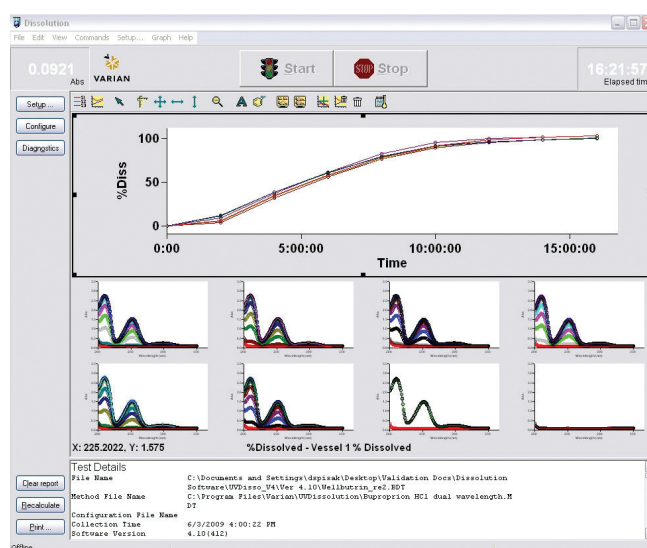
- 12-channel multiplexer provides superior optical transmission across the entire wavelength range from 190-1100 nm.
- The fiber optic probes reposition to the surface after measurement, minimizing hydrodynamic disturbance.
- The probes are specifically designed for dissolution measurement and the interchangeable tips are available in 1, 2, 5, 10, and 20 mm pathlengths.
- A single Cary 60 spectrophotometer with multiplexer can be used with one or two dissolution apparatus. You can even perform two different methods simultaneously in the dual bath configuration.

Typical UV Dissolution Hands-On Time (in Minutes)*

Event	Manual	Automated sampling	Online UV analysis
Dissolution media preparation	45	45	45
Standard preparation	30	30	30
Dissolution apparatus preparation	10	10	10
Dissolution method setup	5	5	5
Sample collection/filtration**	80	8	0
UV method setup	10	10	15
Sample analysis	60	60	0
System cleanup/turnover	15	15	15
Calculations/report summary	45	45	0
Total	300	228	120
% Time (savings)	-	24%	60%

* Based on dissolution method with 8 timepoints.

** Sample collection/filtration for manual test includes: pulling/filtering of sample, labeling of test tubes, preparing syringes/cannulas, storing samples = 10 minutes/ timepoint.



Progression of a UV dissolution profile as data is acquired.

UV Dissolution Selection Chart

8453 UV-visible and Cary 60 UV-visible Spectrophotometers

Software package	ChemStation	Cary WinUV
Number of apparatus	1 to 4 (valve system)	1 or 2 (multicell system)
Multicomponent analysis	yes	no
Fiber optic system availability	no	yes
Single vendor for all system components	yes	yes

Spectrophotometer Details	8453	Cary 60
Wavelength range	190-1100 nm	190-1100 nm
Slit width	1 nm	1.5 nm
Lamp type	tungsten and deuterium	xenon flash
Instrument design	diode array	scanning
Wavelength accuracy	< ± 0.5 nm	± 0.5 nm
Wavelength reproducibility	< ± 0.02 nm	± 0.1 nm
Photometric accuracy	< ± 0.005 Abs (NIST 930E)	± 0.005 Abs (NIST 930D)
Photometric noise	< 0.0002 Abs	< 0.0001 Abs
Baseline flatness	< 0.001 Abs	± 0.001 Abs
Stray light	< 1.0% (198 nm) < 0.05% (220 nm) < 0.03% (340 nm)	≤ 1.0% (198 nm) ≤ 0.05% (220 nm) ≤ 0.05% (370 nm)

Online UV Hardware Details	8453	Cary 60
Closed loop sampling	with single apparatus multicell system	with single or dual apparatus multicell system
Maximum path length (mm)	50 (multicell) 100 (valve systems)	10 (multicell) 20 (fiber optic)
Automated dosage delivery and sampling	yes	yes
Temperature monitoring	yes	yes
Simultaneous sampling	yes (multicell)	yes (multicell)
Sequential sampling	yes (valve systems)	yes (fiber optic)
Sample filtration (minimum pore size, µ)	5 µm	0.45 µm (with 808 Filter Changer)
Sample archival	no	yes (multicell with 8000 Dissolution Sampling Station)

Online UV Software Details	8453	Cary 60
Real-time data visible	yes	yes
Independent methods	yes	yes
Offline analysis	yes	yes
User-definable dissolution result calculation	yes	no
Tablet weight normalization	yes	yes
Medium volume changes	yes	yes
Customizable reports	yes	yes
Apparatus performance tracking	yes	no
21 CFR Part 11 package	yes	yes
Electronic signatures	yes	yes

Agilent 708-DS and 709-DS Dissolution Apparatus

Agilent is known for developing state-of-the-art technology and exceptional products. With the 2010 addition of Varian Inc., we now offer an even greater range of instrumentation, as well as the most comprehensive columns and supplies portfolio in the market. Just as important are the best-in-class service and technical support teams with deep expertise focused on finding solutions for our customers.

Our customers are engaged in a broad range of endeavors, from performing routine tests to addressing complex scientific challenges that will impact the way we live. At Agilent, we understand that all scientists, regardless of their specific area of focus, share a common need for answers they can trust. This universal need is summed up in a word: Confidence.

Confidence means having tools that are precise, consistent, and utterly reliable. It means access to expert support to ensure that those tools run with optimal performance. Above all, this means knowing Agilent, now with the strength of the people and products from Varian, provides the technology—and the Measure of Confidence—you need to be successful.

For more information on the 708-DS and 709-DS please go to:
www.agilent.com/lifesciences/dissolution

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