

JetXTM Sample Preparation



JetX™

Sample Preparation – It's time for a change!

JetX™ revolutionizes the way you prepare samples for content uniformity and assay tests. No more glassware! Get rid of slow, repetitive, and poorly documented manual preparation – and boost productivity of your lab to new levels.



4×

faster

–80%

labor time

=

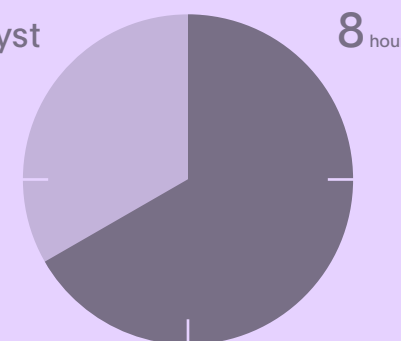
same results

Automated Sample Preparation



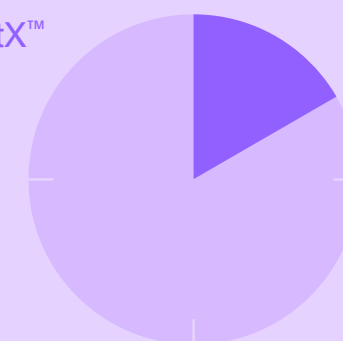
Time to complete 30 samples

Analyst



8 hours

JetX™



2 hours

Samples per shift

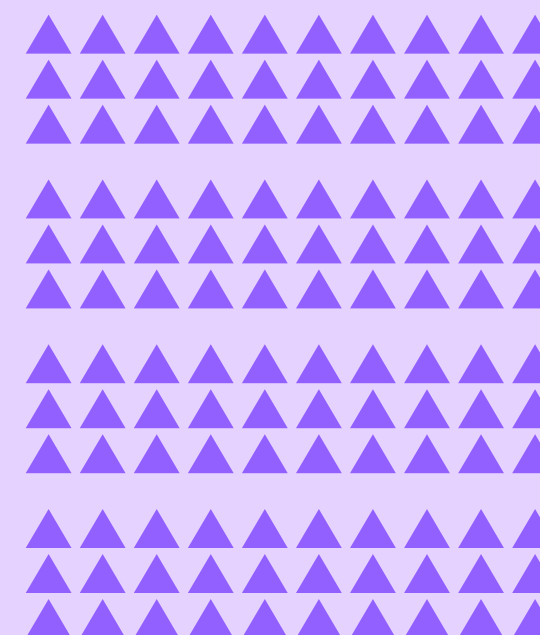
Analyst

30 samples



JetX™

120 samples



Labor time per shift

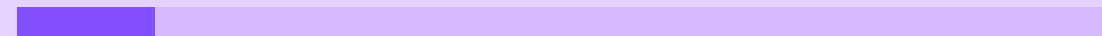
Analyst

6 hours



JetX™

1:15 hours





JetX™ SingleFlow

Explore what's possible.



- Development tool for scientific explorations.
- Quickly perform single extractions in R&D.
- Easily investigate the impact of changes in method parameters.
- Powerful jet extraction for tablets, capsules, semi-solids, and more.
- Automated self-cleaning.

■ automated ■ manual

JetX™ MultiFlow

Boost your productivity.



- Solves the challenge of high-volume, flawless sample preparations.
- Processes four times the number of samples compared to a single lab analyst per shift.
- Enables swift extraction, sampling, filtration, and dilution for U/HPLC analysis.
- Provides fully automated preparation of 30 samples, complete with self-cleaning.
- Automatically documents all preparation steps to ensure complete traceability.



Rapid Extraction – The Heart of JetX™

Patented JetX™ technology rapidly extracts APIs from various dosage forms by subjecting them to a continuous jet of media inside a cell. When using aqueous media, controlled heat up to 60 °C can be used to aid in fast disintegration/erosion.





Jet Xtraction™ – How does it work?

A powerful jet of media encourages rapid disintegration or focused erosion of the dosage form inside a cell, followed by robust mixing in the vortex of the media reservoir. From there, media is pumped back to the cell in a closed loop until extraction has been completed.



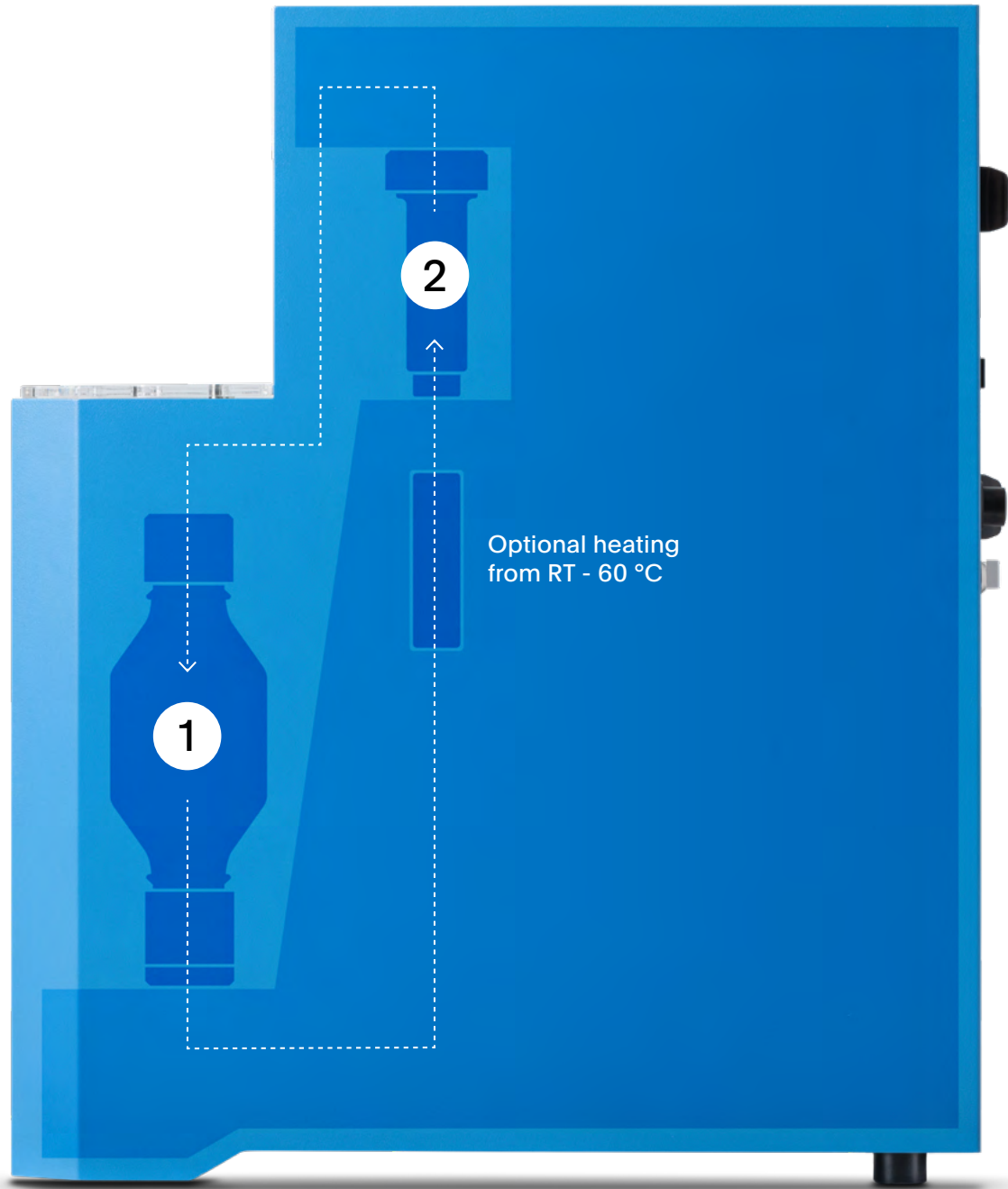
1 —
Media Reservoir

The Media Reservoir with flow-through, rinse down technology continuously mixes the stock solution with integrated magnetic stirrers to ensure homogeneity.



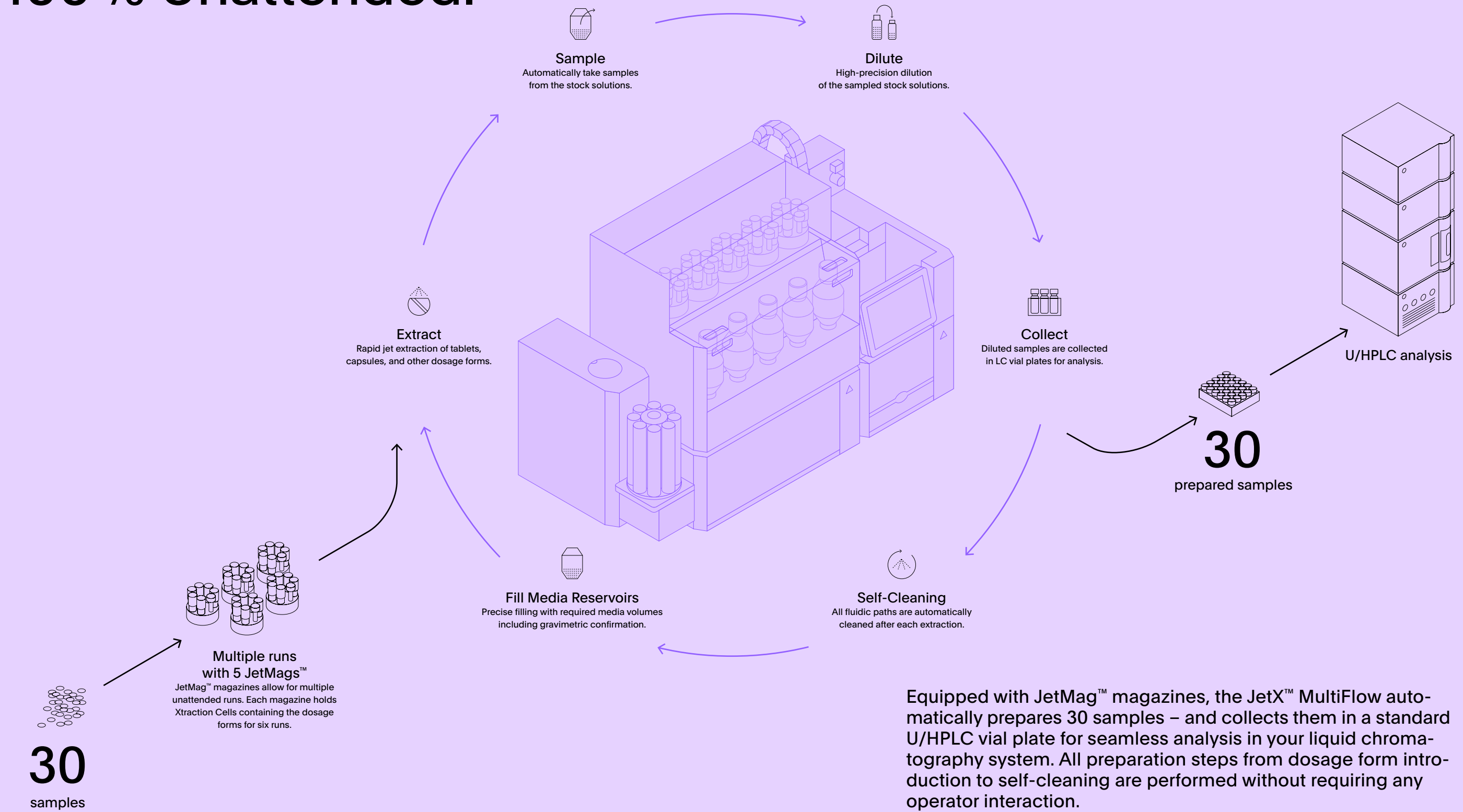
2 —
Xtraction Cell

Media is pumped through the cell at flow rates up to 1'000 mL/min, creating a jet of liquid that rapidly, yet gently extracts the API from the dosage form.





30 Samples – 100% Unattended.





JetX™ MultiFlow

Load up to 30 samples

JetMag™ magazines with Xtraction Cells

LED status light per Xtraction Module

Media reservoirs with flow-through, rinse down technology

Integrated magnetic stirrers mix media continuously during extraction and cleaning

Filling Module with media inlets for extraction and cleaning

Integrated balance to confirm delivered medium volumes

Fine filtration down to 0.2 microns

Fast simultaneous extractions

Dilutions 1:100

100% unattended

AutoDI™

Self-cleaning



Five integrated Xtraction Modules

Flow control, temperature control, and pressure monitoring

JetPilot™ with 10" touchscreen

RFID and Barcode reader

SAM-JTX sample manager for up to 1:100 dilution and collection in vial plates

Powerful piston pumps for fine filtration



Simple Simultaneous Extractions



Short Cycle Times.

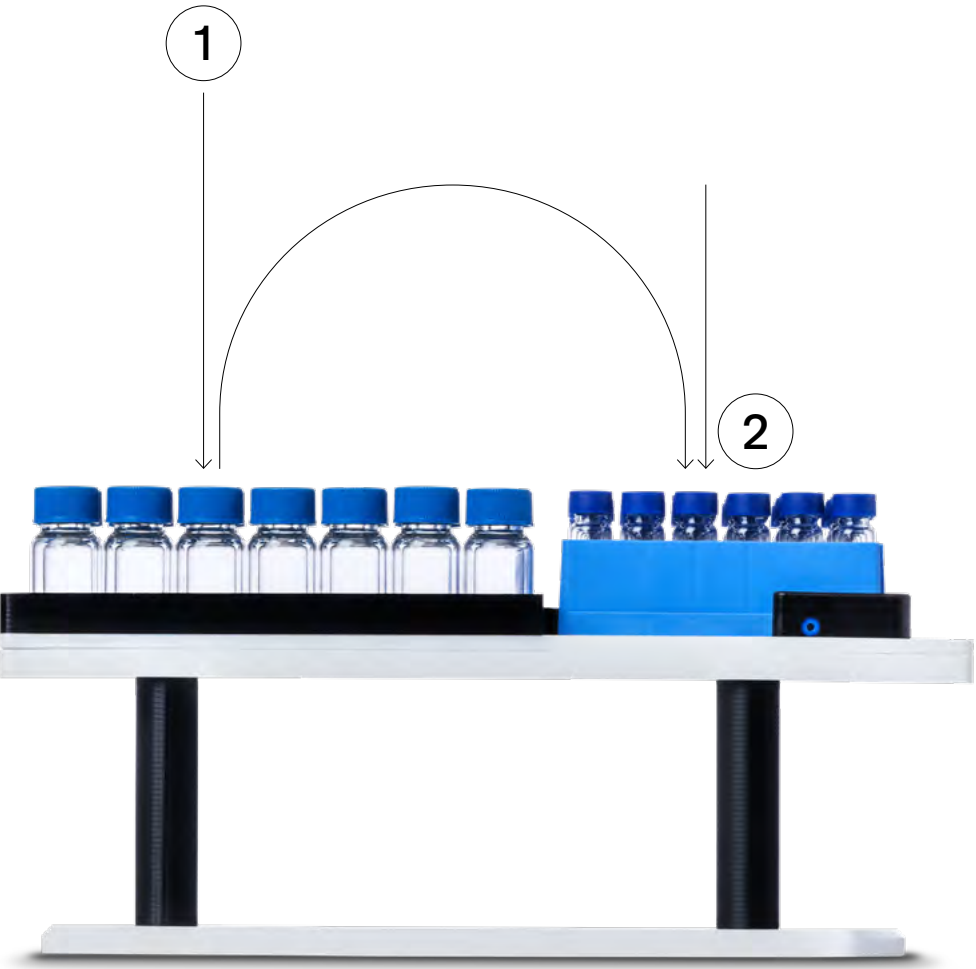
By performing extraction on five samples simultaneously, the JetX™ MultiFlow significantly reduces time-to-result and achieves throughput rates that would otherwise require multiple analysts for manual sample preparation.





High precision Dilution.

The SAM-JTX sample manager first collects filtered stock solution from all media reservoirs and then optionally performs up to 1:100 dilutions. Simply take the vial plate with all prepared samples including reference standards and place it in your U/HPLC for analysis.



1 — Sampling

Once extraction is completed, samples of stock solution are automatically taken from all media reservoirs simultaneously. Powerful piston pumps allow for fine filtration down to 0.2 microns. The filtered samples are then collected in capped LC vials for further processing.



2 — Dilution

Using a high-precision micro dosing pump, the single needle of the SAM-JTX sequentially transfers the required volume of stock solution per sample to a standard LC vial and precisely adds dilution media - achieving up to 1:100 dilution ratios.





Who did what? When? And Where?

JetX™ is all about compliance and ease of operation. Whether you perform high-volume preparations or quickly need to test some samples, all preparation steps are automatically recorded and reported. Your sample preparation process has never been more compliant – or easier.



AutoDI™ – The invisible star.

While detailed documentation has remained an almost impossible task in traditional sample preparation, JetX™ excels with built-in data integrity. Easily report all preparation steps and provide documented proof that proper procedure has been followed.



JetPilot™ – Let's keep it simple.

Create new methods in less than 3 minutes or load pre-programmed methods at the click of a button – and you're ready to go! The intuitive JetPilot™ touchscreen user interface guides operators through all processes, reducing training times to an absolute minimum.

Validated cleaning every time.

Life is too short to spend it on cleaning. JetX™ ensures reproducible cleaning after each sample preparation, effectively reducing concerns of carry-over or contamination. Enjoy consistent, validated cleaning every time, eliminating worries about cross-contamination.





Pump data to useful places.

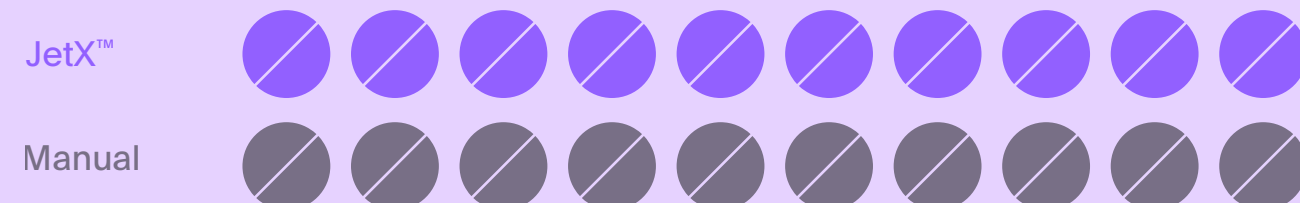
Who did what, when, and where is elegantly and automatically recorded in a secure database for transfer to a variety of useful places. Common examples are a simple exported PDF report, Waters Empower CDS sample set via DataLink™ or q-doc® for compliant data storage.



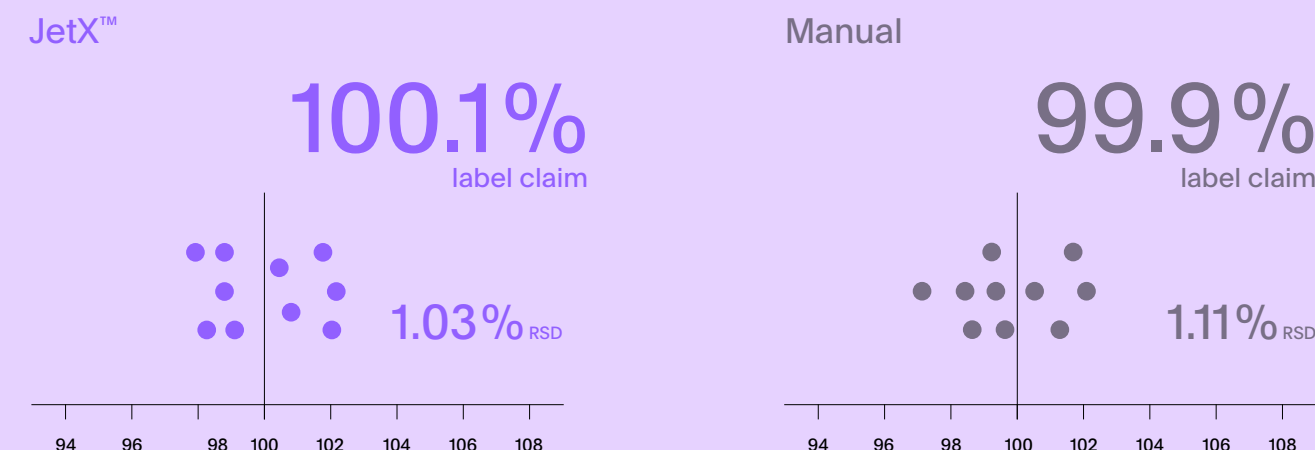
Speed Trials – Building your ROI Case.

Return on Investment (ROI) calculations can be difficult. Not with JetX™. Simply send us samples of your product and we'll do a content uniformity 'Speed Trial' for you. Our experts prepare samples using JetX™ and provide you with the results for comparison with your current manual method.

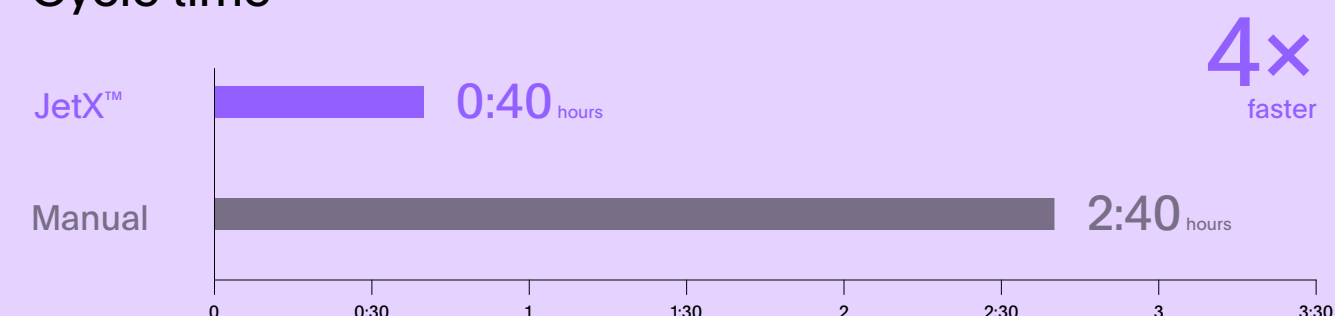
Your samples



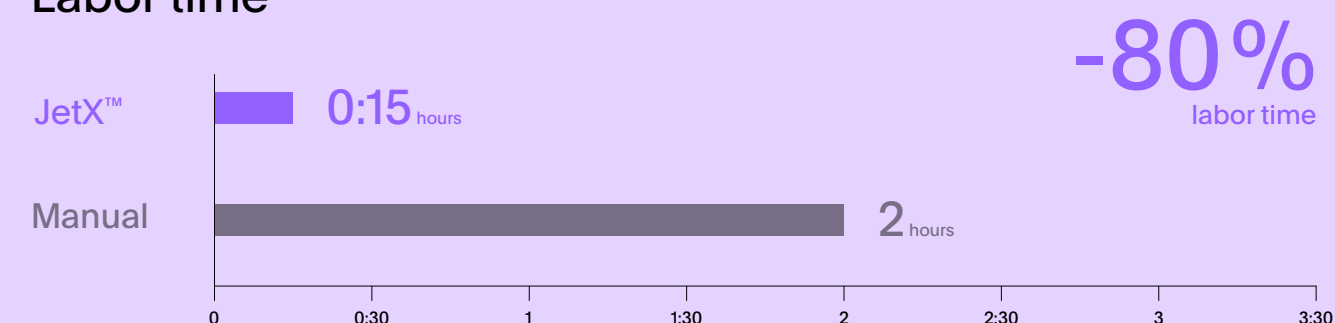
Percent label claim



Cycle time



Labor time





Pharma Services – Feasibility Studies.

Let us help you develop robust methods or we can perform method feasibility studies for JetX™ in a fully GMP compliant environment. Our experts have a proven track record of finding the most suitable method for products ranging from tablets to APIs, semi-solids and many more.



Let Science do the talking.

To establish that comparable results are achieved, the JetX™ extraction is performed and compared against your existing manual method in a feasibility study. Receive a detailed scientific report that lists products, reference standards, equipment, reagents, solutions, HPLC/UPLC method parameters (including system suitability assessment), and presents the results of the feasibility experiments.



Focus on Extraction.

Extraction parameters are the key focus when transferring from a manual method to JetX™. The fast flow rate in the Xtraction Cell provides a simple and efficient mechanical extraction that can rapidly accomplish tablet disintegration, traditionally achieved through sonication, shaking, stirring, or homogenization.



Don't touch the LC!

JetX™ allows you to keep your analytical procedure exactly the same, eliminating the need for analytical method revalidation. This seamless integration ensures compliance and efficiency without disrupting your existing workflows.

JetX™ Technical Specifications

		SingleFlow	MultiFlow
Automated processes	Filling with gravimetric volume control	○	●
	Extraction	●	●
	Sampling	–	●
	Dilution	–	●
	Collection	–	●
	Self-cleaning	●	●
Speed	Samples per 8-hour shift ¹⁾	24	120
Status light	(per station)	●	●
JetPilot™	10" touchscreen	●	●
Power supply		115 – 230 V / 50 – 60 Hz	115 – 230 V / 50 – 60 Hz
Dimensions	Width	170 mm	1200 mm
	Depth	450 mm	660 mm
	Height	550 mm	830 mm
Weight		30 kg	160 kg

¹⁾ Speed depends on method settings

Extraction Module		JTX 1	JTX 5
# Stations		1	5
Flow rate		50 – 650 mL / min ±10 mL	50 – 650 mL / min ±10 mL
Temperature		ambient + 5 °C to 60 °C ± 5 °C	ambient + 5 °C to 60 °C ± 5 °C
Cleaning ports (per station)		4	4

Filling Module		FMX
Media ports		5
Volume delivery	(per station)	50 – 1000 mL
Gravimetric volume control	Integrated weighing module	Mettler Toledo®
	Readability/Repeatability	0.01 g
	Measuring range	up to 6.2 kg

Filter Pump		FPX
# Channels		6
Pumping		Simultaneous on all channels
Filter	Type	25 mm syringe filter
	Minimum porosity	0.2 microns
	Capacity	120

Sample Manager		SAM-JTX
Collection capacity	Single unattended run	30 samples
Dilution	Ratio	1:1 to 1:100
	Precision	CV of 1% or better
LC vial plates	Capacity	• 30 sample vials for stock solutions • 30 sample vials for working solutions • 6 blanks • Space for standard vial storage solutions
	Format	Waters®, Agilent®, SOTAX® HPLC vial, SOTAX® test tube

● included / required
○ optional

Technical specifications are subject to change without prior notice. Products illustrated in this brochure may include options or modifications not fitted as standard. No liability for errors and omissions.

JetX™ is Patented Technology – Covered by WO/2021/076558 and related patents.

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