



NGI Sample Recovery System

The Xelox [NGI Sample Recovery System \(SRS\)](#) is capable of automating the manual process of sample preparation, dispensing, agitating and recovery from NGI equipment.

The Xelox NGI Sample Recovery System (SRS) can process up to 5 separate NGI trays, each with 8 cups. The NGI SRS dispenses a pre-metered volume of solvent into each NGI cup, using an automated pipette, before agitating the tray assembly for a set time to fully dissolve the drug captured on each cup. Upon completion of the agitation sequence, a small sample of homogenised drug solution is aspirated, individually from each NGI cup and dispensed into pierceable sample vials. The finished vialled samples are then ready for HPLC/UPLC analysis.



Throughput

The throughput of the system is dependent on procedure and parameters selected in method and hardware configuration. However, over an 8-hour shift using a Run method with a 10ml solvent dispense volume and a 10-minute agitation time, the system will be capable of processing a total of 60 tray assemblies.

Scheduling of operations is optimised to reduce cycle times through efficient sequencing of dispensing and aspirating of solvents and solutions.

Feature Overview

- Parallel processing and 'Just in Time' software scheduling to optimise throughputs and process 5 trays in less than 60 minutes
- Configurable stage recovery order/sequencing gives you control
- High precision syringe pumps can handle very small volumes
- Configurable motion profiles for agitation (angle, duration and frequency) – optimise solute dissolution for faster processing time
- Waste solvent capacity for 1 week of running, in fire-rated cabinets
- Small system footprint and minimal effect on lab conditions – no special modifications to infrastructure needed to install the system
- Built-in extraction system (+ monitoring) – no additional equipment needed
- Modular design components and expandable control system – build your full automation solution as needed
- Intuitive operator interface with touchscreen controls – simple and easy to use with password protection and access levels for all types of users
- Email notification system to inform operators that runs are complete – don't be chained to your equipment
- Ethernet based control system with no requirement for third party licensing and/or fieldbuses – doesn't require any special modifications to your IT infrastructure
- Remote diagnostics support functions via remote access tools or VPN – many queries can be resolved without the need for an on-site engineer
- Long term retention of sample tracking data assists with 21 CFR Part 11 compliance
- LIMS compatible data exporting functions, configurable report templates and system performance tracking.

Key Parameters

Parameter	Min Value	Max Value	Unit	Description
Solvent Dispense/Aspirate Flowrate	1	80	ml/min	Flowrate of solvent from needle during a run
Wash/Purge Volume	1	25	ml	Volume of solvent dispensed during a purge action
Gantry Move Speed	10	600	mm/s	Speed needle is moved by gantry and sampler
Motor Move min/max Position	-10	+50	deg	The position that the motor moves to when agitating a sample in the loaded NGI tray
Left/right side Recovery Position	-10	+50	deg	Tray tilt to aid recovery of samples from cups on tray after agitation
Solvent/Solution Dispense Volume	1	55	ml	Solvent selected from list in system and dispensed into cup
Agitation Duration	1	1200	s	Agitation duration time
Agitation Frequency	5	55	RPM	Agitation cycles per minute
Recovery Volume	0.5	50	ml	Volume recoverable from tray cups
Evaporation Timeout	60	1200	s	The time a sample is allowed to be stood before an alert is triggered

Syringe Pump

The syringe pump is accurate to $\pm 0.5\%$ of the dispensed/aspirated liquid. Vialled sample volume accuracy is $1.5 \pm 0.15\text{ml}$.

Stepper Motor (Agitation Movement)

Frequency range of agitation is 5-55RPM. The agitation accuracy will be within $\pm 1\%$ per parameter.

Extraction Unit

Capable of handling the maximum solvent volume from 1 full 5 tray run (600ml) if fully evaporated within the system enclosure during maximum machine usage (24-hours, 7 day/week).

The extraction unit is external to the system enclosure to aid filter changing without compromising user safety.

Environment

Operating temperature range 15°C to 30°C and relative humidity range 20% to 60%.
The system is designed for use in a low vibration environment.
The system generates less than 68 dB (A) noise averaged across a complete cycle.

Housing

Enclosure footprint is 1.6m x 0.9m. Fire-rated cabinet for solvent storage.

Power Requirement

The system requires a single 220VAC, 32A, 50Hz power supply.

Relovex® Software

The NGI SRS comes with a touch screen monitor and intuitive Relovex® software. Atech's Relovex® software is suitable for 21 CFR Part 11 compliance and can be fully integrated with traditional and cloud based systems.

Test operation parameters such as solvent sample sizes, agitation duration, etc. are grouped together as a method. Methods can be set and saved in the software and result data can be exported to a CSV file format on the operating system. Database scripts are written in SQL, so are compatible with Oracle and other similar systems. Users can be set up with one of 5 levels of access; administrator, operator, maintenance, supervise and guest.

The following reports are available through the software:

- a) User Report
- b) Audit Trail Report
- c) Failure Report
- d) Hardware Configuration Report
- e) Run Results Report
- f) Performance Metrics Report

The following details are specified in the Audit Trail report:

- a) Event Date & Time: time stamp
- b) Event User: user ID and full user name
- c) Event Details: description of event
- d) User Comment: any comment applied e.g. reason for modification
- e) User Access role: assigned roles

Customisations

The NGI SRS can be customised to meet your specific requirements. As with all products from the Xelox range it can be used in conjunction with other X Series products to provide complete automation of inhaled drug testing at every stage.

