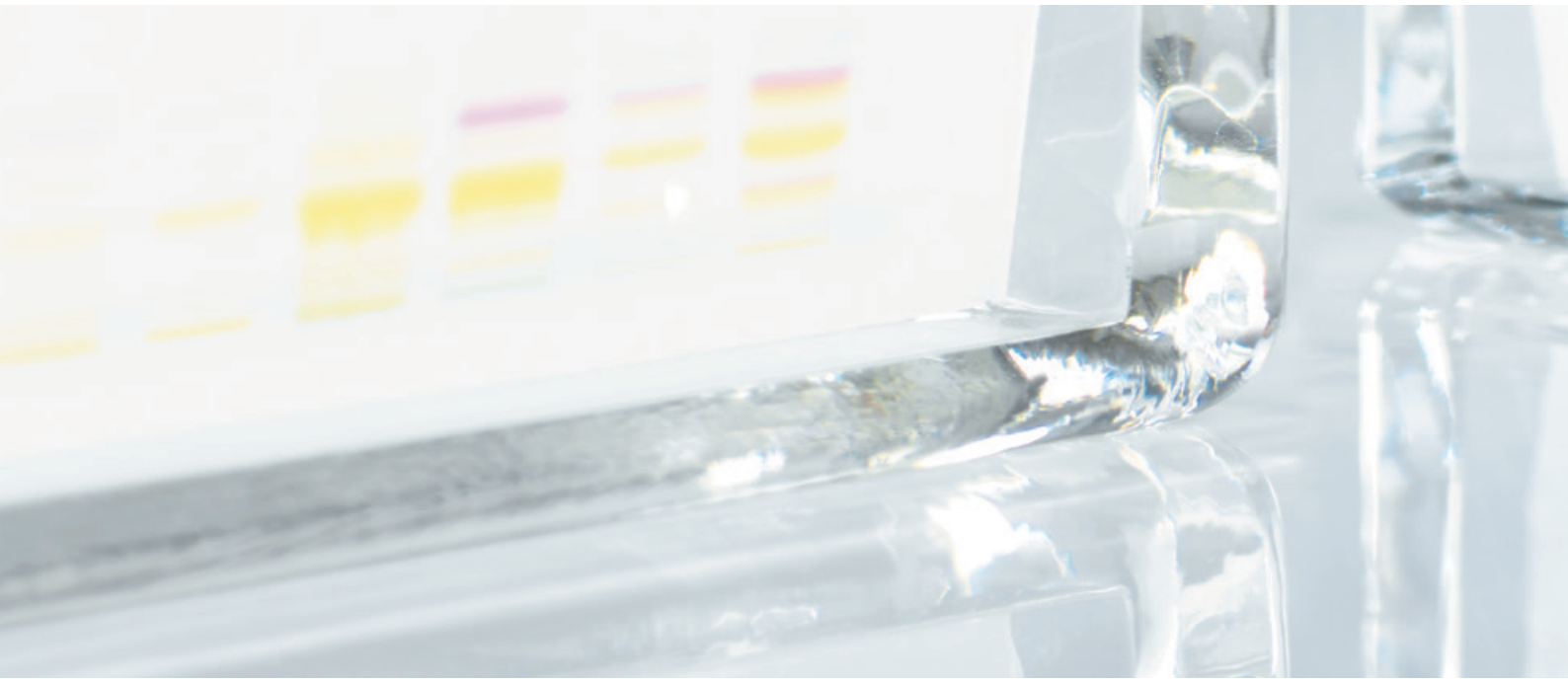
CAMAG®
AUTOMATIC TLC SAMPLER 4 (ATS 4)



Sample Application – The Basis for Quality and Reproducibility of the Analysis

Sample application is the first step of Planar Chromatography and essentially determines the quality of the analysis. The degree of automation and relating thereto productivity are key factors for the HPTLC laboratory. Designed for routine use and high sample throughput, the automated ATS 4 is suited for qualitative and quantitative analyses as well as for preparative separations.

The ATS 4 is capable of applying samples as bands, spots or rectangles using the spray-on technique (spots as well through contact transfer). Starting zones in the form of narrow bands offer the best separation attainable with a given chromatographic system. Application in the form of rectangles allows precise application of large volumes without damaging the layer. Prior to chromatography, these rectangles are focused into narrow bands with a solvent of high elution strength.

The ATS 4 allows "overspotting", *i.e.* a sequential application from different vials onto the same position. This technique can be used *e.g.* in pre-chromatographic derivatization, spiking, etc.

Key Features

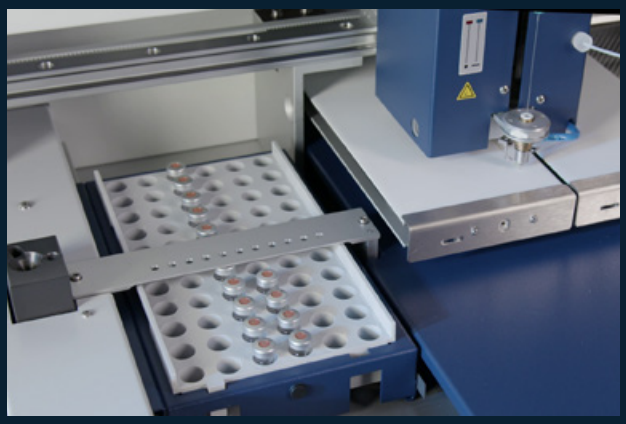
- Fully automated sample application
- Application of bands, spots, or rectangles
- Any plate format up to 20 x 20 cm
- Spray-on application or contact transfer
- Software-controlled by *visionCATS*
- Heated Spray Nozzle (option)

Heated Spray Nozzle for ATS 4: Heating at 60 °C cuts the time required for the application of aqueous solutions about in half. This is useful *e.g.* for trace analysis where comparatively large sample volumes have to be applied to reach a low detection limit.

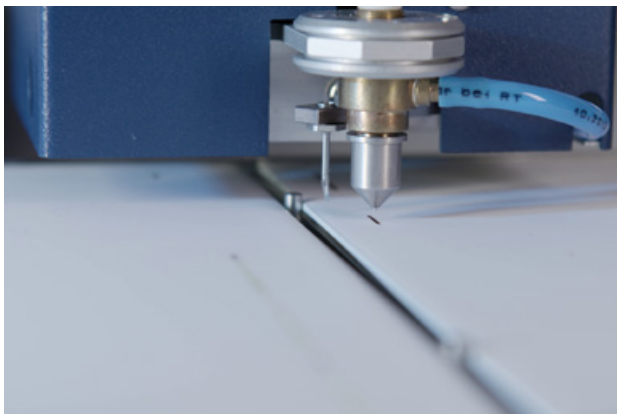
How the ATS 4 works

An application sequence starts with the take-up of the sample. The vial septum is punched and the needle is lowered into the sample vial through the septum punch. Then the syringe is filled with sample solution.

The septum punch is retracted and ensures that the outside of the needle is wiped off by the tightly closing septum.

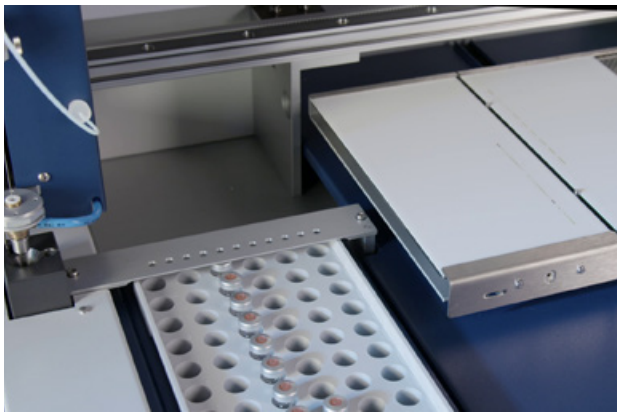


Prior to the first application from a newly filled syringe, a small sample volume is pre-dosed onto a waste plate in order to generate reproducible conditions at the needle tip. Pre-dosage is effected similarly to sample application, *i.e.* by contact spotting or by spray-on technique.



The syringe moves to the programmed position of the plate and starts application of the desired sample volume. If several applications of the same sample have been programmed, these are applied in sequence from the same syringe filling, provided the remaining volume is sufficient. Otherwise, the syringe is automatically refilled.

After the final application of the sample, the syringe is emptied into the waste bottle.



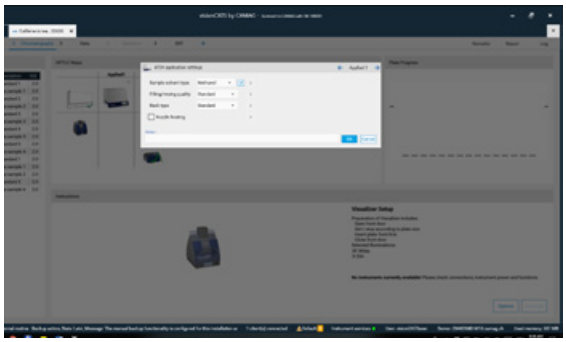
The syringe is filled with rinsing solvent, the plunger moves past the side connection and some additional rinsing solvent is removed.

Finally, the rinsing solvent is emptied into the waste bottle, and the dosing system is ready for the next application sequence.

Operation of the Automatic TLC Sampler 4 (ATS 4)

Precise sample application is a crucial factor for the quality of the HPTLC analysis. The Automatic TLC Sampler 4 is controlled by *visionCATS*. The intuitive and easy to use HPTLC software supports automated sample application for routine use and high sample throughput, organizes the workflow of HPTLC, controls the involved CAMAG® instruments, and manages the data.

The dialog box for instrument parameters offers user-friendly default combinations. For instance, by selecting the solvent type most similar to the solvent actually used, the software automatically adapts the instrument defaults to match viscosity, volatility and surface tension. The filling/rinsing quality, which determines how often the syringe is rinsed and the filling process is repeated, etc., can be individually adjusted to a specific task.



The track assignment table is well arranged and easy to use. The application progress is displayed on screen as long as the instrument remains connected to the computer.

The dialog box for ATS 4 application settings offers user-friendly default combinations. All pre-defined parameters can be individually adjusted.
Easy sequence setup with *visionCATS*: the track assignment table contains all information required to automatically run a series of samples, *e.g.* sample location (rack position and application position), sample volume, vial number, etc.

Technical Specifications

Object support
For objects up to 20 x 20 cm

Stage drive
X-drive (turret) stepper motor with 1600 steps/rev., 4 steps = 0.1 mm, maximum speed 200 mm/s with acceleration ramp, positions programmable: 5.0–195.0 mm in 0.1 mm steps

Y-drive (stage) stepper motor with 3200 steps/rev., 8 steps = 0.1 mm, maximum speed 200 mm/s with acceleration ramp, positions programmable: 5.0–195.0 mm in 0.1 mm steps

Dosage syringe drive
Stepper motor with1600 steps/rev.; 100 nL = 120 steps with 100 µL syringe or 24 steps with 500 µL syringe

Sample dosage
Choice of a 10, 25 or 100 µL gas-tight syringe with side port. Dosage volume 100 nL to 1 mL in increments of 100 nL

Syringe drive
Stepper motor with 1600 steps/rev.: 100 nL = 960 steps for 10 µL syringe, 384 steps for 25 µL syringe, or 96 steps for 100 µL syringe

Rack
For 66 sample vials of 2 mL (12 x 32 mm)

Mains voltage
85–250 V~ 47–63 Hz 60 VA

Gas supply
4.5–6 bar (65–87 psi), preferably nitrogen. Consumption 0.2–0.3 L/min for contact or 0.8–2.0 L/min for spray-on application (pressure dependent)

Dimensions (W x D x H)
630 x 530 x 500 mm

Weight
36 kg

Ordering Information

022.7400
CAMAG® Automatic TLC Sampler 4 (ATS 4)
for fully automatic application of samples as spots, bands or rectangles including overspotting in qualitative and quantitative TLC analysis. Complete with instrument cover, sample rack for 66 standard 2 mL vials, 90–230 V. Including Dosing Syringe Starter Kit, containing: 25 µL Dosing syringe (695.0053), Spray-on needle for dosing syringe (695.0046), Contact transfer needle for dosing syringe (695.0047)

022.7410
CAMAG® Automatic TLC Sampler 4 (ATS 4)
with heated spray nozzle for fully automatic application of samples as spots, bands or rectangles including overspotting in qualitative and quantitative TLC analysis. Complete with instrument cover, sample rack for 66 standard 2 mL vials, 90–230 V. Including Dosing Syringe Starter Kit, containing: 25 µL Dosing syringe (695.0053), Spray-on needle for dosing syringe (695.0046), Contact transfer needle for dosing syringe (695.0047)

028.0000
CAMAG® HPTLC Software *visionCATS* Basic Version
including access and control of all instruments – 1 server, 1 client, Instrument Diagnostics (xQ), analytical reports – access to method library. Needs to be bought separately and is not included in any Ultimate Package

022.7450
Dosing Syringe Starter Kit, containing: 25 µL Dosing syringe (695.0053), Spray-on needle for dosing syringe (695.0046), Contact transfer needle for dosing syringe (695.0047)

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