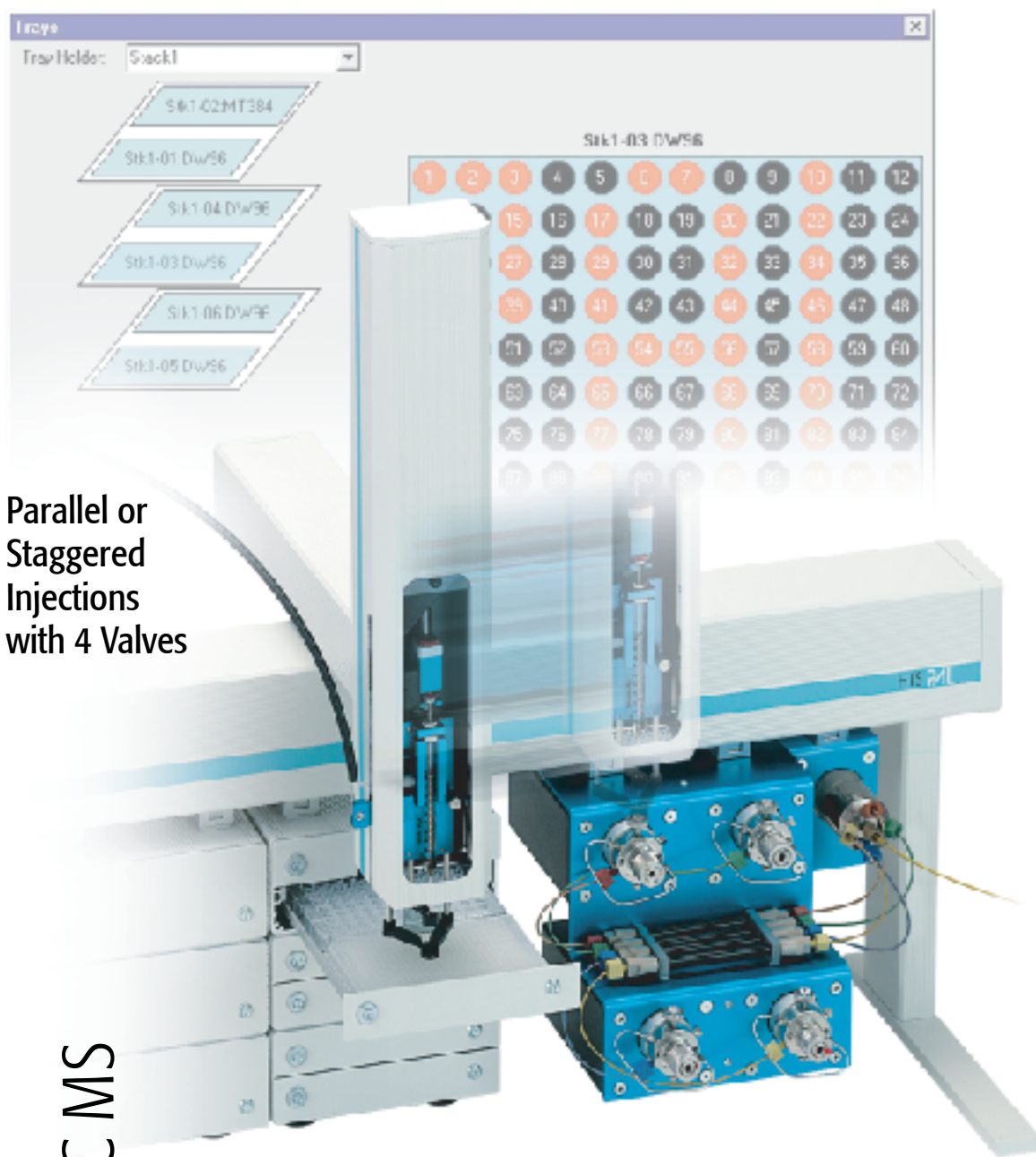


# HTC PAL 4-Channel Parallel LC-MS Sample Processing



Parallel or Staggered Injections with 4 Valves

Drug Discovery | LC MS


High Throughput Screening

Preclinical Research


Combinatorial Chemistry

Flow Injection Analysis

Pharmaco-kinetic Studies

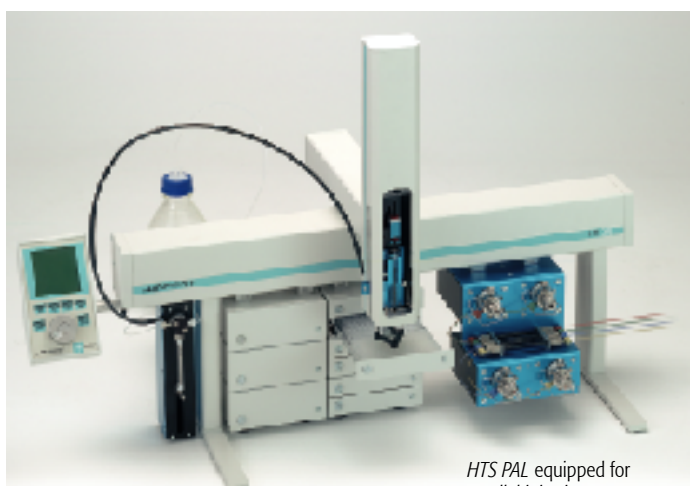
 Syringe only concept, no tubing in sample path for transparent sample injection operation

 Parallel or staggered injections into 4 valves multiple column switching applications

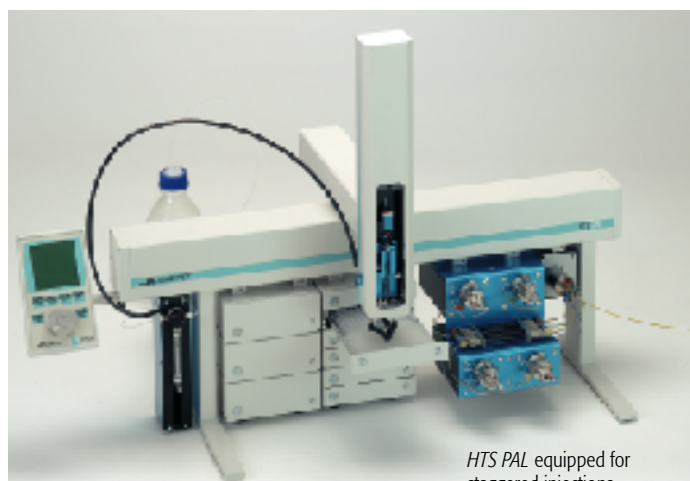
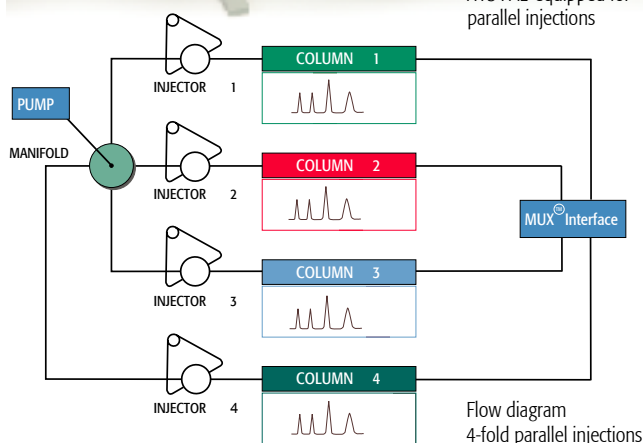
 Processes up to 24 standard microplates, deepwell plates or standard sample vials

 Temperature controlled sample storage from 4°C up to 40°C

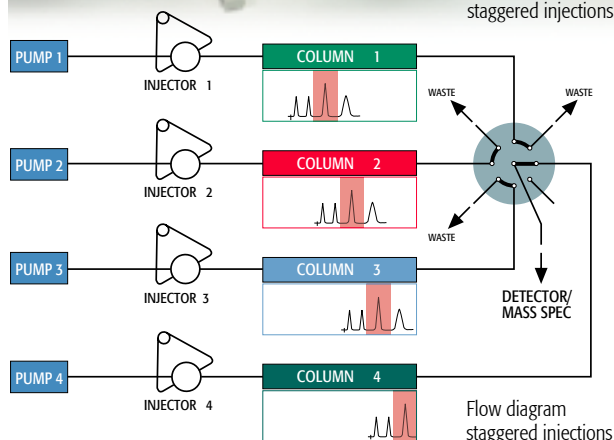
 Instrument drivers for Micromass Masslynx™ Agilent ChemStation™ and ThermoFinnigan Xcalibur™



HTS PAL equipped for parallel injections



HTS PAL equipped for staggered injections



### Reliability is standard

Automated injection of sample sequences is certainly a key factor in increased laboratory productivity. Today, requirements in a sample injection system include high precision and accuracy, random access to individual samples and task-oriented programming along with options and accessories for additional sample handling routines. CTC Analytics' experience in the design and manufacture of automated GC and LC injection systems is reflected in their range of the PAL series of Prep and Load Systems. In all PAL instruments the latest electronic and mechanical developments are combined with a unique, stepper motor driven XYZ design. This combination ensures you precise sample handling for dependable analysis results.

### Syringe only technology

The PAL System syringe only concept combines the manual sample injection procedure with the precision and throughput of a robotic liquid handling system. Samples are aspirated with a conventional syringe and are transferred directly into the sample loop. No error prone teflon tubing or transfer lines are involved during the sample loading process.

### 4 valve option for automated parallel LC-MS analysis

The 4 valve option was developed for automated parallel LC-MS analysis, especially required for multiplexed LC-MS interfaces. The accessory consists of 4 conical VICI Valco injection valves, which can be loaded in serial mode and switched to inject simultaneously. This allows to work with 4 LC columns in parallel which results in higher throughput. Compared to other products, CTC's single syringe design allows even for parallel analysis the "cherry picking" sampling mode (random access to single plate wells).

### 4 valve option and stream selector for staggered injection mode

Additionally the above described system can be equipped with a 9-port stream selector valve, which allows staggered sample injections. Using this configuration, important chromatogram parts only can be cut out and reach the LC-MS inlet. Beside enhanced throughput, this feature helps to keep clean the LC-MS inlet for a prolonged period of time.

### Specifications PAL 4-valve injection option

#### System requirements

HTS PAL equipped with PAL Dilutor and/or Fast Wash Station  
 max. 2 Deepwell stacks (12 plates) or 2 Standard microplate stacks (24 plates)  
 or 2 Trayholder (196 2ml vials)

#### Software requirements

Cycle Composer control software Vers. 1.5 or higher  
 PAL Firmware 2.4 or higher  
 appropriate third party instrument driver

#### PAL 4 Valve Module consisting of:

- 4 pcs. Valve drives
- 4 pcs. VICI Valco 6-port valves type W
- 4 pcs. Sample loops 20µl
- 1 pc Solvent manifold
- 1 set PEEK tubing kit including fittings
- 1 set Electrical connection cables
- 1 pc Power supply 90-264 Volt

#### PAL MuxKit Kit for Micromass MUX™ Interface consisting of:

- 4 pcs. Check valves for waste port

#### 8-port Selector valve consisting of:

Staggered injections require the PAL 4 Valve Module and additionally the PAL 8-port Selector valve.

- 1pc 8-port selector valve C5F
- 4pcs. Teflon tubing waste lines
- 1pc Valve drive
- 1pc Electrical connection cable

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