Spark HOLLAND

Spark Holland introduces ACE™

Absolutely unique: on-line SPE with Automated Cartridge Exchange

BETTER **SAMPLE** CARE

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Combining the best of the on-line and off-line SPE worlds

Off-line SPE (Solid Phase Extraction) provides cartridge refreshment for every sample, avoiding the risk of retention change and carryover. However, limited pressure resistance prohibits the use of small sorbent particles. Off-line elution of the sample requires collection and reformatting (often including evaporation and reconstitution) into autosampler vials or wells. And finally... injection into the LC system! It also requires at least one manual transfer of collected samples from the SPE robot to the LC system.

On-line SPE (or column switching, or 2D LC) permits use of small sorbent particles for efficient SPE plus elution of the sample directly into the LC system by the mobile phase. Maximum SPE efficiency plus maximum SPE-LC automation. But... column switching does not allow frequent automated refreshment of the SPE column or cartridge.

The Spark ACE™ eliminates this shortcoming. It selects a fresh cartridge as often as you want and seals it against the pressure of your LC system for on-line elution. ACE™ combines the flexibility of off-line SPE with the performance and automation of on-line SPE.

Dual cartridge clamps and extra valves for unlimited SPE capability

ACE™ can be equipped with an extra cartridge clamp and as many as three extra high pressure switching valves. Such a fully loaded system enables sophisticated SPE applications like parallel SPE for high throughput or 2D SPE for enhanced clean-up.

SPE Cartridges: optimized dimensions and unlimited sorbent range

ACE™ on-line SPE cartridges have been designed to combine the option of single use with highly efficient extraction. With 10 mm length and 2 or 1 mm internal diameter, the cartridge contains only 5-25 mg of sorbent. Particle size is typically under 10 µm for regular sorbents, providing chromatography-like separation efficiency. While off-line SPE is typically an on-off mechanism with less than 10 theoretical plates, plate numbers up to 250 are not unusual for our C18 cartridges. This allows for small elution volumes and "heart-cut" type of SPE, washing away both early and late eluting matrix components from the SPE cartridge. All common sorbent chemistries are available in our cartridge format. And if you need your own material packed into our cartridges: ask us about the options! We can even provide immunoaffinity chemistries on pressure stable supports with low non-specific binding.

- Disposable SPE cartridges sealed up to 300 bar
- Single use or re-use of SPE cartridge – your choice
- Wide range of SPE chemistries
- Standard two trays of 96 cartridges each
- Dual clamp option for parallel SPE and 2D-SPE

Tailor the on-line SPE system to your application

ACE™ is the heart of an on-line SPE system, but it cannot provide on-line SPE on its own. An autosampler is required to introduce the untreated samples into the system and an additional solvent pump is needed to load the samples on the SPE cartridges and deliver solvents for conditioning, and washing of the SPE cartridge.

Spark provides a high pressure solvent dispenser (HPD™), designed especially for accurate flow and volume based delivery of SPE solvents up to 4300 psi. It can select multiple solvents and can even mix solvents for automated SPE method development. See the Spark Holland HPD™ brochure for more information.

SparkLink™ PC control software

After configuring a system, you need full control of every component to obtain maximum flexibility in assay development. Our SparkLink™ software provides just that. That does not mean that you can't use any third party instruments for your on-line SPE system; you may select a different autosampler or SPE pump. Just be aware that it will provide limited control options as compared to Spark instruments. A special "Easy Access" control level allows for rapid start-up of method development with pre-programmed system parameters.

Clarity™ PC control software

Clarity is advanced Chromatography Data Station (CDS) from Data-apex with optional sofware modules for data acquisition, processing and instrumental control. Its wide range of data acquisition interfaces (A/D converters, LAN, USB, RS232) allows connection to any GC or LC chromatograph. Clarity supports the current portfolio of Spark Holland instruments.

OEM Solutions

Spark Holland has over 30 years' experience in HPLC and UHPLC instrument innovation, specializing in the field of autosampling, on-line solid phase extraction and, more recently, on-line dried blood spot (DBS) analysis. Our innovative products have always led the way in injection technology, sample preparation integration and flexibility of operation. Combined with high quality engineering and manufacturing, Spark Holland is leading OEM supplier of front-end UHPLC and on-line solid phase extraction instruments, working according to ISO 13485 and, when required, delivering CE-IVD compliant modules for use in clinical systems.

Reassuring reliability

Spark has more than 33 years of experience in development and innovation of sample handling technology. The robustness of our instruments has been proven in more than 25,000 autosamplers and over 1,250 systems for on-line SPE: reassuring numbers if you demand a reliable partner in HPLC.

Specifications

Automated Cartridge Exchange (ACE™):	
General	
Installation class	II
Pollution degree	2
Operating environment	Indoor use only
Operating temperature	5 - 40°C
Operating humidity	20 - 80% RH
Operating altitude	up to 2000m
Transport and storage temperature	-30 - 60°C
Transport and storage humidity	Max. 85% RH
Sound pressure level	LAeq <70 dB
Physical	
Dimensions (W x H x D)	300 x 260 x 470 mm
Weight	19 kg
Stackable weight (max weight on top)	30 kg
Electrical	
Power requirements	100 - 240VAC, 50/60Hz
Power consumption	200 VA
Fuses	2 x 2.5AT, 250V, 1500A breaking capacity IEC60127-2, UL recognized
Communication	
Digital input and output (EXTERNAL IO)	4 programmable TTL inputs 4 programmable relays outputs max. 28 V - 0,25 A
Communication port (SL IN/OUT)	RS232 (Multilink)
Ethernet	CAT 5e shielded cable (dedicated instrument network recommended)
Maximum length for RS232 and IO cables is 3 m	

Specifications

Compliancy and certification	
Regulatory compliance	CE RoHS
Applied safety standards	IEC61010-1
Applied EMC standards	IEC61326-1 / EN55011 / CISPR11 / FCC
Certification	NTRL certificate of compliance with UL and CSA standards

Functional	
Wetted materials	SS316, peek
Cycle time parallel mode	<13 sec. (clamp-trayA1-trayH12-clamp)
Cycle time concurrent mode	<17 sec. (clamp1-tray-clamp2-clamp1)

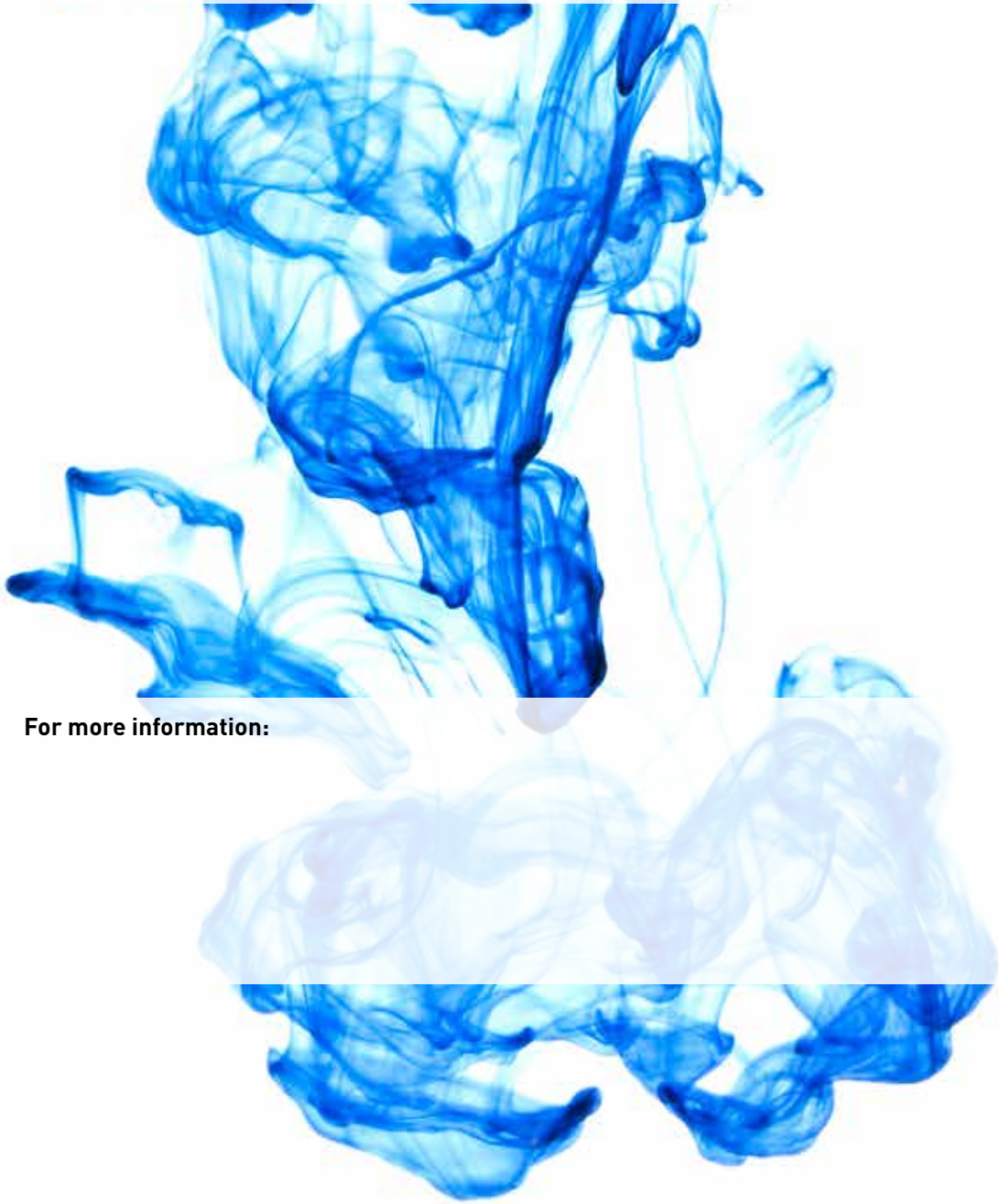
Specifications

Cartridges	
Capacity in ACE	2 x 96 cartridges
Tray	8 x 12 well plate format (96 x 128 mm) Built-in transponder: ID and cartridge usage
Cartridge dimensions	Standard: 10 x 2 mm (L x ID); 10 x 1 mm available on request
Internal volume	30 µL (10 x 2 mm), 8 µL (10 x 1 mm)
Sieve pore size	1 µm
Max. pressure	300 bar (4350 psi)
Wetted materials	PVDF (body), stainless steel (sieve)

Ordering information

Automatic Cartridge Exchange unit (ACE™)	
ACE™ std	SP725.000
ACE™ std + 2 ISS	SP725.020
ACE™ dual + 2 ISS	SP725.220

All products are for Research Use Only (RUO), unless specifically labeled otherwise.



For more information:

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