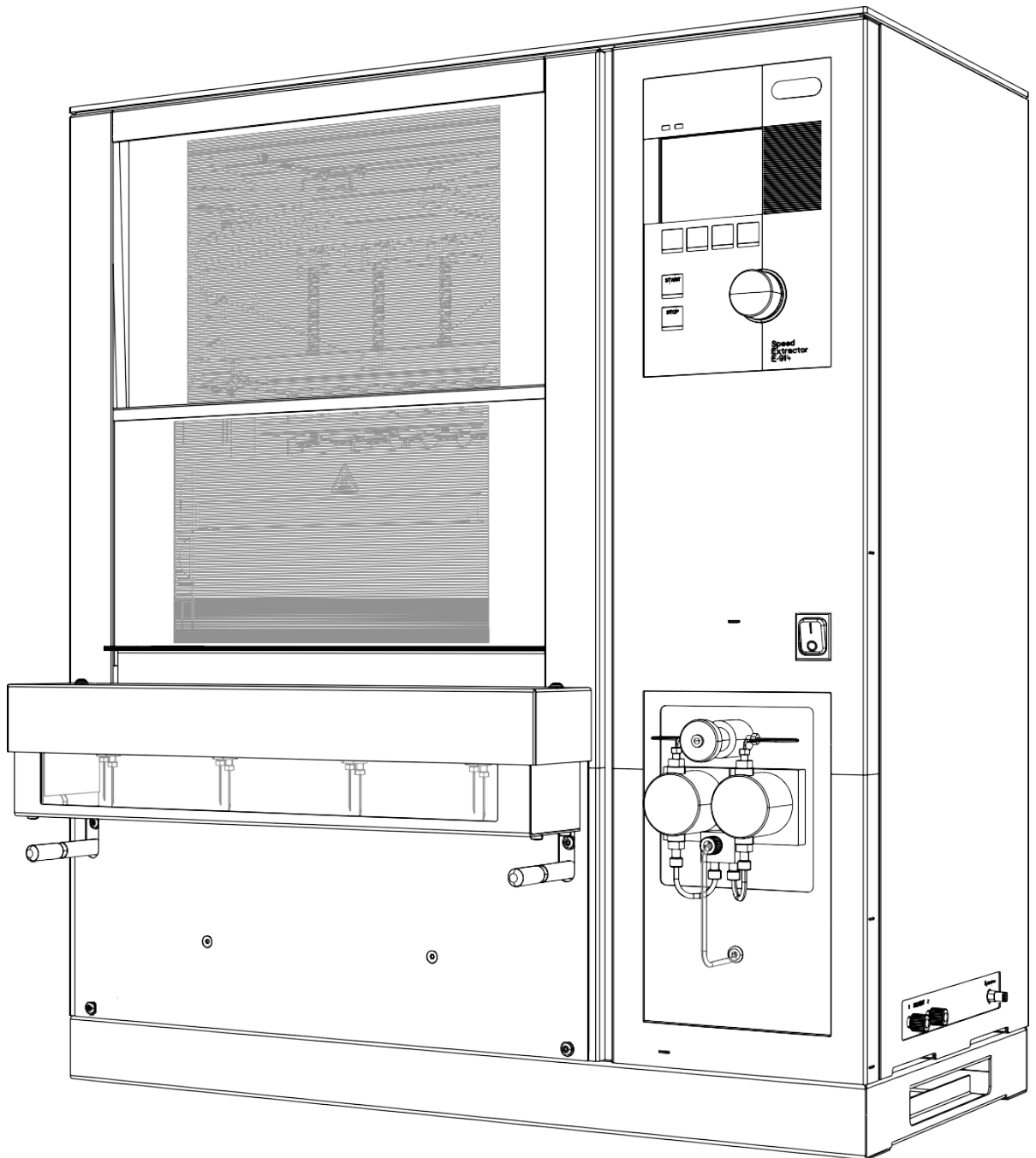




SpeedExtractor E-914 / E-916

Technical data sheet

The SpeedExtractor E-916 / E-914 is an automated instrument for parallel extraction of primarily organic compounds from a variety of solid or semi-solid matrices. Conventional methodologies (e.g. like Soxhlet extraction) are accelerated by using a solvent at elevated temperatures and pressures. The parallel concept of SpeedExtractor allows for simultaneous extraction of six samples in one run. A variety of different extract collection options with great synergy to the Multivapor™ and Syncore® Analyst for parallel evaporation and concentration maximizes productivity and streamlines the workflow.



Scope of delivery

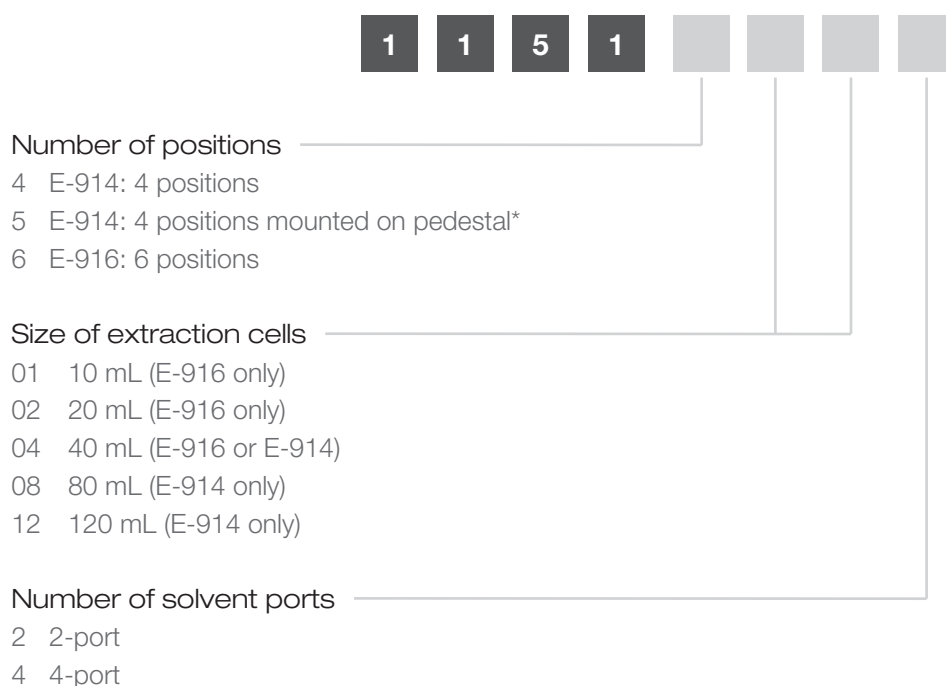
The SpeedExtractor E-916 / E-914 is delivered with a comprehensive starter kit consisting of tools, accessory and consumable items. Due to a variety of different collection options the collection vials need to be ordered separately. All SpeedExtractor models are delivered ready to use and are complete of:

Collection unit* for E-916 or E-914	1
Cellulose filter, top	100
Glass fiber filter, bottom	100
FEP inlet/outlet tubes with ferrules and fittings	5 m / 6x or 4x 0.5 m
Solvent bottle, 1 L with filter	1
Quartz sand, 0.3 - 0.9 mm	2.5 kg
Extraction cell carrier, cell gripper and funnel	1 of each
Spares: cup seals (12), supporting ring (2), metal frit (25) and screws (2)	1 PU of each
Brushes, syringe, plunger, filter hook, extruder	1 of each
Tools: wrenches, screw driver, tube cutter	1 of each
SpeedExtractorRecord demo license with USB cable	1

* The collection vessels are NOT part of the scope of delivery as they need to be ordered according to the customer's specific needs (see section "Accessories - Collection unit").

Order code

Choose the configuration according to your needs:



*Recommended for the use of round bottom flasks and Analyst R-6/Polyvap R-6 collection vessels; SpeedExtractor E-914 (Order number 11515xxx) is mounted on a pedestal which heightens the unit by 50 mm. The pedestal cannot be upgraded on existing instruments

Technical data

SpeedExtractor E-914 / E-916

	E-914	E-916
Dimensions (W x D x H)	670 x 725 x 500 mm	670 x 780 x 500 mm
Weight	90 kg	98 kg
Connection voltage	100 - 240 ± 10 % VAC	100 - 240 ± 10 % VAC
Power consumption	max. 1750 W	max. 1750 W
Frequency	50 / 60 Hz	50 / 60 Hz
Interface	USB 2.0	USB 2.0
Temperature control range	30 - 200 °C	30 - 200 °C
Pressure range	50 - 150 bar	50 - 150 bar
Primary pressure nitrogen connection	6 - 10 bar	6 - 10 bar
Flow rate pump	1 - 50 mL/min	1 - 50 mL/min
Extraction cell size	10, 20, 40, 80, 120 mL	10, 20, 40, 80, 120 mL
Noise level	< 70 dB	< 70 dB

Ambient conditions

For indoor use only.

Max. altitude above sea level	2000 m
Ambient temperature	5–40 °C
Maximum relative humidity	80% for temperatures up to 31 °C decreasing linearly to 50 % relative humidity at 40 °C
Storage temperature	max. 45 °C

Spare parts and accessories

Collection units and their collection vessels

To define the collection unit of your choice proceed as follow:

1. Define the type of vessel (flask, round bottom, appendix).
2. Define the size of the flask.
3. Get the order code of the corresponding unit fitting your tubes from the table below.

Flat bottom, narrow-necked vessels, SVL 22

Type	Qty	Order no.	Cap*	Septa	Number of positions	Collection unit Rack	Retaining plate
60 mL	72	049535	11056535	049536	6	53698**	11055205
60 mL	72	049535	11056535	049536	4	11058332**	11059365
240 mL	6	052672	11056535	049536	6	053698**	-
240 mL	6	052672	11056535	049536	4	11058332**	-

Round bottom, wide-necked vessels, GL 45

Type	Qty	Order no.	Cap*	Septa	Number of positions	Collection unit Rack	Retaining plate
220 mL	6	053208	11056528	053677	6	053698**	-
220 mL	6	053208	11056528	053677	4	11058332**	-

Round bottom, wide-necked vessels, without thread (Syncore Polyvap)

Type	Qty	Order no.	Cap*	Septa	Number of positions	Collection unit Rack	Retaining plate
150 mL	12	040907	11055713	048690	6	53698**	11057054
150 mL	12	040907	11055713	048690	4	11058332**	11058339
250 mL	6	038486	11058655	11058656	4	-	-

Residual volume, wide-necked vessels, GL 45 (Syncore Analyst R-12)

Type	Qty	Order no.	Cap*	Septa	Number of positions	Collection unit Rack	Retaining plate
150 mL, 1 mL	12	11056498	11056528	053677	6	053698**	11057054
150 mL, 1 mL	12	11056498	11056528	053677	4	11058332**	11058339
150 mL, 0.3 mL	12	11056499	11056528	053677	6	053698**	11057054
150 mL, 0.3 mL	12	11056499	11056528	053677	4	11058332**	11058339

Residual volume, wide-necked vessels, GL 45, amber (Syncore Analyst R-12)

Type	Qty	Order no.	Cap*	Septa	Number of positions	Collection unit Rack	Retaining plate
150 mL, 1 mL	12	11056910	11056528	053677	6	053698**	11057054
150 mL, 1 mL	12	11056910	11056528	053677	4	11058332**	11058339
150 mL, 0.3 mL	12	11056911	11056528	053677	6	053698**	11057054
150 mL, 0.3 mL	12	11056911	11056528	053677	4	11058332**	11058339

Residual volume, wide-necked vessels, without thread (Syncore Analyst R-6)

Type	Qty	Order no.	Cap*	Septa	Number of positions	Collection unit Rack	Retaining plate
250 mL, 1 mL	6	038569	11058655	11058656	4	11058344	-
250 mL, 0.3 mL	6	038485	11058655	11058656	4	11058344	-

Round bottom flasks with 29.2/32 flange

Type	Qty	Order no.	Cap*	Septa	Number of positions	Collection unit Rack	Retaining plate
50 mL	1	431	4	11056043			
100 mL	1	432					
250 mL	1	433					
500 mL	1	434					

* Cap with septa included

** Collection unit is included in the standard scope of delivery

Accessories for extraction cells

	Order no.
Extraction cell E-916, 10 mL 1 pc	051237
Extraction cell E-916, 20 mL 1 pc	051236
Extraction cell E-916, 40 mL 1pc	051235
Extraction cell E-914, 10 mL only compatible with FW V01.05 and higher	11067988
Extraction cell E-914, 20 mL only compatible with FW V01.05 and higher	11067989
Extraction cell E-914, 40 mL 1 pc	051234
Extraction cell E-914, 80 mL 1 pc	051233
Extraction cell E-914, 120 mL 1 pc	051232
Expansion element, 2 mL	053708
Expansion element, 10 mL 1 pc	053359
Expansion element, 20 mL 1 pc	053358
Expansion element, 40 mL 1 pc	053357
Expansion element, 80 mL 1 pc	053356
Expansion element, 120 mL 1 pc.	053355
Funnel E-916, 10 mL	053035
Funnel E-916, 20 mL	053396
Funnel E-916, 40 mL	053397
Funnel E-914, 10 - 20 mL	11067712
Funnel E-914, 40 - 120 mL	053036
Carrier for extraction cells E-914	053691
Carrier for extraction cells E-916	053690

Further accessories

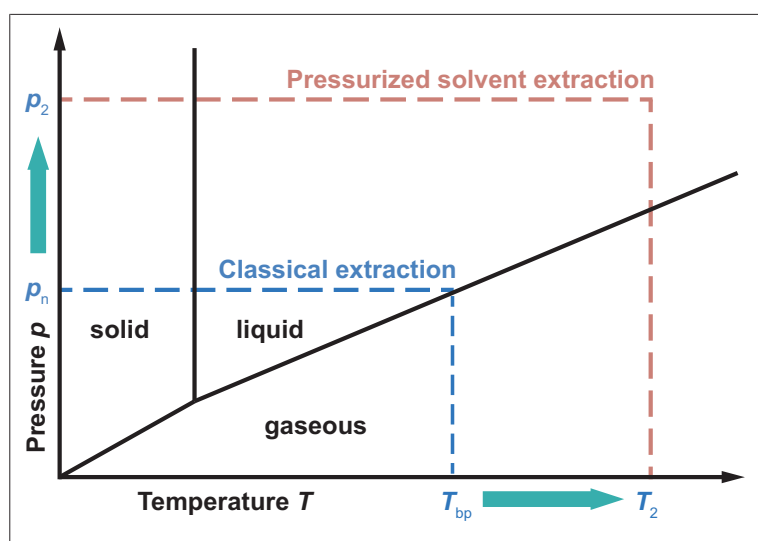
	Order no.
Safety cap for waste bottle, 7-port 1 pc	11056948
Safety cap, 2-port	11056949
Solvent bottle with GL45 cap 1 pc	053203

	Order no.
Top filter for E-916, cellulose 100 pcs	049572
Top filter for E-914, cellulose 100 pcs	051249
Top filter for E-916, glass fiber 100 pcs	11057189
Top filter for E-914, glass fiber 100 pcs	11057190
Bottom filter for E-916 / 914, cellulose 100 pcs	049569
Bottom filter for E-916 / 914, glass fiber 100 pcs	11055932
Extraction thimble for 40 mL cell, cellulose 25 pcs	11055334
Extraction thimble for 40 mL cell, glass fiber 25 pcs	11056633
Extraction thimble for 80 mL cell, cellulose 25 pcs	11059610
Extraction thimble for 80 mL cell, glass fiber 25 pcs	11059612
Extraction thimble for 120 mL cell, cellulose 25 pcs	11055358
Extraction thimble for 120 mL cell, glass fiber 25 pcs.	11059611
Quartz sand 0.3 - 0.9 mm, 2.5 kg	037689
Diatomaceous earth 1.0 kg	053201
SpeedExtractorRecord™ software, licensed version	053073
SpeedExtractor IQ/OQ documentation for first installation and operation qualification	11056092
SpeedExtractor Repeating OQ	11056093

Functional principle

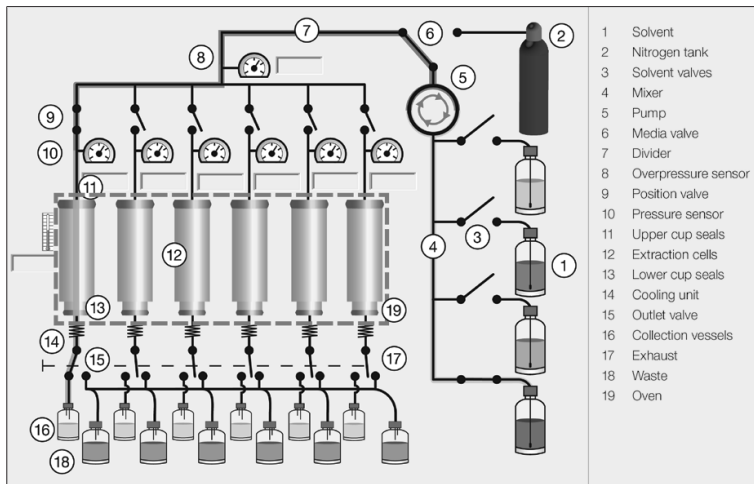
Theory of PSE

The combination of high temperature and pressure is used for PSE (Pressurized solvent extraction). Higher analyte solubility, enhanced penetration into the matrix and faster diffusion rates resulting in improved mass transfer are the most important arguments to switch to this modern extraction technique. An increase from normal pressure p_n to p_2 is thereby necessary to keep the solvent in the liquid state at T_2 .



Schematic Diagram PSE

In contrast to classical extraction, in PSE the samples are exposed to elevated pressure and temperature. The sample is placed into the cells (12) which are accommodated in an oven (19). A solvent mixture is transferred into the cell by means of a HPLC pump (5). Each cell is separated and individually monitored (9+10), thus cross-contamination effects are fully eliminated. The extract is then discharged into various types of collection vials (16) which fit to BUCHI's parallel and rotary evaporators for subsequent evaporation and concentration. Manual sample transfer is obsolete.



PSE Process

Every extraction starts with a tightness test (1) as inherent element of the method ensuring the presence of nitrogen and all cells in place on activated positions. After this quick initial check the extraction proceeds with multiple extraction cycles. Each extraction cycle consists of three steps - heat up (2), hold (3) and discharge (4). The speciality of the SpeedExtractor's heat up is a step by step increase to reach the pressure. Approaching the set pressure gradually guarantees a very consistent process avoiding overshooting the set pressure. After the final discharge of the last cycle the extraction cells are flushed with solvent and gas. Optionally, the extraction process can be monitored and documented using SpeedExtractorRecord™.

