

Technical data sheet

UniversalExtractor E-800

The UniversalExtractor E-800 meets the highest expectations in applicational flexibility and safety standards for all extraction types. Thanks to its high performance heating system and the inert materials, there are no limitations regarding solvents. Using the glass assembly with the universal chamber, up to five different extraction methods can be run within the same set-up. As an alternative, the HE glass assembly is a rapid solution. The LSV configuration is designed for large sample volumes, allowing the lowest analyte detection levels.



Description of function

The UniversalExtractor E-800 is designed to carry out the following solid-liquid extraction methods:

- Hot Extraction (without chamber heater). See Chapter 1.1 “Hot Extraction (with Hot Extraction beaker)”, page 2
- Soxhlet Extraction (with and without chamber heater). See Chapter 1.2 “Soxhlet Extraction (with extraction glass chamber universal)”, page 3
- Continuous Extraction (with and without chamber heater). See Chapter 1.6 “Continuous Extraction (with extraction glass chamber universal)”, page 7
- Hot Extraction (with chamber heater). See Chapter 1.4 “Hot Extraction (with extraction glass chamber universal)”, page 5
- Soxhlet warm Extraction (with chamber heater). See Chapter 1.3 “Soxhlet Warm Extraction (with extraction glass chamber universal)”, page 4
- Twisselmann Extraction (with chamber heater). See Chapter 1.5 “Twisselmann Extraction (with extraction glass chamber universal)”, page 6

Hot Extraction (with Hot Extraction beaker)

Step 1 extraction

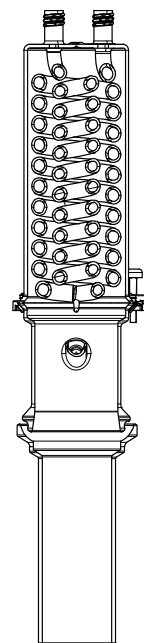
- The sample is located in the extraction chamber.
- The beaker contains the solvent.
- The solvent is heated, vapor rises up to the condenser, condenses and drops into the beaker, containing the sample.

Step 2 rinsing

- The solvent in the beaker is heated and evaporated.
- The vapor rises up to the condenser.
- The condensed solvent flows into the beaker with the sample.
- The tank bottle valve opens periodically and condensed solvent flows in the tank bottle.
- The solvent level decreases.

Step 3 drying

- The solvent is heated, vapor rises up to the condenser, condenses and flows into tank.
- The analyte remains in the beaker.



Soxhlet Extraction (with extraction glass chamber universal)

Step 1 extraction

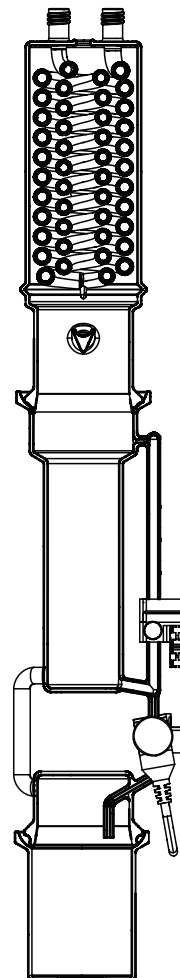
- The sample is located in the extraction chamber.
- The beaker contains the solvent.
- The solvent is heated, vapor rises up to the condenser, condenses and drops into the extraction chamber with the sample.
- The magnetic valve is closed, the solvent is collected up to the level sensor and extracts the analyte.
- When the optical sensor is reached, the magnetic valve opens and the solvent containing the analyte flows back into the beaker.

Step 2 rinsing

- The solvent is heated, vapor rises up to the condenser, condenses and drops into the extraction chamber with the sample.
- The magnetic valve is open, the solvent flows back into beaker, the solvent is not collected.

Step 3 drying

- The solvent is heated, vapor rises up to the condenser, condenses and flows into tank.
- The analyte remains in the beaker.



Soxhlet Warm Extraction (with extraction glass chamber universal)

Step 1 extraction

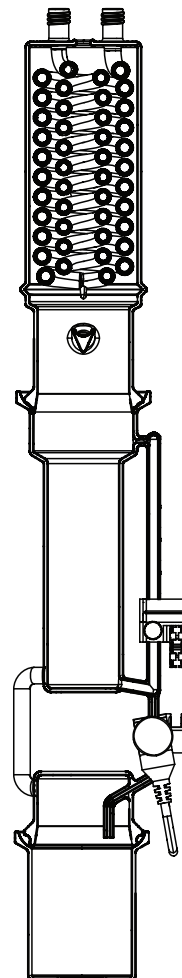
- The sample is located in the extraction chamber.
- The beaker contains the solvent.
- The solvent is heated, vapor rises up to the condenser, condenses and drops into the extraction chamber with the sample.
- The solvent in the extraction chamber is heated.
- The magnetic valve is closed, the solvent is collected up to the level sensor and extracts the analyte.
- When the optical sensor is reached, the magnetic valve opens and the solvent containing the analyte flows back into the beaker.

Step 2 rinsing

- The solvent is heated, vapor rises up to the condenser, condenses and drops into the extraction chamber with the sample.
- The magnetic valve is open, the solvent flows back into beaker, the solvent is not collected.

Step 3 drying

- The solvent is heated, vapor rises up to the condenser, condenses and flows into tank.
- The analyte remains in the beaker.



Hot Extraction (with extraction glass chamber universal)

Step 1 extraction

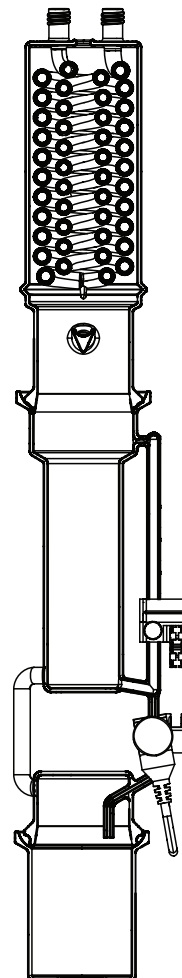
- The sample is located in the extraction chamber.
- The beaker contains the solvent.
- The solvent is heated, vapor rises up to the condenser, condenses and drops into the extraction chamber with the sample.
- The magnetic valve is closed, the solvent is collected up to the level sensor.
- The analyte is extracted.
- The solvent is heated in the extraction chamber, vapor rises up to the condenser, condenses and drops back into the extraction chamber.
- The magnetic valve opens regularly to release a small portion of extract into the beaker.

Step 2 rinsing

- The solvent is heated, vapor rises up to the condenser, condenses and drops into the extraction chamber with the sample.
- The magnetic valve is open, the solvent flows back into beaker, the solvent is not collected.

Step 3 drying

- The solvent is heated, vapor rises up to the condenser, condenses and flows into tank.
- The analyte remains in the beaker.



Twisselmann Extraction (with extraction glass chamber universal)

Step 1 extraction

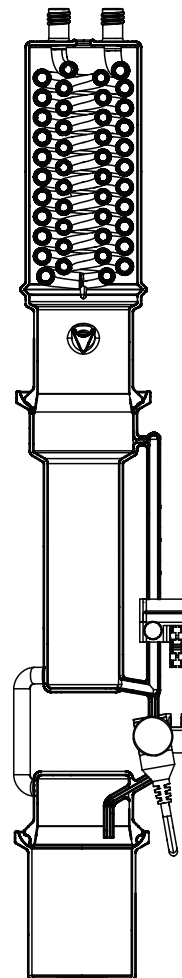
- The sample is located in the extraction chamber.
- The beaker contains the solvent.
- The magnetic valve is closed, the solvent is collected in the extraction chamber. The solvent is heated, vapor rises up to the condenser, condenses, and drops back through the sample into the extraction chamber.

Step 2 rinsing

- The solvent is heated, vapor rises up to the condenser, condenses and drops into the extraction chamber with the sample.
- The magnetic valve is open, the solvent flows back into beaker, the solvent is not collected.

Step 3 drying

- The solvent is heated, vapor rises up around the sample to the condenser, condenses and flows into the tank bottle.
- The analyte remains in the beaker.



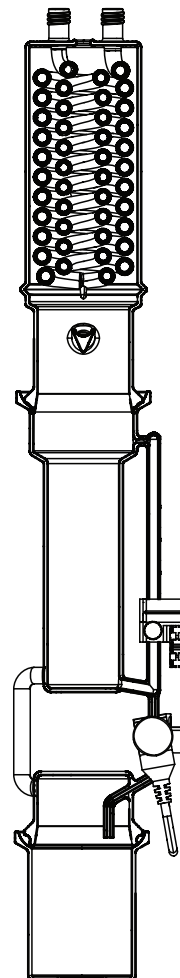
Continuous Extraction (with extraction glass chamber universal)

Step 1 extraction

- The sample is located in the extraction chamber.
- The beaker contains the solvent.
- The solvent is heated, vapor rises up to the condenser, condenses and drops into the extraction chamber with the sample.
- The magnetic valve is open, the solvent extracts the analyte and flows back into the beaker.

Step 2 drying

- The solvent is heated, vapor rises up to the condenser, condenses and flows into the tank bottle.
- The analyte remains in the beaker.



Order code UniversalExtractor E-800

Using the glass assembly with the universal chamber, up to five different extraction methods can be run within the same set-up. The LSV configuration is designed for large sample volumes, allowing the lowest analyte detection levels.

As an alternative, the Hot glass assembly is a rapid solution.

The chamber heater allows for heating the solvent in the universal extraction chamber to increase the extraction efficiency. Needed for the extraction methods Soxhlet warm, Hot extraction (with extraction glass chamber universal) and Twisselmann. It cannot be combined with the Hot Extraction in beaker method. Options with inert gas are only delivered with chamber heater.

For environmentally friendly operation the UniversalExtractor E-800 can be bundled with Recirculating Chiller F-308/ F-314 for saving cooling water. The UniversalExtractor E-800 has to be operated either with a recirculating chiller or a tap water valve.

and

Choose the configuration according to your needs:

| | | | | | | | | | | |
|---|---|---|---|---|---|--|--|---|---|---|
| 1 | 1 | E | 8 | 0 | 0 | | | 0 | 0 | 0 |
|---|---|---|---|---|---|--|--|---|---|---|

Glass assembly

- U Universal chamber
- L Universal chamber LSV
- I Universal + inert gas
- P Universal LSV + inert gas
- M Mixed 3 Universal + 3 LSV
- H Hot Extration HE

Chamber heater

- 0 Without
- 1 Yes

Order code UniversalExtractor E-800 System

For environmentally friendly operation the UniversalExtractor E-800 can be bundled with Recirculating Chiller F-308/ F-314 for saving cooling water. The UniversalExtactor E-800 has to be operated either with a recirculating chiller or a tap water valve.

Choose the configuration according to your needs:

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|--|--|--|---|---|--|
| 1 | 1 | S | E | 8 | 0 | 0 | | | | 0 | 0 | |
|---|---|---|---|---|---|---|--|--|--|---|---|--|

Glass assembly

U Universal chamber
L Universal chamber LSV
I Universal + inert gas
P Universal LSV + inert gas
M Mixed 3 Universal + 3 LSV
H Hot Extraction HE

Chamber heater

0 Without
1 Yes

Cooling

1 Tap water valve
2 Chiller F-308
3 Chiller F-314

Voltage

1 220-240 V
2 100-120 V

Scope of delivery

All configurations are supplied ready to use.

| | Hot Extraction | Universal | Universal LSV |
|--|----------------|-----------|---------------|
| UniversalExtractor E-800 | 1 | 1 | 1 |
| Condenser E-800 | 6 | 6 | 6 |
| Extraction glass chamber Universal | - | 6 | - |
| Extraction glass chamber Universal LSV | - | - | 6 |
| Soxhlet assembly cpl. | - | 6 | 6 |
| Extraction beaker Universal | - | 6 | - |
| Extraction beaker LSV | - | - | 6 |
| Extraction beaker HE | 6 | - | - |
| Sealing PTFE | 6 | 12 | 12 |
| Set of holders for thimbles 25 mm | 6 | 6 | - |
| Set of holders for thimbles 33 mm | 6 | 6 | 6 |
| Set of holders for thimbles 43 mm | - | - | 6 |
| Set of glass sample tube holder | 6 | 6 | - |
| Set of glass sample tube holder LSV | - | - | 6 |
| Extraction thimbles 25 x 150 mm | - | 6 | - |
| Extraction thimbles 33 x 150 mm | - | 6 | 6 |
| Extraction thimbles 43 x 150 mm | - | - | 6 |
| Extraction thimbles 25 x 100 mm | 6 | - | - |
| Extraction thimbles 33 x 94 mm | 6 | - | - |
| Solvent tank cpl. | 1 | 1 | 1 |
| Cooling water hose 3 m | 2 | 2 | 2 |
| Beaker tong | 1 | 1 | 1 |
| Extraction beaker carrier | - | 1 | - |
| Extraction beaker carrier LSV | - | - | 1 |
| Pliers for glass sample tube with frit | 1 | 1 | 1 |
| Funnel | 1 | 1 | 1 |
| Power cord | 1 | 1 | 1 |
| Operation manual | 1 | 1 | 1 |

Technical data

UniversalExtractor E-800

| Specification | UniversalExtractor E-800 |
|----------------------|--------------------------|
| Power consumption | 1780 W |
| Connection voltage | 200 - 240 ± 10 % VAC |
| Fuse | 10 A |
| Frequency | 50 / 60 Hz |
| Overvoltage category | II |
| Pollution degree | 2 |

| Specification | UniversalExtractor E-800 |
|--|--|
| Dimensions (W x D x H) (without glassware) | 638 x 595 x 613 mm |
| Dimensions (W x D x H) (with glassware Universal) | 638 x 595 x 752 mm |
| Weight (without glassware) | 44.8 kg |
| Weight (with glassware Universal) | 52.6 kg |
| Total heating power (rated) | 1680 W |
| Total Heating power (maximum) | 1680 W |
| Hose connection | 6 / 9 mm |
| Allowed water pressure (nominal value) | 6 bar |
| Allowed water pressure (maximum) | 8 bar |
| Minimum water flow | 100 mL/min |
| Inlet cooling medium temperature | 25 °C below the boiling point of the solvent |
| Number of extraction positions | 6 |
| Solvent tank volume | 2 L |
| Allowed inert gas pressure (maximum) | 3 bar |
| Max. filling level (Extraction glass chamber Universal) | 190 mL |
| Max. filling level (Extraction glass chamber Universal LSV) | 315 mL |
| Max. working volumes (Beaker Universal) | 175 mL |
| Max. working volumes (Beaker LSV) | 320 mL |
| Max. working volumes (Beaker Hot Extraction) | 100 mL |
| Language | DE, EN, IT, ES, FR, JA, CN, PL, RU |
| Method storage | 40 methods |

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 |

Recirculating chiller

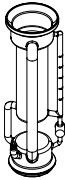
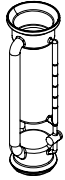
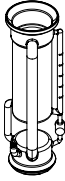


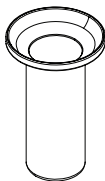


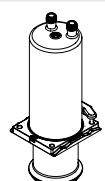
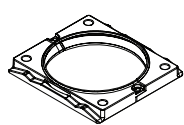
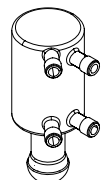
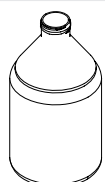
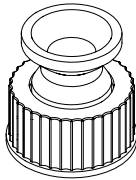
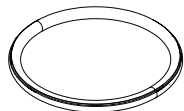
NOTE

Select a chiller according to your needs. See "A comprehensive guide to evaluate recirculating chillers for extraction units "

| | Order no. |
|--|-----------|
| Recirculating Chiller F-308 900 W at 15 °C, Display, 230 V Cooling capacity 900 W at 15 °C, for temperatures from -10 to 25 °C | 11F30801 |
| Recirculating Chiller F-308 900 W at 15 °C, Display, 115 V Cooling capacity 900 W at 15 °C, for temperatures from -10 to 25 °C | 11F30802 |
| Recirculating Chiller F-314 1400 W at 15 °C, Display, 230 V Cooling capacity 1400 W at 15 °C, for temperatures from -10 to 25 °C | 11F31401 |
| Recirculating Chiller F-314 1400 W at 15 °C, Display, 115 V Cooling capacity 1400 W at 15 °C, for temperatures from -10 to 25 °C | 11F31402 |

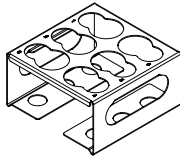
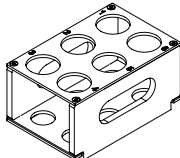
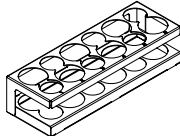
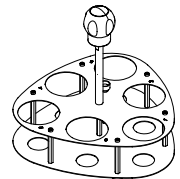
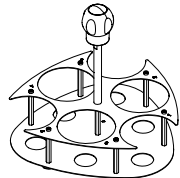
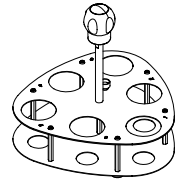
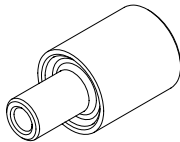
Spare parts

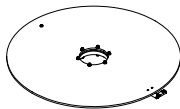
| | Order no. | Image |
|--|-----------|---|
| Extraction chamber universal inert | 11064849 |  |
| Extraction chamber universal LSV | 11062502 |  |
| Extraction chamber universal LSV inert | 11064850 |  |

| | Order no. | Image |
|----------------------------------|-----------|---|
| Set of beakers HE, 2 pcs. | 11067475 |  |
| Set of beakers, 2 pcs. | 11067474 |  |
| Set of beakers LSV, 2 pcs. | 11067714 |  |
| Condenser E-800 cpl. | 11067064 |  |
| Condenser flange E-800 | 11067818 |  |
| Condenser tank bottle | 11065966 |  |
| Tank bottle 2 L, GL 45 | 11070509 |  |
| Tank adapter, PTFE | 11064590 |  |
| Joint clip | 11070136 | |
| Set of seals E-X00, PTFE, 6 pcs. | 11085085 |  |

| | Order no. | Image |
|---|-----------|---|
| Set of 6 Membranes with anchor for magnetic valve unit | 11085084 |  |
| Protection shield top, cpl. (with extraction glass chamber universal) | 11067832 |  |
| Protection shield bottom, cpl. | 11067831 |  |
| Set of gliding elements including magnets, 10 pcs. | 11067827 |  |
| Reflectorfoil analyte protection, 6 pcs. | 11068522 | |
| Silicone hose D6/9 L=3 m | 048355 | |
| Set of draining tube, FEP, Universal configuration, 6 pcs. | 11067477 | |
| Set of draining tubes FEP, HE configuration, 6 pcs. | 11067480 | |
| The draining tubes connect the receiving funnel in the condensers with the tank valve to drain solvent into the tank. | | |
| Soxhlet assembly cpl. One part consisting of magnetic valve and level sensor for extraction glass chamber Soxhlet | 11067065 |  |
| Extraction glass chamber universal | 11062501 |  |

Accessories

| | Order no. | Image |
|--|-----------|---|
| Holder for glass sample tubes, stainless steel | 11067219 |  |
| Holder for glass sample tubes, PTFE | 11067220 |  |
| Holder for extraction thimbles (diameter 25 - 43 mm) | 11068443 |  |
| Extraction beaker Universal carrier Allows to carry 6 beakers Universal (11067474) | 11067042 |  |
| Extraction beaker LSV carrier Allows to carry 6 beakers LSV (11067714) | 11067715 |  |
| Extraction beaker HE carrier Allows to carry 6 beakers HE (11067475) | 11067493 |  |
| Set condenser insulations E-800, 6 pcs. The insulation of the condensers prevent condensing water and is recommended in high humidity environment | 11069077 | |
| Set insulation cooling water hoses The insulation of the water hoses prevent condensing water and is recommended in high humidity environment. | 11069079 | |
| Support solvent supply Allows to fix the tubes of solvent dispensers to the condensers for convenient solvent addition. | 11068306 |  |

| | Order no. | Image |
|--|-----------|---|
| Cooling water valve, 24 VAC Valve opens cooling water feed during distillation. | 031356 |  |
| Turning disk Allows for turning the instrument for easier access. | 11067985 |  |

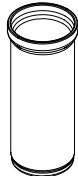

Consumables

| | Order no. |
|----------------------------------|-----------|
| Quartz sand 0.3 - 0.9 mm, 2.5 kg | 037689 |
| Celite® 545, 1 kg | 11068920 |
| Boiling stones, PTFE | 11068917 |

Holder for extraction thimbles

| | Order no. |
|---|-----------|
| Holders for thimbles d25, PTFE, 3 pcs. | 11067488 |
| Holders for thimbles d33, PTFE, 3 pcs. | 11067490 |
| Holders for thimbles d43, PTFE, 3 pcs. | 11067491 |
| Holders for thimbles d25, stainless steel, 6 pcs. | 11068484 |
| Holders for thimbles d33, stainless steel, 6 pcs. | 11068485 |
| Holders for thimbles d43, stainless steel, 6 pcs. | 11068486 |
| Set of holders for glass sample tubes with frit, PTFE, 3 pcs. | 11067485 |
| Set of holders for LSV glass sample tubes, PTFE, 3 pcs. | 11067486 |

Glass sample tubes and extraction thimbles

| | Order no. | Image |
|--|-----------|---|
| Glass sample tubes with frit, long, 6 pcs. The glass sample tubes with 150 mm length fit perfectly into the Universal glass extraction chamber. Working volume: 106 mL Filling volume: 123 mL | 11067815 |  |
| Glass sample tubes with frit LSV, long, 6 pcs. The glass sample tubes with 150 mm length fit perfectly into the Universal LSV glass extraction chamber. Working volume: 180 mL Filling volume: 216 mL | 11067816 |  |

| | Order no. | Image |
|---|-----------|---|
| <p>Glass sample tubes with frit, 6 pcs.</p> <p>Working volume: 64 mL</p> <p>Filling volume: 82 mL</p> | 11067497 |  |
| <p>Glass sample tubes LSV with frit, 6 pcs.</p> <p>Working volume: 116 mL</p> <p>Filling volume: 144 mL</p> | 11067814 |  |
| <p>Extraction thimbles 25 x 100 mm, 25 pcs.</p> <p>Working volume: 44 mL</p> | 018105 |  |
| <p>Extraction thimbles 33 x 94 mm, 25 pcs.</p> <p>Working volume: 64 mL</p> | 11058983 |  |
| <p>Extraction thimbles, Set. 25 pcs, 43 x 118 mm, cellulose</p> <p>For Soxhlet extraction unit.</p> <p>Working volume: 150 mL</p> | 018106 |  |
| <p>Extraction thimbles 25 x 150 mm, 25 pcs.</p> <p>The extraction thimbles with 150 mm length fit perfectly into the Universal glass extraction chamber, they need the holder 1167488 (d 25 mm)</p> <p>Working volume: 66 mL</p> | 11067445 |  |
| <p>Extraction thimbles 33 x 150 mm, 25 pcs.</p> <p>The extraction thimbles with 150 mm length fit perfectly into the Universal glass extraction chamber, they need the holder 1167490 (d33 mm)</p> <p>Working volume: 120 mL</p> | 11067446 |  |
| <p>Extraction thimbles 43 x 150 mm, 25 pcs.</p> <p>The extraction thimbles with 150 mm length fit perfectly into the Universal glass extraction chamber, they need the holder 1167491 (d 43 mm)</p> <p>Working volume: 182 mL</p> | 11067447 |  |



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Quality Systems ISO 9001

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Quality in your hands
