

*Efficiently Recycling Solvents?
LCTech Distillation Devices*



Distillation Devices

for Recycling Solvents and
Improving Technical Qualities for HPLC, GPC, ...

- ☑ For small and medium volumes
- ☑ Fully or semi-automated control

Distillation Devices

Easy and Efficient Clean-up of Solvents

Recycling or upgrading solvents from technical to analytical grade can result in essential savings. Cost for purchase, storage and disposal can also decrease significantly.

To achieve this you need a high performance distillation device, delivering high purity at high throughput - in combination with good and helpful support.

The standard distillation device by LCTech has an input volume of about 5 litres and is designed for average solvent consumption in a laboratory. It is typically operated by a comfortable touch-screen control, allowing a full automation of distillation processes.

For expensive solvents a smaller device with an effective input volume of 1.7 litres is available.

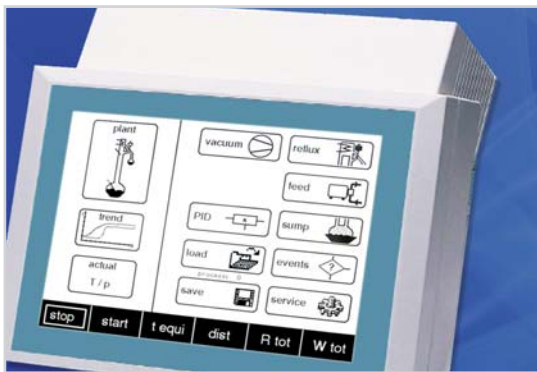
Optionally, using a simpler controller, semi-automated control can be achieved, too. For process development and documentation PC software is also available.

The goal of the operation is obtaining a distillate of the necessary quality. An azeotropic mixture can also be purified by distillation, but not separated into the single components.

This procedure is perfectly suitable for solvents that are used in sample preparation and analysis.

Easy and Comfortable Handling

The modern touchscreen control allows easy handling of the device.



The user defines the heating power, the reflux/withdrawal ratio as well as parameters for first and main run. For safety features the maximum temperature limits in the condenser and reboiler flask as well as minimal level in the reboiler flask are set.

With a simple test distillation reflux/withdrawal, heating power as well as time parameters for first and main run are identified. The parameters can be stored in the system and recalled anytime.

Safe Operation and Low Maintenance

The touch-screen control runs the device automatically according to chosen times for first and main run, the reflux/withdrawal ratio and heating power.

The safety features are continuously monitored:

- ✓ The minimal level of solvent in the reboiler flask
- ✓ Maximum temperature limit values in condenser and reboiler flask
- ✓ The permanent availability of cooling water (frequency controlled)

If the level in the reboiler flask falls below minimum, the distillation is stopped in a controlled manner and the valve to the cooling water tube is closed. This signal can also be used to switch off a recirculating cooler.

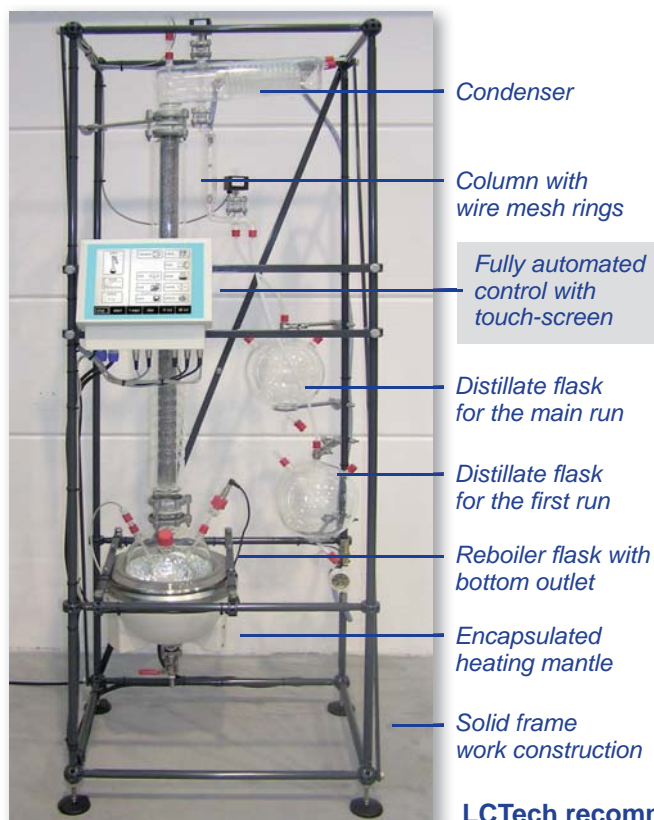
The devices have no rotating parts, making for virtually silent operation.

The devices are easily cleaned by „distillation“ with a solvent. Residue in the reboiler flask, which might occur in the course of time, can be removed with a glass cleaning agent such as MUCASOL® or others.

With no parts to replace at regular intervals, the device requires very low maintenance.

The operation of distillation devices is subject to regulation. These regulations must be complied with. Please refer to your company policy, head of laboratory, the safety representative or your local, responsible authority.

Version with fully automated control



LCTech recommends the purchase of a fully automated distillation device.

It is that easy:

- ✓ Place solvent to be cleaned up into the reboiler flask.
- ✓ Define the parameters or choose one of up to 100 stored methods and start distillation.
- ✓ The distillation is run fully automatically.
- ✓ The device stops the distillation automatically when the minimal volume in the reboiler flask is reached.
- ✓ Take out the clean solvent and reuse it.

Version with semi-automated control



Semi-automated control via LC display

The devices are compact and can easily be integrated in a laboratory.

Footprint of the devices with a solvent volume of 1.7 L:

0.6 x 0.6 m

Height: 1.6 m

Footprint of the devices with a solvent volume of 5 L:

0.8 x 0.6 m

Height: 2.1 m

The semi-automated operation:

- ✓ Place solvent to be cleaned up into the reboiler flask.
- ✓ Define the parameters or choose latest method and start distillation.
- ✓ The distillation starts with enhanced heating temperature until suitable conditions for the distillation are reached.
- ✓ Take out the first run.
- ✓ Manually switch from total reflux to solvent collection.
- ✓ The distillation is completed fully automatically.
- ✓ Take out the clean solvent and reuse it.

		LCTech Distillation Devices at a Glance			
		SR-6 / Fully Automated	SR-2 / Fully Automated	SR-6 / Semi-Automated	SR-2 / Semi-Automated
P/N (Order number)		11791 (220/230 V) 11792 (110/115 V)	11787 (220/230 V) 11788 (110/115 V)	11789 (220/230 V) 11790 (110/115 V)	11785 (220/230 V) 11786 (110/115 V)
Size of reboiler; Effective input volume		6 L; 5 L	2 L; 1.7 L	6 L; 5 L	2 L; 1.7 L
Size of flask (output)		2 x 5 L, First and main run	2 x 2 L, First and main run	5 L	2 L
Evaporation capacity, depending on reflux ratio		Ethanol 5 kg/h Pentane 10 kg/h	Ethanol 2 kg/h Pentane 4 kg/h	Ethanol 5 kg/h Pentane 10 kg/h	Ethanol 2 kg/h Pentane 4 kg/h
Separation column with vacuum mantle	DN 25		x		x
	DN 50	x		x	
	Separation height	100 cm	80 cm	100 cm	80 cm
	Packing material: wire mesh rings	4x4 mm	3x3 mm	4x4 mm	3x3 mm
Theoretical plates		25	40	25	40
Condenser		0.2 m ²	0.1 m ²	0.2 m ²	0.1 m ²
Reboiler		Valve for waste disposal, temperature sensor, level sensor			
Heating mantle (fully encapsulated)		Regulated, 1500 W	Regulated, 1500 W	Linear, 800 W	Linear, 800 W
Column head		Temperature sensor Pt100, distillate cooler, level sensor			
Periphery		Frame work construction for safe suspension of all system components			
Controlling	Display	10.1" display	10.1" display	LC display	LC display
	Input via	Touch-screen	Touch-Screen	Turning knob	Turning knob
	Reflux/withdrawal ratio	1-999	1-999	1-540	1-540
	Heating power	x	x	x	x
	Maximum head and sump temperature	x	x	x	x
	Initial enhanced heating power with total reflux	x	x	x	x
	Switch from first run to main run	Automatic	Automatic	Manual	Manual
	Automatic pull-off of first run	x	x		
	Automatic separation of main run into reservoir	x	x		
	Automatic turn-off with run of cooling water	x	x		
	Cosideration of atmospheric pressure for boiling points	x	x		
	Stored Methods	100	100	1	1
Safety Features	Cooling water flow sensor	x	x	x	x
	Reboiler level sensor	x	x	x	x
	Temperature sensor	x	x	x	x
	Stops when temperature limits are exceeded	x	x	x	x
	Stops when vapour breaks through the condenser	x	x	x	x
Software	Compatible with SRsoft	x	x	x	x
Measures	w*d*h	0.8 * 0.6 * 2.1 m	0.6 * 0.6 * 1.6 m	0.8 * 0.6 * 2.1 m	0.6 * 0.6 * 1.6 m

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