

LabHut.com

solvent handling products

SolventSafe

Solvent Waste Containment System

Government Regulations increasingly place emphasis on laboratory safety, particularly in regard to exposure of lab personnel to solvent vapours.

The SolventSafe waste disposal system directly addresses the problem of waste solvent in the form of a simple, yet innovative safety product.

How safe is SolventSafe?

The SolventSafe system consists of a substantial 7.5 litre ultra-high molecular weight (UHMW) polyethylene waste container that allows removal of waste material from up to 9 different sources simultaneously and is compatible with most solvents and acids. The waste container is translucent so fluid level can be seen.

As there are no fragile glass components there is no risk of any breakage. The SolventSafe can even be stored on the floor!



Key benefits

- **Safely collects** hazardous solvents and vapours
- Use with up to **9 waste sources** simultaneously
- **Quick and easy** to use
- **No breakable glass** components

Quick and easy to use

The 9-port manifold (connecting the waste lines to the SolventSafe) and the solvent vapour filter are connected to the waste container by drip-free quick-connect couplings. This means disassembly and disposal can be achieved easily and quickly.

Two systems available

There are two SolventSafe systems:

- **SLVSAF-01** uses polypropylene/EPDM connectors.
- **SLVSAF-02** uses stainless steel/PTFE connectors.

Although polypropylene and EPDM have good solvent compatibility, the stainless steel and PTFE connectors used in SLVSAF-02 are recommended when using highly corrosive solvents.

If you are unsure which system is suitable for your application contact LabHut for advice:
Email support@labhut.com or call +44 (0)1452 310210.



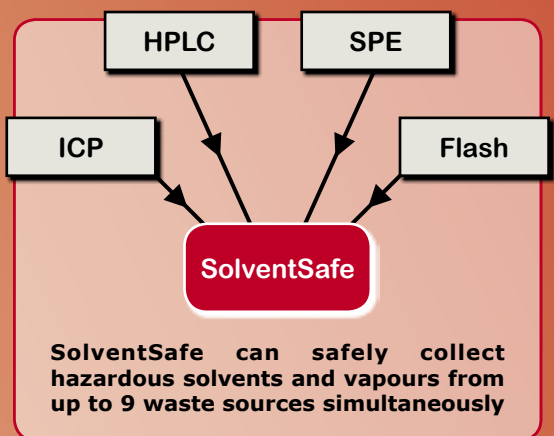
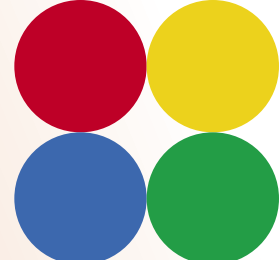
**DON'T RISK
YOUR HEALTH**



SLVSAF-01
Polypropylene/EPDM connectors



SLVSAF-02
Stainless Steel/PTFE connectors



SLVSAF-02

3

Solvent vapour filtration

SolventSafe features an organic vapour filter to ensure no solvent vapours can escape into the atmosphere. The integrated colour indicator changes from **light pink** to **dark magenta** when the filter needs replacing.



Description	Part No.
SolventSafe (Polypropylene/EPDM connectors)	SLVSAF-01
SolventSafe (Stainless Steel/PTFE connectors)	SLVSAF-02

SPECIFICATIONS

<i>Construction:</i>	7.5 litre UHMW polyethylene waste container
<i>Connector:</i>	Drip free, quick-connect couplings. Either polypropylene/EPDM (SLVSAF-01) or stainless steel/PTFE (SLVSAF-02)
<i>Vapour Filter:</i>	Colour change absorbent that changes colour when filter needs replacing
<i>Manifold:</i>	9-port for up to 9 waste sources (fittings included)
<i>Dimensions (Height x Diameter):</i>	375mm x 300mm (15" x 12")

SolventSafe meets the United States OSHA 29 CFR 1910.106(a)(29) and EPA 40 CFR 264.173 safety standards



SolventTrak Solvent Recycler



SolventTrak is a solvent conservation system designed to recycle uncontaminated solvents used in isocratic HPLC systems.

In most systems much of the mobile phase can be recycled and reused – SolventTrak can satisfy environmentally conscious laboratories and save money by reducing solvent consumption and the need for solvent disposal.

SolventTrak vs Traditional solvent recycling systems

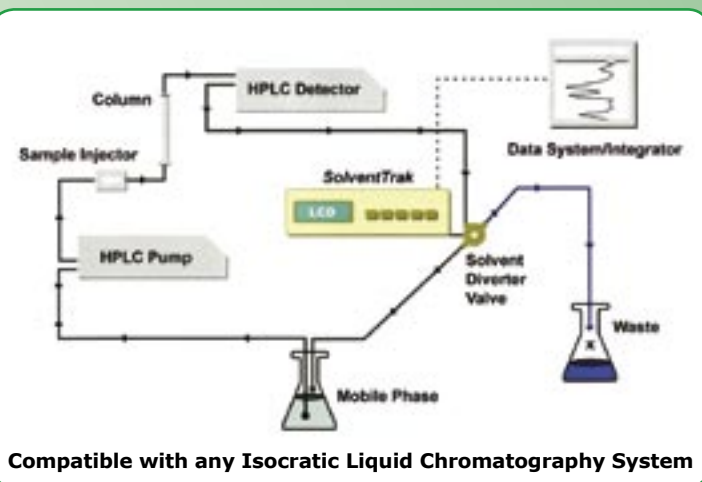
Traditional recycling systems use a fixed voltage level (or threshold above baseline) that must be exceeded before peaks can be detected. If the baseline changes, new settings must be applied or contaminants may be recycled instead of being sent to waste. Conversely, pure solvent may be sent to waste instead of being recycled.

SolventTrak incorporates a unique integration algorithm to accurately detect peaks in the eluent. This ensures all contaminants are eliminated, even if chromatography system conditions cause the baseline to drift up or down. The clean, uncontaminated solvent is sent back to the reservoir for recycling.

The winner: SolventTrak

Key benefits

- Unique **peak detection algorithm** accurately defines peaks and diverts them to waste
- **Installs easily** into any isocratic LC system
- Saves up to **90%** of solvent consumption
- **Reduces** solvent disposal costs
- **Pays for itself** in 60 to 90 days
- **Easy to use** — no complex programming
- Returns **reliably clean solvent** to mobile phase reservoir
- Automatic **performance validation**
- NIST traceable **calibration certificate** included as standard



Easy setup, testing and validation

The SolventTrak easily installs into any isocratic HPLC system. It can place a tick mark (*peak marker*) on the output signal to show exactly where peaks have been detected and sent to waste. This is useful for setup, testing and validation.

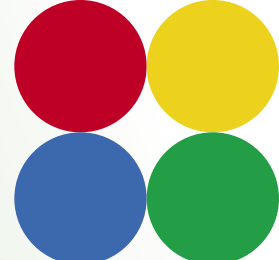
How SolventTrak works

The signal from any HPLC detector is connected to the SolventTrak. The SolventTrak monitors and continuously displays the voltage level on a large, easy-to-read LCD. SolventTrak automatically detects eluting peaks and sends them to waste using an inert solvent diverter valve. All clean, uncontaminated solvent is sent back to the reservoir for reuse.

When a peak is detected, it is indicated on the LCD display and by an audible alarm (which can be disabled). The peak detection sensitivity can be adjusted by changing the peak width and peak threshold parameters. This is easy to do using the buttons on the front of the SolventTrak.



Rear view



A routine analytical HPLC system can recover the cost of SolventTrak in 60 to 90 days

Description	Part No.
SolventTrak HPLC Solvent Recycler	100-300

SPECIFICATIONS

Peak Detection

Signal input range:	-1.000 to +1.000V
Sampling rate:	200Hz, continuous during operation
Number of inputs:	1
Peak width range:	User-settable: 1, 5, 15, 30, 45, 60, 75, 90, 105, 120, 150, 180, 210, 240, 270, 300 seconds
Peak slope range:	User-settable: 15 - 14,400
Diverter valve delay timer:	User-settable: 0 - 99 seconds, 1 second increments
Peak waste/valve open marker:	Defeatable, duration 0.1 seconds. Tick mark height is user adjustable
Contact closure outputs:	Normally open/normally closed Peak waste/valve open, duration 1 second Clean complete
Contact closure/TTL inputs:	Enable/disable autozero, duration 1 second Enable peak waste/valve override (continuous) Clean (start cleanup cycle)
Peak-to-waste/valve open indicators:	LCD display status, 1 second audio beep (can be turned off)

Diverter Valve

Type:	Solenoid controlled, 3-way, high efficiency, zero dead volume
Wetted surfaces:	All internal PTFE
Mounting ports:	¼ - 28 flat bottom (valve can be mounted in any orientation)
Operating pressure:	Up to 30psi (2bar)
Response time:	5ms (approx)

Physical Characteristics

Environment:	4.4 - 32.2°C, 10% to 60% relative humidity (non-condensing)
Dimensions (W x H x D):	230mm x 83mm x 260mm (9" x 3.75" x 10")
Weight:	3.15kg
Power:	100 - 240VAC, 50/60Hz, self-switching

HPLC Solvent Degasser

The range of compact HPLC Solvent Degassers from SMI-LabHut can degas up to five solvent lines simultaneously. The extremely low volume of each Teflon® AF channel (480µl) offers very quick equilibration and very short start-up times. The design has an exceptionally small footprint and can fit easily onto any work surface.

Why you need a degasser

It is important to degas solvents in HPLC in order to reduce bubble formation when solvents are mixed. Degassing also increases sensitivity and reduces baseline noise, particularly at low UV wavelengths. Although this can be done by bubbling helium through the solvents, this is expensive and results in the need to check and change cylinders. Helium degassing can also introduce unwanted environmental pollution into the laboratory atmosphere.

Key benefits

- Improves **baseline stability** and **reduces noise**
- Improves pump **performance** – fewer bubbles, less cavitation
- Improves laboratory **safety** – no escape of solvent vapours into the atmosphere
- **Prevents bubble formation** in detectors and solvent mixing systems
- Does not cause mixed solvent depletion
- Uses only **mains power** – no need for high pressure gas cylinders
- **Compact design** gives a footprint of less than 80mm (3") wide and 250mm (10") deep

Simultaneous Degassing

On-line degassing has been shown to be more effective at removing dissolved gas from mobile phases than sonication or helium-sparging.

Up to five solvent lines can be degassed simultaneously by one HPLC Solvent Degasser. The extremely low volume of each Teflon® AF channel (480µl) offers very quick equilibration and very short start-up times.



Teflon® AF membrane

The new Teflon® AF membrane outperforms the older Teflon® PTFE membranes traditionally used in other degassing systems (Teflon® AF is 50 times more permeable than Teflon® PTFE). This means that shorter tubing can be used for the removal of dissolved gases.

Teflon® AF is very easy to prime, has a short vacuum pull-down time (typically 3 minutes) and benefits from considerably shorter equilibration/re-equilibration times than Teflon® PTFE. Teflon® AF has the ability to remove pre-pump bubbles formed by cavitation which means that bubbles formed by the location of eluent reservoirs are less of a reliability issue.

Vacuum pump technology

The HPLC Solvent Degasser features the Zero Hysteresis, Constant Run (ZHCR®) high performance vacuum pump, specifically designed and developed for membrane degassing of HPLC mobile phase.

This permits the pump to maintain a constant vacuum level set-point (50mmHg) by varying the rpm of the stepper motor. The pump initially runs at a high speed which results in a quick pull-down and, as it approaches the vacuum control point, the rpm is gradually reduced until the desired vacuum level is reached.

This patented control strategy allows the solvent degasser to maintain a virtually constant vacuum that is unaffected by varying degassing loads. As a consequence, fluctuations in baseline due to vacuum hysteresis are eliminated by not having the pump repeatedly stop and start as is done in many older and existing systems.



Front view (3 channel version shown)



Rear view

Small Footprint

The compact design of the degasser gives a very small footprint of less than 80mm (3") wide and 250mm (10") deep! It can fit easily onto any work surface.

The photos above are shown at **Actual Size!**



2, 3, 4 or 5 degassing channels available

Description	Part No.
2 Channel HPLC Solvent Degasser	LHDEG/2
3 Channel HPLC Solvent Degasser	LHDEG/3
4 Channel HPLC Solvent Degasser	LHDEG/4
5 Channel HPLC Solvent Degasser	LHDEG/5

Each degasser is supplied with an AC adaptor. Also included is a set of interchangeable wall plugs for use in the UK, North America/ Japan, Continental Europe, and Australia.



SPECIFICATIONS

Number of Channels: 2, 3, 4 or 5
Internal Channel Volume: 480µl
Wetted Parts: PEEK and Teflon® AF
Vacuum Source: Patented Zero Hysteresis, Constant Run (ZHCR®) vacuum pump

Physical Characteristics
Dimensions (W x H x D): 73mm x 127mm x 249mm (3" x 5" x 10")
Weight: 2.7kg
Power: 15-24 VDC (0.85A max, 0.5A typical) Universal mains AC adaptor included

HPLC Pumps

www.labhut.com/pumps

Digital Metering Pump (Series I)

The Series I Pump provides a precise, reproducible flow in an economical package. The unit is designed for use in a variety of applications, including metering and liquid chromatography.

Driven by a high-resolution stepper motor, the pump has several flow control options, including RS-232 and remote voltage control.

The choice of stainless steel or PEEK fluid paths make it ideal for pumping both organic and inorganic solutions.



Description	Part No.
Series I Pump, self-flush, 0.01-9.99ml/min, maximum 2500psi, Bioclean, 110/220V	110PFN01
Series I Pump, self-flush, 0.01-9.99ml/min, maximum 2500psi, Stainless steel, 110/220V	110SFN01
Series I Pump, self-flush, 40ml/min, Bioclean, 110/220V	140PFN01
Series I Pump, self-flush, 40ml/min, Stainless Steel, 110/220V	140SFN01

Isocratic HPLC Pump (Series II)

The patented low dead volume pulse damper and rapid refill in the Series II make this single-piston pump virtually pulse-free. It meets the requirements of the most demanding detectors.

Flow rates from 0.01-10ml/min or 0.04-40ml/min are available in either stainless steel or biocompatible PEEK for metal-sensitive applications.

Autoprime™ one-button purging makes it easy to prime or purge the pump.

The life of the piston seals is extended by a self flushing system which prevents the build up of corrosive salts.



Description	Part No.
Series II Pump, self-flush, 0.01-9.99ml/min, Bioclean, 110/220V	210PFP01
Series II Pump, self-flush, 0.01-9.99ml/min, Stainless steel, 110/220V	210SFP01
Series II Pump, self-flush, 0.04-40.00ml/min, Bioclean, 110/220V	240PFP01
Series II Pump, self-flush, 0.04-40.00ml/min, Stainless steel, 110/220V	240SFP01

HPLC Pump Control Software

Quick-Set software is the easy - and free - way to control all LabHut pumps.

Using the standard RS-232 connection, Quick-Set enables you to run, stop and monitor your pump.

Visit www.labhut.com/pumps and download the software and manual for free!



All LabHut HPLC Pumps include a 3 year warranty

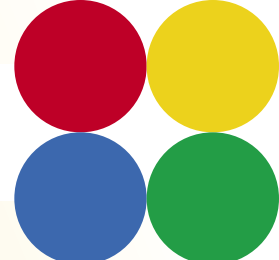
SolventSafe (Waste Container)

SolventTrak (Solvent Recycler)

HPLC Solvent Degasser

Other Instrumentation Available

Did you know LabHut also supply Detectors, Autosamplers, Fraction Collectors and Accessories?
Visit www.labhut.com or call +44 (0)1452 310210 for more information.



Isocratic HPLC Pump (Series III)

The Series III pump has all the advantages of the Series II and is supplied with a pressure transducer which allows real time pressure monitoring and enables upper and lower pressure limits to be set.

Flow rates from 0.01-10ml/min or 0.04-40ml/min are available in either traditional 316 stainless steel or biocompatible PEEK. The self-flushing system ensures that seal life is extended by preventing the build up of corrosive salts. Autoprime™ one-button purging makes it easy to prime or purge the pump.

External control through an RS-232 gives flexible performance at an affordable price.



Description	Part No.
Series III Pump, self-flush, 0.01-9.99ml/min, Bioclean, 110/220V, with external control	310PFT01
Series III Pump, self-flush, 0.01-9.99ml/min, Stainless steel, 110/220V, with external control	310SFT01
Series III Pump, self-flush, 0.04-40.00ml/min, Bioclean, 110/220V, with external control	340PFT01
Series III Pump, self-flush, 0.04-40.00ml/min, Stainless steel, 110/220V, with external control	340SFT01

Series 1500 Constant Flow Pump

The Series 1500 HPLC pump has been designed for analytical to small-scale preparative chromatography applications. The patented low dead volume pulse damper and dual piston mechanism make this pump virtually pulse-free, and provides unmatched performance. The unit provides constant flow rates from 0.01-12.0ml/min, and is typically suitable for columns from 2mm up to 22mm ID.

The Series 1500 drive features a linear cam and pressure compensation to provide accurate gradients in either the high- or low-pressure mode.

Standard controls include RS-232 and run/stop inputs, remote frequency and remote voltage controls, real-time pressure monitoring, and constant flow.



Description	Part No.
Series 1500 Pump, self-flush, 0.01-12ml/min, PEEK, 110/220V, mini pulse with pressuring monitoring and RS-232 control	F05PFD01
Series 1500 Pump, self-flush, 0.01-12ml/min, SS, 110/220V, mini pulse with pressuring monitoring and RS-232 control	F05SFD01

	Series I	Series II	Series III	Series 1500
Flow Rates Available (ml/min)	0.01-5.0 0.01-10 0.1-30	0.01-9.99 0.04-40	0.01-9.99 0.04-40	0.01-12.0
Max Pressure (PSI)	6000 (5ml SS) 3000 (5ml PEEK, 10ml SS & PEEK) 1000 (30ml)	6000 (10ml SS) 5000 (10ml PEEK) 1500 (40ml)	6000 (10ml SS) 5000 (10ml PEEK) 1500 (40ml)	6000 (SS) 5000 (PEEK)
Pulsation (at 1000psi)	±1% (With pulse damper)	±1%	±1%	±0.5%
Flow Accuracy	±2%	±2%	±2%	±2%
Flow precision (RSD)	0.5%	0.2%	0.2%	0.2%
Pulse Damper	Optional	Yes	Yes	Yes
Pressure Transducer	Optional	No	Yes	Yes
Autoprime	No	Yes	Yes	Yes
Self flushing seals	Yes	Yes	Yes	Yes
RS-232	Yes	Yes	Yes	Yes

Column Ovens

www.labhut.com/columnovens



Stability HPLC Column Ovens

The Stability HPLC column ovens are designed for applications requiring stable increased temperatures. In most cases, higher temperature will give better reproducibility, higher separation performance and reduced analysis time. The Stability's temperature range is ambient to 99°C.

The heated part of the oven is separate from the control unit, which allows easy installation onto a chromatography system.

Description	Column Capacity	Part No.
Stability Short	One 15cm column	LH64000001
Stability Single	One 25cm column	LH64000000
Stability Double	Two 25cm columns or one 25cm column plus a guard column side-by-side	LH64000002
Stability Long	One 25cm with guard column	LH64000003

Ambient Plus HPLC Column Oven

Increase the accuracy and consistency of your chromatography with the Ambient Plus HPLC Column Oven. Temperature changes through the day and even draughts in your laboratory can affect your results. Get precise, repeatable results with uniform, controlled temperature.

The Ambient Plus has an operating temperature range of 10°C above ambient to 100°C and stability is $\pm 0.2^\circ\text{C}$; repeatable to $\pm 0.1^\circ\text{C}$. All major elements are enclosed in the oven chamber, a constant temperature is maintained along entire length of the fluid path and the temperature is unaffected by flow rate.

The large capacity of the Ambient Plus allows it to hold up to four analytical or GPC columns and there is no need for special blocks or inserts.



Description	Column Capacity	Part No.
Ambient Plus HPLC Column Oven	Up to four $\frac{1}{4}$ " x 30cm columns or three $\frac{3}{8}$ " x 30cm columns, 110/220V	LH200584



Advance Professional HPLC Column Oven

The Advance Professional oven uses Peltier thermoelectric elements that provide both heating and cooling. Two-way forced air circulation guarantees perfectly even temperature distribution throughout the column compartment.

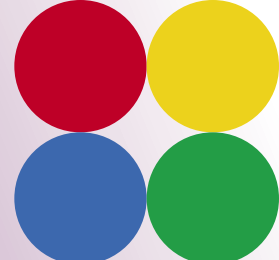
The oven features a large temperature range (5-85°C), extremely high stability ($\pm 0.02^\circ\text{C}$) and exceptionally high reproducibility ($\pm 0.1^\circ\text{C}$). The temperature is controlled by 'Double-Sensor-Reference' technology. This consists of two independent temperature sensors (one a Pt, the other laser trimmed) that are continually compared to a precision reference value.

The oven is simple to use and performs a quick self-check and an automatic calibration procedure each time it is powered up.

Description	Column Capacity	Part No.
Advance Professional HPLC Column Oven	Four 30cm columns (Ample space for valves and injectors)	LH5480

Tubing Cutter

www.labhut.com/tubingcutter



HPLC Tubing Cutter

The TC-20 is a CE marked motorised cutter for stainless steel HPLC tubing. A zero dead volume connection is assured with clean, perfectly square cuts. No lubricant or cutting fluid is required.

It can cut three common sizes of HPLC tubing: 1/16", 1/8" and 1/4" outside diameter (OD). Inside diameters as small as 0.008" can be smooth-cut and dressed without distortion.

A dressing tool is included for 1/16" OD tubing. It is attached directly to the swing arm so it cannot be misplaced or lost!

A shield on the swing arm covers the abrasive wheel, making the operation safe and simple.

Description	Part No.
HPLC Tubing Cutter TC-20. Includes 1/16" dressing tool, needle insert and cutting wheel	100200
Replacement cutting wheel	100124
Dressing tool, 1/16" for TC-20	100116

Description	Part No.
Needle insert for 1/16" dressing tool	101016
Dressing tool, 1/8" for TC-20	100118
Needle insert for 1/8" dressing tool	101018
Dressing tool, 1/4" for TC-20 (needle insert not required)	101042

CRONUS® HPLC Columns

Cronus® HPLC columns feature popular packing materials.

Materials include LiChrosorb, LiChrospher, Partisil, Nucleosil, Superspher and also Spherisorb and Hypersil equivalent packings. The columns are available in many different sizes from analytical to semi prep. Each column is individually tested before shipping to ensure the highest possible quality.

www.labhut.com/cronuscolumns



Ordering Information

All of the LabHut solvent handling products can be ordered online at www.labhut.com or by calling +44 (0)1452 310210. They are also available through distributors worldwide. To find your local distributor please visit www.labhut.com/distributors.

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