THOMSON Solutions At Work™

Analytical Solutions

Filter Vials, Empty Columns, Collection & Filter Plates

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Analytical Solutions

Filter Vials & Empty Columns

About Filter Vials

Empty Columns

Collection & Filter Plates

Part Numbers

An Introduction to Filter Vials

Thomson Filter Vials are a single system which replaces HPLC Vials, HPLC Caps, Syringes, & Syringe Filters for the filtration of samples. In 15 seconds, Thomson Filter Vials allow for sample preparation of unfiltered samples to filtered samples in an autosampler-ready vial.

Key Features

- Same Size as a standard HPLC Vial and will fit easily into any machine or tray available for standard HPLC vials.PTFE, PVDF, PES and Nylon membranes are available depending on the percentage of organic solvent in the sample and the amount of protein binding
- Pore sizes of either 0.2µm or 0.45µm will provide the perfect degree of filtration needed from viscous to clarified samples
- Versatility is built into Thomson's line of Filter Vials. Whether your samples are low volume or viscous or particulate-laden or contain a high volatility organic solvent Thomson has a Filter Vial to fit your needs

Syringe Filter Built In

Equivalent to A Syringe Filter Built Into Your HPLC Vial

Filter Vials are equivalent to a syringe filter built into your HPLC vial. Even a sample that appear clear to the eye potentially have particulates that can clog the machine and cause down time and costly maintenance. Filter Vials increase productivity by eliminating a transfer step required when using a syringe filter.

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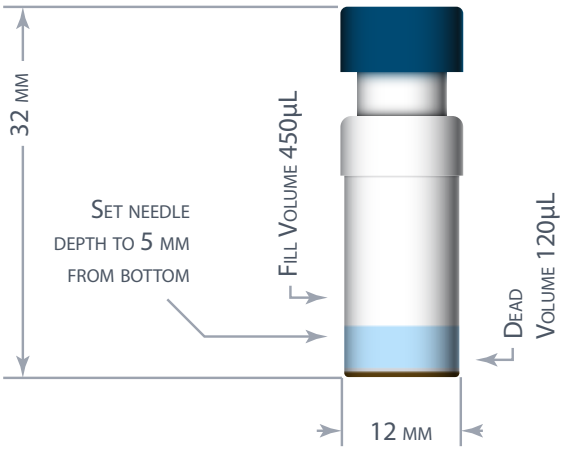
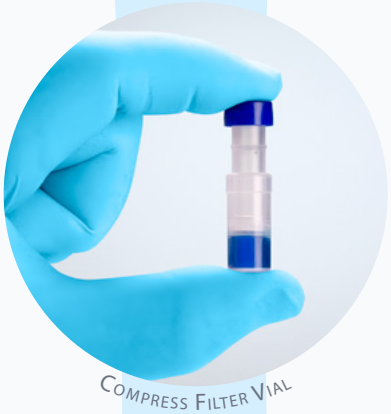
How Filter Vials Work

Similar to How A French Press Works...

Similar to how a french press (cafetière à piston) works, Filter Vials filter particulates out of the sample with similar membranes used in syringe filters. The pressing of the plunger into the shell vial forces the sample up through a filter to separate the particulates from the sample to be analyzed. Thomson has several filter membranes and pore sizes to choose from making the Filter Vial a versatile tool in the lab.





Easy As 1, 2, ... Done!

In Two Steps

1. Deposit 450µL of sample into shell vial
2. Insert plunger into the outer shell & press

15 Seconds

In two steps and 15 seconds you can have a safe and secure sample for analysis. If you need to filter more than one sample the use of a Toggle Press (up to 5) or Multi-Use Press (up to 48) can be used.

You can prepare a safe particulate free sample in less time than it takes to in the time it takes to open the syringe packaging and add the syringe filter.

Filter Vial Membrane

Membrane Pore Size

The recommended membrane pore size for sample filtration is based on the cell or cell debris content of the sample and the particle size of the packing material in the chromatography column used to analyze the sample. If the sample contains cells or cellular debris, then a 0.2µm pore size membrane is recommended to maintain system sterility.

Which to use?

- **0.2µm Pore Size**
  - Cells or Cell Debris in Sample
  - Chromatography Column Particle Size <3µm
- **0.45µm Pore Size**
  - Chromatography Column Particle Size >3µm

Membrane Material

The recommended membrane for sample filtration is based on the percentage of organic solvent in the sample and the amount of protein binding.

Compatibility

For chemical or compound compatibility with our Filter Vials & membranes see the Chemical Compatibility Index & Compound Compatibility Index in our Technical Library

	Aqueous	>50% Organic	Low Protein Binding
PTFE		●	
PVDF	●		●
Nylon	●	●	
PES	●		●

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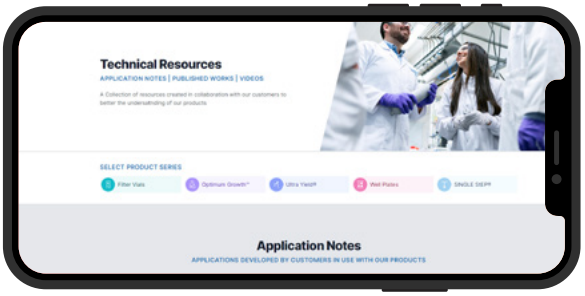
What Applications Can the Filter Vial be Used For?

With Thomson's family of Filter Vials and membranes available to you, finding ways to replace cumbersome and expensive syringe filters in the lab is easy. Here are just some of the documented applications you can use Filter Vials for in your lab today. See our Technical Library at htslabs.com to see a full list of applications. We work hard with small and large companies to produce proven protocols and methods for our products. If you find a use for Filter Vials in your workflow we would love to hear about it.

	nanoIFilter Vial®	Standard Filter Vial	eXtremeIFV®	eXtractor3DIFV®
10µL-250µL	●			
450µL		●	●	
UPLC Compatible	●	●	●	●
GCMS Compatible	●			●
30% Particulates			●	●
Viscous			●	●
Replacement for SPE			●	●
General Liquids < 10% particulates	●	●	●	
Cell Fermentation	●		●	●
Particulate Removal	●	●	●	●
Automation Compatible	●	●	●	●
Small Molecules	●	●	●	●
Food & Supplements		●	●	●
Toxicology	●	●	●	●
Pesticides	●		●	●
Environmental	●	●	●	●

Thomson's Technical Library

You can find application notes, videos and more information on our products by visiting our website at **htslabs.com**



What do Filter Vials Replace in the Lab?

What Do Filter Vials Replace In The Lab?

Thomson Filter Vials simplify general filtration by replacing syringes & syringe filters, microcentrifuge spin columns, and/or liquid-liquid extractions.

Applications for Thomson Filter Vials include all sample types to be analyzed by HPLC, UHPLC, LC-MS, and GC-MS.

Optimize Your SPE, D-SPE Or QuEChERS Workflow

Thomson Filter Vials simplify general filtration by replacing syringes & syringe filters, microcentrifuge spin columns, and/or liquid-liquid extractions.

Applications for Thomson Filter Vials include all sample types to be analyzed by HPLC, UHPLC, LC-MS, and GC-MS.

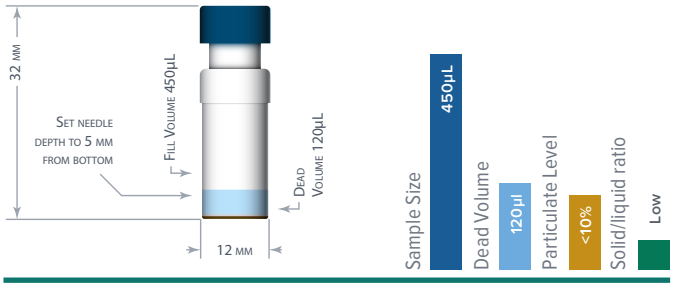

MORE
e Filters
NO MORE
HPLC Vials & Caps

A Comparison of the Filter Vial Types

Filter Vial

Standard For Most Samples

Max Fill Vol. 450µL
Dead Vol. 120µL



Key Features

- General purpose filtration
- <10% particulates

Replaces in the lab

- Syringe Filters
- Syringes
- HPLC Vials/Caps

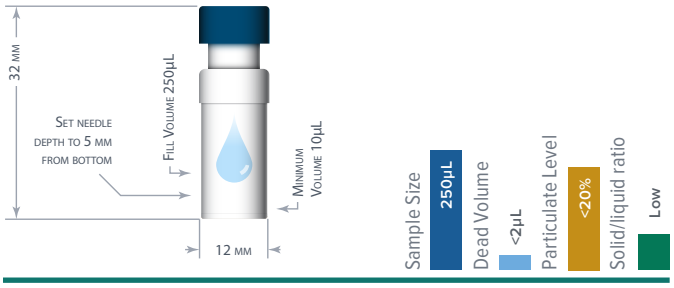
Applications

- 120µL-450µL
- General Liquids < 10% particulates
- Particulate Removal
- Automation Compatible
- Small Molecules
- Food & Supplements
- Toxicology
- Environmental

nano|Filter Vial

When Every µL Counts

Max Fill Vol. 250µL
Min Fill Vol. 10µL (for 2µL injection)



Key Features

- 10µL sample for 2µL injection
- Available with pre-split or non-split caps

Replaces in the lab

- Centrifugation & Spin Filters
- Small Volume Syringe Filters
- Syringes
- High Recovery Vials/Caps
- Inserts with HPLC Vials/Caps

Applications

- 10µL-250µL
- General Liquids < 10% particulates
- Cell Fermentation
- Particulate Removal
- Automation Compatible
- Small Molecules
- Toxicology
- Pesticides
- Environmental

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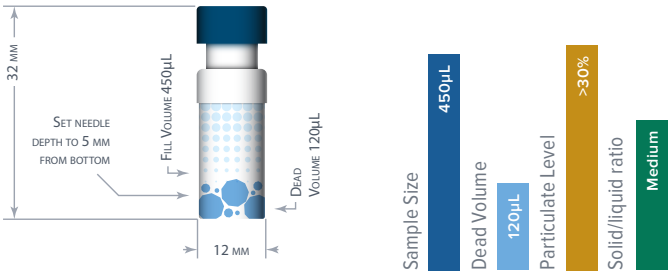
eXtreme/FV®

Multi-Layered Filtration

Max Fill Vol. 450µL
Dead Vol. 120µL



Key Features

- Used for Particulate Laden Samples
- Contains a Depth Pre-Filter

Replaces in the lab

- Syringe Filters
- Syringes
- HPLC Vials/Caps

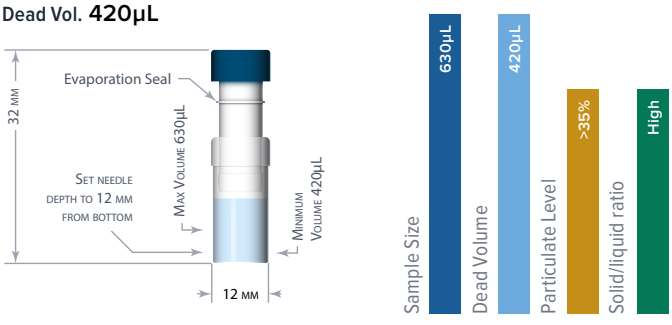
Applications

- 120µL-450µL
- ≤ 30% Particulates
- Viscous
- Replacement for SPE
- Cell Fermentation
- Particulate Removal
- Automation Compatible
- Small Molecules
- Food & Supplements
- Toxicology
- Pesticides
- Environmental

eXtractor3D|FV®

Multi-Mode Filtration

Max Fill Vol. 630µL
Dead Vol. 420µL



Key Features

- Minimize Matrix Effects & Ion Suppression from direct injection
- Solid/liquid ratio
- Can accept Solids or Large Particulates
- Allows for QuEChERS

Replaces in the lab

- SPE Cartridge
- Common Syringe Filter
- Syringe
- HPLC Vial/Cap

Applications

- ≤ 30% Particulates
- Viscous
- Replacement for SPE
- Cell Fermentation
- Particulate Removal
- Automation Compatible
- Small Molecules
- Food & Supplements
- Toxicology
- Pesticides
- Environmental

Plasticizers content in Filter Vials Compared to Syringe Filters

Testing by Takeda Pharmaceutical Company Limited® UPLC - ELSD

Introduction

Thomson Filter Vials are manufactured without the use of plasticizers or mold release agents, making them LC/MS clean. Testing with ELSD, PDA, and MS detection by Takeda Pharmaceutical showed no leaching from Thomson Standard Filter Vial with a 0.45um, PTFE membrane compared to significant leaching from Millipore Millex-FH® Filter, 0.45M, hydrophobic PTFE, 4mm. Method: A. Water B. ACN 45-90% with .05% TFA Ballistic Gradient over 1.4 minutes using Waters® Acquity® UPLC Thomson Filter Vial (patented) Part # 35540-500 Filter Vial 0.45µM hydrophobic PTFE, w/ Pre-Split Cap Millipore Syringe Filter Part #:SLFHR04NL Millex-FH® Filter, 0.45M, hydrophobic PTFE, 4mm, non-sterile.

Method:

A. Water
B. ACN 45-90% with 0.05% TFA

Ballistic Gradient over 1.4 minutes using Waters® Acquity® UPLC

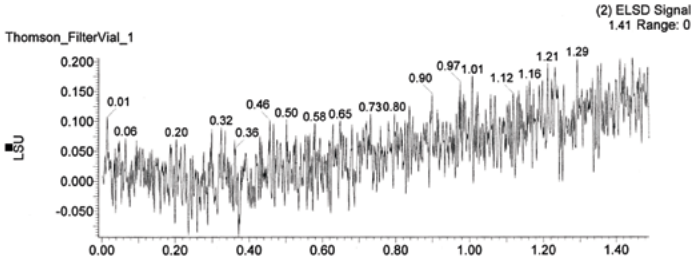
Thomson Standard Filter Vial

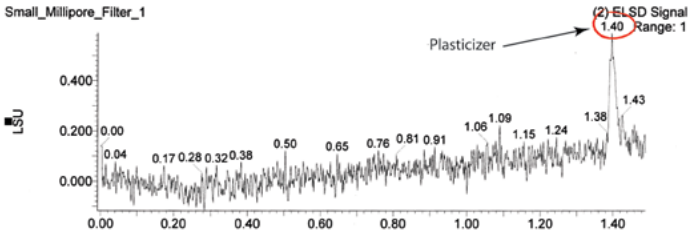
0.45µm hydrophobic PTFE, w/ Pre-Split Cap
Part#: 35540-500

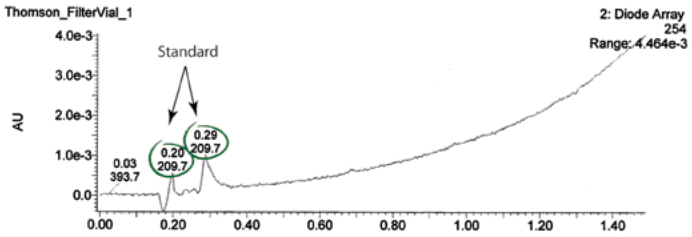
Millipore Syringe Filter

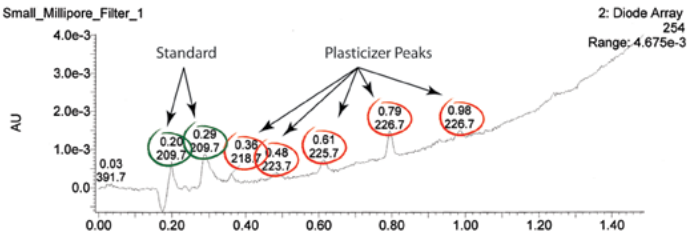
Millex-FH® Filter, 0.45µm, hydrophobic PTFE, 4mm, non-sterile.
Part #: SLFHR04NL

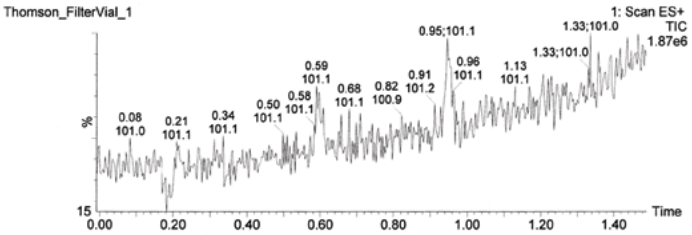
Plasticizers

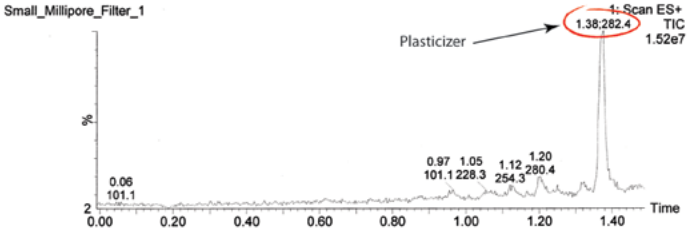












Thomson is not affiliated with Takeda Pharmaceutical Company, Millipore, Waters or their products

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Increase Signal-to-Noise Ratio with eXtractor3D|FV® for More Targeted & Accurate Peaks

Matrix Effects & Ion Suppression:

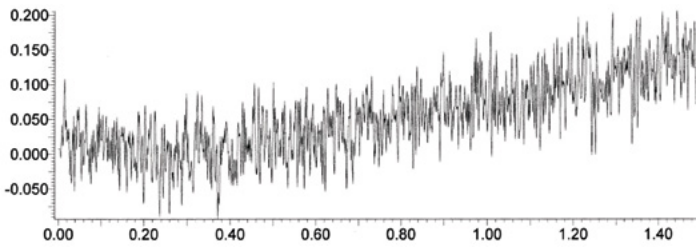
Analytes are obscured by the matrix like the octopus in this photo is difficult to find among its surroundings.

Strong Signal; Noise Lessened:

By adding compounds to the eXtractor3D|FV® the signal to noise ratio is increased allowing you to find the analyte with ease.

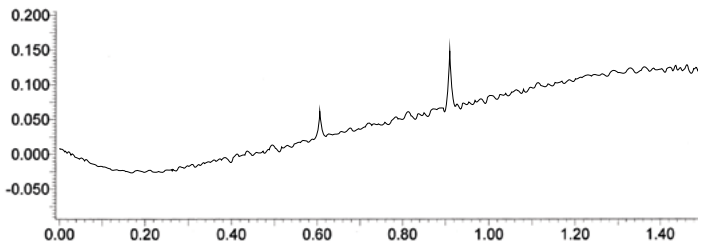
Low Signal to Noise Ratio

Difficult to find analyte in the matrix



High Signal to Noise Ratio

In this example the addition of C-18 to eXtraxtor3D|FV® with your sample binds excess compounds to C-18 and the Matrix clears up allowing you to see analyte peaks



Octopus images courtesy Jukin Video

Chemical Compatibility

	Housing Materials	Filter Membrane			
	Polypropylene	PTFE	PVDF	PES	NYLON
Acetic Acid (glacial) | *acid, organic*	TST	R	R	R	NR
Acetone | *ketone*	R	R	NR	GNR	R
Acetonitrile (ACN) | *nitrile*	R	R	LTD	NR	R
Ammonium Hydroxide | *caustic*	TST	GR	R	NR	TST
Ammonium Sulfate (saturated) | *salt, aqueous solution*	R	GR	NR	ND	R
Amyl Alcohol | *alcohol*	R	R	R	GR	TST
Benzene | *HC, aromatic*	NR	—	—	—	—
Benzyl Alcohol | *HC aromatic/alcohol*	NR	—	—	—	—
Butyl Alcohol | *alcohol*	R	GR	R	GR	R
Chloroform | *HC, halogenated*	NR	—	—	—	—
Cyclohexanone | *ketone*	NR	—	—	—	—
Dimethyl Sulfoxide (DMSO) | *sulfoxide*	R	R	NR	NR	R
Dimethylacetamide | *amide*	R	GR	NR	NR	NR
Dimethylformamide | *amide*	R	GR	NR	ND	R
Ethyl Acetate | *ester*	TST	R	R	GNR	R
Ethyl Alcohol | *alcohol*	R	R	R	GR	TST
Ethylene Glycol | *glycol*	R	R	R	GR	R
Formaldehyde | *aldehyde*	R	R	R	ND	R
Formic Acid, 50% | *acid, organic*	R	GR	R	ND	NR
Glycerine (Glycerol) | *glycol*	R	GR	R	GR	R
Hexane | *HC, aliphatic*	NR	—	—	—	—
Hydrochloric Acid, 1N (HCL) | *acid, inorganic*	GR	R	R	GR	GR
Hydrochloric Acid, 6N (HCL) | *acid, inorganic*	TST	R	TST	GR	TST
Isobutyl Alcohol | *alcohol*	R	R	R	GR	TST
Isopropyl Acetate | *ester*	TST	R	R	GNR	R
Isopropyl Alcohol | *alcohol*	R	R	R	GR	TST
Lactic Acid, 50% | *acid, organic/alcohol*	R	GR	TST	ND	TST
Methyl Acetate | *ester*	TST	R	NR	GNR	R
Methyl Alcohol | *alcohol*	R	R	R	GR	TST
Methylene Chloride | *HC, halogenated*	NR	—	—	—	—
Nitric Acid, 6N | *acid, inorganic*	TST	R	R	R	NR
Nitrobenzene | *HC, aromatic*	NR	—	—	—	—
Pentane | *HC, aliphatic*	NR	—	—	—	—
Phenol (aqueous solution) | *phenol*	NR	—	—	—	—
Potassium Hydroxide, 3N | *caustic*	R	R	R	ND	R
Silicone Oils | *silicone*	R	GR	R	ND	R
Sodium Carbonate (aqueous solu-tion) | *salt, aqueous solution*	R	R	R	ND	TST
Water (Brine) | *salt, aqueous solution*	R	R	R	ND	R
Sodium Chloride (aqueous solution) | *salt, aqueous solution*	R	R	R	ND	R
Sodium Dodecyl Sulfate | *surfactant/detergent*	ND	ND	ND	ND	ND
Sodium Hydroxide, 3N | *caustic*	R	R	R	R	R
Sulfuric Acid (concentrated) | *acid, inorganic*	NR	—	—	—	—
Tetrahydrofuran (THF) | *ether*	NR	—	—	—	—
Toluene | *HC, aromatic*	NR	—	—	—	—
TCA (aqueous solution) | *acid, organic*	R	GR	R	ND	TST
Tween 20 (aqueous solution) | *surfactant/detergent*	ND	R	TST	ND	TST

R = Recommended | **GR** = Generally Recommended | **NR** = Not Recommended | **GNR** = Generally Not Recommended
LTD = Limited Recommendation | **TST** = Testing Recommended | **ND** = No Data Presently Available | — = Not Recommended, polypropylene is **NR**

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Compound Compatibility

	Recommended Filter Membrane				
	PVDF	PES	PTFE	PES	PVDF
	.2 µm	.2 µm	.2 µm	.45 µm	.45 µm
5-Fluorouracil			●		
(18F) Fluoromisondazole, Misiomidazole	●				
Acetylsalicylic acid		●			
Alprenolol		●			
Amiloride		●			
Atenolol		●			
Azathioprine				●	●
Azodicarbonamide		●			
Bleomycin Sulfate			●		
Caffeine		●			
Cetirizine				●	●
Chlorothiazide		●			
Chloramphenicol		●			
Cimetidine		●			
Ciprofloxacin		●			
Cyclosporine A	●				
Cytarabine			●		
Diclofenac					●
Hydrochlorothiazide		●			
Ibuprofen				●	●
isonicotinic acid			●		
Ketamine		●			
Levofloxacin				●	●
Lomefloxacin				●	●
Metoprolol		●			
Mitomycin			●		
Morphazinamide			●		
Nadolol		●			
Nicotinic acid			●		
Paclitaxel	●				
p-Aminobenzoic acid (PABA)					●
p-aminosalicylic acid			●		
Pefloxacin				●	●
Pentoxifylline (PTX)	●				
Phenytoin					●
Ranitidine		●			
Rifampicin				●	●
Sabeluzole					●
Sulfadozine					●
Sulphasalazine		●			
Sulpiride		●			
Terbutaline		●			
Timolol		●			
Tranexamic acid		●			
Triamcinolone Acetonide		●			
Tropicamide				●	
Vinblastine Sulfate			●		

High Viscosity Presses

The Thomson Filter Vial Press enables high solid content and viscous liquids to be easily filtered through vials. Some fermentation cultures that reach 100OD or particulate laden samples may require the toggle press.

Toggle Press

- Press up to 5 autosampler ready Filter Vials
- Allows for consistency and ergonomic concerns
- Small footprint sits on bench top
- Works with all Thomson Filter Vials

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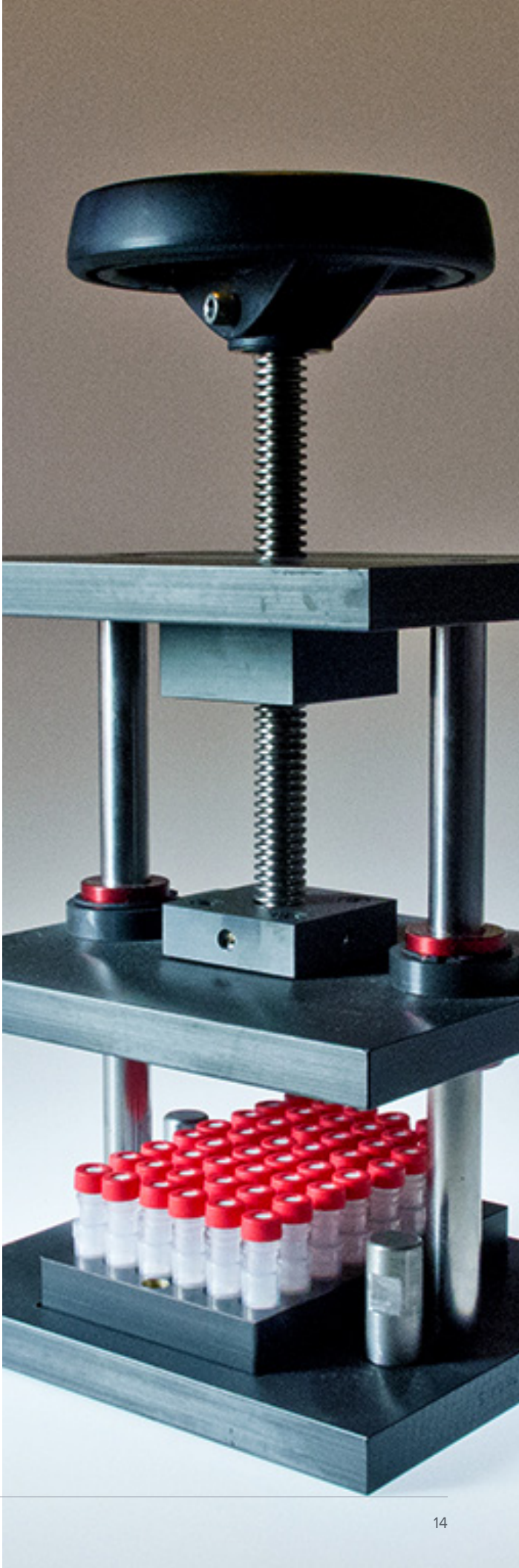
Multi-Use Press

- 4Presses up to 48 Autosampler Ready Filter Vials at a time
- Works with 48 position block; block fits some autosamplers
- 48 position block can be transferred to a robot for automation
- Easily Automate Filter vial Pressing
- Works with all Thomson Filter Vials



SINGLE STEP®

Empty Columns

Fill different sized columns with a variety of sorbents & resins for purification applications

Easy to Use...

Don't be Limited with Your Column Size

At Thomson, we are aware of the need to customize available apparatus to the individual experiments. Our SINGLE StEP® Empty Columns (patented) provide you the opportunity to fill different sized columns with a variety of sorbents and resins for purification applications. The wide range in which we offer these columns means you are not limited by column size. SINGLE StEP® Empty Columns allow for the simple connection to FPLC/LPLC/MPLC systems.

KEY FEATURES

- Acceptable for use with Gravity or FPLC/LPLC/MPLC
- Multiple sizes for scales from 10mL-650mL (4g – 300g)
- Durable design for pressures up to 200psi
- Top & bottom connections are standard Luer sizing

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10mL
25mL
50mL
100mL
200mL
320mL
600mL

1.2L Reservoir for Empty Columns

Simplify Your Gravity Filtration Protocols

The Thomson 1.2L Reservoir simplifies gravity filtration protocols simplifying equilibration, sample loading & elution steps. The 1.2L Reservoir screws directly on to the top of 25g, 40g and 80g SINGLE StEP® Empty Columns allows for easy loading of buffers, solvents and samples minimizing contamination and sample loss.

Key Features

- No mess, screws directly onto a SINGLE StEP® Empty Column
- Easy loading of buffers, solvents and samples

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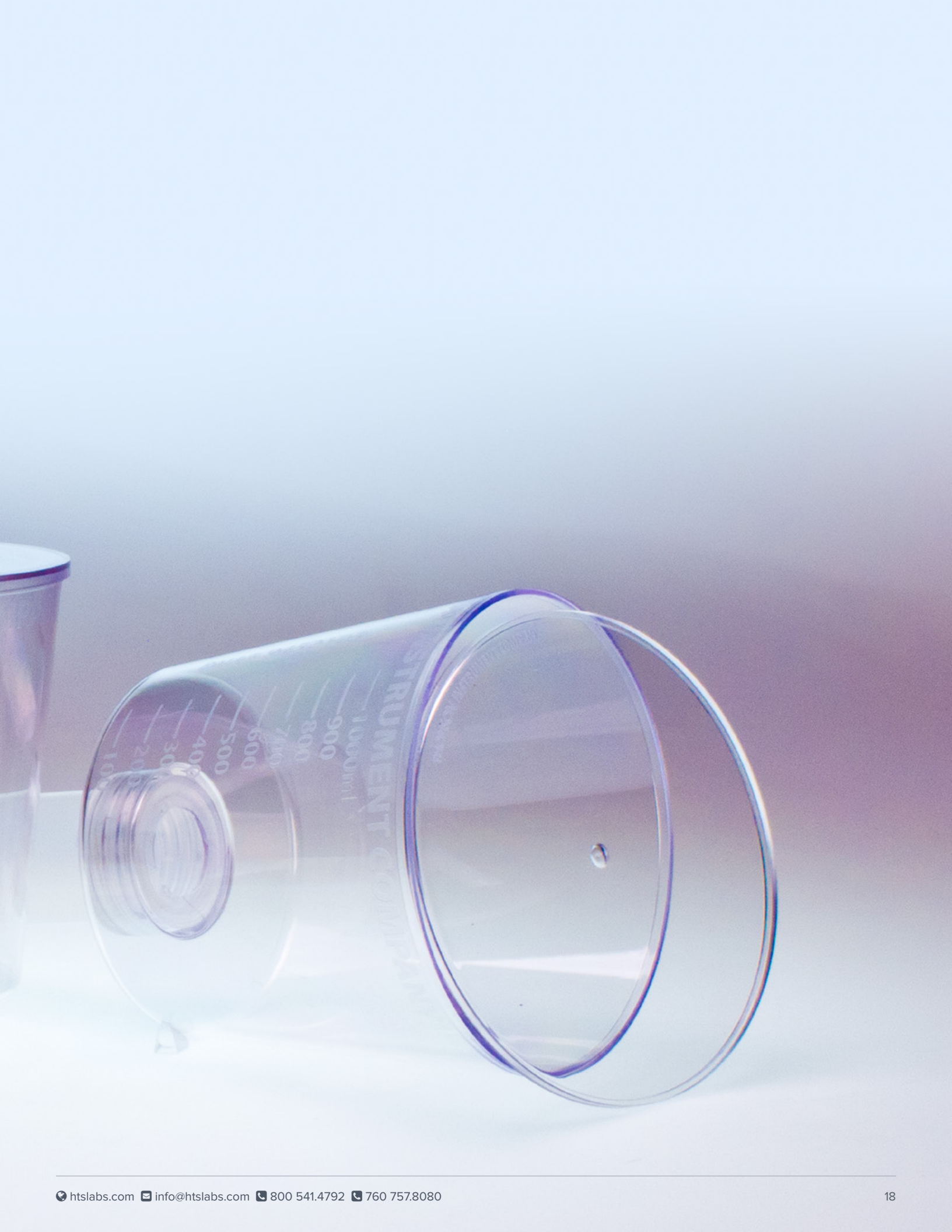


Collection Plates

Thomson Well Plates in both 24- and 96-well configurations are ideal for sample preparation or concentration and feature various well and well bottom shapes to suit your analytical needs. To compliment Thomson well plates we also offer various sealing options including Capmats, Airporous and foil seals and plastic lid options.

- **Well Shape –** Square or Round to fit your cell type and culture condition requirements
- **Well Bottom Shape –** Pyramid, Round and V-bottom to fit your sample preparation and concentrating applications
- **Well Plate Orientation –** Fixed for Robotic Liquid-Handling Systems

Filter Plates

Thomson Filter Plates in both 24- and 96-well configurations are designed for analytical sample preparation. Depending on your application we may recommend using a positive pressure manifold, centrifugation or a high efficiency Vacuum Manifold that connects directly to your house vacuum.

- **Versatility –** solid phase extraction and affinity phase adsorption applications involving high throughput robotic Liquid Handling Systems
- **Solvent Compatibility –** PVDF and PTFE Filter Plates are similar in principle to Thomson Filter Vials but in a 96-well plate
- **Long funnel design –** Eliminates cross-contamination between sample collection wells by fully inserting below the top of the collection plate

Materials:

- **96 Well Plate, 2mL, Square Well, Pyramid Bottom, Individually Wrapped with Lid | Sterile: p/n 931137**

96 Well Screening Protocol for Mammalian/Insect Cells

Methods:

1. Maintain cell stocks in appropriate growth medium. Split cultures the day before transfection to an appropriate density to ensure log phase growth at the time of transfection.
2. Seed cells at 500uL/well. The optimal seeding density will depend on the cell line, please use cell line recommended density.
3. Transfect cells according to established transfection protocol. Scale transfection reagent/DNA/feeds on a volumetric basis from what is used for larger scale cultures.
4. Seal plates with plastic lids or airporous seals and transfer to shaker overnight at 800rpm and 37°C.
5. Harvest cells at the time point established for larger scale cultures. Pellet cells by centrifugation at 1000-2500g for 10-20min at 4°C.
6. Reserve either the culture media or the pellet depending on the application and proceed to downstream processing.

Notes:

- The most critical factor in cell viability is aeration. Optimal results will be achieved using shakers with 3mm orbit diameters. We do not recommend working in 96 well format using shakers with standard 25mm throws.
- Thomson filter plates are a great complimentary product for downstream purification applications.
  - 96 Well Filter Plate, 2mL, Long Drip | 25µm Polypropylene: p/n 931919
  - Maximum suggested centrifugation: 3000g.

Materials:

- **24 Well Plate, 10.4mL, Square Well, Round Bottom, Individually Wrapped with Lid | Sterile: p/n 931568**
- **24 Well Plate, 10.8mL, Square Well, Pyramid Bottom, Individually Wrapped with Lid | Sterile: p/n 931571**

24 Well Screening Protocol for Mammalian/Insect Cells

Methods:

1. Maintain cell stocks in appropriate growth media. Split cultures the day before transfection to an appropriate density to ensure log phase growth at the time of transfection.
2. Seed cells at 4-5mL/well. The optimal seeding density will depend on the cell line, please use cell line recommended density.
3. Transfect cells according to established transfection protocol. Scale transfection reagent/DNA/feeds on a volumetric basis from what is used for larger scale cultures.
4. Cover plates with plastic lids and transfer to shaker overnight at 350rpm and 37°C.
5. Harvest cells at the time point established for larger scale cultures. Pellet cells by centrifugation at 1000-2500g for 10-20min at 4°C.
6. Reserve either the culture media or the pellet depending on the application and proceed to downstream processing.

Notes:

- The most critical factor in cell viability is aeration. Optimal results will be achieved using shakers with 12.5mm, or even 3mm orbit diameters. Cultures grown on shakers with standard 25mm throws, will likely need increased rotational speed or decreased culture volume.

96 Well Screening Protocol for *E. coli* and other Microbes

Methods:

1. Pipette 750uL of bacterial growth media containing the appropriate selective antibiotic into each well of a 96 well plate.
2. Add the selected colony to each well from either an agar plate or glycerol stock.
3. Gently triturate each well manually.
4. Seal plates with the Airporous Seal and transfer to shaker overnight at 850rpm and 37°C.
5. Harvest the plates by centrifugation @ 2500g for 20 minutes.
6. Invert the plate to discard the media.
7. Process samples according to downstream application (plasmid purification, protein extraction etc.)

Notes:

- 96 well cultures grown in Plasmid+ medium (p/n 446300) typically provide the appropriate biomass for MINI scale plasmid preps.
- The most critical factor in cell viability is aeration. Optimal results will be achieved using shakers with 3mm orbit diameters. We do not recommend working in 96 well format using shakers with standard 25mm or 50mm throws.
- If high levels of evaporation are encountered, the well plate & plastic lid (p/n 931134) is recommended to alleviate the issue.
- Thomson Instrument Company's filter plates are a great complimentary product for downstream purification applications. Add appropriate resin.
  - 96 Well Filter Plate, 2mL, Long Drip | 25µm Polypropylene: p/n 931919

Materials:

- 96 Well Plate, 2mL, Square Well, V-Bottom, Raised Lettering |Sterile: p/n 951652C
- 96 Well Plate, 2mL, Square Well, Round Bottom | Irreversible: p/n 931130
- Airporous Seal For Growing Cultures: p/n 899410

24 Well Growth Protocol for *E. coli* and Other Microbes

Methods:

1. Pipette 4-5mL of bacterial growth media containing the appropriate selective antibiotic into each well of a 24 well plate.
2. Add the selected colony to each well from either an agar plate or glycerol stock.
3. Gently triturate each well manually.
4. Seal plates with airporous seals and transfer to shaker overnight at 350-400rpm and 37°C.
5. Harvest the plates by centrifugation @ 2500g for 20 minutes.
6. Invert the plate to discard the media.
7. Process samples according to downstream application (plasmid purification, protein extraction etc.)

Notes:

- 24 well cultures grown in Plasmid+ medium (p/n 446300) typically provide the appropriate biomass for MIDI scale plasmid preps.
- The most critical factor in cell viability is aeration. Optimal results will be achieved using shakers with 12.5mm (preferred), or 3mm orbit diameters. Cultures grown on shakers with standard 25mm throws will likely need increased rotational speed or decreased culture volume.
- If high levels of evaporation are encountered, use a 24 well plate & plastic lid (p/n 931568) is recommended to alleviate the issue.

Materials:

- **24 Well Plate, 10.4mL, Square Well, Round Bottom, Individually Wrapped | Sterile: p/n 931565-G-1X**
  - **Plus: Airporous Seal for Growing Cultures: p/n 899410**
- **24 Well Plate, 10.8mL, Square Well, Pyramid Bottom, Individually Wrapped | Sterile: p/n 931569-G-1X**
  - **Plus: Airporous Seal for Growing Cultures: p/n 899410**
- **24 Well Plate, 10.4mL, Square Well, Round Bottom, Individually Wrapped with Lid | Sterile: p/n 931568**
- **24 Well Plate, 10.8mL, Square Well, Pyramid Bottom, Individually Wrapped with Lid | Sterile: p/n 931571**

Part Numbers

Standard|Filter Vial

Membrane	PTFE	PTFE	PVDF	PVDF	NYLON	NYLON	PES
Pore Size	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm
Cap Color	green	blue	red	yellow	black	pink	grey
Cap Style	snap cap	snap cap	snap cap	snap cap	snap cap	snap cap	snap cap
Septum	pre-split	pre-split	pre-split	pre-split	pre-split	pre-split	pre-split
Fill Vol.	450µL	450µL	450µL	450µL	450µL	450µL	450µL
Dead Vol.	120µL	120µL	120µL	120µL	120µL	120µL	120µL
Sterility (SAL)	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile
Part #	35530	35540	35531	35541	35538	35539	35535
Qty/Case	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500

eXtreme|FV®

Membrane	PTFE	PTFE	PVDF	PVDF	NYLON	NYLON	PES
Pore Size	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm
Cap Color	green	blue	red	yellow	black	pink	grey
Cap Style	snap cap	snap cap	snap cap	snap cap	snap cap	snap cap	snap cap
Septum	pre-split	pre-split	pre-split	pre-split	pre-split	pre-split	pre-split
Fill Vol.	450µL	450µL	450µL	450µL	450µL	450µL	450µL
Dead Vol.	120µL	120µL	120µL	120µL	120µL	120µL	120µL
Sterility (SAL)	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile
Part #	85530	85540	85531	85541	85538	85539	85535
Qty/Case	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500

eXtractor3D|FV®

Membrane	PTFE	PTFE	PVDF	PVDF	NYLON	NYLON	PES
Pore Size	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm
Cap Color	green	blue	red	yellow	black	pink	grey
Cap Style	screw cap	screw cap	screw cap	screw cap	screw cap	screw cap	screw cap
Septum	pre-split	pre-split	pre-split	pre-split	pre-split	pre-split	pre-split
Fill Vol.	630µL	630µL	630µL	630µL	630µL	630µL	630µL
Dead Vol.	420µL	420µL	420µL	420µL	420µL	420µL	420µL
Sterility (SAL)	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile
Part #	95530	95540	95531	95541	95538	95539	95535
Qty/Case	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500

Low Evap|Filter Vial

Membrane	PTFE	PTFE	PVDF	PVDF	NYLON	NYLON	PTFE	PTFE
Pore Size	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm	0.45µm
Cap Color	green	blue	red	yellow	black	pink	green	blue
Cap Style	crimp cap	crimp cap	crimp cap	crimp cap	crimp cap	crimp cap	screw cap	screw cap
Septum	non-split	non-split	non-split	non-split	non-split	non-split	non-split	non-split
Fill Vol.	450µL	450µL	450µL	450µL	450µL	450µL	450µL	450µL
Dead Vol.	120µL	120µL	120µL	120µL	120µL	120µL	120µL	120µL
Sterility (SAL)	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile
Part #	65530	65540	65531	65541	65538	65539	64430	64440
Qty/Case	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	100	100

nano|Filter Vial®

Membrane	PTFE	PTFE	PVDF	PVDF	NYLON	PTFE	PES
Pore Size	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm	0.2µm	0.2µm
Cap Color	green	blue	red	yellow	black	green	grey
Cap Style	screw cap	screw cap	screw cap	screw cap	screw cap	screw cap	screw cap
Septum	non-split	non-split	non-split	non-split	non-split	non-split PTFE|SIL|PTFE	non-split
Fill Vol.	250µL	250µL	250µL	250µL	250µL	250µL	250µL
Dead Vol.	8µL	8µL	8µL	8µL	8µL	8µL	8µL
Sterility (SAL)	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile
Part #	15530	15540	15531	15541	15538	14930	15535
Qty/Case	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500

nano|Filter Vial®

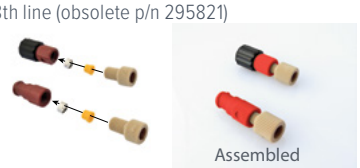
Membrane	PTFE	PTFE	PVDF	PVDF	NYLON	PES
Pore Size	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm	0.2µm
Cap Color	green	blue	red	yellow	black	grey
Cap Style	screw cap	screw cap	screw cap	screw cap	screw cap	screw cap
Septum	Pre-Split	Pre-Split	Pre-Split	Pre-Split	Pre-Split	Pre-Split
Fill Vol.	250µL	250µL	250µL	250µL	250µL	250µL
Dead Vol.	8µL	8µL	8µL	8µL	8µL	8µL
Sterility (SAL)	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile	non-sterile
Part #	25530	25540	25531	25541	25538	25535
Qty/Case	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500

High Viscosity Presses

Press	Description	Capacity	Qty	Part #
Toggle Press	5 Position for Autosampler Ready Filter Vials	5	1	35005
Multi-Use Press	48 Position for Autosampler Ready Filter Vials	48	1	35015

Empty Columns	Case/Qty	Part #
Empty SINGLE StEP® Fritted column w/10 each size: 10mL, 25mL, 50mL, 100mL, 200mL	50	94520-10
Empty SINGLE StEP® Column 10mL or 4g Reservoir with Frit	10	9452086-10
	100	9452086-100
Empty SINGLE StEP® Column 25mL or 12g Reservoir with Frit.	10	9452088-10
	100	9452088-100
Empty SINGLE StEP® Column 50mL or 25g Reservoir with Frit.	10	9452090-10
	100	9452090-100
Empty SINGLE StEP® Column 100mL or 40g Reservoir with Frit.	10	9452092-10
	100	9452092-100
Empty SINGLE StEP® Column 200mL or 80g Reservoir with Frit.	10	9452094-10
	100	9452094-100
Empty SINGLE StEP® Column 320mL or 160g Reservoir with Frit.	10	9452099
Empty SINGLE StEP™ Column 600mL or 300g Reservoir w/5mL Bottom Resin Reservoir w/Frit	10	9452097-B
Reservoir		
1.2L Reservoir for SINGLE StEP® Empty Columns	10	9452105
Frits		
Head Space Frits for 4g SINGLE StEP Column	100	491250
Head Space Frits for 12g SINGLE StEP Column	100	491252
Head Space Frits for 25g SINGLE StEP Column	100	491253
Head Space Frits for 40g SINGLE StEP Column	100	491254
Head Space Frits for 80g or 90g SINGLE StEP Column	100	491256
Head Space Frits for 110g or 160g SINGLE StEP Column	100	491258
Head Space Frits for 240g or 300g SINGLE StEP Column	100	491260
Accessories		
Dual Ended PP Cap Blue	100	235008

Accessories not sold by Thomson

Tubing Size to Adapt SINGLE StEP® Column to FPLC, AKTA	Upchurch PN#*	Cole-Parmer PN#*
1/8th line (obsolete p/n 295821) 	LT-215 P-359 P-658 P-655	EW-02022-43 EW-02023-15 EW-02014-14 EW-02014-12
1/16th line (obsolete p/n 295823) 	P-656 P-659	P-656 P-659

Not all parts may be needed for your set up.

*Thomson Instrument Company is not affiliated with Upchurch, Cole-Parmer or their products

Collection Plates

Vol. Well	Well Shape	Sterility (SAL)	ANSI-SLAS	Compatible with CapMat/Seal	Case/Qty	Part#
24 Well						
10.4mL		10^{-6}	Yes	899410, 899405-1, 899403, 899406	20	931565-G-1X
10.4mL		10^{-6}	Yes	Lid Included	20	931568
10.8mL		10^{-6}	Yes	899410,899405-1,899403,899406	20	931569-G-1X
10.8mL		10^{-6}	Yes	Lid Included	20	931571
96 Well						
500µL		non-sterile	*Yes	899410, 899405, 899403, 899406, 359747	50	9356045
650µL		non-sterile	Yes	899410, 899405-1, 899403, 899406	50	931512B
2mL		non-sterile	*Yes	899410, 899405-1, 899403, 899406, 359747	50	951657
2mL		non-sterile	Yes	899410, 899405-1, 899403, 899406, A210100	20	931130
2mL		10^{-6}	Yes	899410, 899405-1, 899403, 899406, A210100	20	931130-S
2mL		10^{-6}	Yes	Lid Included	20	931134
2mL		10^{-6}	Yes	899410, 899405-1, 899403 899406, A210100	20	931133
2mL		10^{-6}	Yes	Lid Included	20	931137

Filter Plates

Vol. Well	Tube Shape	Sterility (SAL)	ANSI-SLAS	Filter Membrane	Collection Plate	Case/Qty	Part#
24 Well Filter Plates							
10.8mL		non-sterile	Yes	25µm Polypropylene	931565-G-1X, 931568, 931569-G-1X, 931571,	20	921550
~9mL		10^{-6}	Yes	0.2µm Rapid Clear	931565-G-1X, 931568, 931569-G-1X, 931571,	20	921546
96 Well Filter Plates							
2mL		non-sterile^{-6}	Yes	0.2µm Rapid Clear	931130	20	921746
2mL		No	Yes	25µm Polypropylene	931130	25	931919
2mL		No	Yes	0.2µm PTFE	931130	20	921730
2mL		No	Yes	0.45µm PTFE	931130	20	921740
2mL		No	Yes	0.2µm PVDF	931130	20	921731

Seals & Cap Mats

Description	Sterile	Plate Compatibility	Case/Qty	Part#
96 Well Capmat, For Wide Round Wells	No	951657, 9356045	50	359747
96 Well Capmat, For Square Wells	No	931130, 931133	100	A210100
Adhesive Foil Plate Seal	No	All Plates	100	899405-1
Pierceable Foil Heat Seal	PCR compatible	No	All Plates	100	899403
Long Term Storage Foil Heat Seal	No	All Plates	100	899406
Airporous Plate Seal For Growing Cultures	Yes	All Plates	100	899410
Well Plate Lid for use with 96 & 24 Well Plates	No	All Plates	100	981945
Well Plate Lid for use with 96 & 24 Well Plates	Yes	All Plates	100	981948

Vacuum Manifold

Sterile	ANSI-SLAS	Filter Membrane	Case/Qty	Part#
No	Yes	n/a	1	981802

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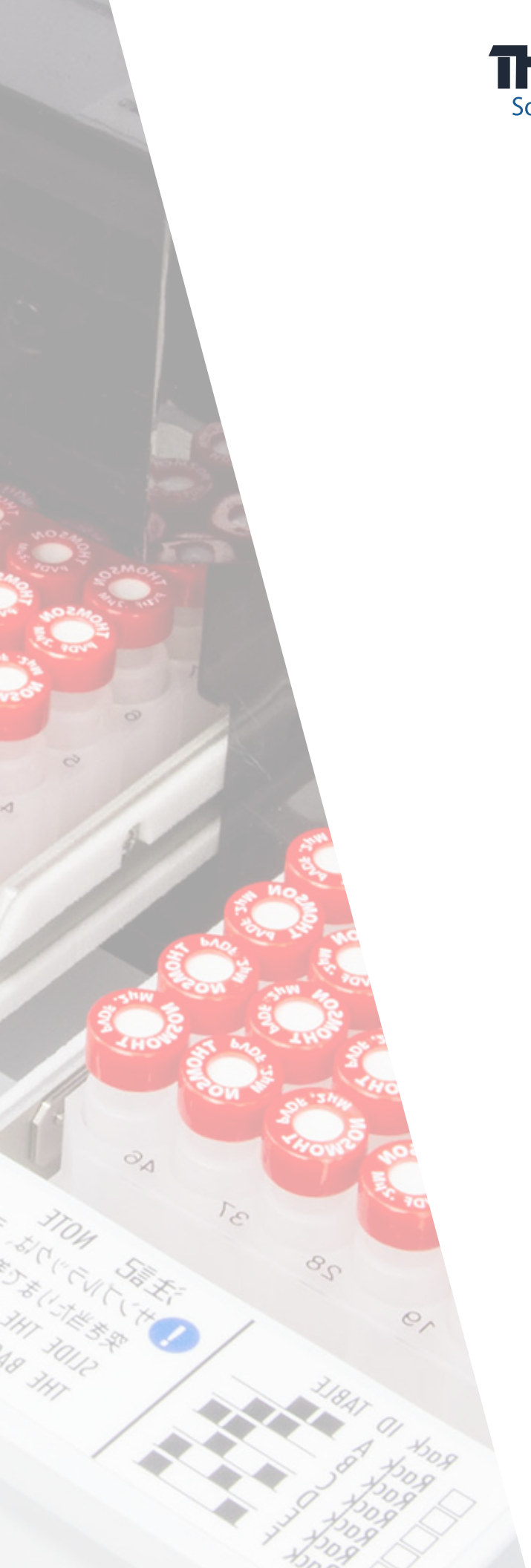

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