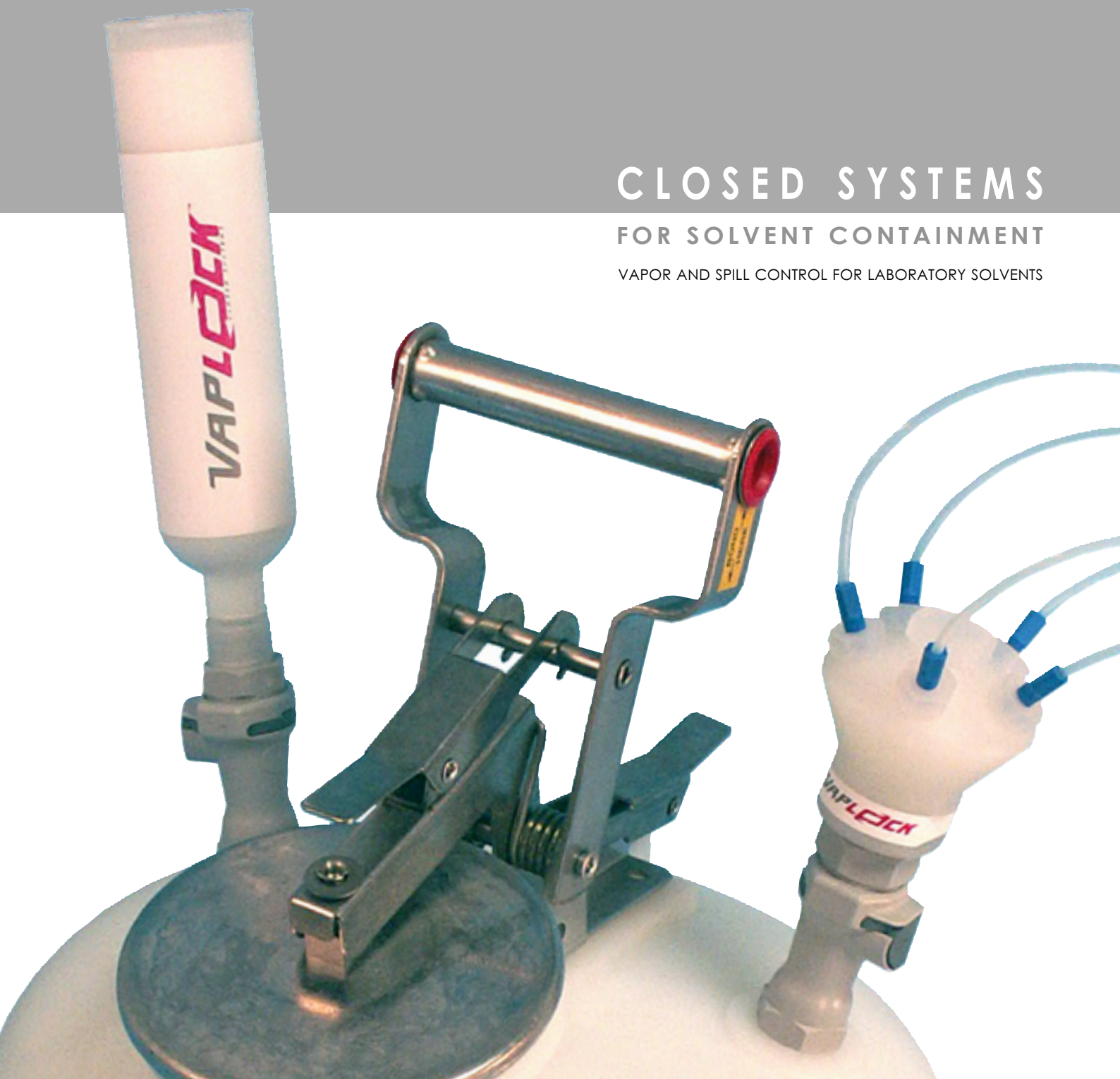


VAPLOCK™
CLOSED SYSTEMS

CLOSED SYSTEMS

FOR SOLVENT CONTAINMENT

VAPOR AND SPILL CONTROL FOR LABORATORY SOLVENTS

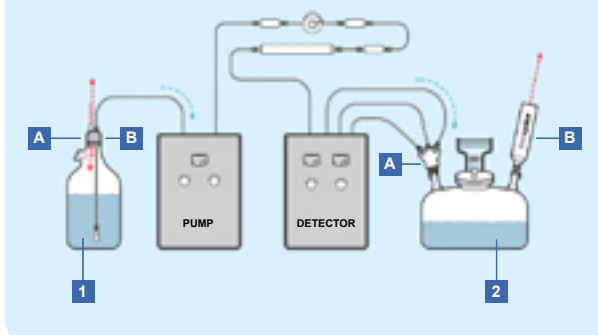


CLOSED SYSTEMS INTRODUCTION

Through leaks, spills, and ventilation, an "open" solvent-using system will release solvent vapors directly into the laboratory environment. This introduction may be reduced by adding several key components to the typical system. These items are:

- A properly sealed solvent reservoir with ventilation control
- A solvent waste container with secure fluid connections
- A carbon filter to reduce vapors escaping the waste container

EXAMPLE OF A CLOSED SYSTEM HPLC



1: Solvent Reservoir
2: Waste Container

A: Fluid Connections
B: Air inlet (1) or vent (2)

1A SOLVENT RESERVOIR FLUID CONNECTIONS

For a closed system on a bottle, each container first requires a bottle cap with ports to fit the specific tubing sizes. When using caps with threaded ports for fittings, the fittings may be selected and replaced to accommodate different diameters of tubes. Caps with "slip-through" ports (non-threaded holes drilled or molded into a cap) are acceptable, provided the holes fit the tubing sizes securely. Most slip-through caps are made to accommodate 1/8" or 1/16" OD.

1B SOLVENT RESERVOIR AIR INLET

In systems where sparging¹ is not employed, to complete the closed system on a bottle each container requires a device to control the bottle cap vent. A closed bottle must function exactly like a coffee travel mug – liquid goes out through one hole, and air comes in through a pinhole to displace the liquid removed. To manage the air flow, the simplest answer is a check valve assembly made to occupy a bottle cap port. The check valve allows air to enter a bottle as the pump moves the liquid phase out to the system. It also minimizes escape of vapors contained in the bottle. Should the bottle ever be exposed to pressure – a result of a rise in lab temperature (over a warm weekend, for example) or a sparging line accidentally connected – to reduce the threat of explosion a check-and-relief valve assembly is also available. The relief function allows pressure to escape while still preserving a "pressure blanket" of 0.5-1psi in the bottle. Although VapCheck™ units resist many standard solvents, care should be taken to consider the chemical compatibility of a solvent with VapCheck™ materials.

2A WASTE CONTAINER FLUID CONNECTIONS

Many labs are standardizing on Justrite® 2- and 5- gallon HPLC Centura™ waste containers. These safety cans have enough capacity for days or weeks of typical flow, vent automatically at 5 psig if pressurized, and allow users to disengage waste lines and vapor filters quickly during waste collection. Containers are available with either Polypropylene or Stainless Steel quick disconnects. Care should be taken when choosing the disconnect type. For example, at high concentrations the solvent Hexane swells Polypropylene as much as 30%, causing the disconnect to "stick" and restrict fluid flow. Containers and manifolds with stainless steel quick disconnects are advised wherever such chemical compatibility issues may arise; consult a chemical compatibility guide before selecting a container. One should also note that Justrite containers must be grounded while in use and especially while emptying the container, as static electricity has been known to ignite solvent fumes.

For labs which choose not to use Justrite® containers, Vaplock™ products are also available to adapt to standard drum and pail closures, as well as Nalgene® 83B, 53B, and 100-415 carboys. PLEASE NOTE THAT IT IS NOT POSSIBLE TO GROUND DRUM, PAIL, GLASS BOTTLE AND CARBOY (NON-JUSTRITE®) CONTAINERS; THIS MAY RESULT IN A SAFETY HAZARD WITH FLAMMABLE SOLVENTS.

The type and dimension of waste tubing found on an HPLC varies widely, depending on both system and user requirements. Outer and inner diameters range from microns to inches, and tubing material may be hard- or soft-wall plastic, metal, smooth-walled or corrugated. All these lines must be connected to a waste container. Adapting securely, without leaks and vapor release, poses a problem when attempting a closed system. VapLock™ manifolds adapt to tubing sizes up to 1/2" ID or OD (and larger if necessary) and can be stacked to accept additional lines. Most manifold ports permit direct connection of 1/4" or 1/2" threaded NPT fittings.

2B WASTE CONTAINER VAPOR VENT

The most significant vapor generator in an HPLC system is the waste can, where solvents draining to the container may volatilize rapidly as solvent entering the container forces vapor into the laboratory. Activated carbon has excellent adsorptive properties for organic solvents. With a Gas Chromatograph, a number of carbon types were tested for vapor breakthrough under a flow of Acetonitrile vapor, one of the more common solvents used in HPLC. After determining the appropriate type, the carbon was similarly tested on other common solvents. The breakthrough data published in this brochure is based on use of 100% concentration of each solvent, at a flow rate of 1 mL per minute at S.T.P. (most analytical HPLCs run at 1-2 mL per minute). Disposal of spent cartridges should be conducted in accordance with local safety codes.

Vaplock products may be purchased from:



Postal : PO Box 435, Boronia,
232 Forest Rd, Boronia / Victoria 3155, AUSTRALIA
Phone +61 3 9762 2034 / Fax +61 3 9761 1169

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¹ "Sparging" involves pressurizing a bottle with a blanket of gas, usually helium.



SECURE SOLVENT DELIVERY

Use a Vaplock™ Solvent Delivery Kit to minimize vapor release while supplying solvents to your system. Threaded tubing connections (for 1/8" and 1.8 - 2.0mm OD) adapt to an inert PTFE bottle cap on a 2 Liter safety-coated borosilicate bottle, while a 2-way emission control valve allows air to enter the reservoir as solvent is removed. The valve also acts as a pressure relief, venting between 0.5 and 1 psi. Two 10 micron UHMWPE solvent filters, five replacement filter elements, Teflon® 1/4-28 plug and 10 feet of 1/8" OD PTFE tubing are also included. For Reversed Phase solvents only. Please inquire for Normal Phase solutions.



VK-204 Solvent Delivery Kit

CLOSED SOLVENT SYSTEMS

- Minimize solvent vapors entering the lab
- Reduce leaks and spills of reagents and waste
- Ideal for HPLC and other solvent systems

VAPLOCK™ Closed Systems for solvent containment minimizes leaks, spills, and vapor escape from solvent waste and supply containers. Use supply kit VK-204 to provide an effective means of sealed solvent delivery, and select from the waste containment kits to collect solvent wastes with minimal vapor release. All Vaplock™ products are designed for ease of use and adaptability, and will conform to a broad array of standard laboratory solvent containers. Choose from the complete kits pictured here, or make your own selection of components from the pages that follow for a more customized closed system solution.

SOLVENT WASTE CONTAINMENT

Plumb multiple solvent lines securely to a waste container and reduce vapor emissions by using a Vaplock™ Waste Containment Kit. The heart of the system is a Justrite® Polyethylene waste can, which includes 2 quick disconnects for ease of use [choose either Polypropylene with EPDM o-rings, or Stainless Steel and Teflon® for more aggressive fluids]. A 6-port waste manifold and fittings kit adapt to common HPLC tubing requirements, while a 5-pack of activated carbon and silica filters reduce vapors from the container vent. Antistatic wire grounds the system during use. 1, 2, and 5 gallon container sizes available.



VK-003 Waste Containment Kit



2-GALLON
Polyethylene waste can with
Polypropylene / EPDM disconnects

5-GALLON
Polyethylene waste can
with Stainless / PTFE
disconnects

CLOSED SYSTEM KITS

SOLVENT DELIVERY KIT

VK-204 Solvent delivery kit, 2L bottle with accessories

WASTE CONTAINMENT KITS

VK-001 Waste kit, 1-gallon, PP / EPDM quick disconnect

VK-002 Waste kit, 2-gallon, PP / EPDM quick disconnect

VK-004 Waste kit, 5-gallon, PP / EPDM quick disconnect

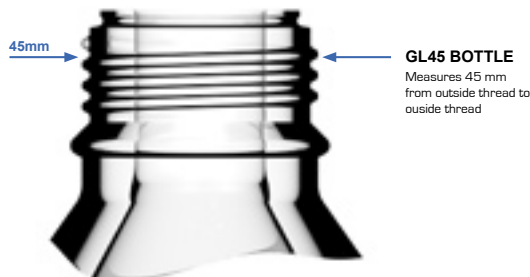
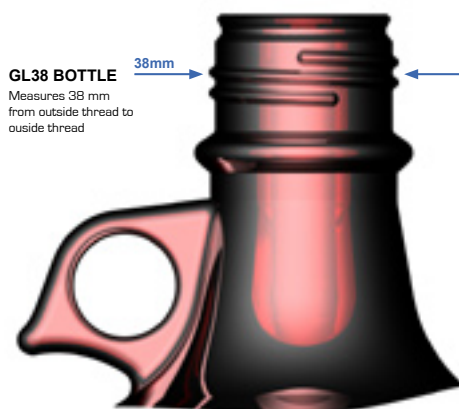
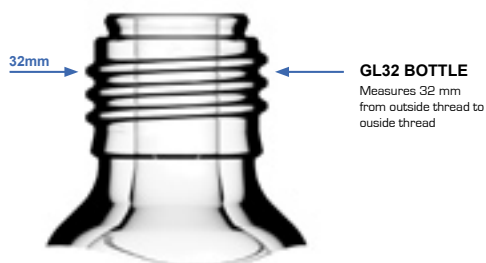
VK-003 Waste kit, 2-gallon, SS / Teflon® quick disconnect

VK-005 Waste kit, 5-gallon, SS / Teflon® quick disconnect

SOLVENT RESERVOIRS

■ How to identify common laboratory solvent storage vessels

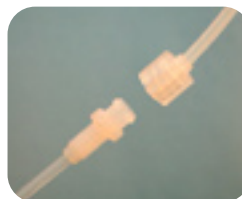
Although many container types and sizes are available, some of the more commonly used varieties in the laboratory are GL45, GL38 (also known as "38-430"), and GL32 glass bottles. VapLock caps are made to fit these standard sizes. Perhaps the most common reservoir of all, the GL45 lab bottle, is available for purchase. This glassware is manufactured by Schott Duran® and Kontes®, and is available in clear, plastic coated, and pressure-tested plastic coated versions.



LUER QUICK CONNECT

- Quickly connect to 1/4-28 ports
- Retains tubing in the bottle

This luer-locking assembly will allow you to keep a 1/8" OD tube fixed in a supply bottle at all times. Connect to it or disconnect with a turn of the luer-lock. Designed for customers who need to change or tap into their source tubing regularly, the assembly will thread into a 1/4-28 receiving port on a bottle cap. The material is natural ETFE Tefzel®.



AD-020
Luer Quick Connect 1/4-28 Assembly, for 1/8" OD tubing



Quick-connect
The AD-020 in use on a GL38 bottle cap

'C' SERIES CAPS

- Built-in tubing connection system
- Valved ports
- Anti-twist design - no twisted tubing!
- Solid PTFE body

These caps utilize a unique connection system for easy and versatile tube connection. Each fluid line has a valve to control fluid flow. 1/8" OD hardwall tubing may be connected directly into the cap using the supplied PTFE cones (or Viton o-rings, also supplied); this provides an inert connection system. Standard 1/4-28 fittings may also be threaded into the receiving ports.

Easily control the flow of liquid into and out of the bottle with the integrated valves. Each fluid line can be switched on or off independently.



GL45 SOLVENT BOTTLES

BT-4510	GL45 1 L plastic coated clear glass bottle
BT-4511	GL45 2 L plastic coated clear glass bottle

LUER QUICK CONNECT

AD-020	Luer-locking quick disconnect to 1/4-28 male
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'C' SERIES CAPS

BC-100	C-series cap, 38-430; 2 lines w/ valves
BC-101	C-series cap, 38-430; 3 lines w/ valves
BC-102	C-series cap, 38-430; 4 lines w/ valves
BC-103	C-series cap, GL45; 2 lines w/ valves
BC-104	C-series cap, GL45; 3 lines w/ valves
BC-105	C-series cap, GL45; 4 lines w/ valves

'T' SERIES CAPS

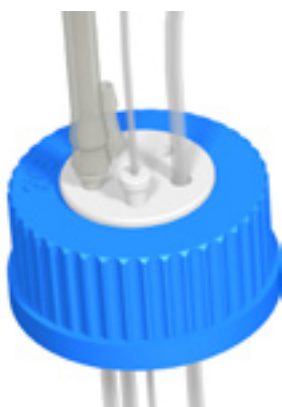
- Luer ported / straight-through tubing
- Optional check valve and filter
- Anti-twist design - no twisted tubing!
- Solid PTFE body

This very easy to use and versatile range of caps requires no fittings - simply push 1/8" OD hard wall tubing through the ports. Each port also accepts male luer connectors. 'T'-series bottle caps are available with an optional built-in check valve to allow pressure equilibration and a filter to prevent debris entering the bottle. One luer plug is included with each bottle cap.

'T' SERIES STANDARD CAP

- Luer ported / straight-through tubing

Simplicity and versatility are the primary features of this cap. Many different fluid line connection options can be accommodated with the combined 1/8" tube and luer port. Not recommended for use under pressure with luer products fitted in the ports, as no luer lock is employed.



'T' SERIES CAP WITH CHECK VALVE AND FILTER

- Luer ported / straight-through tubing
- Integral check valve and filter

Prevent vapors escaping into the work environment and contamination entering the reservoir by using this cap with integrated one-way check valve. The combined air inlet filter and check valve enables air to flow into the bottle to replace liquid as it is removed while preventing particulate contamination.



BC-124
GL45, 3-luer



BC-120
GL38, 2-luer



BC-125
GL45, 4-luer



BC-121
GL38, 3-luer



BC-130
GL45, 3-luer with
check valve and filter



BC-122
GL38, 4-luer



BC-135
Luer barb for 1/8" ID



BC-126
GL38, 2-luer with
check valve and filter



BC-134
Luer barb for 1/16" ID



BC-127
GL38, 3-luer with
check valve and filter



BC-136
Luer barb for 1/4" ID



BC-128
GL38, 4-luer with
check valve and filter



'T' SERIES BOTTLE CAPS

BC-119	T-series cap, GL32; 2 lines
BC-120	T-series cap, 38-430; 2 lines
BC-121	T-series cap, 38-430; 3 lines
BC-122	T-series cap, 38-430; 4 lines
BC-123	T-series cap, GL45; 2 lines
BC-124	T-series cap, GL45; 3 lines
BC-125	T-series cap, GL45; 4 lines
BC-126	T-series cap, 38-430; 2 lines w/ check valve & filter
BC-127	T-series cap, 38-430; 3 lines w/ check valve & filter
BC-128	T-series cap, 38-430; 4 lines w/ check valve & filter
BC-129	T-series cap, GL45; 2 lines w/ check valve & filter
BC-130	T-series cap, GL45; 3 lines w/ check valve & filter
BC-131	T-series cap, GL45; 4 lines w/ check valve & filter

'T' SERIES ACCESSORIES

BC-132	Blanking plug for Luer port (pk 2)
BC-133	Luer port to 1/16" OD tubing adaptor (pk 2)
BC-134	Luer port to barb adaptor for 1/16" ID tubing (pk 2)
BC-135	Luer port to barb adaptor for 1/8" ID tubing (pk 2)
BC-136	Luer port to barb adaptor for 1/4" ID tubing (pk 2)

'Q' SERIES CAPS

- With 1/4-28 threaded ports
- Optional valved ports
- Anti-twist design - no twisted tubing!
- Solid PTFE body

'Q' series caps offer the simplest way to connect via 1/4-28 ports and fittings. Each port has a robust Stainless Steel thread insert to enable repeated connect and disconnect. 1/8" OD supply tubing may be press-fit into the underside of each cap. Easy operation on/off valves on each fluid line are an optional extra.

'Q' SERIES STANDARD CAP

- With 1/4-28 threaded ports

This compact design can be used where head space is limited. 1.8mm holes through the PTFE cap body allow 1/16" OD tubing to pass straight through into the bottle.



'Q' SERIES VALVED CAPS

- 1/4-28 ports include on/off valves
- PTFE body with PCTFE valve rotors

Easily control the flow of liquid into and out of the bottle with the integrated valves. Each fluid line can be switched on or off independently.



BC-109
GL45, (2) 1/4-28



BC-106
GL38, (2) 1/4-28



BC-110
GL45, (3) 1/4-28



BC-107
GL38, (3) 1/4-28



BC-111
GL45, (4) 1/4-28



BC-108
GL38, (4) 1/4-28



BC-116
GL45, 2-valved
1/4-28



BC-113
GL38, 2-valved
1/4-28



BC-117
GL45, 3-valved
1/4-28



BC-114
GL38, 3-valved
1/4-28



BC-118
GL45, 4-valved
1/4-28



BC-115
GL38, 4-valved
1/4-28



'Q' SERIES BOTTLE CAPS

BC-106	Q-series cap, 38-430; 2 lines
BC-107	Q-series cap, 38-430; 3 lines
BC-108	Q-series cap, 38-430; 4 lines
BC-109	Q-series cap, GL45; 2 lines
BC-110	Q-series cap, GL45; 3 lines
BC-111	Q-series cap, GL45; 4 lines
BC-112	Q-series cap, GL32; 3 lines w /valves
BC-113	Q-series cap, 38-430; 2 lines w /valves
BC-114	Q-series cap, 38-430; 3 lines w /valves
BC-115	Q-series cap, 38-430; 4 lines w /valves
BC-116	Q-series cap, GL45; 2 lines w /valves
BC-117	Q-series cap, GL45; 3 lines w /valves
BC-118	Q-series cap, GL45; 4 lines w /valves

MANIFOLD CAPS

- 3-, 6- and 9-ported manifold caps
- Polypropylene or PTFE construction

Manifold caps are useful when disposing of solvent wastes from multiple sources into a single container. For vapor control, attach an EF-100 vapor filter with filter adapter to one port when connecting solvent wastes. For GL45 and GL38 containers (please inquire for other sizes). Most manifolds may also be used to supply solvent to a system; use evaporation control valves to handle the air inlet when used for solvent delivery.



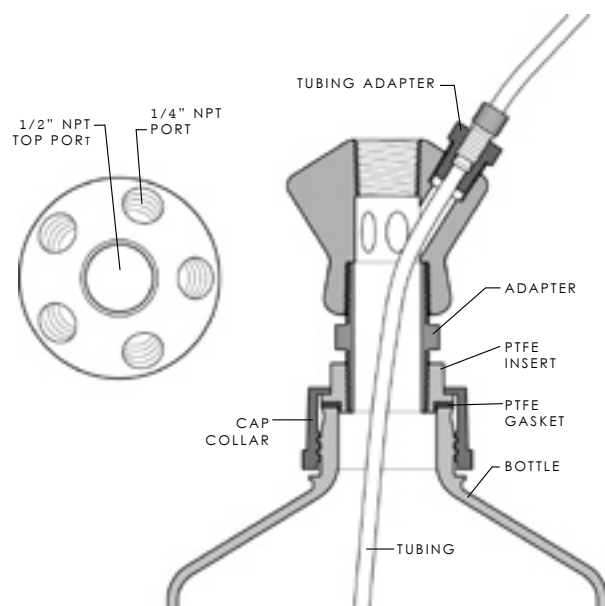
BC-324
GL45 3-port manifold with
(3) 1/4" NPT ports



BC-622
GL45 6-port manifold, (5) 1/4" NPT ports
radially, (1) 1/2" NPT top port



BC-920
GL38 9-port manifold, (8) 1/4" ports
radially, (1) 1/4" NPT port



BC-622
Section and Top View

ECONOMY 1/4-28 CAPS

- PTFE body with PE or PP cap collar
- Expanded PTFE sealing gaskets

Priced conservatively, these caps have 1/4-28 threaded ports in a PTFE insert, with expanded PTFE gaskets. Each port has a through-hole for 1/8" OD tubing; push tubing through the cap to supply your system, or use luer quick disconnect AD-Q20 to quickly connect and disconnect your tubing lines.



BC-220N
GL38 Economy Cap, 2-port



BC-222N
GL45 Economy Cap, 2-port



BC-320
GL38 Economy Cap, 3-port



BC-322N
GL45 Economy Cap, 3-port



BC-420
GL38 Economy Cap, 4-port



BC-422
GL45 Economy Cap, 4-port

MANIFOLD BOTTLE CAPS

BC-324	GL45, 3-port solvent waste / delivery manifold
BC-326	GL38, 3-port solvent waste / delivery manifold
BC-620	GL38, 6-port manifold (solvent waste only)
BC-622	GL45, 6-port solvent waste / delivery manifold
BC-920	GL38, 9-port solvent waste / delivery manifold
BC-922	GL45, 9-port solvent waste / delivery manifold

ECONOMY 1/4-28 BOTTLE CAPS

BC-220N	Economy cap, GL38, 2-port
BC-222N	Economy cap, GL45, 2-port
BC-320	Economy cap, GL38, 3-port
BC-322N	Economy cap, GL45, 3-port
BC-420	Economy cap, GL38, 4-port
BC-422	Economy cap, GL45, 4-port

EVAPORATION CONTROL VALVES

- Minimize vapor loss from supply bottles
- One-way check, and two-way with safety relief
- Inert materials

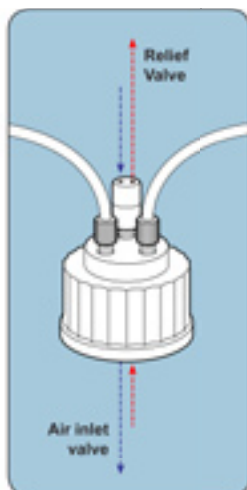
Evaporation control units contain check valves that reduce the flow of vapor in and out of a solvent supply bottle. During a system run, as liquid solvent travels out of the supply bottle to the system, air must enter the bottle to displace the solvent removed. DV-110 allows air to enter the bottle, but not to escape, and includes a filter barrier to reduce particulates. Part numbers DV-100 to DV-107 include a safety relief feature that will automatically vent at 0.5 - 1 psi.



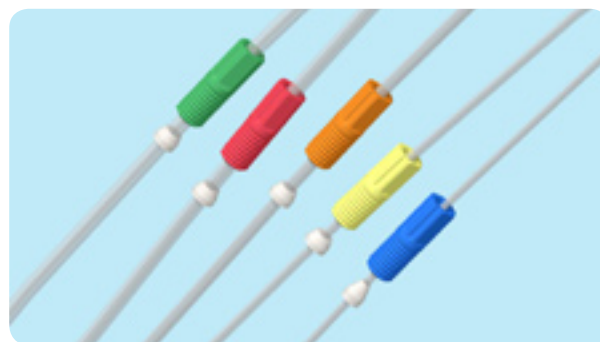
DV-110
Evaporation control valve, PTFE with Viton seal, 1-way, with PTFE filter membrane



DV-105
Evaporation control valve, PEEK with EPDM seal, 2-way



AIR INLET AND RELIEF
Part numbers DV-100 through DV-107 are designed for both air inlet and pressure relief

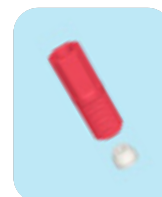


1/4-28 TUBING CONNECTIONS

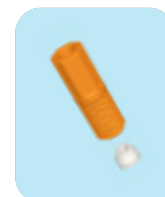
- Spare tubing connections for 1/4-28 ports
- For tubing OD sizes 1/16" - 1/8"
- Tefzel® and Polypropylene



AQ-111
For 1/16" OD tubing



AQ-112
For 1.8-2.0mm OD



AQ-113
For 2.5mm OD tubing



AQ-114
For 3.0mm OD tubing



AQ-115
For 1/8" OD tubing

WARNING:

EPDM and Viton seals in Evaporation Control valves are not suitable for use with some concentrated solvents, such as THF. EPDM has a "good" rating with Acetonitrile, Methanol, and Acetone, a "fair" rating with Ethyl Acetate, but a "questionable" rating with Methylene Chloride. Viton is preferable to EPDM when used with Methylene Chloride (receiving a "fair" rating) and Hexane (a "good" rating). Consult a chemical compatibility guide for further information.

EVAPORATION CONTROL VALVES

2-WAY CONTROL VALVES (SAFETY RELIEF)

DV-100	Control valve, 1/4-28, PPS with Viton seals
DV-104	Control valve with luer taper, PPS with Viton seals
DV-102	Control valve, 1/4" NPT, PPS, PP, Viton seals
DV-105	Control valve, 1/4-28, PPS with EPDM seals
DV-106	Control valve with luer taper, PPS with EPDM seals
DV-107	Control valve, 1/4" NPT, PPS, PP, EPDM seals

1-WAY CONTROL VALVE

DV-110	Control valve, 1/4-28, PTFE with Viton seal
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1/4-28 TUBING CONNECTIONS

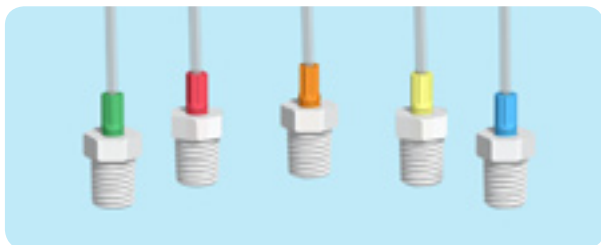
AQ-101X	For 360µm OD tubing, Red / Green, 10 pack
AQ-102X	For 1mm OD tubing, Blue / Purple, 10 pack
AQ-111X	For 1/16" OD tubing, 10pk, Green, 10 pack
AQ-112X	For 1.8-2.0mm OD tubing, 10pk, Red, 10 pack
AQ-113X	For 2.5mm OD tubing, 10pk, Orange, 10 pack
AQ-114X	For 3.0mm OD tubing, 10pk, Yellow, 10 pack
AQ-115X	For 1/8" OD tubing, 10pk, Blue, 10 pack

SAMPLER KIT

SK-011	1/4-28 Sampler kit, includes 1 connection of each size
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1/4-28 PLUGS

PL-103X	Delrin® Plug, 1/4-28, 10 pack
PL-104X	PFA Teflon® Plug, 1/4-28, 10 pack



NPT ADAPTERS FOR HARD WALL TUBING

- Adapt tubing outer diameter (OD) to manifold NPT ports with compression fittings
- 1/4" and 1/2" NPT connections
- Chemically resistant Polypropylene and Tefzel®

For secure fluid connections to a manifold, select a fitting based on your tubing outer diameter (OD). Wrap NPT threads 3-4 times and wrench tighten for leak-resistant connections.



NPT ADAPTERS FOR SOFT WALL TUBING

- Adapt tubing inner diameter (ID) to manifold NPT ports with barbed fittings
- 1/4" and 1/2" NPT connections
- Chemically resistant Polypropylene

A semi-permanent connection for soft-walled tubing only, barbed fittings are an economical means of connecting tubing to Vaplock manifolds. As with NPT adapters for hard wall tubing, wrap NPT threads 3-4 times and wrench tighten for leak-resistant connections.



AC-120
For 1/16" OD tubing



AC-121
For 1.8-2.0mm OD



AC-122
For 2.5mm OD tubing



AC-123
For 3.0mm OD tubing



AC-124
For 1/8" OD tubing

NPT PLUGS

- Plug empty ports with 1/4" or 1/2" NPT plugs



INSTALLATION TOOLKIT

- For quick installation of tubing connections in Vaplock™ manifolds



Easily install fittings in Vaplock™ manifolds with the TK-100 installation toolkit. Includes deep socket set for 9/16" and 7/8" hex fittings, adjustable wrench, guillotine tubing cutter, sealing tape and zip tie adhesive mounts.

HARDWALL TUBING ADAPTERS FOR NPT PORTS

ADAPTERS FOR 1/4" NPT PORTS

AC-120	1/16" OD tube x 1/4" NPT, PP, Tefzel, Green
AC-121	1.8-2.0 mm OD tube x 1/4" NPT, PP, Tefzel, Red
AC-122	2.5 mm OD tube x 1/4" NPT, PP, Tefzel, Orange
AC-123	3.0 mm OD tube x 1/4" NPT, PP, Tefzel, Yellow
AC-124	1/8" OD tube x 1/4" NPT, PP, Tefzel, Blue
AC-108	4.0 mm OD tube x 1/4" NPT, PP, Tefzel, PEEK, Brown
AC-109	3/16" OD tube x 1/4" NPT, PP, Tefzel, Delrin, White
AC-113V	1/4" OD tube x 1/4" NPT, Natural PP, 5 pack
AC-114V	5/16" OD tube x 1/4" NPT, Natural PP, 5 pack
AC-115V	3/8" OD tube x 1/4" NPT, Natural PP, 5 pack
AC-116V	1/2" OD tube x 1/4" NPT, Natural PP, 5 pack

ADAPTERS FOR 1/2" NPT PORTS

AC-204V	3/8" OD tube x 1/2" NPT, Natural PP, 5 pack
AC-205V	1/2" OD tube x 1/2" NPT, Natural PP, 5 pack
AC-206V	5/8" OD tube x 1/2" NPT, Natural PP, 5 pack
AC-207V	3/4" OD tube x 1/2" NPT, Natural PP, 5 pack

BARBED TUBING ADAPTERS FOR NPT PORTS

AB-111X	1/16" ID tube x 1/4" NPT, PP, 10 pack
AB-112X	1/8" ID tube x 1/4" NPT, PP, 10 pack
AB-118X	5/32" ID tube x 1/4" NPT, PP, 10 pack
AB-113X	3/16" ID tube x 1/4" NPT, PP, 10 pack
AB-114X	1/4" ID tube x 1/4" NPT, PP, 10 pack
AB-115X	5/16" ID tube x 1/4" NPT, PP, 10 pack
AB-116X	3/8" ID tube x 1/4" NPT, PP, 10 pack
AB-117X	1/2" ID tube x 1/4" NPT, PP, 10 pack
AB-204X	1/4" ID tube x 1/2" NPT, PP, 10 pack
AB-205X	3/8" ID tube x 1/2" NPT, PP, 10 pack
AB-206X	1/2" ID tube x 1/2" NPT, PP, 10 pack
AB-207X	5/8" ID tube x 1/2" NPT, PP, 10 pack
AB-208X	3/4" ID tube x 1/2" NPT, PP, 10 pack

PLUGS FOR 1/4" AND 1/2" NPT PORTS

PL-101X	Plug for 1/4" NPT, PP, 10 pack
PL-105	Plug for 1/4" NPT, PTFE
PL-102X	Plug for 1/2" NPT, PP, 10 pack

SAMPLER KIT AND INSTALLATION TOOLKIT

SK-003	Barbed fittings sampler kit, includes 1 of each size
TK-100	VapLock Installation Toolkit

JUSTRITE® WASTE CANS

- Two Polypropylene or Stainless Steel quick disconnects permit simple attachment of one inlet and one vent

Ideal for HPLC use, Justrite® Centura™ containers streamline the waste containment and disposal process by providing a simple means of connecting waste and vent lines. FM approved, the containers are designed with a spring-loaded closure that opens when contents are subjected to pressure, for explosion safety. Containers are molded of translucent Polyethylene to show fluid level. When ordering, note that quick disconnects will only mate with like materials, i.e., stainless disconnects with stainless. Note that the disconnects mounted on all containers have a 3/8" drain orifice. Also note that Justrite® containers should be grounded with Antistatic Wires while in use, and especially while emptying the container.



JT-PP12752

2-gallon waste can with Polypropylene / EPDM disconnects

JT-TF12755

5-gallon waste can with Stainless / PTFE disconnects



SAFETY FUNNELS FOR JUSTRITE® CANS

- Quick-connect to Justrite Centura™ waste cans
- HDPE and Polypropylene construction
- Locking lid with Polypropylene sealing gasket

ANTISTATIC WIRES

REDUCE FIRE RISKS FROM STATIC ELECTRICITY

Antistatic wires reduce spark danger from static electricity generated by movement and flow of flammable liquids. Bonding between containers during liquid transfer, and connecting drums to an earth ground are required under Federal and local codes.



JT-08500

Antistatic wires with 3' cable

WASTE CANS, ANTISTATIC WIRES, AND CONTAINMENT

WASTE CONTAINERS

JT-12160	Justrite® 1-gallon PE can, PP / EPDM disconnect
JT-PP12752	Justrite® 2-gallon PE can, PP / EPDM disconnect
JT-TF12752	Justrite® 2-gallon PE can, SS / Teflon® disconnect
JT-PP12755	Justrite® 5-gallon PE can, PP / EPDM disconnect
JT-TF12755	Justrite® 5-gallon PE can, SS / Teflon® disconnect

ANTISTATIC WIRES

JT-08500	Justrite® antistatic wire, dual alligator clips, 3'
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SECONDARY CONTAINMENT

SC-002	Secondary containment for Justrite 2 or 5-gal can
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SF-series funnels allow quick disposal of pourable solvent waste. Locking, hinged lid minimizes leaks and spills when the funnel is closed. Standard Justrite Centura™ containers include two quick disconnects, one for filling and one for venting; removal of the insert from the venting quick disconnect will prevent vapor release while not in use. If used in tandem with other Vaplock™ products, such as manifolds and vapor filters, a closed system may also be maintained for passive wastes while the funnel is sealed.

As with all solvent-based applications, **chemical compatibility** of the solvent and product should be noted prior to purchase. SF-series funnels are constructed of high density Polyethylene (HDPE) and Polypropylene, with a closed-cell Polypropylene sealing gasket. As Justrite Centura containers are available with two quick disconnect materials, Polypropylene (with EPDM o-ring) and Stainless Steel (with Teflon o-ring), **select a safety funnel according to the type of disconnect material.**

SAFETY WASTE FUNNELS

SF-003	Funnel with PP / EPDM disconnect
SF-004	Funnel with SS / Viton® disconnect
SF-005	Funnel with SS / Teflon® disconnect



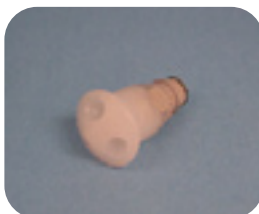
WASTE MANIFOLDS FOR JUSTRITE® CANS

- Collect solvent waste easily from various sources into Justrite® Centura™ quick-disconnect containers
- Manifolds fit almost any tubing size with use of the appropriate fitting
- Wide-bore Polypropylene (PP) or PTFE manifold design allows multiple tubing connections with high fluid flow

Select a manifold for a Justrite can based on the type of disconnects on the container. For a Justrite can with Polypropylene and EPDM disconnects, for example, choose part number MA-301 (3-port) or MA-601 (6-port). If a system has more waste lines than a single manifold can accommodate, use stacking manifolds (page 12) to handle almost any requirement. 1-port Polyethylene adapter MA-101 has one 1/4" NPT port. 3-ported Polypropylene manifolds have three 1/4" NPT ports. 6-ported Polypropylene manifolds have five 1/4" NPT ports radially, and one 1/2" NPT top port. 9-ported PTFE manifolds have eight 1/4-28 ports radially, and one 1/4" NPT top port. To connect tubing to waste manifolds, see tubing connections on pages 7-8.



MA-101
1-ported waste adapter, Polyethylene,
for PP/EPDM disconnects



MA-301
3-ported waste manifold
for PP/EPDM disconnects



MA-303
3-ported waste manifold
for Stainless/PTFE disconnects



MA-601
6-ported waste manifold
for PP/EPDM disconnects



MA-603
6-ported waste manifold
for Stainless/PTFE disconnects



MA-903
6-ported waste manifold
for PP/EPDM disconnects



MA-902
9-ported waste manifold
for Stainless/PTFE disconnects

WASTE MANIFOLDS FOR JUSTRITE CONTAINERS

MANIFOLDS FOR JUSTRITE® CANS WITH PP DISCONNECTS

MA-101	1-port waste adapter, PP / EPDM disconnect
MA-301	3-Port PP waste manifold, PP / EPDM disconnect
MA-601	6-port PP waste manifold, PP / EPDM disconnect
MA-903	9-port waste manifold, PP / EPDM disconnect

MANIFOLDS FOR JUSTRITE® CANS WITH SS DISCONNECTS

MA-104	1-port PE waste adapter, SS / Viton® disconnect
MA-105	1-port PE waste adapter, SS / Teflon® disconnect
MA-302	3-port PP waste manifold, SS / Viton® disconnect
MA-303	3-port PP waste manifold, SS / Teflon® disconnect
MA-602	6-port PP waste manifold, SS / Viton® disconnect
MA-603	6-port PP waste manifold, SS / Teflon® disconnect
MA-901	9-port PTFE waste manifold, SS / Viton® disconnect
MA-902	9-port PTFE waste manifold, SS / Teflon® disconnect



CARBOY & PAIL MANIFOLDS

- 3-Port, 6-Port and 9-port manifolds for large and small bore tubing
- Cam locks permit quick disengagement
- Adapt to 83B and 53B 70mm, 63mm, 61mm and 100-415 carboys and pails

Carboy and drum manifolds permit multiple waste lines of varying size and type to be connected to the container of your choice. Three-port manifolds have three 1/4" NPT ports; six-port manifolds have five 1/4" NPT ports radially, and one 1/2" NPT top port; 9-port manifolds have eight 1/4-28 ports radially, one 1/4" NPT top port. Cam locks have 1/2" or larger drain orifices.

If more tubing lines need connecting than a manifold will permit, use of the appropriate stacking unit will increase the number of ports to suit your needs.

The PM-305 or PM-605 panel mount manifolds may also be used if a nonstandard cap is present; drill a 1.125" diameter hole (max 1/2" depth) in the cap and thread in place for a secure seal. **PLEASE NOTE THAT IT IS NOT POSSIBLE TO GROUND DRUM, PAIL, GLASS BOTTLE AND CARBOY (NON-JUSTRITE®) CONTAINERS; THIS MAY RESULT IN A SAFETY HAZARD WITH FLAMMABLE SOLVENTS.**



CM-301
83B 3-port manifold



CM-303
53B 3-port manifold



CM-601
83B 6-port manifold



CM-903
53B 9-port manifold



PM-605
6-port manifold, panel-mount.



PM-603
61mm 6-port manifold

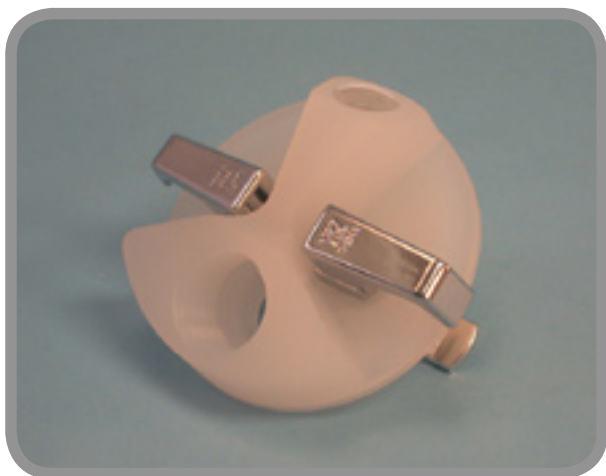
CARBOY, PAIL, AND PANEL-MOUNT WASTE MANIFOLDS

CARBOY AND PAIL MANIFOLDS

CM-301	83B, 3-port, PP with EPDM gasket
CM-303	53B, 3-port, PP with EPDM gasket
CM-306	100-415, 3-port, PP with EPDM gasket
CM-601	83B, 6-port, PP with EPDM gasket
CM-603	53B, 6-port, PP with EPDM gasket
CM-606	100-415, 6-port, PP with EPDM gasket
CM-901	83B, 9-port, PP with EPDM gasket
CM-903	53B, 9-port, PP with EPDM gasket
PM-301	70mm, 3-port, PP with EPDM gasket
PM-303	61mm, 3-port, PP with EPDM gasket
PM-601	70mm, 6-port, PP with EPDM gasket
PM-603	61mm, 6-port, PP with EPDM gasket
PM-304	63mm, 3-port, PP with EPDM gasket
PM-604	63mm, 6-port, PP with EPDM gasket

PANEL MOUNT MANIFOLDS

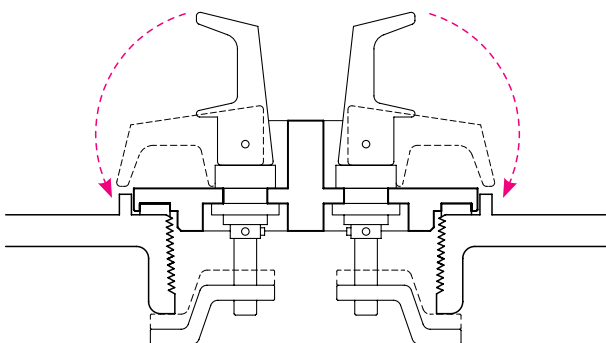
PM-305	Panel-Mount manifold, 3-port, PP/EPDM
PM-605	Panel-Mount manifold, 6-port, PP/EPDM



SOLVENT DRUM MANIFOLD

- Cam mechanism permits quick disengagement
- Low-profile design fits tight space requirements

Attach waste lines or delivery tubing to a solvent drum quickly with the DM-201 Drum Manifold. The cam-locking quick disconnect engages with a simple "lift and turn" mechanism that eliminates the need for drum bung attachment tools and tedious threading. With one 1/2" NPT and one 1/4" NPT port, fluid lines, stacking manifolds, and ventilation control can be easily adapted. Polypropylene with EPDM O-ring seal and plated cam locks.



CAM LOCKING MECHANISM

Height-adjustable cams lock in place in the down position, release in the up position

Low-Profile Drum Manifold Assembly



DM-201

The DM-201 is designed to keep a low profile for use under cabinets and where space is limited

MANIFOLD STACK UNITS

- Increase the number of manifold ports by adding a manifold stack unit
- Wide-bore Polypropylene (PP) or PTFE manifold design allows multiple tubing connections with high fluid flow

Manifold stack units can increase the number of tubing connections almost indefinitely. Select a stack unit by your material and tubing requirements.



MA-300

3-port stacking unit, Polypropylene,
With 1/4" NPT male adapter



MA-600

6-port stacking unit, Polypropylene,
With 1/2" NPT male adapter

BENCHTOP MANIFOLD

- Collect solvent waste from multiple systems at one convenient benchtop location
- Includes outlet tubing connection for 3/8" OD

The waste lines from some systems may need be grouped together before collection at a central location. In this case, a benchtop manifold may be useful. Collect solvent wastes from one or more systems using the MA-604. Note that gravity-fed waste lines must exit your system above the manifold, or at about 5" above benchtop level.



MA-604

6-port Benchtop Manifold, includes (5) 1/4" NPT radial ports, (1) 1/2" NPT top port, and outlet for 3/8" OD tubing

WASTE MANIFOLDS AND STACK UNITS

DRUM MANIFOLD

DM-201 Drum manifold with (1) 1/2" NPT, (1) 1/4" NPT, PP

STACKING UNITS

MA-300 3-port stack unit with 1/4" NPT male thread, PP

MA-304 3-port stack unit with 1/2" NPT male thread, PP

MA-600 6-port stack unit with 1/2" NPT male thread, PP

MA-900 9-port stack unit with 1/4" NPT male thread, PTFE

BENCHTOP WASTE MANIFOLD

MA-604 Benchtop manifold, 6-ported, PP with powder coated aluminum stand, 3/8" OD outlet

VAPOR FILTER ADAPTERS

- Adapt vapor filters to point source emissions
- Custom adapter solutions available
- All adapters are reusable

VAPLOCK™ EF-100 vapor filters require an adapter for connection to various emission sources. Each filter contains a tapered 1/4" female NPT port; select from the list below to adapt filters to a typical system, or contact your distributor for assistance with any special requirements. Note that filter adapters for Justrite containers are made to fit **either** stainless steel **or** Polypropylene quick disconnects, but may not be interchanged. Stainless must connect to stainless, and so on. Stainless quick disconnect options allow for either a Teflon or Viton O-ring.



FA-001
Adapter with male luer lock



FA-002
Adapter with male slip luer



FA-019
Adapter with 1/4-28 male thread



FA-004
Adapter with 1/4" NPT male thread



FA-005
Adapter with 1/2" NPT male thread



FA-017
Adapts filter to a female Polypropylene quick disconnect on a Justrite waste can, with elbow adapter



FA-010
Adapts filter to a female Polypropylene quick disconnect on a Justrite waste can



FA-018
Adapts filter to a female stainless steel quick disconnect on a Justrite waste can, with elbow adapter



FA-015
Adapts filter to a female stainless steel quick disconnect on a Justrite waste can

VAPOR FILTER ADAPTERS

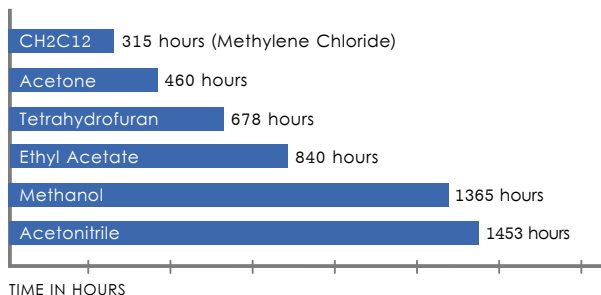
FA-001	Luer lock adapter, Polypropylene
FA-002	Male slip-type luer adapter, Polypropylene
FA-003	1/4-28 adapter, long, Polypropylene
FA-004	1/4" NPT adapter, Polypropylene
FA-005	1/2" NPT adapter, Polypropylene
FA-010	Justrite® can adapter, PP / EPDM
FA-007	Justrite® can adapter, SS / Viton®
FA-015	Justrite® can adapter, SS / Teflon®
FA-017	Justrite® can adapter, elbow, PP / EPDM
FA-018	Justrite® can adapter, elbow, SS / Viton®

SOLVENT VAPOR FILTERS

- Minimize vapors by adsorption before they enter the lab environment. Tested for breakthrough with a variety of HPLC solvents.
- Constructed of activated coconut shell carbon and silica dessicant, with Polypropylene housing
- Economically priced

Reduce your emissions from solvent waste containers by installing a Vaplock™ vapor filter, which may be adapted to a number of low pressure organic vapor sources. The filters have been tested for breakthrough with several common solvents used in HPLC. Below, the chart shows manufacturer recommended replacement periods by solvent, based on empirical data from collected gas samples analyzed on a gas chromatograph. The solvent samples were tested at 100% concentration; for HPLC use, water-solvent mixtures from gradients may have longer breakthrough periods. Spent cartridges should be disposed in accordance with local safety codes.

RECOMMENDED CARTRIDGE REPLACEMENT PERIODS, BY SOLVENT
Based on a constant vapor stream flow rate of 1mL/min at S.T.P.



Breakthrough data is based on 100% concentration of the listed solvent; Breakthrough for water-solvent mixtures may be longer.

ACTIVATED CARBON VAPOR FILTERS

EF-100	Vaplock filter cartridge
EF-100V	Vaplock filter cartridge, pack of 5





CLOSED SYSTEMS FOR SOLVENT CONTAINMENT

VAPOR AND SPILL CONTROL FOR LABORATORY SOLVENTS



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MAY
25/2007