

Thermo Savant SpeedVac Systems

Thermo Savant has been manufacturing centrifugal vacuum concentrators for well over 30 years. As market leader, Thermo Savant are able to offer a diverse product range providing solutions for all solvent applications. These range from the traditional drying down of DNA preparations in water and methanol to the more complex and aggressive application presented by the combinatorial and drug discovery sectors of the pharmaceutical industry.

Choosing Your Thermo Savant SpeedVac System

There are several issues you need to consider when choosing your SpeedVac system.

Selecting the correct system is crucial for optimum performance and reliability. Thermo Savant has a wide range of integrated and modular systems so you can select a system, which ideally suits your needs.

Solvent Type

This is probably the most important consideration in selecting a system, are you running aqueous or aggressive solvents, strong acids such as HCL or TFA? Pump performance and evaporation efficiency are based on solvent types, are you able to use a diaphragm pump which requires minimum maintenance or do you need the deeper vacuum that an oil pump will provide?

Boiling Points

Boiling points of solvents vary greatly and additional accessories such as a radiant cover or vapour net may be necessary to optimise performance.

Sample Size and Capacity

Choosing a large capacity system may be necessary if you are handling large sample volumes, or need a high throughput of samples.

Fully Integrated System or Separate Components

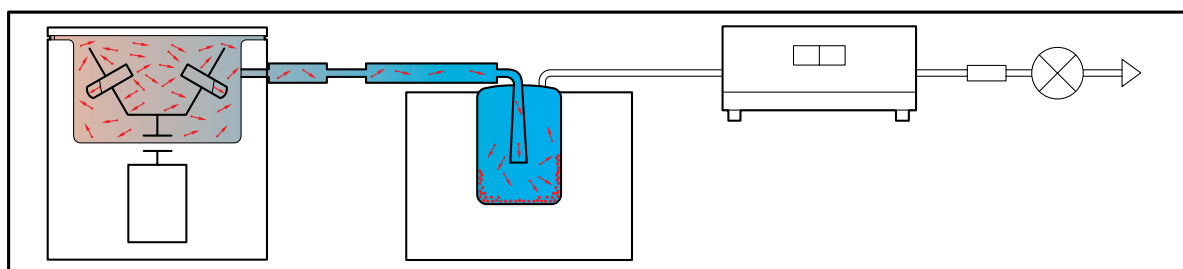
Fully integrated systems require less set up time and are easily transported whereas the component systems can offer greater flexibility with a choice of pumps and the ability to use the system in conjunction with other equipment such as a gel dryer.

Principles of the SpeedVac System

The SpeedVac systems are all made up of 3 main components. The concentrator bowl, the refrigerated trap, and the vacuum pump. The systems available in the SpeedVac range offer various combinations of the above components. There are also accessories available in the Thermo Savant SpeedVac range which will enhance the performance of your SpeedVac system, depending on your application such as radiant covers and the VaporNet system.

The Thermo Savant systems are available as integrated models where all the components are in one box, or component systems where each part of the system is purchased separately to make up a system.

Schematic Diagram of a SpeedVac System



**SpeedVac
Concentrator bowl**
available in 2 sizes
with various control
options

**Refrigerated
solvent trap**
available in 3
different
temperature ranges

VaporNet
optional
accessory

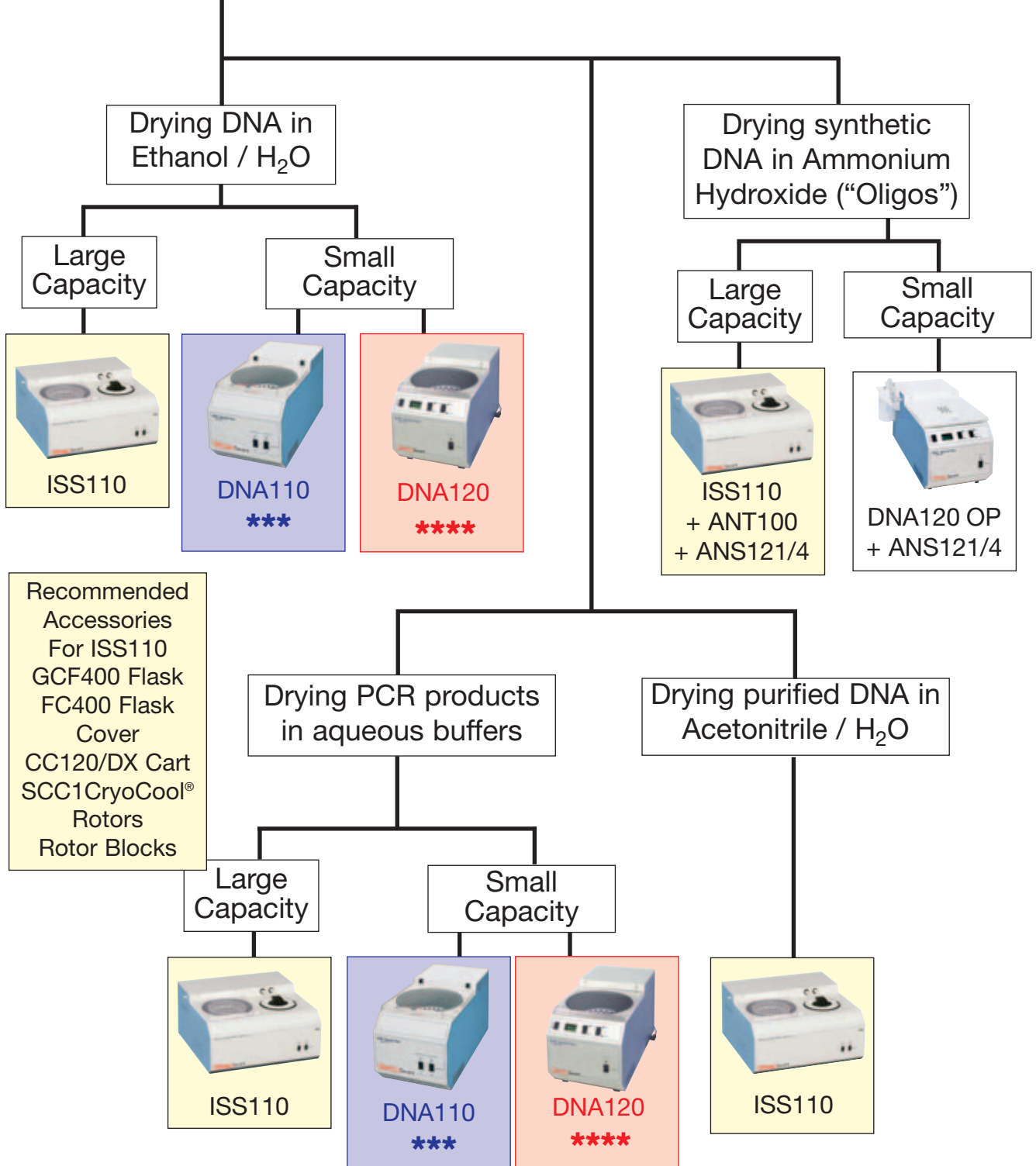
**Vacuum
pump**
oil or
diaphragm

The following flow diagrams will help you choose the system to suit your application.

DNA Applications

Drying down DNA precipitates with 100% recovery is what gave the SpeedVac® its World Class Reputation.

Samples have changed, methods have changed, solvents have changed but you still get 100% recovery. The ISS110 is the model of choice for all DNA samples in all types of solvents for fast, safe drying under vacuum.



***** Recommended**

****** Highly Recommended**

Aqueous (H₂O)

(and/or low concentrations of non-aggressive organic solvents)

Acetonitrile + water

Methanol + water

Vacuum Evaporation

Large Capacity

Small Capacity

Integrated

Component

Integrated

Component

SPD 2010

SC210A + optional
Radiant Cover

UVS400

SPD1010

SC110A + optional
Radiant Cover

UVS400

Recommended
Accessories
VTK80* Tubing Kit
GCF400 Glass Flask
FC400 Flask Cover
SCC1 CryoCool®
CC120/DX Cart
Rotor
Rotor Blocks

*(Not used on Integrated Systems)

**SPD111V offers better
control of temperature and
glass lid for improved
solvent resistance.

Can I add a gel dryer?
Yes, see pages 254-255



SPD111V**



UVS400

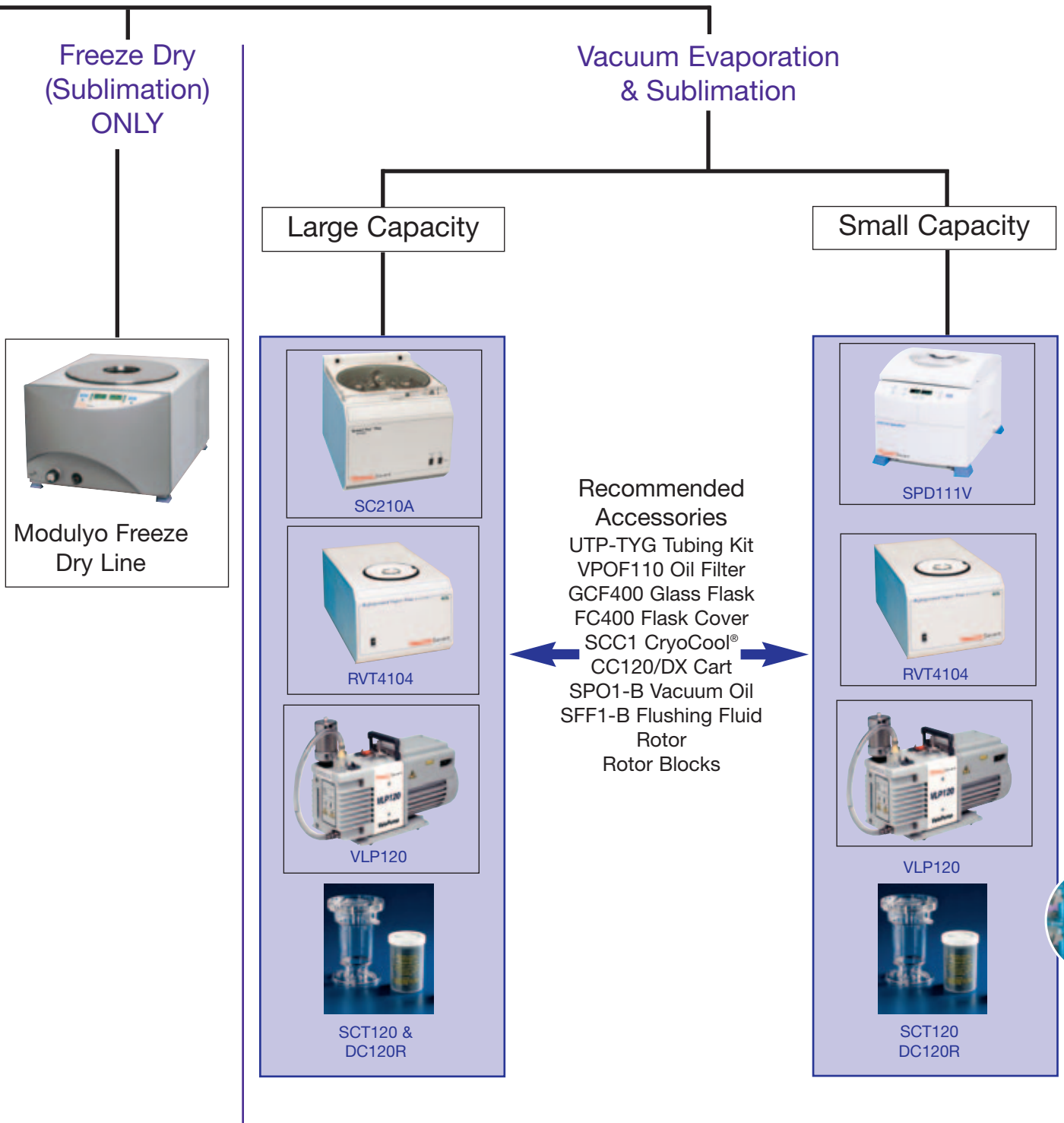
*** Recommended

**** Highly Recommended

Centrifugation and Sample Concentration

SpeedVac Application Chart

Concentrating or drying samples in water under vacuum is one of the more difficult tasks for the SpeedVac®. During the process the samples get cold due to evaporative cooling of the water. If heat is not applied and with high vacuum the samples will go through a phase change from liquid to solid (ice). The process also changes from evaporation to sublimation. This can result in longer sample drying times. For fast drying of samples in water use low vacuum and a radiant heat source.

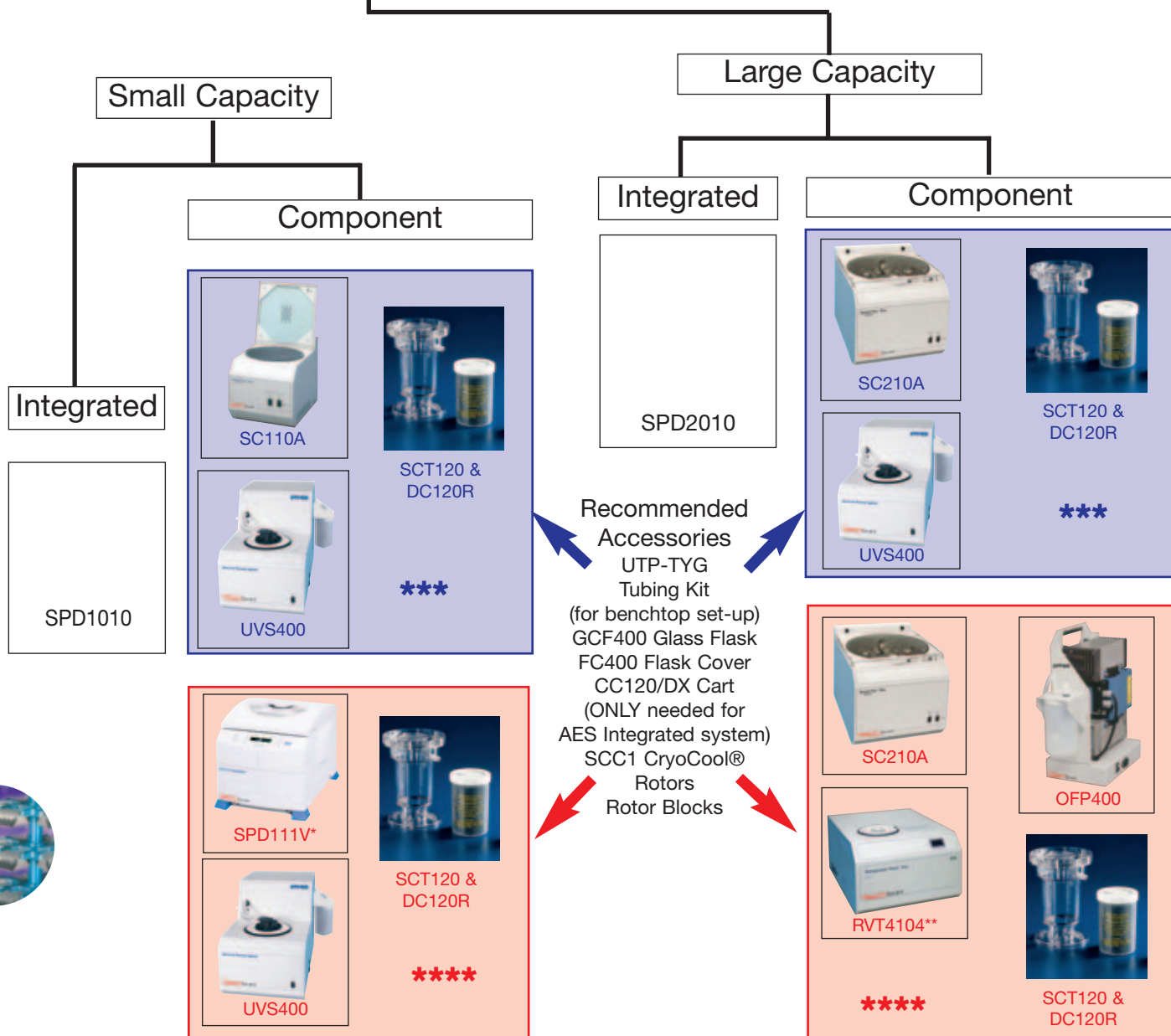


Organic Solvents

Non-Aggressive

Methanol
Ethanol
Acetonitrile

Evaporating low boiling point organic solvents such as acetonitrile, water, ethanol, methanol, from samples is commonly carried out in SpeedVac Systems. For small volumes and few samples the -50°C cold trap does a good job at condensing and trapping the vapours. For larger volumes and many samples the -104°C ultra-cold trap will trap more solvent and better protect the pump. An SCT120 chemical trap with the DC120R activated carbon cartridge will adsorb vapours that bypass or escape the cold trap, providing additional protection for an oil-filled high vacuum pump. Using the ballast valve on the high vacuum pump will help purge vapours that do get into the pump oil. Again the preferred pump for this application is the low vacuum oil-free diaphragm pump. An important maintenance procedure is to empty the trapped solvent collected in the cold trap at the end of every run.



*SPD111V offers better adjustment and control of temperature and glass lid for improved solvent resistance.

**The -104°C RVT4104 trap is more efficient and will minimise passing of untrapped vapor to pump or lab.

***** Recommended**

****** Highly Recommended**

Organic Solvents

Aggressive (Low Boiling Point)

Chloroform
Ethyl Acetate
Acetone
Methylene Chloride
Hexane

Evaporating aggressive low boiling point volatile organic solvents such as ether, acetone, hexane, and methylene chloride from samples produces vapours that are difficult to condense and trap in the cold trap. Trapping efficiency depends on the operating temperature of the cold trap, surface area for condensation, and dwell time of the vapours in contact with the cold surface. For the most efficient trapping system it is recommended to use an ultra cold -104 °C trap. In some cases two -50°C traps in series have worked better. The addition of a secondary trap, an SCT120 with the activated carbon cartridge DC120R, is useful to “polish” the air and remove trace amounts of organic solvent vapours by adsorption. In certain applications using the above solvents, the VaporNet VN100DDA module will improve the trapping efficiency of the cold trap. This is an application where a low vacuum oil free diaphragm vacuum pump is better suited and is the preferred choice. If an oil-filled pump is used it is important to use the ballast valve to allow the pump to continuously purge itself of volatile organic solvents. This pump exhaust should be vented to a fume hood. Evaporation of chloroform and methanol mixtures used to extract lipids presents some unique problems with bumping and odors. The preferred system for this application is one with a low vacuum oil-free pump, and VaporNet, that can be vented to a chemical fume hood.

Small Capacity

Large Capacity

Component

Component



SPD121P
UVS800DDA



SC250EX
UVS800DDA

Recommended Accessories
VTK80 Tubing Kit
GCF400 Glass Flask
FC400 Flask Cover
CC120/DX Cart
SCC1 CryoCool®
Rotors
Rotor Blocks



SPD121P
OFP400
RVT4104*
VN100DDA
+ SCT120 & DC120R

*The -104°C RVT4104 trap is more efficient and will minimise passing of untrapped vapour to pump or lab.

Recommended Accessories
UTP-TEF 0.5 Tubing Kit
GCF400 Glass Flask
FC400 Flask Cover
CC120 Cart
SCC1 CryoCool
Rotors
Rotor Blocks



SC250EX
OFP400
RVT4104*
VN100DDA
+ SCT120 & DC120R

*** Recommended

**** Highly Recommended

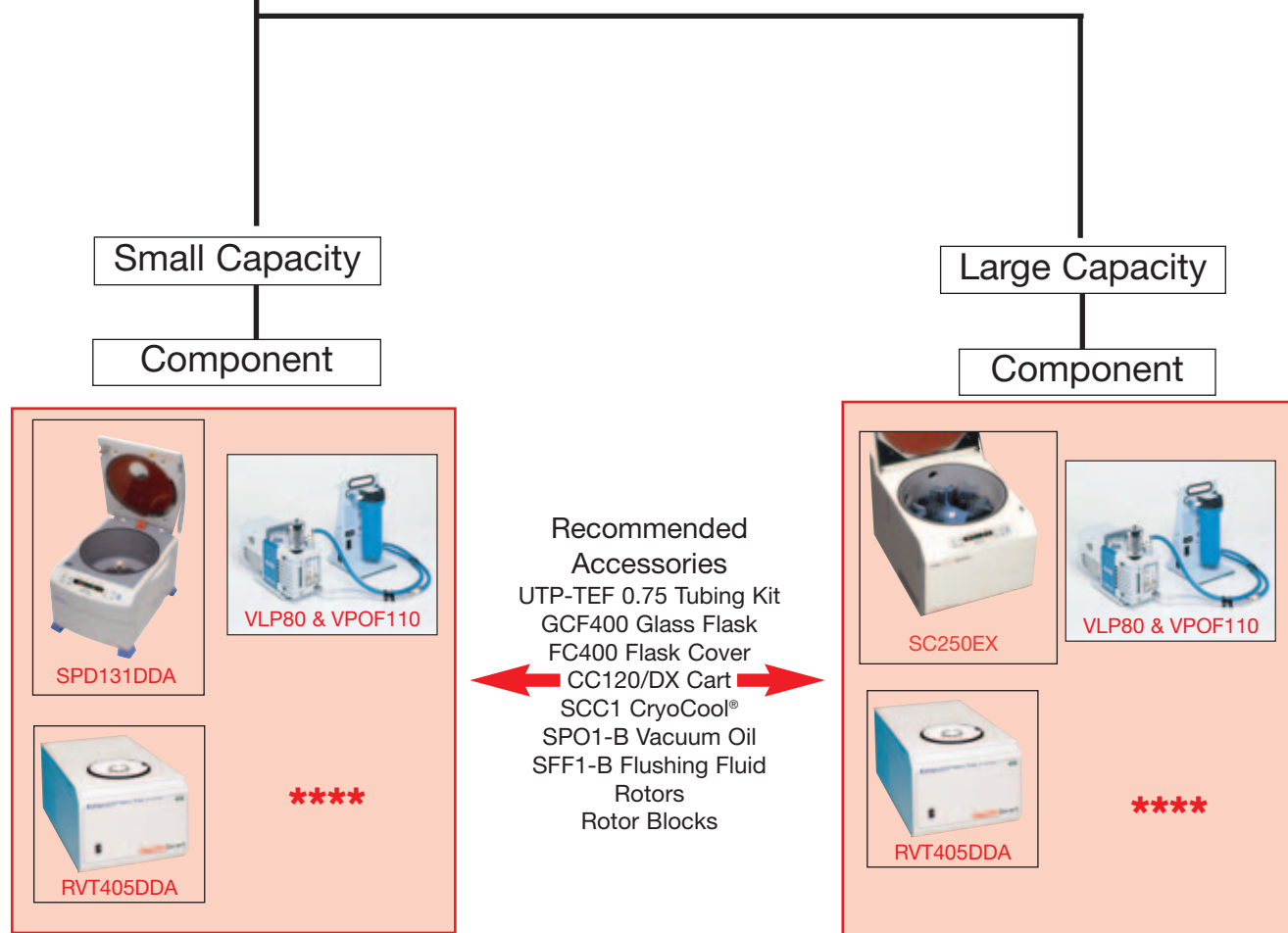
Organic Solvents

Aggressive High Boiling Point

DMSO
DMF
Toluene
Nitrobenzene

Removing high boiling point solvents such as toluene, dimethyl formamide (DMF) and dimethyl sulfoxide (DMSO) from samples are applications that the SpeedVac was made for. There are some unique and specific requirements with regard to the equipment and set up of a SpeedVac System for evaporating DMSO.

The recommended system consists of a concentrator with a heated cover to prevent the solvent vapours from condensing on the cover, a cold trap at a temperature that will not freeze the solvent at the inlet port, a vacuum pump capable of producing less than 1 Torr of vacuum. The concentrator must be placed on the top shelf of a cart with the cold trap below. The TEFLON® tubing connecting the two must have no sags or dips that will allow the condensed DMSO to collect in the tubing. It must be able to run by gravity into the cold trap. If a high vacuum oil-filled pump is used for this application it is possible to sublime the frozen DMSO resulting in a granular, crystalline product that dissolves quickly and completely when the product must be reconstituted.



*** Recommended

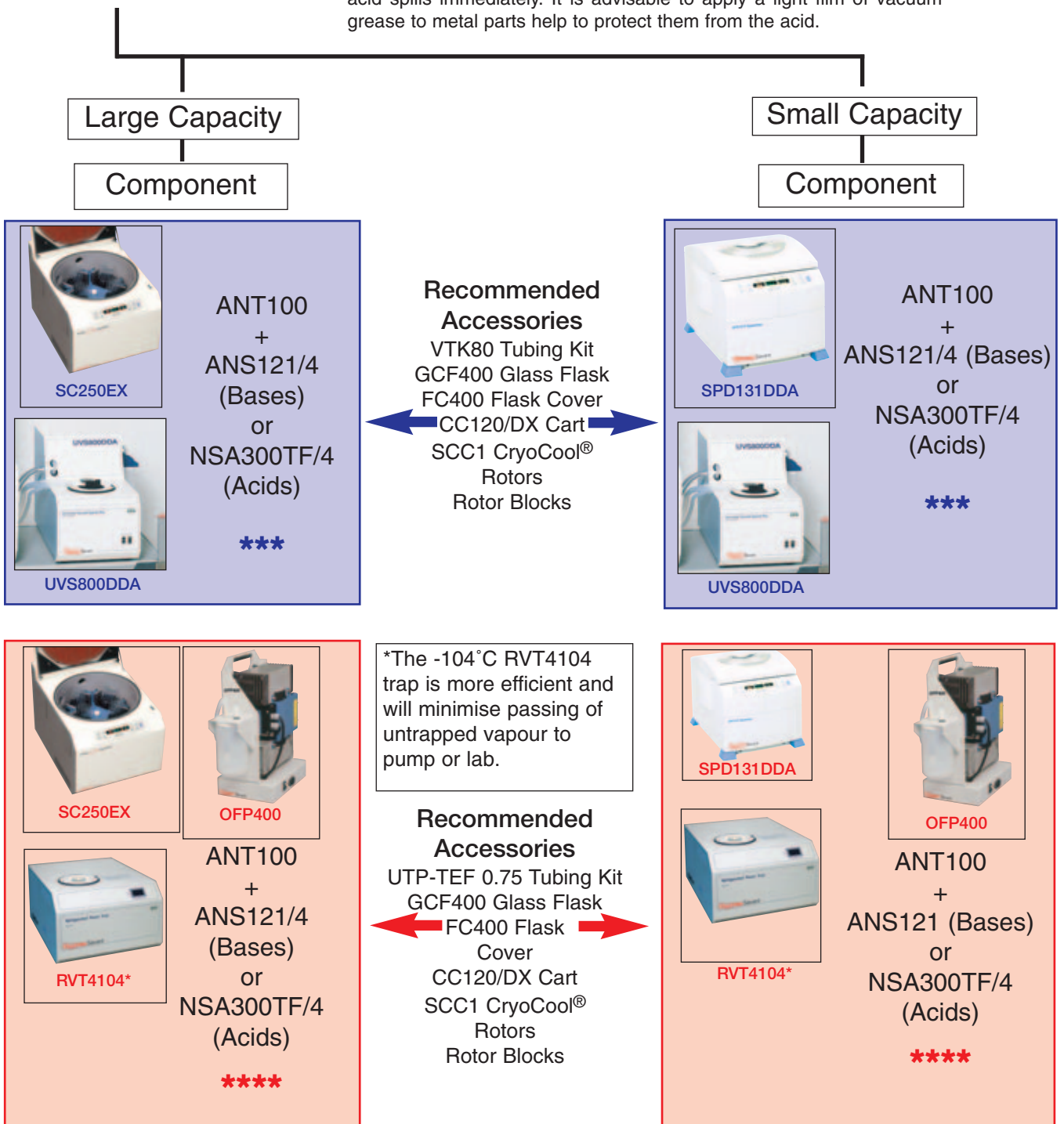
**** Highly Recommended

Strong Acids & Bases

TFA
HCl
Acetic Acid
Formic Acid

Ammonium Hydroxide
Sodium Hydroxide

Removing acids and mixtures of acid with other solvents is one of the most difficult applications for a SpeedVac System. A small system and a large system have been designed and engineered for evaporating TFA, HCl, Acetic Acid, Formic Acid, and other solvents with aggressive, corrosive properties. Systems for this application have non-plastic covers, TEFLON® tubing, and special upper magnetic assemblies (SUMAX-SPD and SUMAX300), ultra-cold vapour condensation traps, and preferably low vacuum, oil-free pumps. Also recommended is the chemical trap with the DC120A acid neutralisation cartridge between the cold trap and vacuum pump. Good maintenance procedures are necessary and should be carried out on a regular basis. Empty solvents collected and trapped in the cold trap, remove upper magnetic assembly and wash it off under running tap water, and wipe up acid spills immediately. It is advisable to apply a light film of vacuum grease to metal parts help to protect them from the acid.



Thermo Savant DNA SpeedVac Systems

High Performance DNA120, DNA120OP & DNA110

The Thermo Savant DNA SpeedVac™ Systems offer rapid and efficient concentration and drying of DNA/RNA samples. Thermo Savant offers two high performance DNA SpeedVac™ systems and the original DNA110

Product Features DNA110

- Corrosion resistant, TEFLON® coated chamber provides years of lasting service
- Built-in, oil free vacuum pump provides maintenance-free operation
- Integrated and compact design
- Extremely quiet operation
- Choice of three drying rates
- Optional swing-out rotor for 2 microtitre plates - RD2MP
- Optional post-trap assembly

Product Features DNA120

As DNA110 plus:

- Fully programmable
- Dual digital timers for independent control of heat and run times

Product Features DNA120OP

As DNA110/120 plus:

- Glass cover
- Post trap with ammonia neutralising solution

ISS110 High Capacity DNA SpeedVac System

The ISS100 is a high capacity DNA Speed Vac™ designed for efficient processing of large batches of DNA/RNA samples.

Product Features ISS110

- TEFLON coated vacuum pump
- 4-litre, -55°C refrigerated vapour trap
- Single switch controller
- VaporNet enhanced solvent recovery
- Can accommodate up to 120 x 1.5 ml microtubes

DNA110



DNA120



DNA120OP










ISS110



Thermo Savant DNA SpeedVac Systems

Ordering Information and Specifications

Model	DNA120/DNA1200P	DNA110	ISS110
Vacuum Pump Displacement	TEFLON® diaphragm pump 40 l/min @ 60Hz 32 l/min @ 50Hz	TEFLON® diaphragm pump 40 l/min @ 60Hz 32 l/min @ 50Hz	TEFLON® diaphragm pump 40 l/min @ 60Hz 32 l/min @ 50Hz
Max. Vacuum	<10 torr	<10 torr	<10 torr
Dims W x D x H mm	290 x 630 x 290	290 x 630 x 290	620 x 660 x 380
Refrigerated Trap Capacity	–	–	4 litres
Operating Temp.	–	–	-55°C
Weight lbs. (kg)	86 (39)	86 (39)	152 (69)
Power Requirements	230 VAC/50Hz, 5A	230 VAC/50Hz, 5A	230 VAC/50Hz, 6A
Max. Tube Capacity	72 x 0.5 ml	48 x 0.5 ml	120 x 1.5 ml
Rotor	RD36	RD24	RH64-11
Applications	  		  

Rotors for DNA SpeedVac



RD2MP: Rotor for microtitre plates

Rotors Available

Model	Description
RD24	Rotor for holding 24 x 1.5 ml microcentrifuge tubes
RD48	Rotor for holding 48 x 0.5 ml microcentrifuge tubes
RD36	Rotor, for holding 36 x 1.5 ml microcentrifuge tubes
RD72	Rotor, for holding 72 x 0.5 ml microcentrifuge tubes
RD2MP	Swing bucket microtitre rotor, with 2 carriers. Each carrier holds one 96-well microtitre plate

Chemical Trap Kits for the DNA SpeedVac

Various chemical trap kits are available for the DNA SpeedVac. These fit on the exhaust of the system, a carbon trap can be used for absorbing residual radioactive organic solvent vapours, or if you are drying down oligos, ammonia neutralising solution will neutralise any residual ammonia hydroxide vapours.

DC120R DC120A
Chemical trap kit

Accessories Available

Model	Description
DTK120R	Chemical trap kit, for absorbing volatile radioactives, includes activated carbon cartridge and all fittings
DC120R	Disposable chemical cartridge, for volatile radioactivity
DC120R/4	Disposable chemical cartridge, for volatile radioactivity, package of 4
ANS121/4	Ammonia neutralizing solution, package of 4 bottles

SOLVENT SYMBOLS:



= Aqueous



= Acids (<1.0M)



= Organics

For full key reference see page 260

Thermo Savant Automated Integrated SpeedVac Systems

SPD2010
pictured

Fully Integrated SpeedVac® Systems







Thermo Savant's Integrated SpeedVac® Systems set the standard for convenient and efficient sample concentration and drying. Both systems feature the new microprocessor control panel. Both SPD1010 and SPD2010 can be used with most solvents and offer extremely quiet operation and minimal maintenance.

Both models fully incorporate four individual components: concentrator bowl, refrigerated trap, VaporNet system and a diaphragm pump.

Product Features

- Easily programmable
- Integrated design for plug-in and use simplicity and control
- Digital display for viewing and setting parameters
- Vacuum control with vacuum ramping and level setting
- All-in-one design makes setup and installation easy
- Refrigerated trap utilises GCF400 glass condensation flasks for easy solvent changeover/removal and eliminates the time consuming step of thawing the trap to drain
- Dual timers for independent control of heater and run time
- Large variety of rotors available for both the SPD1010 and larger chamber SPD2010 for maximum flexibility and container choice
- Oil-free vacuum source eliminates the need to add/change oil and the vapour hazards associated with oil
- Standard TEFLON® coated chamber
- Radiant cover for chemical resistance and added heat source

Ordering Information and Specifications

Model	SPD2010-230	SPD1010-230
Volume Range/Tube	0.4 to 500 ml	0.4 to 100 ml
Maximum Tube Capacity	200 x 12 mm x 75 mm	72 x 12 mm x 75 mm
Vacuum Pump		
Type	Oil-free TEFLON® diaphragm pump	
Displacement	30 l/min @ 50 Hz	
Maximum Vacuum	> 7 torr	
Refrigerated Trap		
Capacity	4 litres	
Operating Temperature	-50°C	
Solvent Recovery Enhancement	N/A	
Run and Radiant Cover Time	Dual independent 10 min to 9.59 hours continuous	
Heat Setting	45 to 80°C, off	
Lamps	IR, on/off, slaved to heat timer	
Vacuum Control Ramp Rate	1 to 5	
Ultimate Vacuum Level Setting	30.0 to 5.1 torr	
Timer Setting	1 min to 9 hours and 59 mins, continuous	
Dimensions, W x D x H, mm	770 x 690 x 470	620 x 660 x 380
Weight, lb (kg)	182 (83)	152 (69)
Rotor	RH200-12	RH40-12
Application	  	  

Note: please order Cryocool separately, see below.

Accessories Available

Cat No	Description
GCF400	Condensation flask with wide round opening
SCCI	Cryocool heat transfer fluid, 1 litre bottle
SCC5	Cryocool heat transfer fluid, 5 litre bottle

SOLVENT SYMBOLS:



= Aqueous



= Acids (<1.0M)



= Organics



= Acids (>1.0M)



= Aggressive Organics



= Combinatorial Chemistry

For full key reference see page 260

Thermo Savant SPD Series Small Capacity SpeedVac® Concentrators

Thermo Savant's Next Generation 'SPD-Series' SpeedVac® concentrators have been redesigned with a modern, new look and great new features for concentration or drying biological and non-biological materials in all kinds of solvents. This series of compact bench top instruments is available in four models which all provide reliability and versatility. Each unit is furnished with TEFLON® valves, TEFLON® tubing and a TEFLON® coated chamber which makes it resistant to aggressive solvents used in today's laboratories.



SC110A






SPD111V

Product Features





- Deep aluminium TEFLON® coated chamber
- Built in automatic bleeder valve
- Variable drying rate with new temperature controller and increased temperature range
- Connector for vacuum source
- Time/temperature display incorporating membrane touch pad switches
- Safety coverlock
- Modern look with robust injection moulded side panels, front bevel and top cover
- Radiant cover for accelerated evaporation (optional)
- Manual/auto timed run

Note: Rotors are not included with the concentrator bowls and must be ordered separately.

Ordering Information and Specifications - Small Capacity Sample Concentrators

Model	SC110A	SPD111V
Bleeder Valve	Yes	Yes
Volume Range/Tube	See rotor table	See rotor table
Maximum Tube Capacity	See rotor table	See rotor table
Dimensions (W x D x H)	290 x 450 x 320 mm	360 x 450 x 330 mm
Weight lbs. (kg)	37 (17)	37 (17)
Power Requirements	230 VAC/50Hz, 2.0A	230 VAC/50Hz, 3.0A
Temperature Settings	3 presets – low, med, high (ambient, 43°C, 65°C)	Adjustable from 35°C to 80°C
Standard Cover	Plexiglas	Glass
Infrared Chamber Lamps	-	-
Exhaust Port Size	Standard	Standard
Magnetic Assembly	UMA100	UMASPD
Maximum Microplate Capacity		
Deepwell	0	2
Shallow well	2	6
Application		 

The new SPD-Series SpeedVacs® will accommodate all rotors for the SC110. Order rotor separately. For volume range and maximum tube capacity see rotor table on page 261.

SOLVENT SYMBOLS:					
	= Aqueous		= Acids (<1.0N)		= Organics
	= Acids (>1.0N)		= Aggressive Organics		= Combinatorial Chemistry

For full key reference see page 260

Thermo Savant SPD Series Small Capacity SpeedVac® Concentrators



SPD121P



SPD131DDA

Model SPD121P Only

- Two valve manifold ideal for application using DMSO
- Built in vacuum gauge
- Internal TEFLON® plumbing
- Radiant cover with timer
- Time/vacuum run

Model SPD131DDA - Suitable for Drug Discovery Applications

As above plus:

- Resistant to TFA, DMSO, and other solvents used in combinatorial chemistry applications
- Share run data via an RS232 port
- Radiant lamps within the chamber

Ordering Information and Specifications - Small Capacity Sample Concentrators

Model	SPD121P	SPD131DDA
Bleeder Valve	Yes	Yes (Dual)
Volume Range/Tube	See rotor table	See rotor table
Maximum Tube Capacity	See rotor table	See rotor table
Dimensions (W x D x H)	360 x 450 x 330 mm	360 x 450 x 330 mm
Weight lbs. (kg)	44 (20)	44 (20)
Power Requirements	230 VAC/50Hz, 3.0A	230 VAC/50Hz, 2.0A
Temperature Settings	Adjustable from 35°C to 80°C	Adjustable from 45°C to 80°C
Standard Cover	Radiant glass	Heated glass
Infrared Chamber Lamps	-	2
Exhaust Port Size	Standard	Oversized
Magnetic Assembly	UMASPD	SUMAXSPD
Maximum Microplate Capacity		
Deepwell	2	6
Shallow well	6	6
Application		

The new SPD-Series SpeedVacs® will accommodate all rotors for the SC110. Order rotor separately. For volume range and maximum tube capacity see rotor table on page 261.

SOLVENT SYMBOLS:



For full key reference see page 260

Thermo Savant High Capacity SpeedVac® Concentrators

Ideal for combinatorial chemistry applications with aggressive solvents. Supplied with heavy duty rotor system as standard

Product Features - SC210A

- Large rotor selection to accommodate a variety of tube sizes and types
- Teflon® coated chamber provides long lasting durability against harsh solvents
- Three selectable heating levels to optimise evaporation
- Automatic bleeder valve provides automatic vacuum control
- Radiant cover maximises evaporation/sublimation rates (optional)



SC210A

Product Features - SC250EXP







- Heavy duty design for maximum chemical resistance and reliability
- 4 IR heat lamps for drying high-boiling-point solvents such as DMSO and DMF
- Dual vacuum control of RAMP and LEVEL eliminates samples from bumping and/or freezing
- KALREZ®, TEFLON® and TEFLON® coated materials along the entire vapor path for maximum chemical resistance and durability
- Dual valve mechanism for improved durability and exhausting
- Comes complete with enlarged vacuum port, extra wide tubing and new extra large mouth glass condensation flask
- Comes standard with 4 position microplate rotor, heavy SUMAX400 magnetic assembly and choice of shelf carriers
- Heated glass lid reduces drying times and prevents condensation
- Digital display of parameters



SC250EXP

IDEAL FOR DRUG DISCOVERY APPLICATIONS

Ordering Information and Specifications

Model	SC250EXP	SC210A
Bleeder Valve	Automatic	Automatic
Volume Range/Tube	See rotor table	See rotor table
Maximum Tube Capacity	See rotor table	See rotor table
Dimensions (W x D x H) mm	460 x 660 x 460 mm	450 x 620 x 460 mm
Weight lbs. (kg)	127 (58)	102 (46)
Power Requirements	230 VAC/50Hz, 4A	230 VAC/50Hz, 4A
Temperature Settings	Off, 45 to 80°C, in 5°C increments	3 presets – low, med, high (ambient, 43°C, 65°C)
Standard Cover	Heated glass	Plexiglas, optional radiant glass
Infrared Chamber Lamps	4	-
Exhaust Port Size	Oversized	Standard
Magnetic Assembly	SUMAX400	UMA200
Maximum Deepwell	8	8
Microplate Capacity Shallow well	20	20
Application	   	 
Rotor	Complete with Pro-Rotor UPR-4A	Order separately
Vacuum Gauge	Digital	-

SOLVENT SYMBOLS:



= Aqueous



= Acids (<1.0N)



= Organics



= Acids (>1.0N)



= Aggressive Organics

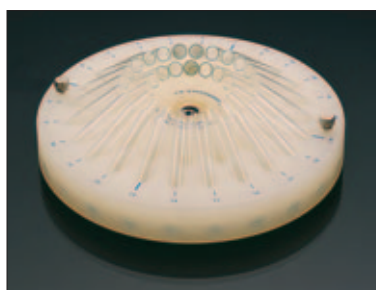


= Combinatorial Chemistry

For full key reference see page 259

SpeedVac Rotors

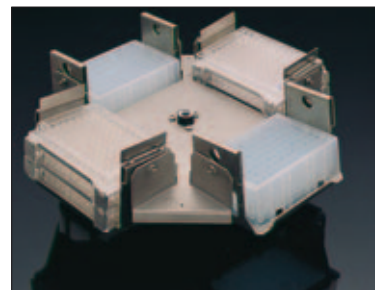
Thermo Savant SpeedVac rotors are fully autoclavable and are available in a wide variety of styles and sizes to accommodate all your sample requirements. They are designed to efficiently handle and accommodate microtubes, bottles, glass and plastic tubes, flasks and even microtitre plates. Individual tube volumes range from 0.4 up to 500 ml.



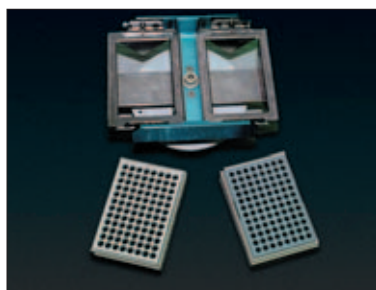
RH40-12: 40-place 12 x 75 mm rotor



RH40-11: 40 x 1.5 ml rotor



MPTR8-210: rotor for 96 well plates



RD2MP: Rotor for microtitre plates


















RH8-200: 8 x 250 ml rotor



RH20-12 20 plate 12 x 75 mm rotor

Custom rotors are also available

Upper Magnetic Assemblies - Magnetic Drive for SpeedVac Concentrators

Cat. No.	Description	Concentrator Model	Application
UMA100	Upper magnetic assembly	SPD1010, SC110, SC110A, AES1010 ISS110	 
UMA200	Upper magnetic assembly	SC210A, AES2010, SPD2010	 
SUMAX300	Stainless steel upper magnetic assembly	SC250DDA, AES250DDA, SC210A, AES2010,	  
SUMAX400	Heavy duty magnetic assembly	SC250DDA, SC210A, AES2010, AES250DDA, SPD2010, SC250 EXP	  
SUMAXSPD	Stainless steel upper magnetic assembly with TEFLON ceramic bearings	SPD131DDA	  
UMASPD	Upper magnetic assembly	SPD101B, SPD111V, SPD121P	 

SOLVENT SYMBOLS:



= Aqueous



= Organics



= Acids (>1.0N)



= Aggressive Organics



= Combinatorial Chemistry

KEY REFERNECE

You will see 6 symbols used throughout this section which can be used as a quick reference guide to determine which solvents are suitable for each instrument and accessory. These are to be used as a general rule-of-thumb. For any questions regarding solvent compatibility, please contact our customer services department



Equipment suitable for use with **non-aggressive organic** solvents (Ethanol, Methanol, Acetonitrile)



Equipment suitable for use with **aggressive organic** solvents (Acetone, Methylene Chloride, Hexane, DMSO, Toluene, DMF)



Equipment suitable for use with **aqueous** solvents (water based samples)



Equipment suitable for use with **acid concentrations less than 1.0N** (TFA, HCl, Nitric Acid)





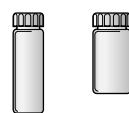



Equipment suitable for use with **strong acids and bases concentrations** (Ammonium Hydroxide, Sodium Hydroxide, TFA, HCl, Nitric)



Equipment designed for the rigors of increased throughput and the associated solvents used in combinatorial chemistry (DMSO, TFA, Methylene Chloride)

Rotor Selection Guide

	Working Volume (ml)	No. of Tubes	Description	Models		Rotor Model	
				SC110/SC110A SS11, SS21, SS31 AES1010, ISS110 SPD1010, SPD111V SPD121P, SPD131DDA	Models SC210A SS22, SS32		
Microcentrifuge Tubes 	1.2 - 1.6	40	1.5 - 2.0 ml	•		RH40-11	
	1.2 - 1.6	64	1.5 - 2.0 ml	•		RH64-11	
	1.2 - 1.6	120	1.5 - 2.0 ml	•		RH120-11	
	1.2 - 1.6	200	1.5 - 2.0 ml		•	RH200-12*	
Glass and Plastic Tubes 	0.3	100	0.5 ml (8 x 29 mm)	•		RH100-8	
	0.3	40	0.4 ml (6 x 50 mm)	•		RH40-6	
	0.3	100	0.4 ml (6 x 50 mm)	•		RH100-6	
	4	20	12 x 75 mm	•		RH20-12	
	4	40	1.5 - 2.0 (12 x 75 mm)	•		RH40-12	
	4	72	12 x 75 mm	•		RH72-12	
	4	200	12 x 75 mm		•	RH200-12*	
	8	10	13 x 100 mm	•		RH20-12	
	8	32	13 x 100 mm	•		RH32-13	
	8	118	13 x 100 mm		•	RH200-12*	
	12	48	16 x 125 mm		•	RH48-18-125*	
	10	60	17 x 100 mm, 16 x 100 mm		•	RH60-17-100*	
	15	8	17.5 x 102 mm, 15 ml Corex® tubes	•		RH8-17.5	
	10	8	18 x 100 mm, 17 x 95 mm, 16 x 100 mm	•		RH8-18	
	Centrifuge Tubes 	12	10	15 ml conical (16 x 120 mm)	•		RH10-15
		12	30	15 ml conical (17x 120 mm)		•	RH60-17-100*
12		52	15 ml conical (16 x 120 mm)		•	RH52-15*	
40		6	50 ml conical (28 x 115 mm)	•		RH6-50*	
40		12	50 ml conical (28 x 115 mm)		•	RH12-29	
40		26	50 ml conical (28 x 115 mm)		•	RH26-50*	
40		48	50 ml conical (28 x 115 mm)		•	RH48-50***	
Flasks 		35	8	50 ml pear shaped flask	•		RH8-50
		80	4	100 ml pear shaped flask	•		RH4-100
		80	8	100 ml pear shaped flask		•	RH8-200
	200	6	250 ml pear shaped flask		•	RH6-400	
	400	4	500 ml pear shaped flask		•	RH4-500*	
	80	8	100 ml recovery flask		•	RH8-100	
Vials 	2	60	12 x 32 mm	•		RH60-12-40	
	3.0	192	1 dram vial (4 ml)		•	RH192-15*	
	2.0	60	12 x 40 mm vials	•		RH60-12-40	
	2.4	12	20 x 47 mm v-vials	•		RH12-20	
	3	24	1 dram vials (15 x 45 mm), 4 ml	•		RH24-15	
	4	12	20 x 60 mm v-vials	•		RH12-20	
	5.6	24	18 x 52 mm mini-scintillation vials	•		RH24-18	
	16	12	28 x 60 mm scintillation vials	•		RH12-28	
	16	50	28 x 60 mm scintillation vials		•	RH50-28-60*	
Bottles	250	8	250 ml centrifuge bottles		•	RH8-200	
Microtitre Plates 	0.3	2 plates	Multiwell plates (shallow)	•		RH2MP	
	0.3	12 plates	Multiwell plates (shallow)		•	MPTR12-210	
	1 - 2	8 plates	Multiwell plates (deepwell)		•	MPTR8-210	
	24	6	18 x 150 mm tubes for SPD111V, SPD121P + SPD131DDA			RH6-18-150	
	0.3	6	Multiwell plates (shallow) SPD concentrators only			RHSW6MP**	
1 - 2	2	Multiwell plates (deepwell) SPD concentrators only			RHDW2MP**		

Custom made rotors are also available * For use in SC250EXP SpeedVacs with RAD200 adapter ** Only available for the SPD series *** Add U to part no. for use with UMA200 and add S to part no. for use with SUMAX300/400

Thermo Savant Refrigerated Solvent Traps

Refrigerated solvent traps available in -104
ULT refrigerated trap and -5°C refrigerated
trap.

Product Features

- Available in three temperature ranges
-50°C, -104°C and -5°C
- CFC and HCFC free refrigerants
- -5°C specifically designed for trapping
DMSO and DMF
- Rapid cooling rate
- Digital LED temperature readout on
RVT4104

Note: vapour trap upgrade kit must be
purchased in addition to the
refrigerated trap



RVT405DDA

Ordering Information and Specifications

Model	RVT400	RVT4104	RVT405DDA
Temperature	-50°C	-104°C	-5°C
Capacity	4 litres	4 litres	4 litres
Dimensions, W x H x D (mm)	350 x 310 x 600	510 x 330 x 660	350 x 310 x 600
Weight, lbs (kg)	55 (25)	150 (68)	55 (25)
Power Requirements	230 VAC/50Hz, 2A	230 VAC/50Hz, 6A	230 VAC/50Hz, 2A

Vapor Trap Upgrade Kit

Available for all systems originally equipped
with the GIT400 glass insert trap, must be
ordered with all refrigerated solvent traps.

Ordering Information

Cat. No.	Description
CAFS400	Standard upgrade kit, consists of two (2) GCF400 glass condensation flasks, rubber cap, tubing, connectors and tube cutter
GCF400	Glass condensation flask



Please order your Cryocool separately SCC1

Thermo Savant Universal Vacuum Source

The Thermo Savant universal vacuum source is a combined oil free vacuum source and solvent recovery system, in a single integrated unit. The easy to use wide mouth glass condensation flask allows safe handling of recovery solvents. This unit can be connected to any of the concentrator bowls to provide a complete SpeedVac system.

Product Features - UVS400A

- Low maintenance, oil-free and corrosion resistant system
- Wide mouth glass condensation flask with self sealing cover
- Small foot print
- Efficient operation with all Thermo Savant SpeedVac concentrator bowls, gel dryers and other vacuum dependant equipment
- Optional post trap may be added to neutralise ammonia, acid or to adsorb volatile radioactivity and residual vapours



UVS400A

Product Features - UVS800DDA

As UVS400 with the following additional features

- Single stage refrigeration system
- 3 stage high efficiency oil free pump (1.5 mbar)
- Teflon® tubing and vapour path
- 4 litre wide mouth condensation flask
- Complete with acid neutralising solution



UVS800DDA

Note: Cryocool must be ordered for use with all refrigerated cold traps, and the universal vacuum source. Please order separately.

Ordering Information and Specifications

Model	UVS400A	UVS800DDA
Vacuum Pump	Oil-free TEFLON® diaphragm pump	Oil-free diaphragm
Displacement	40 l/min @ 60Hz 32 l/min @ 50Hz	80 l/min @ 60Hz 64 l/min @ 50H
Max. Vacuum	<10 torr	<2 torr (1.5 mbar)
Dims W x D x H mm	350 x 600 x 450	360 x 610 x 460
Refrigerated Trap		
Capacity	4 litres	4 litres
Operating Temp.	-50°C VaporNet®	-50°C
Weight lbs. (kg)	90 (41)	90 (41)
Power Requirements	230 VAC/50Hz, 8A	230 VAC/50Hz, 4A

* Order UVS400SPD which is configured for use with SPD121P, SPD131DDA and SC250DDA SpeedVacs.

Tubing Kits for SpeedVac® Systems

When ordering a UVS400A or a UVS800DDA, you will require one of the following tubing kits depending on which concentrator bowl specified.

Ordering Information and Specification

Cat. No.	Description
TFK100	Tubing and fitting kit for SPD series concentrators + UVS400A
TFK150	Tubing and fitting kit for SPD series concentrators + UVS400A + gel dryer
TFK200	Tubing and fitting kit for SC210A concentrator + UVS400A
UTP-TYG	Universal tubing package, PVC tubing, for models SC110/110A, SC210A & SPD111V
UTP-TEF0.5	Universal TEFLON tubing package, 0.5" diam tubing, with connectors, for model SPD121P
UTP-TEF0.75	Universal TEFLON tubing package, 0.75" diam tubing, with connectors, for models SC250DDA and SPD131DDA

High Vacuum Oil Pumps

Product Features

- 4 models to choose from to suit your application
- Low noise level, 48dBA
- Retractable handles offer easy transport and storage (models VLP80 and VLP120)
- Three-position gas ballast control
- Standard oil drain kit simplifies oil change
- Two separate oil inlet ports
- High quality cast iron shafts and rotors for durability
- Thermal overload switches with automatic reset



Ordering Information and Specifications - Oil Pumps

Model	VLP80	VLP120	VLP200	VLP285
Displacement	76 l/min @ 60Hz	116 l/min @ 60Hz	195 l/min @ 60Hz	283 l/min @ 60Hz
Maximum Vacuum	1.5 mtorr/1.95 x 10 ⁻³ mBar	1.5 mtorr/1.95 x 10 ⁻³ mBar	1.5 mtorr/1.95 x 10 ⁻³ mBar	1.5 mtorr/1.95 x 10 ⁻³ mBar
Oil Capacity	0.7 litres	0.7 litres	0.75 litres	1.0 litre
Dimensions (W x D x H) mm	160 x 420 x 230	160 x 420 x 230	160 x 470 x 260	160 x 470 x 260
Weight lbs (kg)	48 (22)	48 (22)	57 (26)	58 (26)
Power Requirements	230 VAC/50Hz, 3A	230 VAC/50Hz, 3A	230 VAC/50Hz, 4A	230 VAC/50Hz, 4A
Vacuum Inlet Fitting, mm	12.7 OD	12.7 OD	12.7 OD	12.7 OD

Oil Free Diaphragm Pumps

Product Features

- Teflon® coated heads and Teflon® diaphragms
- Recommended for evaporating samples in acidic environments such as HCl, TFA, Acetic or Formic Acid
- Easy to install
- Fits into any fume hood
- Quiet, efficient operation
- Attains vacuum level of below 1 torr
- Suitable for use with the Thermo Savant cold trap RVT4104 or RVT400



Ordering Information - Oil-Free Pumps

Cat No.	OFP400	688171	696378
Model		MZ2C+2AK	MD4C
Displacement	64 l/min @ 50Hz	1.7/2.0 m ³ /hr	3.0 m ³ /hr
Maximum Vacuum	≤ 1.0 torr (2 mBar)	~7 torr (9 mbar)	~1.5 torr (2 mbar)
Dimensions (W x D x H) mm	211 x 278 x 454.9	336 x 241 x 326	315 x 241 x 176
Weight kg	22.5	10.5	16.2
Power Requirements	230 VAC/50Hz, 2.0A	230 VAC/50Hz	230 VAC/50Hz

Accessories for Thermo Savant SpeedVac Systems



Digital Vacuum Gauge



Deluxe Convenience Cart



Freeze Drying Chamber



CryoCool Heat Transfer Fluid



Vacuum Pump Lubricating Oil



Vacuum Pump Oil Filter

Ordering Information

Model	Description
DVG50	Digital vacuum gauge, complete with pressure transducer
CC120/DX	Deluxe convenience cart
FDC206	Freeze drying chamber
SCC1	CryoCool heat transfer fluid, 1 litre
SCC5	CryoCool heat transfer fluid, 5 litres
SPO1B	Vacuum pump lubricating oil, 1 litre
SPO1	Vacuum pump lubricating oil, 1 litre, case of 12
SPO1-SB	Vacuum pump lubricating oil, synthetic, 1 litre
SPO1-S	Vacuum pump lubricating oil, synthetic, 1 litre, case of 12
SFF1-B	Vacuum pump flushing fluid, 1 litre
SFF1	Vacuum pump flushing fluid, 1 litre, case of 12
VPOF110	Vacuum pump oil filter for models VLP80, VLP120, VLP200 and VLP285
AO310	Activated alumina cartridge for VPOF100 and VPOF110

Chemical Trap Kits

A chemical trap is highly recommended to adsorb volatile vapours. Thermo Savant chemical trap kits are designed to efficiently and easily trap vapours and reduce emissions. Replaceable cartridges install easily inside the trap for quick changes once the trap becomes saturated.



Chemical trap kit

Ordering Information

Model	Description
SCT120	Chemical trap (order cartridges separately)
DC120A	Disposable cartridge, with colour indicator for trapping acids and water vapour
DC120A/4	Disposable cartridge, with colour indicator, for trapping acids and water vapour, package of 4
DC120R	Disposable activated charcoal cartridge, for trapping radioactivity
DC120R/4	Disposable activated charcoal cartridge, for trapping radioactivity, package of 4
ANT100	Ammonia neutralising trap assembly for AES1010, AES2010 and ISS110
APT120	Ammonia neutralising trap assembly for UVS400
ANS121/4	Ammonia neutralising solution (4 bottles)

Speedvacs for High Throughput and Drug Discovery Applications

For high-throughput drying and concentrating of multiple samples, and combinatorial chemistry applications.



Product Features

- High capacity unit that holds up to 120 standard 96-well microtitre plates per run
- Oversized vacuum port for rapid evaporation
- Stainless steel and Teflon® liquid pathway for maximum durability and solvent compatibility
- Vertical chamber cover lift mechanism for easy access of samples
- Built in vacuum control
- Programmable heat range from ambient up to 80°C
- Unique “scroll” vacuum pump is oil-free, solvent- and corrosion-resistant
- High capacity (7.5 litre) -50°C cold trap
- “Integrated Modular” design incorporates the vacuum pump and cold trap into one
- Simple user interface for selecting time, temperature and vacuum level



Rotors Available



6-place Swing-out Rotor Set (blue). Each rotor holds 6 universal plate carriers. Set includes 4 rotors and 3 rotor spacers. Order carriers separately.



2-place Swing-out H Rotor Set (green). Each rotor holds 8 deep-well microtitre plates in a single layer. Set includes 3 rotors, 6 carriers and 4 rotor spacers.



2-place Swing-out H Rotor Set (red). Each rotor holds 2 Gilson test tube racks (max tube height 100mm). Set includes 4 rotors, 8 carriers and 3 rotor spacers.

If we do not have a rotor system to suit your needs, custom rotors are available. Please contact us with your requirements.

Price on application please contact our customer service department.



= Combinatorial Chemistry

SpeedVacs for High Throughput and Drug Discovery Applications



High capacity, bench top concentrator for production and development applications designed to withstand the rigors of the combi-chem environment.

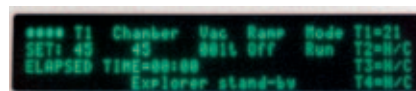
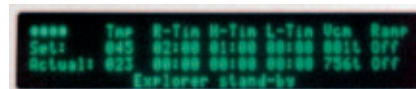
Product Features

- High capacity – the standard six-position rotor accommodates a large number of samples in a wide variety of formats
- Unique “clam-shell” design for easy, safe access to samples
- Multiple cold trap options including the direct-drain configuration or use of the convenient glass flask which can be inserted into the trap
- High efficiency cold trap reduces drying times
- Constructed of highly chemically resistant materials such as TEFLON®, Kalrez®, high grade stainless steel and anodised aluminium able to withstand constant use with solvents such as TFA, HCl, DMSO, DCM, DMF and acetonitrile
- Oil-free, maintenance-free vacuum pump
- Easy-to-use, intuitive control panel
- Intellitemp temperature monitoring and control
- Modular design allows configuration in a compact, fully integrated bench top format or semi-integrated cart format
- Five pre-programmed vacuum ramps are available to minimise or prevent sample “bumping”
- Power operated lid for convenience and safety
- Control software for PC operation and run monitoring

Advanced Controls for Enhanced Performance and Convenience

Frequently used protocols can be created to determine the primary controls which are:

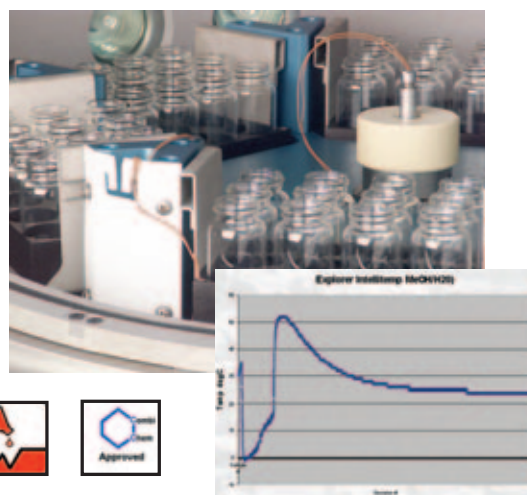
- Vacuum level
- Temperature
- Intellitemp
- Heat time
- Radiant lamp time
- Run time
- Vacuum ramp



These can be saved under a user defined alphanumeric file name and recalled at a later time for use. Additionally, two saved protocols can be linked and executed sequentially. This is particularly useful to maximise evaporation rates of solvent mixtures, where each is optimally evaporated under different conditions.

Intellitemp Temperature Monitoring and Control

Accurate monitoring and control of the run by temperature is possible with the Explorer's Intellitemp system. The Intellitemp probe can be inserted directly into the sample or used to monitor the block or carrier temperature. The "Auto-Dry" function automatically ends the run when a pre-set temperature is reached.



Specifications

Model	Explorer
Adjustable Temp Range	35 to 85°C
IR Lamps	4 (ON/OFF/Timed)
Vacuum Pump Capacity	36 l/min (@60Hz); 32 l/min (@50Hz)
Vacuum Display	Atmosphere – 500 mtorr
Adjustable Vacuum Setting	200 – 0.7 torr
Adjustable Vacuum Ramp	1 to 4, OFF
Display	Real-time LED display of parameters
User Program Controls	Store (Name), Link, Edit, Recall
Rotor	6-position microplate rotor with Intellitemp (your choice of single, double or 5-place plate carriers)
Dimensions H x W x D mm	
Configuration 1 (side-side)	635 x 902 x 651
Configuration 2 (up/down)	
Concentrator	483 x 635 x 650
Vapor Trap/Pump	432 x 622 x 641
Additional Required Ventilation Space	
Configuration 1	4" on each side
Configuration 2	4" on each side and 9" of height above the Vapor Trap (to allow access)

Ordering Information Explorer

Cat. No.	Description
EXPLORER-220*	Explorer SpeedVac System, complete with 6-position rotor, (1) glass flask and exhaust recovery vessel, 220V/60Hz

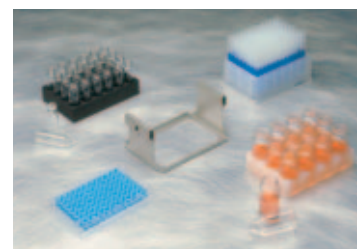
* Cryocool not included

Accessories

Cat. No.	Description
EXP-2KIT	Conversion kit for creating secondary configuration (up/down) of Explorer. Includes 2" TEFLON® tubing, connectors, o-rings and plugs
UPC1-EXP	Single-shelf carrier, set of 2
UPC5-EXP	UPC2-EXP Double-shelf carrier, set of 2
UPC5-EXP	5-shelf carrier, holds shallow-well plates, set of 2
SCC1	CryoCool® fluid, 1 ltr bottle
CC120/DX	Deluxe convenience cart
GCF4-EXP	4 ltr glass flask
PROBE1-EXP	Single temperature probe
PROBE4-EXP	Four independent temperature probes

Rotor Blocks For Use in Explorer 6-Place Rotor

Rotor blocks accommodate various tubes formatted in a microplate footprint. They provide easy handling and transportation of samples in and out of the concentrator. Aluminium blocks are designed for better chemical resistance and provide faster, even drying.



Ordering Information - Aluminium Rotor Blocks

Cat. No.	Description
RBA12-25-52	(12) 2 dram vials, 25 x 52 mm
RBA12-27-60	(12) 5 dram vials, 27 x 60 mm
RBA12-28-58	(12) 20 ml scintillation vials, 28 x 58 mm
RBA15-16-125	(15) tubes, 16 x 125 mm
RBA24-15-45	(24) 1 dram vial, 15 x 45 mm
RBA24-16-100	(24) tubes, 16 x 100 mm
RBA24-17-31	(24) 3 ml beakers, 17 x 31 mm
RBA35-13-100	(35) tubes, 13 x 100 mm
RBA12-18-150	(12) tubes, 18 x 150 mm
RBA12-22-120	(12) tubes, 22 x 120 mm
RBA20-16-125	(20) tubes, 16 x 125 mm
RBA24-17-60	(24) tubes, 17 x 60 mm
RBA35-13-100	(35) tubes, 13 x 100 mm
RBA54-12-32	(54) vials, 12 x 32 mm

Ordering Information - Polypropylene Rotor Blocks

Cat. No.	Description
RB12-25-52	(12) 2 dram vials, 25 x 52 mm
RB12-27-60	(12) 5 dram vials, 27 x 60 mm
RB12-28-58	(12) 20 ml scintillation vials, 28 x 58 mm
RB15-16-125	(15) tubes, 16 x 125 mm
RB24-15-45	(24) 1 dram vial, 15 x 45 mm
RB24-16-100	(24) tubes, 16 x 100 mm
RB24-17-31	(24) 3 ml beakers, 17 x 31 mm
RB35-13-100	(35) tubes, 13 x 100 mm
RB126-6-32	(126) tubes, 6 x 32 mm
RB20-12-125	(20) tubes, 12 x 125 mm
RB20-16-125	(20) tubes, 16 x 125 mm
RB24-17-60	(24) tubes, 17 x 60 mm
RB25-11-39	(25) tubes, 1.5 ml microcentrifuge tubes
RB30-8-30	(30) tubes, 0.5 ml microcentrifuge tubes
RB6-28-110	(6) tubes, 28 x 110 mm,

Rotor blocks can also be used with Discovery SpeedVac, SPD2010, SC210A, SC250EXP, AES2010 and SPD250DDA Price on application