RapidVap® Vertex™

Dry Evaporators

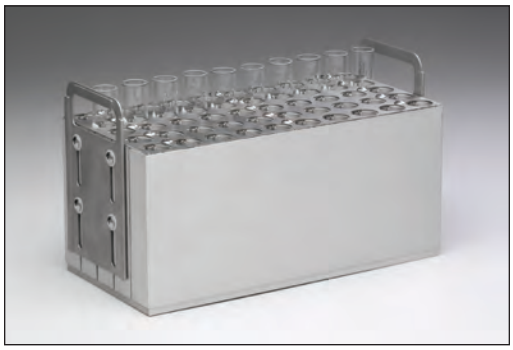
Protecting your laboratory environment

LABCONCO®

RapidVap® Vertex™ Dry Evaporators

Using dry heat and nitrogen blow down, the RapidVap Vertex Evaporator speeds evaporation of up to 50 samples at the same time. A convenient touchpad allows easy programming of time and temperature. Up to ten different programs may be stored in the microprocessor for protocol consistency. Unlike water bath heaters, the dry block heater requires less maintenance, no distilled water or additives, and adds no potential source of contamination.

The RapidVap Vertex Evaporator is ideal for preparation of samples in a variety of applications including drug discovery, clinical analysis, environmental testing, agrochemistry, and forensic evidence processing. Quality construction and reliable performance are backed by a one year warranty.



Seven interchangeable blocks are available (sold separately). See page 6.

Made in the U.S.A.

Features & Benefits

Evaporate up to 50 samples at once for maximum throughput. Seven blocks available.

Up to 50 samples may be processed at once. Five blocks are offered that hold 50 sample tubes, with sample sizes from 2 to 30 milliliters. Two additional blocks hold 18 ASE* sample tubes, with sample sizes from 40 to 60 milliliters. Aluminum blocks are interchangeable and sold separately. See page 6.

Dry heat—no water bath is used.

Dry heat has several advantages over water bath heat: less maintenance (no residue built up), no rust, no condensation and no potential source of cross contamination. Microprocessor-controlled heater supplies heat to the block and is programmable from 30° C up to 100° C in 1 degree increments.

Fast evaporation with nitrogen blow down and heat.

Nitrogen blow down reduces the partial pressure directly over the liquid to speed evaporation and help remove the solvent as it evaporates. Heat helps speed the process. See the evaporation rates on page 5. See recovery rates on page 6.

Angled samples increase surface area for faster evaporation, optimized recovery.

The evaporator holds the samples at an angle to maximize surface area where evaporation occurs.

Glass lid.

Provides visibility of samples and is resistant to chemicals. The lid may be lifted during a run to check on, add or remove sample tubes.

Convenient, easy-to-set touchscreen programming and display.

Touching the screen allows parameters of program number, preheat temperature from 30° C to 100° C, and time from 1 to 999 minutes to be easily set. Up to 10 different user-set programs, each with different parameter set points, may be stored in memory. During the run, actual temperature and time elapsed are displayed. At any time during the run, the user may stop the program by pressing "PAUSE," which shuts off the nitrogen flow and pauses the timer, but keeps the heater active. The user may lift the lid and add or remove samples. Once the lid is closed, the user may resume the program by pressing "RESTART."

Temperature sensor monitors block or sample temperature.

Sensor fits into a port in the upper left corner of any block to monitor block temperature or may be placed in a sample to monitor sample temperature. Temperature is displayed on the LCD screen.

Five nitrogen control valves with easy on/off switches.

Turn nitrogen flow on or off to the nozzles above the sample vials. Each valve controls a row of 10 nozzles allowing nitrogen to be conserved during partial runs.

Easy-to-access, built-in nitrogen pressure regulator.

Located in easy reach on the front of the evaporator, the regulator controls the pressure of the nitrogen that is delivered to the samples.

Reliability guarantee.

Full one year warranty is provided against defects in materials and workmanship.

Compact benchtop design.

Small footprint fits in tight spaces. When placed on a lab bench, the evaporator's rear port connects to the exhaust hose for routing into a fume hood.

ETL listed.

Models 7320020 and 7320040 carry the ETL Testing Laboratories seal in the U.S. and carry the ETL-C seal in Canada, signifying it meets or exceeds all requirements of UL Standard 612010A-1 and CAN/CSA C22.2 No. 1010.1.

CE Mark.

Models 7320030, 7320035 and 7320037 conform to the CE (European Community) requirements for electrical safety and electromagnetic compatibility.

**ASE® is a registered trademark of Dionex, Sunnyvale, California.*

Exclusive feature

Specifications

- Epoxy-coated steel exterior.
- Glass lid.
- 900 watt dry block heating system.
- 50 nitrogen-dispensing nozzles in five horizontal rows of 10.
- 5 nitrogen control valves with on/off switches.
- Front-mounted pressure regulator with analog display of pressure from 0 to 45 psi in 2 psi increments.
- LCD with touchscreen programming and display of program number; set point temperature and actual system and sample/block temperatures in ° C or ° F; set point time and time remaining. Microprocessor-controlled programming includes program number from 1 to 10, temperature of the system from 30° to 100° C (86° to 212° F), and time from 1 to 999 minutes or "ON." Memory stores 1 to 10 programs.
- Temperature sensor probe for monitoring of block or sample temperature.
- Built-in exhaust fan with blower.
- On/off switch.
- 6 feet (183 cm) of 2" (5 cm) ID polyethylene exhaust hose, with clamp.
- 6 feet (183 cm) of flexible polyethylene tubing for nitrogen supply, with John Guest* fitting.
- 1 year warranty on materials and workmanship.
- Made in the U.S.A.
- ETL and ETL-C listing on models 7320020 and 7320040.
- CE mark on models 7320030, 7320035 and 7320037.
- Overall dimensions with closed lid: 20.4" wide x 13.0" deep x 12.5" high (51.8 x 33.1 x 31.6 cm)
- Overall dimensions with open lid: 20.4" wide x 13.0" deep x 22.7" high (51.8 x 33.1 x 57.7 cm)
- Actual weight 35.0 lbs. (15.9 kg)
- Shipping weight 45.0 lbs. (20.4 kg)

Accessories required (not included)

- Aluminum Block. See page 6.
- Sample tubes. Contact your laboratory supply distributor.
- Nitrogen source with flow rate of at least 6.5 CFM. Nitrogen pressure not to exceed 50 psi. Gas flow with 10 active nozzles is approximately 0.74 SCFM @ 15 psi and 1.0 SCFM @ 24 psi. Gas flow with 50 active nozzles is approximately 4.5 SCFM @ 20 psi and 5.0 SCFM @ 24 psi. A nitrogen generator is recommended. Contact your nitrogen gas supplier.

The RapidVap Vertex Evaporator should be located within a fume hood if hazardous or flammable solvents are used. In all cases, regardless of the solvent used, it is recommended that the exhaust hose be vented into a fume hood or other laboratory ventilation device.

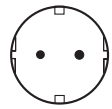
Exclusive feature

**John Guest® is a registered trademark of John Guest International Limited, Middlesex, United Kingdom*

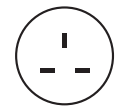
Ordering Information

Catalog Number	Electrical Requirements	Power Cord & Plug Type
7320020	115 volts, 60 Hz, 8 amps	NEMA 5-15P
7320030**	230 volts, 50/60 Hz, 4 amps	Schuko
7320035**	230 volts, 50/60 Hz, 4 amps	British (UK)
7320037**	230 volts, 50/60 Hz, 4 amps	China/Australia
7320040	230 volts, 50/60 Hz, 4 amps	North America, 230 Volt

115 volts, 15 amps – For 7320020



Schuko – For 7320030



British (UK) – For 7320035

China/Australia – For 7320037

North America, 230 volts – For 7320040

***International electrical configuration*

Recovery Rates

Keystone Laboratories, Inc., Newton, Iowa, conducted recovery studies on the RapidVap Vertex Dry Evaporator according to EPA test methods. Test results show that the RapidVap Vertex Dry Evaporator produces excellent recoveries of a wide range of compounds.

Procedure: A 15 milliliter sample consisting of a combination of several of the compounds listed below was prepared in duplicate along with a method blank of pure solvent and each sample or blank was added to a 20 x 150 mm tube and placed in Block 7322000. BNA mixtures were added to Methylene Chloride and run at 40° C and 12 psi nitrogen for approximately 30 minutes. A second set of samples was run at 40° C and 24 psi nitrogen for approximately 22 minutes. All other compound mixtures were added to Hexane and run at 70° C and 12 psi nitrogen for approximately 15 minutes. A second set of samples was run at 24 psi nitrogen for approximately 12 minutes. Ending volumes for all samples were approximately 1 milliliter. Recovery rates for the two samples were averaged and are shown below.

BNAs (EPA 8270 method)

	@ 12 psi % Recovery	@ 24 psi % Recovery
N-Nitrosodimethylamine	111	107
Phenol	94	96
Aniline	116	118
Bis(2-Chloroethyl) Ether	97	97
2-Chlorophenol	92	93
1,3-Dichlorobenzene	85	89
1,4-Dichlorobenzene	85	88
Benzyl Alcohol	90	100
1,2-Dichlorobenzene	83	87
2-Methylphenol	93	99
Bis(2-Chloroisopropyl) Ether	94	99
n-Nitroso-di-n-propylamine	90	103
(3 & 4)-Methylphenol	92	94
Hexachloroethane	92	96
Nitrobenzene	96	100
Isophorone	98	100
2-Nitrophenol	90	96
2,4-Dimethylphenol	95	94
Bis(2-Chloroethoxy)Methane	85	102
2,4-Dichlorophenol	94	102
1,2,4-Trichlorobenzene	90	92
Naphthalene	90	99
4-Chloroaniline	109	111
Hexachlorobutadiene	83	90
4-Chloro-3-methylphenol	89	90
2-Methylnaphthalene	96	107
Hexachlorocyclopentadiene	65	76
2,4,6-Trichlorophenol	85	92
2,4,5-Trichlorophenol	74	79
2-Chloronaphthalene	92	96
2-Nitroaniline	92	91
Dimethylphthalate	92	103
Acenaphthylene	92	98
2,6-Dinitrotoluene	99	106
3-Nitroaniline	96	108
Acenaphthene	87	89
2,4-Dinitrophenol	89	89
Dibenzofuran	88	91
2,4-Dinitrotoluene	93	90
4-Nitrophenol	90	89
Diethyl Phthalate	95	93
Fluorene	90	100
4-Chlorophenyl Phenyl Ether	78	85
4-Nitroaniline	103	110
4,6-Dinitro-2-methylphenol	90	103
N-Nitrosodiphenylamine	92	100
Azobenzene	89	102
4-Bromophenyl Phenyl Ether	97	102
Hexachlorobenzene	89	94
Pentachlorophenol	77	89
Phenanthrene	100	105
Anthracene	92	100
Di-n-butyl Phthalate	88	103
Fluoranthene	90	99
Pyrene	103	103
Butyl Benzyl Phthalate	102	97
Benzo[a]anthracene	104	100
Chrysene	104	102
Bis[2-Ethylhexyl] Phthalate	101	100
Di-n-octyl Phthalate	96	102
Indeno[1,2,3-cd]Pyrene	95	99
Benzo[b]Fluoranthene	94	100
Benzo[k]Fluoranthene	97	100
Benzo[a]Pyrene	96	99
Dibenz[a,h]anthracene	92	93
Benzo(ghi)perylene	90	93

Organochlorine Insecticides & Metabolites (EPA 8081 method)

	@ 12 psi % Recovery	@ 24 psi % Recovery
alpha-Chlordane	104	105
gamma-Chlordane	103	102
alpha-BHC	103	106
gamma-BHC (Lindane)	103	106
beta-BHC	105	107
Heptachlor	108	109
delta-BHC	107	110
Aldrin	102	103
Heptachlor Epoxide	105	107
Endosulfan I	107	108
4,4´-DDE	104	104
Dieldrin	107	109
Endrin	104	106
4,4´-DDD	112	11
Endosulfan II	106	106
4,4´-DDT	112	112
Endrin Aldehyde	106	108
Endosulfan Sulfate	116	114
Methoxychlor	106	106
Endrin ketone	114	127
Hexachlorobenzene	103	104

Organophosphorus Insecticides (EPA 8141 method)

	@ 12 psi % Recovery	@ 24 psi % Recovery
Naled	93	105
Dichlorvos	105	100
Mevinphos	107	107
Ethoprop	92	104
Phorate	98	104
Demeton, O & S	96	102
Diazinon	99	103
Disulfoton	93	101
Dimethoate	99	99
Ronnel	105	106
Chlorpyrifos	107	108
Methyl Parathion	110	110
Fenthion	106	106
Malathion	108	108
Merphos	100	98
Tokuthion (Prothiofos)	110	110
Bolstar	107	106
Fensulfothion	110	107
Methyl Azinphos	108	108
Coumaphos	97	99
EPN	102	99
Ethyl parathion	104	104
Sulfotepp	103	108
Tetrachlorvinphos	109	110

Nitrogen/Phosphorus Herbicides & Insecticides (EPA 8141 method)

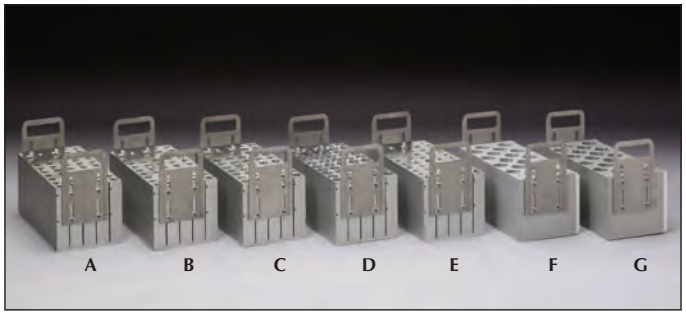
	@ 12 psi % Recovery	@ 24 psi % Recovery
EPTC	103	101
Butylate	104	104
Propachlor	105	104
Trifluralin	98	93
Terbufos	97	97
Atrazine	103	100
Simazine	106	101
Alachlor	105	102
Metribuzin	101	100
Metolachlor	101	104
Pendimethalin	103	100
Butachlor	105	100
Cyanazine	92	90
Acetochlor	96	100

Chlorinated Phenoxy Herbicides (EPA 8151 method)

	@ 12 psi % Recovery	@ 24 psi % Recovery
Dalapon	69	70
3,5-Dichlorobenzoic acid	102	103
Dicamba	98	101
Dichlorprop	104	104
2,4-D	104	104
Pentachlorophenol	100	101
2,4,5-TP (Silvex)	102	103
Chloramben	106	109
2,4,5-T	104	104
2,4-DB	105	105
Bentazon	105	106
Picloram	113	114
Dinoseb	104	104
DCPA	104	104
Acifluorfen	112	114

Evaporation Rates

Solvent	Tube Size (mm)	Number of Samples	Sample Size (ml)	Temperature (° C)	N_2 Pressure (psi)	Avg. Time to Dry (min.)*
Acetonitrile	12 x 75	10	2	35	16	< 19
	12 x 75	10	2	45	16	<15
	12 x 75	10	2	60	16	<11
	12 x 75	10	2	80	16	<8
Methanol	12 x 75	10	2	35	24	<12
	12 x 75	10	2	45	24	<10
	12 x 75	10	2	60	24	<7
	12 x 75	10	2	80	24	<6
	12 x 75	50	2	80	24	<6
	20 x 150	10	10	52	37	<42
Water	12 x 75	10	2	45	24	<125
	12 x 75	10	2	60	24	<80
	12 x 75	10	2	80	24	<40
	12 x 75	10	2	100	24	<25
	20 X 150	10	4	100	24	<60
	20 X 150	50	4	100	24	<64
Toluene	12 x 75	10	2	35	16	<24
	12 x 75	10	2	45	16	<18
	12 x 75	10	2	60	16	<13
	12 x 75	10	2	80	16	<9
Methylene Chloride	12 x 75	10	2	35	20	<8
	12 x 75	10	2	45	22	<7
	20 x 150	10	10	38	37	<22
Hexane	20 x 150	10	10	52	37	<11
Ethyl Acetate	20 x 150	10	10	52	37	<22



Aluminum Blocks

All RapidVap Vertex Dry Block Evaporators require a Block (not included). Blocks of solid aluminum include stainless steel handles to lift the block in and out of the evaporator. A 0.21" (0.5 cm) diameter port in the upper left hand corner of the block is provided for insertion of the temperature probe to monitor upper block temperature. Select a block that closely matches the outside diameter of your sample container. Custom blocks to fit special glassware are available upon request. **Glassware is required (not included).**

	Catalog Number	Block Tube Capacity	Sample Tube Size/Description	Sample Volume	Shipping Weight
(A)	**7321200**	50	12 x 75 mm tube	5 ml	26.0 lbs. (11.8 kg)
(B)	**7321300**	50	13 x 100 mm tube	8 ml	24.0 lbs. (10.9 kg)
(C)	**7321600**	50	16 x 125 mm tube	16 ml	21.0 lbs. (9.5 kg)
(D)	**7322000**	50	20 x 150 mm tube	30 ml	14.9 lbs. (6.8 kg)
(E)	**7324100**	50	10 x 75 mm tube	3 ml	26.0 lbs. (11.8 kg)
(F)	**7322800**	18	28 x 95 mm ASE vial	40 ml	22.0 lbs. (10.0 kg)
(G)	**7322801**	18	28 x 140 mm ASE vial	60 ml	19.0 lbs. (8.6 kg)

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2-60-8/11-James-4M-R1