

Gerhardt Protein and Nitrogen Analysis Systems

to build a complete System . . .

Each item can be used on its own, or combine them to create a complete system. For a complete protein and nitrogen analysis system, there are two possible combinations of products.

Order components from one of these two combinations:

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| <ul style="list-style-type: none"> 1a Kjeldatherm Digestion System 2 Temperature Controller 3 Centrifugal Scrubber 4 Catalyst Tablets 5 Vapodest Distillation System 6 Accessories | <ul style="list-style-type: none"> 1b Turbotherm Digestion System 3 Centrifugal Scrubber 4 Catalyst Tablets 5 Vapodest Distillation System 6 Accessories |
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1a Kjeldatherm Block Digestion Systems

- ▶ Perform multiple digestions simultaneously
- ▶ For reproducible results, optimize the conditions for digestion with precise temperature control—order a controller below

These Kjeldatherm block digestion systems use an energy efficient aluminum block to heat the digestion tubes. The block is insulated to retain heat and has cutout holes for the digestion tubes. An aluminum insert rack with built-in heat shield and inspection window provides easy, safe observation of the samples.

The block system features overtemperature protection and an excess current switch. The exhaust system has heat-insulated handles and an integrated glass exhaust manifold, allowing safe handling of the exhaust

system and digestion tubes separately. With the **manual digestion systems**, handling of the insert rack and manifold is manual; the **automatic digestion systems** use a motorized system to lift the insert rack and manifold.

What's included: two-tier console, insert rack, digestion tubes (quantity and size depends on the system; see table below), and exhaust system. A temperature controller is required; order separately below.

Specifications & Ordering Information



Number of heating places	Tube size (mL)	Power (VAC, Hz)	Manual digestion systems					Automatic digestion systems				
			Catalog number	Nominal wattage	Dimensions (W x H x D)	Shpg wt lb (kg)	Price	Catalog number	Nominal wattage	Dimensions (W x H x D)	Shpg wt lb (kg)	Price
8	250	115, 50/60 230, 50/60	KG-78873-00	1000	15" x 25 ⁹ / ₁₆ " x 15"	36 (16.4)	\$ 4990.00	KG-78873-40	2340	18 ¹ / ₈ " x 19 ¹ / ₁₆ " x 29 ¹ / ₈ "	86 (39.1)	\$9035.00
			KG-78873-05				4990.00	KG-78873-45				\$9035.00
8	400	115, 50/60 230, 50/60	KG-78873-10	1000	15" x 25 ⁹ / ₁₆ " x 15"	36 (16.4)	5600.00	KG-78873-42	2340	18 ¹ / ₈ " x 19 ¹ / ₁₆ " x 29 ¹ / ₈ "	86 (39.1)	9635.00
			KG-78873-15				5600.00	KG-78873-47				9635.00
20	250	115, 50/60 230, 50/60	KG-78873-20 KG-78873-25	2200	15" x 25 ⁹ / ₁₆ " x 19 ¹ / ₁₆ "	58 (26.4)	10,040.00 10,040.00	—	—	—	—	—
40	100	115, 50/60 230, 50/60	KG-78873-30 KG-78873-35	2200	15" x 25 ⁹ / ₁₆ " x 19 ¹ / ₁₆ "	58 (26.4)	10,880.00 10,880.00	—	—	—	—	—

2 Temperature Controllers for Kjeldatherm Digestion Systems

- ▶ For precise control over your digestion applications

Basic Temperature Controller can be mounted on the side of the Kjeldatherm block digestion systems for easy access. Features PID temperature control for superior accuracy. Includes 100 Ω Pt RTD probe.

Programmable Timer/Temperature Controller is microprocessor based for automatic control over your digestion process. Store up to 16 programs with 20 temperature steps each or one program with up to 320 steps; the two-line, 16-character LCD makes programming simple. Connects to both Kjeldatherm digestion system and centrifugal scrubber; automatically switches on centrifugal scrubber when temperature is over 100°C. Includes 100 Ω Pt RTD probe.



Specifications & Ordering Information



Catalog number	Temperature range	Accuracy	Number of programs	Power	Dimensions	Shpg wt	Price
Basic temperature controller							
KG-78873-50 KG-78873-55	32 to 806°F (0 to 430°C)	±0.5% of rdg	—	115 VAC, 50/60 Hz 230 VAC, 50/60 Hz	3 ¹ / ₈ "W x 6 ¹ / ₈ "H x 5 ¹ / ₁₆ "D	3 lb (1.4 kg)	\$ 900.00 900.00
Programmable timer/temperature controller							
KG-78873-60 KG-78873-65	32 to 842°F (0 to 450°C)	±0.5% of rdg	16	115 VAC, 50/60 Hz 230 VAC, 50/60 Hz	11 ¹ / ₁₆ "W x 12 ¹ / ₁₆ "H x 4 ¹ / ₂ "D	7 lb (3.2 kg)	4950.00 4950.00

KG-78873-57 Rack to hold temperature controller 78873-50 and -55\$110.00

Gerhardt Protein and Nitrogen Analysis Systems (continued)

1b Turbotherm Rapid Digestion Systems

- ▶ Versatile, programmable infrared digestion system capable of handling a wide range of chemicals
- ▶ Short heating and cooling periods dramatically reduce digestion time

The turbotherm digestion system features a high temperature digestion chamber with radiant heating elements that allow for rapid boiling. Enter up to nine programs with up to nine variable heating levels and time settings. A built-in RS-485 interface allows you to monitor or control the unit from a computer.

What's included: two-tier console, insert rack with set of tubes, exhaust manifold with drip tray, and 5-ft (1.5-m) of oversinic tubing.



Two-tier console...

- The two-tier console stand allows you to:
- ▶ Store the insert rack and manifold vertically when not in use—saves bench space.
 - ▶ Use it for fume removal during the cool-down stage of digestion—safe operation.

Specifications & Ordering Information



Catalog number	Number of heating places	Tube size	Nominal wattage	Power	Dimensions	Shpg wt	Price
KG-78872-20 KG-78872-25	4	400 mL	1500 W	115 VAC, 50/60 Hz 230 VAC, 50/60 Hz	20 ¹ / ₁₆ "W x 29 ¹ / ₈ "H x 17 ³ / ₄ "D	50 lb (22.7 kg)	\$5860.00 5860.00
KG-78872-30 KG-78872-35	4	800 mL	1500 W	115 VAC, 50/60 Hz 230 VAC, 50/60 Hz	20 ¹ / ₁₆ "W x 29 ¹ / ₈ "H x 17 ³ / ₄ "D	48 lb (21.8 kg)	5930.00 5930.00
KG-78872-00 KG-78872-05	6	250 mL	1500 W	115 VAC, 50/60 Hz 230 VAC, 50/60 Hz	20 ¹ / ₁₆ "W x 29 ¹ / ₈ "H x 17 ³ / ₄ "D	47 lb (21.4 kg)	5900.00 5900.00
KG-78872-40 KG-78872-45	12	100 mL	1500 W	115 VAC, 50/60 Hz 230 VAC, 50/60 Hz	20 ¹ / ₁₆ "W x 29 ¹ / ₈ "H x 17 ³ / ₄ "D	50 lb (22.7 kg)	6800.00 6800.00
KG-78872-10 KG-78872-15	12	250 mL	1500 W	115 VAC, 50/60 Hz 230 VAC, 50/60 Hz	20 ¹ / ₁₆ "W x 29 ¹ / ₈ "H x 17 ³ / ₄ "D	50 lb (22.7 kg)	7010.00 7010.00

3 Turbosog Centrifugal Scrubber

- ▶ For the removal of aggressive acid fumes

The centrifugal scrubber condenses and neutralizes aggressive acid fumes. The preseparator works by separating, then washing out acid fumes. Scrubber provides efficient removal of fumes at a low operating cost. Requires little maintenance—no carbon filters to replace.

Catalog number	Power	Dimensions	Shpg wt lb (kg)	Price
KG-78873-70 KG-78873-75	115 VAC, 50/60 Hz 230 VAC, 50/60 Hz	13"W x 16 ¹ / ₂ "H x 17 ¹ / ₁₆ "D	42 (19.1)	\$4200.00 4200.00



More info

See the "Shakers" section on pages 1716-1732 of the Cole-Parmer 2001-2002 General Catalog for other Gerhardt products.

4 Catalyst Tablets

Catalog number	Description	Price/box of 1000
KG-78873-80	3.5 g K ₂ SO ₄ + 0.0035 g Se	300.00
KG-78873-81	5.0 g K ₂ SO ₄ + 0.005 g Se	300.00
KG-78873-82	5.0 g K ₂ SO ₄ + 0.5 g CuSO ₄ · 5H ₂ O	300.00
KG-78873-83	5.0 g K ₂ SO ₄ + 0.15 g CuSO ₄ · 5H ₂ O + 0.15 g TiO ₂	300.00
KG-78873-84	1.5 g K ₂ SO ₄ + 0.0015 g Se	300.00
KG-78873-85	5.0 g K ₂ SO ₄ :CuSO ₄ · 5H ₂ O:Se: 100:6:1	340.00
KG-78873-86	1.5 g K ₂ SO ₄ + 0.4 g CuSO ₄ · 5H ₂ O	300.00
KG-78873-87	3.5 g K ₂ SO ₄ + 0.105 g CuSO ₄ · 5H ₂ O + 0.105 g TiO ₂ · 5H ₂ O	300.00
KG-78873-88	5.0 g K ₂ SO ₄ + 0.1 g CuSO ₄ · 5H ₂ O	300.00
KG-78873-89	Antifoam tablets	300.00



KG-78873-90 Weighing paper, pack of 500.....\$56.00/pk

Gerhardt Protein and Nitrogen Analysis Systems (continued)

5 Vapodest Rapid Distillation Systems

- ▶ Programmable distillation systems perform Kjeldahl distillations in two to four minutes
- ▶ Automatic steam generation with variable steam power from 40 to 100%

The vapodest rapid distillation systems are designed for the steam distillation of Kjeldahl digestion solutions, and the physical separation of water, steam soluble substances, and all volatile acids. Variable steam power allows use in the determination of alcohols and phenols.

The distillation systems optimize the process by injecting steam directly into the sample tube—ensures crystallized solutions are liquefied within seconds. Energy saving standby mode helps maintain steam power to ensure full power even after breaks, and cuts off cooling water supply to minimize use. Steam generator works automatically by pressure control; over-pressure protection ensures safety. Order optional storage tanks separately from table below.

Basic Distillation System is designed for low sample throughput and simple programming. Programming options include addition of sodium hydroxide, reaction time, steam power, and distillation time.

Advanced Distillation System is programmed with all parameters for Kjeldahl distillations. Sample residues are automatically emptied into a waste tank. Programming options include addition of sodium hydroxide, addition of water, reaction time, steam power, distillation time, and suction time for the removal of sample residues.



78871-00

All models feature two built-in RS-485 interfaces.

78871-10



LED display indicates all program steps and up to nine error messages.

Specifications & Ordering Information



Distillation systems					Storage tanks (optional)			
Catalog number	Power	Dimensions	Shpg wt	Price	Catalog number	Capacity	Qty/pk	Price/pk
Basic distillation system								
KG-78871-00	115 VAC, 50/60 Hz	17 $\frac{1}{16}$ "W x 27 $\frac{3}{16}$ "H x 13 $\frac{3}{8}$ "D	55 lb (25.0 kg)	\$7670.00	KG-78871-50	20 liters	2	\$600.00
KG-78871-05	230 VAC, 50/60 Hz			7670.00				
Advanced distillation system								
KG-78871-10	115 VAC, 50/60 Hz	17 $\frac{1}{16}$ "W x 27 $\frac{3}{16}$ "H x 13 $\frac{3}{8}$ "D	60 lb (27.3 kg)	9100.00	KG-78871-52	30 liters	3	800.00
KG-78871-05	230 VAC, 50/60 Hz			9100.00				

6 Accessories



Digestion Tubes for Turbotherm Rapid Digestion Systems and Kjeldatherm Block Digestion Systems.

Catalog number	Description	Price
KG-78874-28	250-mL Kjeldatherm tube, macro	\$40.00
KG-78874-32	100-mL Kjeldatherm tube, micro	48.00
KG-78874-30	400-mL jumbo tube for 78874-38 insert rack	26.00

Glassware for Vapodest Distillation Systems.

Catalog number	Description	Price
KG-78874-00	400-mL jumbo tube	\$45.00
KG-78874-02	800-mL jumbo tube	60.00
KG-78874-04	250-mL Kjeldahl flask with enlarged neck	45.00
KG-78874-06	500-mL Kjeldahl flask with enlarged neck	45.00
KG-78874-08	750-mL Kjeldahl flask with enlarged neck	45.00

Insert Racks and Exhaust Systems for Turbotherm Rapid Digestion Systems.

Catalog number	Number of tubes	Tube size	Price
Insert racks			
KG-78874-12	4	400 mL	\$ 260.00
KG-78874-14	4	800 mL	260.00
KG-78874-10	6	250 mL	260.00
KG-78874-18	12	100 mL	480.00
KG-78874-16	12	250 mL	480.00
Exhaust systems			
KG-78874-22	4	400 or 800 mL	740.00
KG-78874-20	6	250 mL	775.00
KG-78874-26	12	100 mL	1550.00
KG-78874-24	12	250 mL	1550.00

Insert Racks for Kjeldatherm Block Digestion Systems.

Catalog number	Description	Price
KG-78874-34	Insert rack, 8 place	\$295.00
KG-78874-36	Insert rack, 20 place	465.00
KG-78874-40	Insert rack, 40 place	575.00
KG-78874-38	Insert rack for 8 jumbo tubes (78874-30)	510.00