



Classical and Rapid Kjeldahl Systems and Fat and Crude Fiber Apparatus



*Protecting your
laboratory environment*

LABCONCO®

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How to Use This Catalog

This catalog contains complete information on Classical and Rapid Kjeldahl Systems, Fat Extractors and Crude Fiber Apparatus. The following introduction provides information helpful in determining the right system for your application.

Following the introduction are sections on Labconco's Classical and Rapid Kjeldahl Systems, Fat Extractors and Crude Fiber Apparatus. Within these sections you will find features and benefits, specifications and ordering information, dimensional data and accessories. Please refer to the Table of Contents for specific page numbers.

Table of Contents

Classical Macro Kjeldahl	
Open and Hooded Combination Kjeldahl Units	2-7
Introduction	2
Features and Benefits	2-3
Specifications	4-5
Dimensional Data	6
Accessories	7
Kjeldahl Digestion Units	8-9
Introduction	8
Features and Benefits	8
Specifications	9
Dimensional Data	9
Kjeldahl Distillation Units	10-11
Introduction	10
Features and Benefits	10
Specifications	11
Dimensional Data	11
Micro Kjeldahl	
Micro Digestors & RapidStill I	12-14
Micro Digestor Introduction/Features and Benefits	12
RapidStill I Introduction/Features and Benefits	13
Specifications	14
Accessories	14
Dimensional Data	14
Rapid Macro Kjeldahl	
Rapid Digestors	15-18
Introduction	15
Features and Benefits	16
Dimensional Data	17
Specifications	18
Accessories	18
RapidStill II	19-20
Introduction	19
Features and Benefits	19
Specifications	20
Dimensional Data	20
Goldfisch Fat Extractor	21-22
Introduction	21
Features and Benefits	21
Specifications	22
Accessories	22
Dimensional Data	22
Crude Fiber Apparatus	23-24
Introduction	23
Features and Benefits	23
Specifications	24
Accessories	24
Dimensional Data	24

The Kjeldahl Nitrogen Analysis was developed in the late 19th century by the Danish scientist, Johann Kjeldahl. While the analysis is frequently used for the determination of protein in agricultural products, it is also accepted as the method of choice for nitrogen determination in such materials as plant tissues, fertilizers, organic wastes and effluent water.

Nitrogen Determination Products

In 1925, Labconco introduced the first Digestion and Distillation Apparatus for nitrogen determination of feed and grain samples weighing up to five grams. Today, our wide range of Kjeldahl products includes: Hooded Combination Units, Open Combination Units, and separate Digestion and Distillation Units. These are available in three sizes and with a variety of electrical options.

Labconco also offers the Micro Digestor, Rapid Digestors, and RapidStill I and II to further meet the expanding needs for a variety of sample sizes, single sample testing and quick analysis of individual samples.

The Micro Digestor was designed for 10ml to 30ml solution digestions. The RapidStill I was designed as the companion distillation system for the Micro Digestor. Two Rapid Digestors, available in 4- or 25-place models, digest samples faster than Classical Kjeldahl Apparatus. The RapidStill II is a semi-automatic steam distillation unit. It was designed specifically to complement either Rapid Digestor to provide a complete Rapid Kjeldahl System.

Since Labconco's introduction of Kjeldahl Apparatus over 75 years ago, the products in this category have evolved to meet changing requirements for sample size, throughput volume and overall user convenience.

Fat and Crude Fiber Equipment

Labconco provides separate equipment for the determination of Fat and Crude Fiber content. These units are designed for use with AOAC* methods. The Goldfish Fat Extractor provides continuous extraction of fats and oils. The Crude Fiber Apparatus allows for the determination of the insoluble fiber content in a variety of food and feed samples.

*AOAC International, www.aoac.org



21232+01 Six-Place Open Combination Kjeldahl Unit

The Open Combination and Hooded Combination Kjeldahl Units are designed to combine digestion and distillation processes for nitrogen determination into one space-saving unit.

The Open Combination Kjeldahl is supported by a sturdy, tubular steel framework, with the distillation apparatus located above the digestion unit. Models are available with the capacity to digest and distill up to 12 samples at a time.

The Hooded Combination Kjeldahl is designed to enclose the digestion and distillation units, which not only provides operator protection but allows efficient heat removal by venting process heat directly from the laboratory. The hood includes two collars: one for remotely-located exhaust blower connection and the other for an optional auxiliary-air blower inlet connection. Models are available that digest and distill up to 18 samples during one operation.

Both Kjeldahl Units are fully assembled with either a blower exhaust or water ejector system for fume removal. Individual building considerations will dictate which fume exhaust system is best suited to the laboratory.

Features and Benefits

Distillation Apparatus

The distillation manifold is equipped with seamless stainless steel tubes. No fittings or gaskets are required, eliminating a potential leak source. The unique counterflow heat exchanger controls back pressure and maximizes the rate of distillation to assure uniformity of results.

Water Ejector System

Model Series 21179, 21180, 21236, 21237

The water ejector fume removal system draws digestion fumes through the chemical-resistant manifold to an aspirator where they are condensed and diluted by the water spray and disposed with the effluent water. A 3-inch drain line and 60 psi water pressure are required for this installation.

Water ejectors use 6-8 gallons per minute.



Blower Exhaust System

Model Series 21176, 21177, 21178, 21232, 21233

Located on the left side of the unit, the blower exhaust system removes the fumes from the digestion flasks. The 1/3 horsepower, direct-drive blower with corrosion resistant impeller pulls the acid fumes through the manifold and discharges them through the duct connection.

Horizontal-Sliding Sashes

Model Series 21176, 21177, 21178, 21180

Tempered safety glass sashes prevent process heat from escaping into the room. A louvered grille allows air to flow through the unit to ensure adequate heat removal regardless of sash position.

Open and Hooded Combination Kjeldahl Units

Water Temperature Gauge

Cooling water volume can be adjusted to suit individual requirements with the remote-control flow valve. Water temperature is indicated on the easy-to-read temperature gauge located on the water outlet. Water discharged is not contaminated with corrosives so standard drain lines may be used.

Vapor-Proof Lights

Model Series 21176, 21177, 21178, 21179, 21180

Inside the upper canopy, 100-watt lamps illuminate the hood interior. The vapor-proof light fixtures are sealed against corrosion from acid vapors.

Auxiliary-Air Capabilities

Model Series 21176, 21177, 21178, 21179, 21180

The Hooded Combination Unit may be exhausted as a conventional-type hood or may be converted to an auxiliary-air hood by connecting an additional blower to the auxiliary-air collar supplied on the unit. By supplying outside air to the Hooded Unit, expensive tempered room air is conserved. The unit may be converted at the time of the original installation, or at a later date.

Connecting Bulbs (pictured on page 7)

The connecting bulb separates liquid from vapors prior to the vapors entering the condenser and effectively traps caustic mist that may carry over to the recovery solution. Bulb construction is one-piece borosilicate glass, equipped with an integral dual-baffle design.

Delivery Tubes (pictured on page 7)

The delivery tube features a long neck, round bottom and thick walls to help eliminate pressure fluctuations in the distillation phase. Tube construction is one-piece borosilicate glass.

Flask Connection to Fume Removal Manifold

The fume manifold is manufactured from chemical-resistant, chlorinated polyvinyl chloride (CVPC) fitted with heat-resistant Teflon® nipples which draw chemical fumes from the digestion flasks. The nipple design, extending into the flask neck, eliminates sample loss while efficiently removing fumes.

Electric Heaters

To provide evenly distributed heat and faster processing of samples, the curved ceramic heater follows the round base of the Kjeldahl flask. Heaters will accommodate 500ml and 800ml flasks.

Hood Construction

Model Series 21176, 21177, 21178, 21179, 21180

Hooded models exhaust process heat. The hood is fabricated of cold rolled steel, reinforced with strong tubular steel. The structure has a highly chemical-resistant epoxy coating. Lower front panels lift off for access to plumbing and storage. A left side access panel is removable for access to exhaust blower or water ejector. Collars are provided for remotely located exhaust and auxiliary-air blowers.

*Teflon® is a registered trademark of E. I. DuPont de Nemours and Company

Specifications

21232+ * Six-Place Open Combination

Kjeldahl Digestion/Distillation Unit with Blower Exhaust

Unit. 44" wide x 17" deep x 79" high. Frame shall be constructed of epoxy-coated tubular steel.

Heaters. Unit shall include twelve 600-watt heaters, 6 for digestion, 6 for distillation. Heaters shall be operated by 12 individual infinite-control knobs with variable input from 20-100% capacity.

Distillation Manifold. Unit shall be equipped with 6 seamless stainless steel tubes and cooling water temperature gauge. Inlet and outlet water connections shall be 3/4" NPT and supply line shall be 1/2" ID minimum. Six connecting bulbs and 6 delivery tubes for distillation process shall be provided.

Fume Manifold. Unit shall include a fume manifold of chlorinated polyvinyl chloride (CPVC) fitted with six Teflon nipples.

Blower Exhaust. Unit shall include a 1/3 hp blower exhaust system for fume removal, located on left end of unit. Blower exhaust connection shall be sized for use with 6" nominal (6 5/8 OD) vent duct. A 6" PVC pipe and flexible coupling with clamps shall be provided. Blower exhaust outlet shall be mounted 55 1/2" from the floor.

Electrical. Unit shall be completely assembled and factory wired to a main circuit breaker panel to specified AC electrical code.

Shipping weight 361 lbs.

21233+ * Twelve-Place Open Combination

Kjeldahl Digestion/Distillation Unit with Blower Exhaust

Specification shall be the same as for 21232+ * except for the following.

Unit. 74" wide x 17" deep x 79" high.

Heaters. Unit shall include twenty-four 600-watt heaters, 12 for digestion, 12 for distillation. Heaters shall be operated by 24 individual infinite-control knobs with variable input from 20-100% capacity.

Distillation Manifold. Unit shall be equipped with 12 seamless stainless steel tubes and cooling water temperature gauge. Twelve connecting bulbs and 12 delivery tubes for distillation process shall be provided.

Fume Manifold. Unit shall be fitted with 12 Teflon nipples.

Shipping weight 604 lbs.

**According to your AC electrical requirement, select the proper AC electrical code below and add the code # (as a suffix) to the unit catalog number to complete the number for ordering.*

Blower Exhaust

Code #	AC Electrical Code	6-Place	12-Place
01	115 volt, single phase, 60 Hz (Model 21232 only)	66 amps	
02	230 volt, single phase, 60 Hz	35 amps	66 amps
03	208/230 volt, three phase, 60 Hz	20 amps	38 amps
05	230 volt, single phase, 50 Hz	35 amps	66 amps

21236+ ** Six-Place Open Combination

Kjeldahl Digestion/Distillation Unit with Water Ejector

Unit. 41 1/2" wide x 17" deep x 79" high. Frame shall be constructed of epoxy-coated tubular steel.

Heaters. Unit shall include twelve 600-watt heaters, 6 for digestion, 6 for distillation. Heaters shall be operated by 12 individual infinite-control knobs with variable input from 20-100% capacity.

Distillation Manifold. Unit shall be equipped with 6 seamless stainless steel tubes and cooling water temperature gauge. Inlet and outlet water connections shall be 3/4" NPT and supply line shall be 1/2" ID minimum. Six connecting bulbs and 6 delivery tubes for distillation process shall be provided.

Fume Manifold. Unit shall include a fume manifold of chlorinated polyvinyl chloride (CPVC) fitted with six Teflon nipples.

Water Ejector. Unit shall include a water ejector system for fume removal. Water inlet shall be sized for 3/4" NPT and shall require a 3/4" supply line with a minimum of 60 psi line pressure. Water inlet shall be located 50" from floor. Fumes shall be exhausted through the bottom of the aspirator on the discharge side through a nominal 3" diameter drain line and PVC coupling.

A 1 1/2" diameter vent line to atmosphere and PVC vent coupling of acid-resistant material shall be required.

Electrical. Unit shall be completely assembled and factory wired to a main circuit breaker panel to specified electrical code.

Shipping weight 361 lbs.

21237+ ** Twelve-Place Open Combination

Kjeldahl Digestion/Distillation Unit with Water Ejector

Specification shall be the same as for 21236+ * except for the following.

Unit. 71 1/2" wide x 17" deep x 79" high.

Heaters. Unit shall include twenty-four 600-watt heaters, 12 for digestion, 12 for distillation. Heaters shall be operated by 24 individual infinite-control knobs with variable input from 20-100% capacity.

Distillation Manifold. Unit shall be equipped with 12 seamless stainless steel tubes and cooling water temperature gauge. Twelve connecting bulbs and 12 delivery tubes for distillation process shall be provided.

Fume Manifold. Unit shall be fitted with 12 Teflon nipples.

Shipping weight 604 lbs.

***According to your AC electrical requirement, select the proper AC electrical code below and add the code # (as a suffix) to the unit catalog number to complete the number for ordering.*

Water Ejector

Code #	AC Electrical Code	6-Place	12-Place
01	115 volt, single phase, 50/60 Hz (Model 21236 only)	63 amps	
02	230 volt, single phase, 50/60 Hz	32 amps	63 amps
03	208/230 volt, three phase, 50/60 Hz	19 amps	37 amps

Specifications

21176+ * Six-Place Hooded Combination

Kjeldahl Digestion/Distillation Unit with Blower Exhaust

Unit. 49 3/4" wide x 28 3/4" deep x 88 1/4" high. Hood shall be constructed of epoxy-coated formed steel, reinforced by a tubular steel frame. An 8 5/8" ID exhaust outlet shall be located on top of hood for connection to remote blower. An 8 5/8" ID auxiliary-air connection shall also be supplied. Horizontal-sliding sashes shall be tempered glass. One left-side access panel and one lower access panel shall be included. **Remote blower shall be required.**

See page 7.

Heaters. Unit shall include twelve 600-watt heaters, 6 for digestion, 6 for distillation. Heaters shall be operated by 12 individual infinite-control knobs with variable input from 20-100% capacity.

Lighting. Unit shall include one 100-watt vapor-proof lamp recessed under hood canopy.

Distillation Manifold. Unit shall be equipped with 6 seamless stainless steel tubes and cooling water temperature gauge. Inlet and outlet water connections shall be 3/4" NPT and supply line shall be 1/2" ID minimum. Six connecting bulbs and six delivery tubes for distillation process shall be provided.

Fume Manifold. Unit shall include a fume manifold of chlorinated polyvinyl chloride (CPVC) fitted with six Teflon nipples.

Blower Exhaust. Unit shall include a 1/3 hp blower exhaust system for fume removal, located on left end of unit. Blower exhaust connection shall be sized for use with 6" nominal (6 5/8" OD) vent duct. A 6" PVC pipe and flexible coupling with clamps shall be provided. Blower exhaust outlet shall be mounted 55 1/2" from floor.

Electrical. Unit wiring must be installed from hood canopy to circuit box. All other components of unit shall be completely assembled and factory wired to a main circuit breaker panel to specified electrical code.

Shipping weight 820 lbs.

21177+ * Twelve-Place Hooded Combination

Kjeldahl Digestion/Distillation Unit with Blower Exhaust

Specifications shall be the same as for 21176+ * except for the following.

Unit. 80 1/4" wide x 28 3/4" deep x 88 1/4" high. Two lower access panels shall be included. Exhaust outlet and auxiliary-air connection shall be 10 3/4" ID.

Heaters. Unit shall include twenty-four 600-watt heaters, 12 for digestion, 12 for distillation. Heaters shall be operated by 24 individual infinite-control knobs with variable input from 20-100% capacity.

Lighting. Unit shall include two 100-watt vapor-proof lamps recessed under hood canopy.

Distillation Manifold. Unit shall be equipped with 12 seamless stainless steel tubes and cooling water temperature gauge. Twelve connecting bulbs and 12 delivery tubes for distillation process shall be provided.

Fume Manifold. Unit shall be fitted with 12 Teflon nipples.

Shipping weight 1277 lbs.

21178+ * Eighteen-Place Hooded Combination Kjeldahl

Digestion/Distillation Unit with Blower Exhaust

Specifications shall be the same as for 21176+ * except for the following.

Unit. 110 3/4" wide x 28 3/4" x 88 1/4" high. Three lower access panels shall be included. Exhaust outlet and auxiliary-air connection shall be 10 3/4" ID.

Heaters. Unit shall include thirty-six 600-watt heaters, 18 for digestion, 18 for distillation. Heaters shall be operated by 36 individual infinite-control knobs with variable input from 20-100% capacity.

Lighting. Unit shall include two 100-watt vapor-proof lamps recessed under hood canopy.

Distillation Manifold. Unit shall be equipped with 18 seamless stainless steel tubes and cooling water temperature gauge. Eighteen connecting bulbs and 18 delivery tubes for distillation process shall be provided.

Fume Manifold. Unit shall be fitted with 18 Teflon nipples.

Shipping weight 1585 lbs.

21179+ ** Six-Place Hooded Combination

Kjeldahl Digestion/Distillation Unit with Water Ejector

Unit. 49 3/4" wide x 28 3/4" deep x 88 1/4" high. Hood shall be constructed of epoxy-coated formed steel, reinforced by a tubular steel frame. An 8 5/8" ID exhaust outlet shall be located on top of hood, for connection to remote blower. An 8 5/8" ID auxiliary-air connection shall also be supplied. Horizontal-sliding sashes shall be tempered glass. One left-side access panel and one lower access panel shall be included. **Remote blower shall be required.**

See page 7.

Heaters. Unit shall include twelve 600-watt heaters, 6 for digestion, 6 for distillation. Heaters shall be operated by 12 individual infinite-control knobs with variable input from 20-100% capacity.

Lighting. Unit shall include one 100-watt vapor-proof lamp recessed under hood canopy.

Distillation Manifold. Unit shall be equipped with 6 seamless stainless steel tubes and cooling water temperature gauge. Inlet and outlet water connections shall be 3/4" NPT and supply line shall be 1/2" ID minimum. Six connecting bulbs and six delivery tubes for distillation process shall be provided.

Fume Manifold. Unit shall include a fume manifold of chlorinated polyvinyl chloride (CPVC) fitted with six Teflon nipples.

Water Ejector. Unit shall include a water ejector system for fume removal. Water inlet shall be sized for 3/4" NPT and shall require a 3/4" supply line with a minimum of 60 psi line pressure. Water inlet shall be located 42 5/8" from floor. Fumes shall be exhausted through the bottom of the aspirator on the discharge side through a nominal 3" diameter drain line and PVC coupling. **A 1 1/2" diameter vent line to atmosphere and PVC vent coupling of acid-resistant material shall be required.**

Electrical. Unit wiring must be installed from hood canopy to circuit box. All other components of unit shall be completely assembled and factory wired to a main circuit breaker panel to specified electrical code.

Shipping weight 820 lbs.

21180+ ** Twelve-Place Hooded Combination

Kjeldahl Digestion/Distillation Unit with Water Ejector

Specifications shall be the same as for 21179+ * except for the following.

Unit. 80 1/4" wide x 28 3/4" deep x 88 1/4" high. Two lower access panels shall be included. Exhaust outlet and auxiliary-air connection shall be 10 3/4" ID.

Heaters. Unit shall include twenty-four 600-watt heaters, 12 for digestion, 12 for distillation. Heaters shall be operated by 24 individual infinite-control knobs with variable input from 20-100% capacity.

Lighting. Unit shall include two 100-watt vapor-proof lamps recessed under hood canopy.

Distillation Manifold. Unit shall be equipped with 12 seamless stainless steel tubes and cooling water temperature gauge. Twelve connecting bulbs and 12 delivery tubes for distillation process shall be provided.

Fume Manifold. Unit shall be fitted with 12 Teflon nipples.

Shipping weight 1277 lbs.

According to your AC electrical requirement, select the proper AC electrical code below and add the code # (as a suffix) to the unit catalog number to complete the number for ordering.

* Blower Exhaust

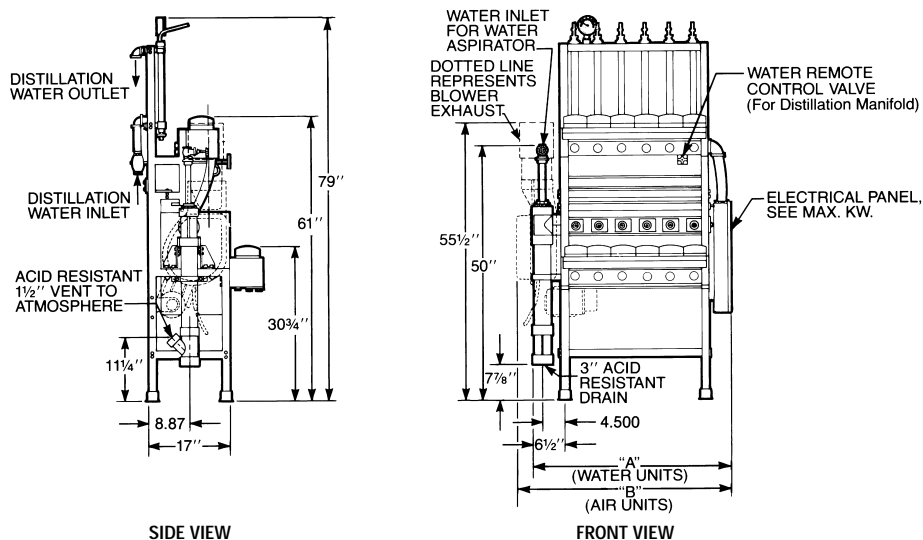
Code #	AC Electrical Code	6-Place	12-Place	18-Place
01	115 volt, single phase, 60 Hz (Model 21176 only)	67 amps		
02	230 volt, single phase, 60 Hz	36 amps	67 amps	97 amps
03	208/230 volt, three phase, 60 Hz	21 amps	39 amps	57 amps

** Water Ejector

Code #	AC Electrical Code	6-Place	12-Place
01	115 volt, single phase, 50/60 Hz (Model 21179 only)	63 amps	
02	230 volt, single phase, 50/60 Hz	32 amps	63 amps
03	208/230 volt, three phase, 50/60 Hz	19 amps	37 amps

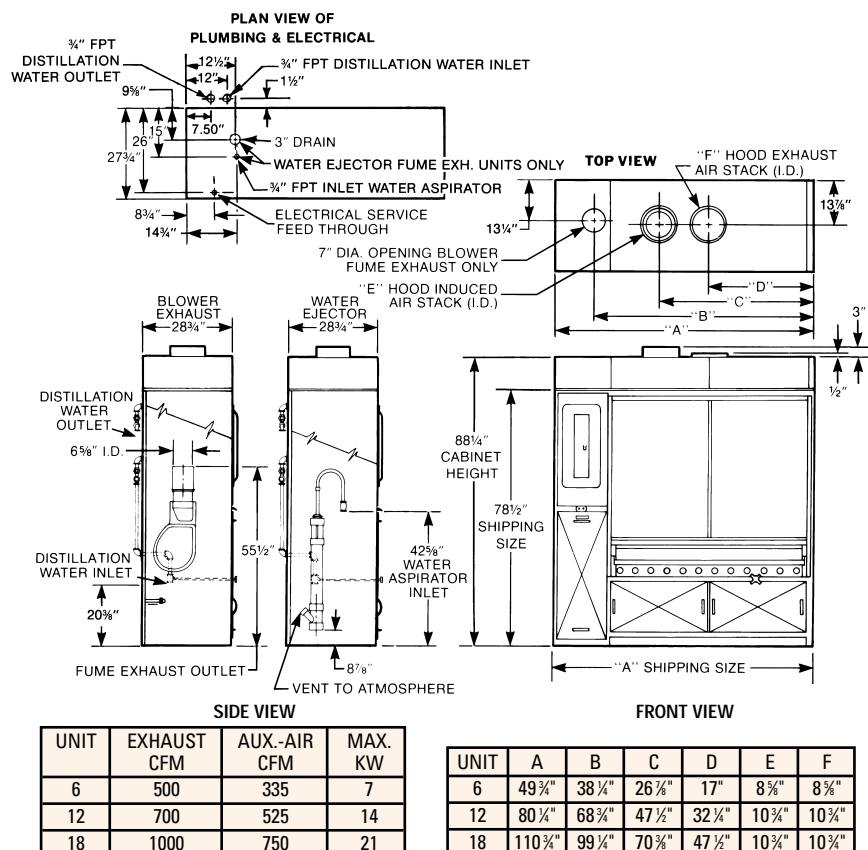
Dimensional Data

Open Combination Kjeldahl Unit



	TYPE FUME EXHAUST		
	WATER EJECTOR UNITS	BLOWER EXHAUST UNITS	ELECTRIC HEATER
CAPACITY	A	B	MAX KW
6-UNIT COMB	41¾"	44"	7
12-UNIT COMB	71 ⅜"	74"	14

Hooded Combination Kjeldahl Unit



Accessories

Exhaust & Auxiliary-Air Blower Selection

For Hooded Kjeldahl Units

The exhaust blower for process heat removal and the auxiliary-air blower to conserve tempered room air are not included with the Hooded Combination Kjeldahl Unit and must be ordered separately. The Hooded Combination Unit may be exhausted as a conventional-type hood or may be converted to an auxiliary-air hood by connecting an additional blower to the auxiliary-air collar supplied on the unit. The unit may be converted at the time of original installation, or at a later date. By replacing exhausted air with outside air, expensive tempered room air is conserved. The following Labconco Fiberglass Blowers are recommended for exhaust and auxiliary-air applications:



Fiberglass Exhaust/Auxiliary-Air Blower

For exhaust and auxiliary-air applications with Hooded Combination Kjeldahl Units. Wired for 115 volt, 60 Hz, single phase operation. Blower is equipped with molded fiberglass-reinforced polyester housing, molded

polypropylene impeller, motor, adjustable sheave and V-belt. All framework is epoxy coated. Unit is designed with 10" nominal inlet and outlet duct connections to receive rigid PVC ducting material directly. Unit includes gravity belt tighteners and integral weather cover.

For use with:	6-Place		12-Place		18-Place	
	EXH	A-A	EXH	A-A	EXH	A-A
Catalog #	7180200	7180000	7180600	7180400	7181200	7180600
Blower/Motor	1/4 hp	1/6 hp	1/2 hp	1/3 hp	1/2 hp	1/2 hp
Ship. Wt.	92 lbs.	92 lbs.	88 lbs.	86 lbs.	96 lbs.	88 lbs.

Thermoplastic Duct

PVC exhaust duct is lightweight and corrosion-resistant. A Female Duct Coupling is required to join two sections. Connections are simple with solvent cement. This rigid duct may be cut without special tools.

Available in 10' lengths.



Catalog #	4708600	4718900	7027200
Nom. Dia.	6"	8"	10"
Actual OD	6.625"	8.625"	10.750"
Actual ID	6.250"	8.250"	10.375"
Ship. Wt.	25 lbs.	35 lbs.	50 lbs.



7027300 90° Elbow

PVC elbows are compatible with thermoplastic duct. Designed and engineered for quick installation and minimum pressure losses, they feature belled end connections to receive PVC duct directly. Nominal diameter is 10". Approximate height is 20 3/8". Equivalent resistance in feet of straight duct is 20.

Shipping weight 12 lbs.



Female Duct Coupling

PVC coupling makes connection between two sections of thermoplastic duct quick and easy.

Catalog #	4708900	4719200	7027500
Nom. Dia.	6"	8"	10"
Ship. Wt.	4 lbs.	5 lbs.	5 lbs.



5606000 Thermoplastic Duct Reducer

PVC coupling type reducer is designed for connecting thermoplastic duct of different diameters. 8" x 10" diameter.

Shipping weight 5 lbs.



2081300 Replacement Connecting Bulbs

Connecting bulbs provide connection between Kjeldahl flask and distillation rack. The double baffle design traps caustic mist. Constructed of one-piece borosilicate glass. Six per package.

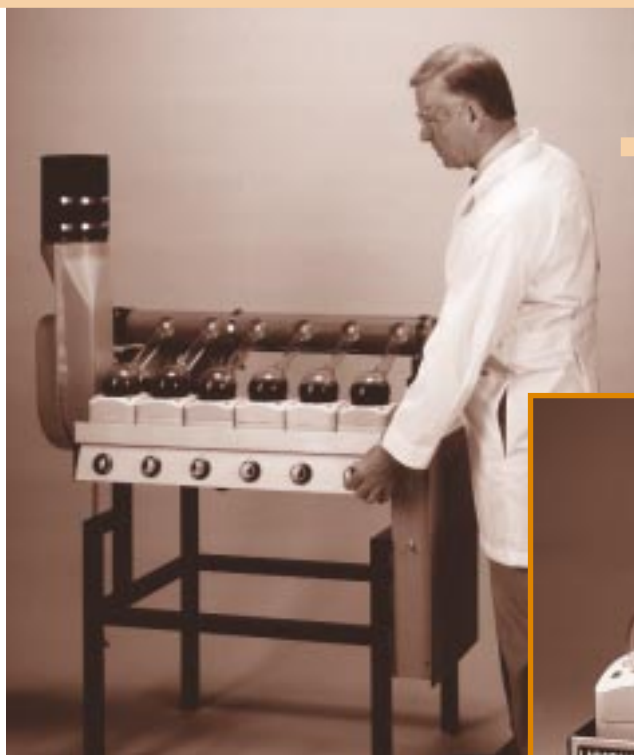
Shipping weight 4 lbs.



2128800 Replacement Delivery Tubes

Delivery tubes feature long necks, round perforated bottoms and thick walls to help eliminate pressure fluctuations in the distillation phase. Constructed of one-piece borosilicate glass. Six per package.

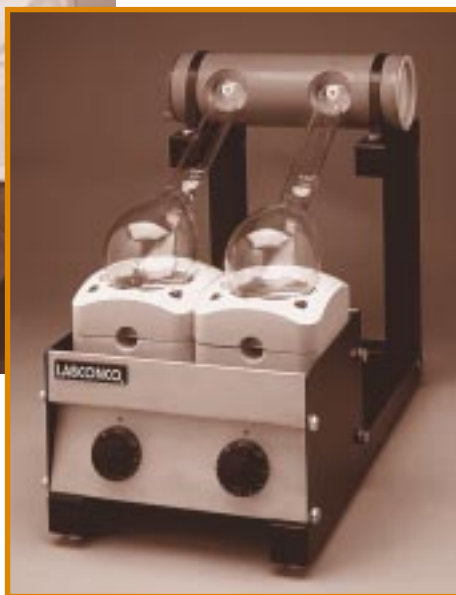
Shipping weight 3 lbs.



2125600 Six-Place Kjeldahl Digestion Unit

The Kjeldahl Digestion Unit is ideal for laboratories that require separate digestion stations or as an addition to existing Kjeldahl apparatus. The Six-Place Digestion Unit provides fume-free operation by drawing fumes through the manifold with either a blower exhaust or a water ejector system. The Two-Place Digestion Unit offers the same rugged construction as larger

Kjeldahl models, plus it is portable and may be conveniently placed in a fume hood.



2128401 Two-Place Kjeldahl Digestion Unit

The Digestion Unit, operated by infinite control switches, has a sturdy welded steel framework, and is epoxy coated to provide corrosion resistance. The 600-watt curved heaters are specifically designed to cradle Kjeldahl flasks and the chlorinated polyvinyl chloride (CPVC) exhaust manifold fitted with Teflon nipples is standard on every unit.

Features and Benefits

Construction

Sturdy steel framework is welded and epoxy coated.

Electric Heaters

The curved ceramic heaters securely meet the bases of 500 ml or 800 ml Kjeldahl flasks to provide fast, evenly distributed heat. Individual infinite-control knobs provide variable heat input from 20-100% of capacity. The Six-Place Kjeldahl Unit includes a main circuit breaker panel, wired in accordance with the specified electrical code. The Two-Place Kjeldahl Unit includes an electrical cord and plug.

Blower Exhaust System

Model 2125600

The Kjeldahl Digestion Unit is available with a blower exhaust system. Located on the left side of the unit, the exhaust system removes the fumes from the digestion flasks. The 1/3 hp direct-drive blower with corrosion-resistant impeller pulls the acid fumes through the manifold and discharges them through the duct connection.

Water Ejector System

Model 2126000

The water ejector system draws digestion fumes through the chemical-resistant manifold to an aspirator where they are condensed and diluted by the water spray and disposed with the effluent water. A 3-inch drain line and 60 psi water pressure are required for installation. The Two-Place Kjeldahl Unit has a 3/8" NPT nipple for connection to a gooseneck faucet with a water aspirator.

Flask Connection To Fume Removal System

The fume manifold is constructed from chemical-resistant chlorinated polyvinyl chloride (CPVC) fitted with heat-resistant Teflon nipples designed to prevent leakage.

Specifications

21256+ * Six-Place Kjeldahl Digestion Unit with Blower Exhaust

Unit. 44" wide x 23" deep x 62" high. Frame shall be constructed of epoxy-coated steel.

Heaters. Unit shall include six 600-watt heaters for digestion. Heaters shall be operated by six individual infinite-control knobs with variable input from 20-100% capacity.

Fume Manifold. Unit shall include a fume manifold of chlorinated polyvinyl chloride (CPVC) fitted with six Teflon nipples.

Blower Exhaust. Unit shall include a 1/3 hp blower exhaust system for fume removal, located on left end of unit. Blower exhaust connection shall be sized for use with 6" nominal (6 5/8" OD) vent duct. A 6" PVC pipe and flexible coupling with clamps shall be provided. Blower exhaust outlet shall be mounted 62" from floor.

Electrical. Unit shall be completely assembled and factory wired to a main circuit breaker panel to specified electrical code.

Shipping weight 361 lbs.

**According to your AC electrical requirement, select the proper AC electrical code below and add the code # (as a suffix) to the unit catalog number to complete the number for ordering.*

Blower Exhaust

Code #	AC Electrical Codes
01	115 volt, single phase, 60 Hz, 35 amps
02	230 volt, single phase, 60 Hz, 19 amps
03	208/230 volt, three phase, 60 Hz, 11 amps

21260+ * Six-Place Kjeldahl Digestion Unit with Water Ejector

Unit. 41 1/2" wide x 23" deep x 58" high. Frame shall be constructed of epoxy-coated tubular steel.

Heaters. Unit shall include six 600-watt heaters for digestion. Heaters shall be operated by six individual infinite-control knobs with variable input from 20-100% capacity.

Fume Manifold. Unit shall include a fume manifold of chlorinated polyvinyl chloride (CPVC) fitted with heat resistant Teflon nipples.

Water Ejector. Unit shall include a water ejector system for fume removal.

A 3/4" water inlet shall draw water through the aspirator. Inlet shall be located 58" from the floor. Fumes shall be exhausted through bottom of aspirator.

A 3" drain line, 60 psi water pressure, 1 1/2" diameter vent line to atmosphere and PVC vent coupling of acid-resistant material shall be required.

Electrical. Unit shall be completely assembled and factory wired to a main circuit breaker panel to specified electrical code.

**According to your AC electrical requirement, select the proper AC electrical code below and add the code # (as a suffix) to the unit catalog number to complete the number for ordering.*

Water Ejector

Code #	AC Electrical Codes
01	115 volt, single phase, 50/60 Hz, 32 amps
02	230 volt, single phase, 50/60 Hz, 19 amps

2128401 Two-Place Kjeldahl Digestion Apparatus

Unit. 10 3/8" wide x 18 1/4" deep x 16 3/4" high. Frame shall be constructed of epoxy-coated steel.

Heaters. Unit shall include two 600-watt heaters for digestion. Heaters shall be operated by two individual infinite-control knobs with variable input from 20-100% capacity.

Fume Manifold. Unit shall include a fume manifold of chlorinated polyvinyl chloride fitted with two Teflon nipples. A Teflon nipple shall be located on the left side. Three feet of PVC tubing shall be connected from the nipple to the water aspirator.

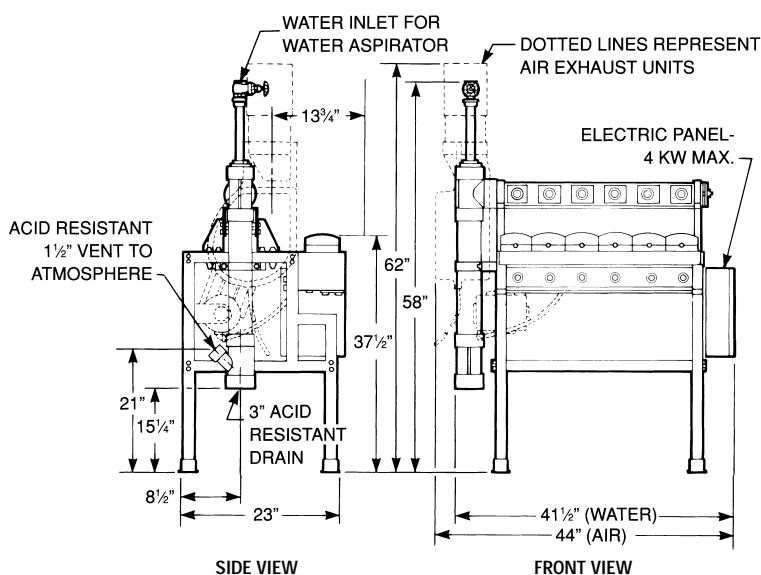
Water Aspirator Requirements. Unit shall require connection to a water aspirator pump for operation. A 3/8" NPT nipple shall be provided for connection to a customer-supplied gooseneck faucet with water aspirator.

Electrical. Unit shall be completely assembled and factory wired for 115 volt, 50/60 Hz, 11 amp AC operation. Unit shall include an 8-foot, 3-wire cord and plug.

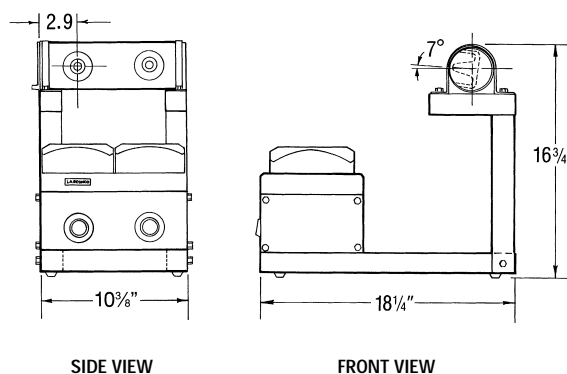
Shipping weight 62 lbs.

Dimensional Data

Six-Place Kjeldahl Digestion Unit



Two-Place Kjeldahl Digestion Unit





2127601 Six-Place Kjeldahl Distillation Unit

The Kjeldahl Distillation Apparatus is designed for mounting on a base cabinet or table and provides a durable unit for laboratories that require a separate distillation station. The versatile Distillation Apparatus features models with two or six heaters.



2128501 Two-Place Kjeldahl Distillation Unit

The Distillation Apparatus has a sturdy welded framework, and is epoxy coated to provide corrosion resistance. The Six-Place Unit is mounted on a molded epoxy resin base. It accommodates 500 or 800 ml flasks. The 600-watt curved heater elements specifically designed to cradle Kjeldahl flasks and the stainless steel distillation tubes are standard on every unit.

Features and Benefits

Construction

Sturdy steel framework is welded and epoxy coated.

Distillation Apparatus

The distillation manifold is equipped with seamless stainless steel tubes. No fittings or gaskets are required eliminating a source for leaks. On 6-Place Unit, the unique counterflow heat exchanger controls back pressure and maximizes the rate of distillation to assure uniformity of results. Cooling water volume may be adjusted to suit individual requirements with the remote-control flow valve. Water temperature is indicated on the easy-to-read temperature gauge located on the water outlet. Water discharged is not contaminated with corrosives so standard drain lines may be used.

Electric Heaters

The curved ceramic heaters securely meet the bases of 500 ml or 800 ml Kjeldahl flasks to provide fast, evenly distributed heat.

Individual infinite control knobs direct the variable input from 20-100% of capacity. A main circuit breaker panel, wired in accordance with the specified electrical code, is provided only on the 6-Place Unit.

Connecting Bulbs

The connecting bulb separates liquid from vapors prior to the vapors entering the condenser and effectively traps caustic mist that may carry over to the recovery solution. The bulb has a dual baffle built into the cylindrical bulb that provides double protection against liquid caustic leakage. Because the baffles are not fused to the glass, the bulb is long lasting.

Delivery Tubes

The delivery tube features a long neck, round perforated bottom and thick walls to help eliminate pressure fluctuations in the distillation phase. Tube construction is one-piece borosilicate glass.

Specifications

21276+ ± Six-Place Kjeldahl Distillation Unit

Unit. 30 7/8" wide x 15" deep x 41" high. Frame shall be constructed of epoxy-coated steel mounted on a molded epoxy resin base.

Heaters. Unit shall include six 600-watt heaters for distillation. Heaters shall be operated by six individual infinite-control knobs with variable input from 20-100% capacity.

Distillation Manifold. Unit shall be equipped with six seamless stainless steel tubes and cooling water temperature gauge and remote control flow valve. Inlet and outlet water connections shall be 3/4" NPT and supply line shall be 1/2" ID minimum. Six connecting bulbs and six delivery tubes for distillation process shall be provided.

Electrical. Unit shall be completely assembled and factory wired to a main circuit breaker panel to specified electrical codes.

Shipping weight 217 lbs.

**According to your AC electrical requirement, select the proper AC electrical code below and add the code # (as a suffix) to the unit catalog number to complete the number for ordering.*

Code #	AC Electrical Codes
01	115 volt, single phase, 50/60 Hz, 32 amps
02	230 volt, single phase, 50/60 Hz, 16 amps
03	208/230 volt, three phase, 50/60 Hz, 9 amps

2128501 Two-Place Kjeldahl Distillation Unit

Unit. 10 3/8" wide x 18 1/4" deep x 30 1/8" high. Frame shall be constructed of epoxy-coated steel.

Heaters. Unit shall include two 600-watt heaters for distillation. Heaters shall be operated by two individual infinite-control knobs with variable input from 20-100% capacity.

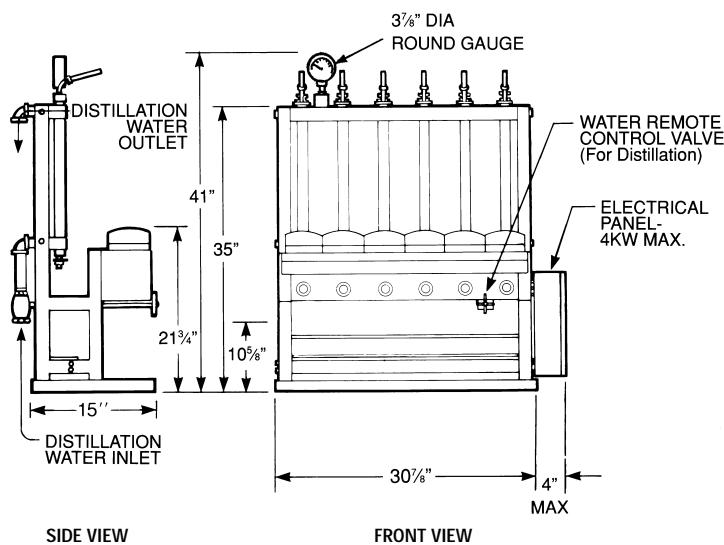
Distillation Manifold. Unit shall be equipped with two seamless stainless steel tubes. Inlet and outlet water connections shall be 3/8" NPT. Connection to a water source with tubing and fittings shall be required and should not be less than 5/16" ID.

Electrical. Unit shall be completely assembled and factory wired for 115 volt, 50/60 Hz, 11 amp AC operation. Unit shall include an 8-foot, 3-wire cord and plug.

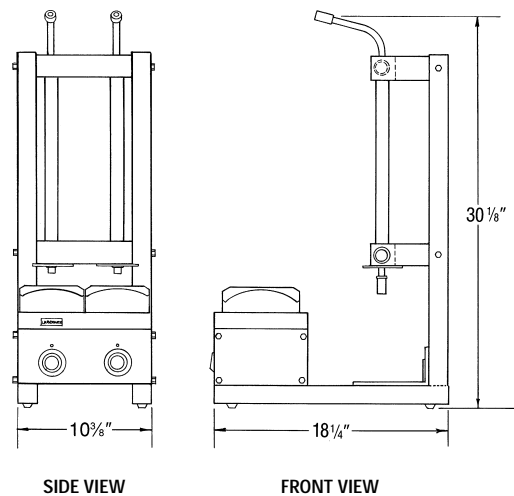
Shipping weight 80 lbs.

Dimensional Data

Six-Place Kjeldahl Digestion Unit



Two-Place Kjeldahl Digestion Unit



The Micro Digestor provides accurate results for Kjeldahl digestions using 100 ml flasks. Each heater has an individual infinite heat control to provide precise heat to each sample. These 200-watt heaters are recessed into the top of the unit to help minimize accidental contact with the hot heater.



6030000 Micro Digestor

The Micro Digestor is fully assembled including a glass manifold and 3-wire cord and plug. Simply plug into a suitable electrical receptacle and connect to a water aspirator or use in a fume hood.

The RapidStill I is the distillation companion for the Micro Digestor.
See pages 13 and 14 for information.

Features and Benefits

Glass Manifold

Fumes are removed through a glass manifold with six flask ports and a serrated tip for connection to a simple water aspirator.

Infinite Heat Control

Each heater element has an individual heat control and pilot light. The infinite heat controls have variable input from 20-100% of capacity.

Heat and Corrosion-Resistant Cabinet

The cabinet is epoxy-coated aluminum. The top is 1 1/2-inch thick insulating board to protect wiring and controls from heat and corrosion.

Heater Element

Each flask station has an individual 200-watt heater assembly that consists of a tubular heater element and stainless steel cup.

Adjustable Height

Two rear brackets provide adjustable mounting for the glass manifold.

Glassware Included

Six 100 ml flasks are included with each unit.



6500000 RapidStill I

A companion to the Micro Digestor, the RapidStill I is designed for labs that are determining micro quantities of protein/nitrogen. It may also be used to perform only one or two macro determinations per day by simply diluting and aliquoting the sample.

The one-piece borosilicate glass still is mounted on a tough, chemical-resistant console that contains all operating controls. Each distillation takes only five minutes. Unit accepts digested samples up to 4 ml (maximum) and gives reproducible results in ranges as low as 1 mg/L Kjeldahl nitrogen.

Features and Benefits

Built-in glass aspirator allows you to purge spent samples after determination. The water used for cooling this condenser is also used for aspirating. A twist of the stopcock draws the sample and rinse water down the drain.

One-piece borosilicate glass still features chemically-inert Teflon stopcocks. There are no rubber or plastic tubing connections to crack, corrode or leak. The still comes complete with a pivoting receiving flask stand to hold the receiving flask at the proper level.

Lightweight, one-piece console is molded of white high-density polyethylene for chemical resistance. Fits on any countertop.

Variable heat control switch allows complete control of the steam. It directs the electrical input to the immersion heater for fast efficient heat. Steam generation starts rapidly from a cold start.



6500000 RapidStill I

Specifications

6030000 Micro Digestor

Apparatus. 22 9/16" wide x 9" deep x 14" high. Cabinet shall be constructed of epoxy-coated aluminum with 1 1/2" thick insulating board top. Two rear adjustable brackets shall accommodate 100 ml flasks.

Heater Assembly. Six 200-watt heater assemblies shall consist of a tubular steel heater element and a stainless steel cup. Each heater element shall have an individual heat control and pilot light. Each heat control shall have variable input from 20-100% of capacity.

Glassware. A glass manifold with six flask ports and a serrated tip for connection to a water aspirator shall be included. Six 100 ml borosilicate glass Micro Kjeldahl Flasks shall be provided.

Electrical. Wired for operation on 115 volt 50/60 Hz, 12 amp AC. A 6-foot, 3-wire cord and plug shall be included.

A water aspirator shall be required.

Shipping weight 17 lbs.

6030001 Micro Kjeldahl Digestor

Specifications shall be the same as for 6030000 except for the following.

Electrical. Wired for operation on 230 volt, 50/60 Hz, 6 amp AC. A 6-foot, 3-wire cord shall be included. Plug shall be required.

6500000 RapidStill I

Apparatus. 13 1/8" x 9 9/16" deep x 20 1/2" high. Console shall be one-piece molded linear polyethylene. Still shall be one-piece borosilicate glass with Teflon stopcocks. A 115-volt immersion heater shall be located inside the water reservoir. A variable heater control knob and lighted power switch shall be located on the front panel. A built-in glass aspirator shall be included. A metering valve shall be supplied for installation between the water source and the water inlet tube connector to the steam reservoir.

Electrical. Wired for operation on 115 volt, 60 Hz, 2.4 amps. An 8-foot, 3-wire cord and plug shall be included.

Sample Accuracy. Unit shall accept digested samples up to 4 ml (maximum) and shall give reproducible results in ranges as low as 1mg/L nitrogen. Shipping weight 19 lbs.

Accessories



6037500 Micro Kjeldahl Flasks

100 ml flasks for use with the Micro Digestion Unit. They feature long necks, round bottoms and thick walls. Manufactured of borosilicate glass. Package of six. Shipping weight 2 lbs.



6505000 Micro Kjeldahl Flask Carrier

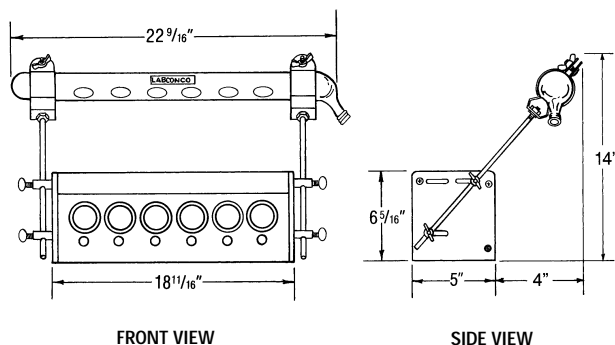
Reduces breakage and helps prevent sample spillage. The carrier will hold 12 flasks upright at a 29° angle or 16 flasks inverted for drying at the same time. Constructed of corrosion-resistant, vinyl-coated steel, the Flask

Carrier has a ball-bearing base plate that remains stationary while the carrier turns 360° for easy loading.

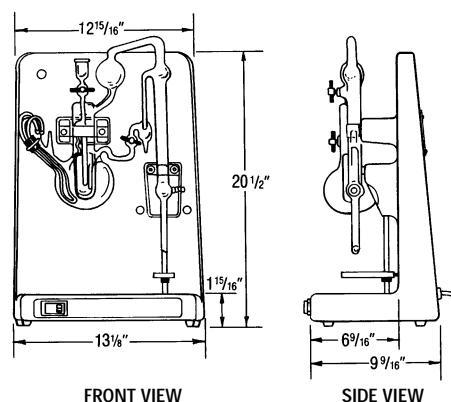
Shipping weight 4 lbs.

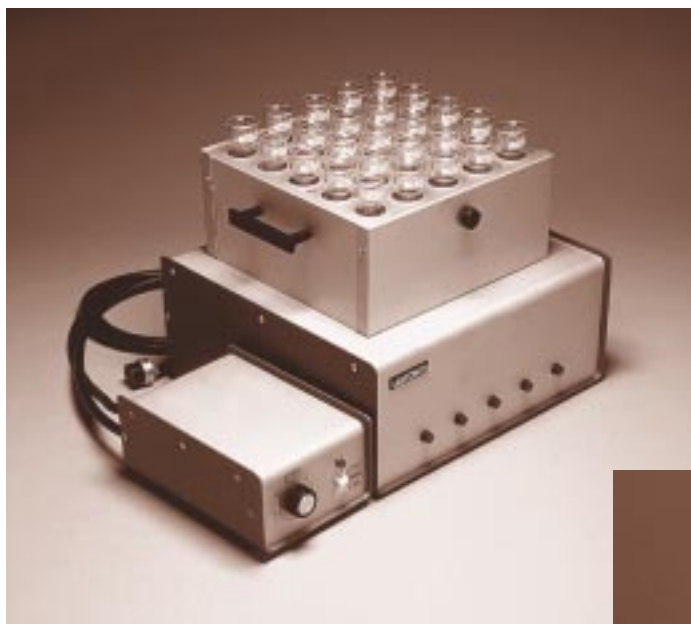
Dimensional Data

Micro Digestor



RapidStill I





2301200 Rapid Digestor-25

Available in 4- or 25-place models, the Rapid Digestors were developed in a working laboratory environment following extensive interviews with Kjeldahl users. Only Labconco's Rapid Digestors provide an individual ceramic heater module for each tube to provide efficient, uniform heat transfer. Unlike aluminum block designs, Labconco's ceramic modules have virtually the same coefficient of heat expansion as the digestion tube. This means more rapid destruction of organic material resulting in faster digestions. Digestion time is normally 45 minutes depending on the sample type and catalyst.

Each ceramic heater is insulated on all four sides as well as the bottom. This prevents heat loss and assures low energy consumption while maintaining reduced external housing temperatures.

Accessory fume removal manifolds and digestion tubes are offered to complete the digestion system. The RapidStill II provides the ideal companion for the Rapid Digestors. See page 18 for complete information.

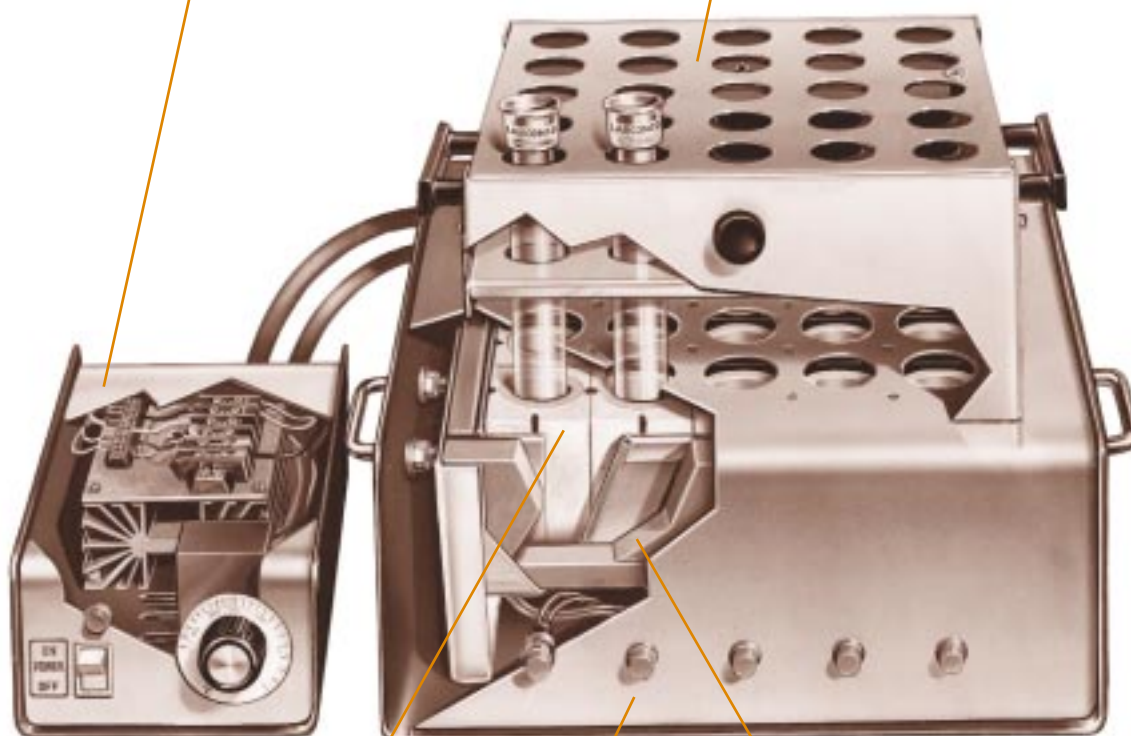


2308000 Rapid Digestor-4

Features and Benefits

Solid-State Controller is factory-calibrated with stepless temperature control from ambient to 450° C. Triac control maintains specific temperatures to $\pm 0.5\%$ over entire operating range even with line-voltage fluctuations of 10% and ambient temperature range of 10° to 40° C.

Convenient carrier rack of corrosion-resistant aluminum alloy holds glassware in place for easy handling, loading and washing. The rack includes removable heat shields that prevent heat loss when in place and aid in rapid cooling when removed.



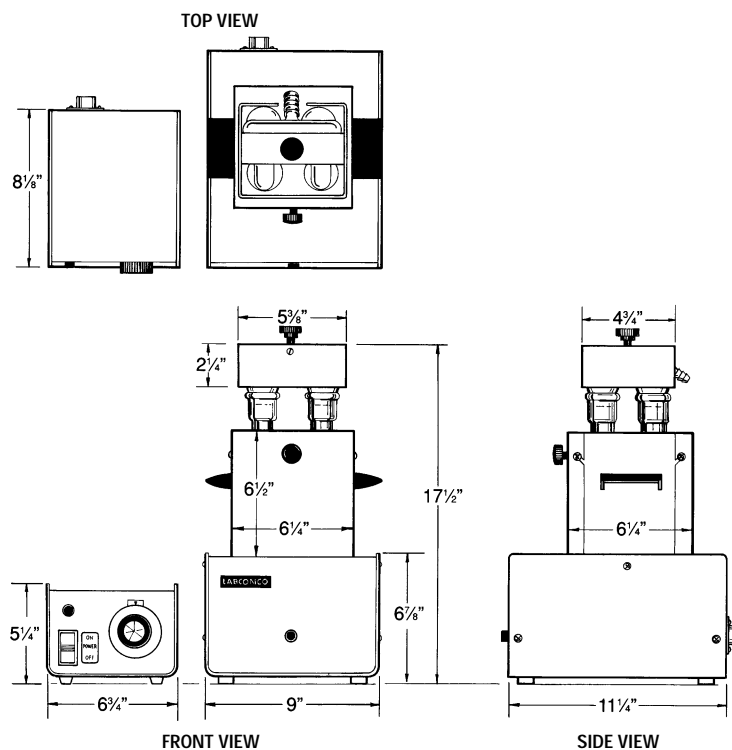
Individual ceramic heater modules are molded for precise fit and maximum direct heat transfer to digestion tubes. An RTD platinum sensor encased in ceramic detects internal temperature, signaling the controller for uniform temperature control.

Monitoring system has red lights that blink when the Rapid Digester reaches preset temperature. The lights also help pinpoint malfunctions. The Rapid Digester-4 has one light. The Rapid Digester-25 has five lights — one for each bank of five heaters.

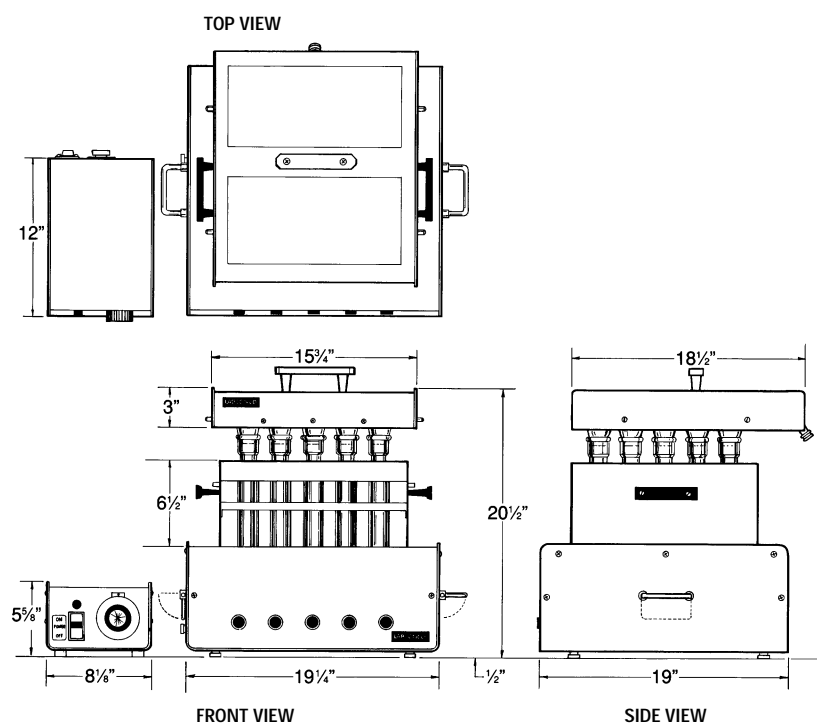
Designed for energy efficiency, the individual ceramic heaters are surrounded by 1" thick insulation board.

Dimensional Data

Rapid Digestor-4 with 4-Place Fume Removal System



Rapid Digestor-25 with 25-Place Fume Removal System



Specifications

2308000 Rapid Digestor-4

Digestion Unit. 9" wide x 11 1/4" deep x 6 7/8" high. Unit shall consist of 4 individual ceramic heaters surrounded by a 1" thick insulation board. Each ceramic heater shall be molded for precise fit to 250 ml digestion tubes (tubes not included). A heater element shall be encapsulated in each heater module. An RTD platinum temperature sensor shall be encased in the ceramic and shall send signals to the control unit. An automatic monitoring system shall have one external light that blinks red when digestor reaches preset temperature. The unit shall reach 410° C in less than one hour. Ceramic heater assembly shall be housed in a chemically etched aluminum casing.

Control Unit. 6 3/4" wide x 8 1/8" deep x 5 1/4" high. Unit shall include a power switch and a solid-state stepless temperature control knob, factory calibrated from ambient to 450° C. Triac control shall maintain specified temperature to ±0.5% over entire operating range.

Carrier Rack. 6 1/4" wide x 6 1/4" deep x 6 1/2" high. An aluminum alloy carrier rack with two plastic handles and two removable heat shields has capacity for four digestion tubes.

Electrical. Wired for operation on 115 volt 50/60 Hz, 7 amp AC. Unit shall include 6-foot cord and plug. Also included shall be electrical lines between the controller and digestion unit.

Digestion tubes and fume removal system shall be required.

Operation inside a fume hood is required.

Shipping weight 30 lbs.

2301200 Rapid Digestor-25

Digestion Unit. 19 1/4" wide x 19" deep x 8 1/4" high. Unit shall consist of 25 individual ceramic heaters surrounded by 1" thick insulation board. Each ceramic heater shall be molded for precise fit to 250 ml digestion tubes (tubes not included). Heater elements shall be encapsulated in each heater module. Five RTD platinum temperature sensors shall be encased in the ceramic and shall send signals to the control unit. Ceramic heater assembly shall be housed in a chemically etched aluminum casing with two fold-down handles. An automatic monitoring system shall have one external light that blinks red when digestor reaches preset temperature. The unit shall reach 410° C in less than one hour.

Control Unit. 8 1/8" wide x 13 1/4" deep x 5 5/8" high. Unit shall include a power switch and a solid-state stepless temperature control knob, factory calibrated from ambient to 450° C. Triac control shall maintain specified temperature to ±0.5% over entire operating range.

Carrier Rack. 14 1/2" wide x 14 1/2" deep x 6 1/2" high. An aluminum alloy carrier rack with two plastic handles and two removable heat shields has capacity for 25 digestion tubes.

Electrical. Wired for operation on 208/230 volt, 50/60 Hz, 16 amp AC. Unit shall include 6-foot cord. An electrical plug shall be required. A 7-foot electrical cord shall connect the controller to the digestion unit.

Digestion tubes and fume removal system shall be required.

Operation inside a fume hood is required.

Shipping weight 79 lbs.

Accessories



2354000 4-Place Fume Removal System

4 3/4" wide x 5 3/8" deep x 4" high.

For Rapid Digestor-4. Consists of borosilicate glass manifold with 4 bulb eductors precisely aligned to rest atop the digestion tubes. Manifold is

encased in aluminum housing with plastic handle. A 5-foot rubber connecting hose shall be supplied for connecting to a water aspirator (not included). **Water aspirator shall be required.** Shipping weight 4 lbs.



2350025 25-Place Fume Removal System

16 1/2" wide x 18 1/2" deep x 4" high.

For Rapid Digestor-25. Consists of borosilicate glass manifold with 25 bulb eductors precisely aligned to rest atop the digestion tubes.

Manifold is encased in aluminum housing with plastic handle. A 2-foot rubber connecting hose shall be supplied for connecting to a water aspirator. A water aspirator for use with 40 psi water pressure shall be provided. Unit shall include an aluminum support stand and drip pan. Average water consumption shall be 2.5 gpm.

Shipping weight 28 lbs.

Digestion Tubes

Designed for uniform wall thickness and impact strength. Made of borosilicate glass with heavy-duty retention lip and contoured bottom for optimum heat transfer and minimal thermal shock. Volumetric Tubes have an easy-to-read calibration mark for accurate dilutions and a built in constriction for maximum refluxing and digestion speed.



Straight Tubes, 250 ml

Catalog #	2304005	2304025
Quantity	5/package	25/package
Ship. Wt.	3 lbs.	16 lbs.

Volumetric Tubes, 250 ml

Catalog #	2303005	2303025
Quantity	5/package	25/package
Ship. Wt.	3 lbs.	16 lbs.



6520000 RapidStill II

The RapidStill II is an automatic steam distillation unit designed specifically for macro Kjeldahl nitrogen determinations. It serves as a companion to the Rapid Digestor-4 and Rapid Digestor-25. Once samples have cooled from the digestion process, simply dilute with water and place one sample tube on the RapidStill II. Then add the sodium hydroxide by depressing a built-in dispenser switch and start the distillation process by activating the timer. Each distillation takes five to ten minutes.

Features and Benefits

Compact design conveniently fits on a countertop.

Boiler heater switch activates the boiler heating element.

Boiler water switch fills the boiler with water. It is interlocked to prevent its operation during the heating of the boiler.

Built-in sodium hydroxide switch allows you to safely control the amount of caustic to be added. The switch is interlocked to operate only when the boiler heater is on.

Corrosion-resistant inlet tubes for sodium hydroxide and steam are made of chemically-inert Teflon for long life.

Distribution head acts as a junction for the steam and NaOH delivery tubes and serves as a trap preventing the NaOH from entering the receiving flask.

Condenser is a combination Allihn and spiral condenser for efficient recovery of the distillate.

Condenser ventilation valve prevents siphoning of distillate back into the condenser chamber.

Flow restrictor prevents the cooling water flow rate to the condenser from exceeding 1.0 gallon per minute.

Digestion tube retainer is spring loaded to securely hold the tube during distillation.

Distillation timer switch is infinitely adjustable from 0-15 minutes to control the dispensing of steam into the digestion tube. It is interlocked to function only when the boiler heater is on. The NaOH cannot be dispensed into the digestion tube when the timer is in operation. Automatically shuts off the distillation process.

Sight gauge lets you monitor water level in the boiler.

Safety cover protects the condenser.

Safety door surrounds the digestion tube and protects the operator from digestion tube breakage.

An 1100-watt heater surrounding a 1000 ml flask generates steam.

Molded tray catches spills and speeds clean up. (Included, not shown.)

Specifications

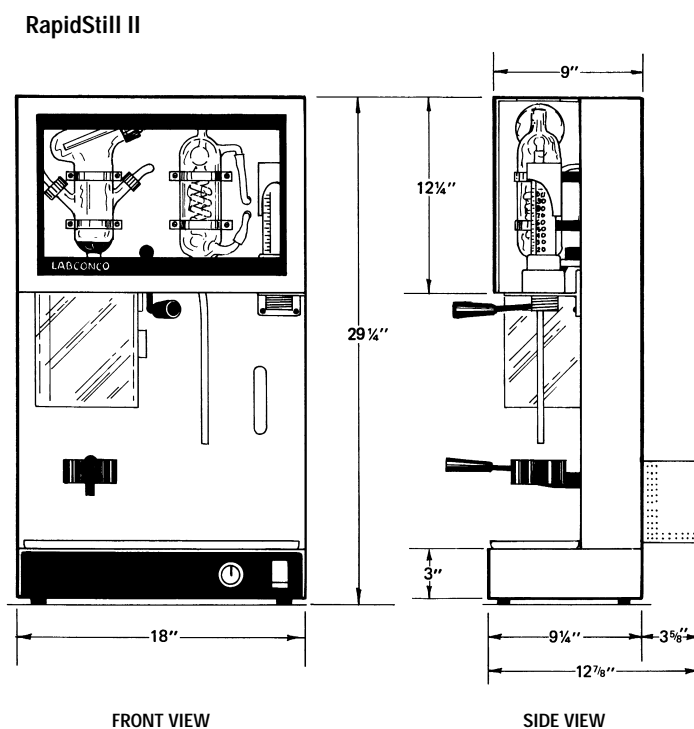
6520000 RapidStill II

Apparatus. 18" wide x 12 3/4" deep x 29 3/4" high. Frame shall be constructed of epoxy-coated steel. Unit shall include spring-loaded digestion tube retainer, Teflon sodium hydroxide and steam inlet tubes, built-in peristaltic pump for sodium hydroxide dispensing, borosilicate glass condenser with ventilation valve, 0-15 minute adjustable audible timer, steam generator water level sight gauge, and molded plastic spillage tray. Steam shall be generated by an 1100-watt heater surrounding a 1000 ml flask. Flow restrictor shall regulate condenser flow rate to 1 gallon per minute (3.8 liters per minute).

Electrical. Wired for operation on 115 volt, 60 Hz, 15 amps. An 8-foot, 3-wire cord and plug shall be included.

Shipping weight 50 lbs.

Dimensional Data





Goldfish Fat Extractor

The Goldfish Fat Extractor has long been recognized by the AOAC as an accepted means of determining fat and oil content in samples and is listed in AOAC methods. Thousands of Goldfish Extractors are in use today in industry, government and university laboratories worldwide.

The Fat Extractor reduces extraction time from 16 hours to about four hours through its efficient refluxing system. The operation is accomplished by using a single beaker as the solvent chamber. The procedure involves placing samples between a boiling solvent and a cold surface. As boiling continues, the solvent vaporizes, condenses on the cold surface, and washes down through the samples into the boiling solvent below.*

3500100 Goldfish Fat Extractor

Features and Benefits

Construction

Sturdy anodized aluminum framework supports manifold.

Electric Heaters

Six 100-watt, spring-loaded heaters raise and lower into position for easy, one-hand operation. Following the extraction process, support stirrups hold beakers at a slight angle above the heaters to dry the extract. Three infinite control knobs direct the variable heat input from 20-100% of capacity,

Condensers

Metal condensers with stainless steel heads are cone-shaped and have crown-like points over the samples to eliminate solvent channeling and ensure complete extraction. Automatic pressure-relief valves relieve pressure build-up in the condensers, then reset themselves to create a closed system of extraction.

Glassware and Accessories

All of the following components are included: twelve 100 ml beakers manufactured of thick-wall borosilicate glass with flanged and grounded tops to facilitate connection to condenser; six alundum extraction thimbles, heat covers, beaker seals, beaker rings, upper condenser gaskets, borosilicate glass sample tubes and reclaiming tubes. No additional hot plates, glassware, condensers, rubber hoses, clamps or support rods are necessary.

Connections

The Goldfish Fat Extractor is completely factory assembled. The only connections required for operation are to a water source and an electrical receptacle.

Basic Steps

The Goldfish Fat Extractor is recommended for use in the determination of fat and oil content, using solvents with boiling ranges not exceeding 85° C. The following basic steps are used:

1. The empty beaker is weighed.
2. The sample is placed in an alundum cup. This container is inserted in a spring clip that holds it in the condenser and aligns it for best flow of condensate.
3. Solvent is placed in the beaker. The beaker has a flanged and grounded top that locks into the condenser with a lock-ring and gasket.
4. Heat is applied by sliding the heater housing upward to meet the beaker.
5. The condenser head channels condensate directly to the top of the sample container, then distributes the flow to all sides of the container.
6. When extraction is complete, the sample container is removed and replaced with a reclaiming tube, leaving oil in the beaker.
7. A special stirrup support holds the beaker at a slight angle above the heater to dry the extract. When only a few milliliters of solvent remain, the beaker is placed in a drying oven.
8. The beaker is weighed and compared with the weight of the empty beaker. The increase in weight is an absolute measure of the amount of fat or oil extracted.

**Caution: The Goldfish Fat Extractor should be operated inside an explosion-proof fume hood to exhaust the vapors from flammable solvents used during normal operation. The fume hood should be equipped with a fire-suppression device.*

Specifications.

3500100 Goldfish Fat Extractor

Unit. 35 3/4" wide x 9" deep x 26 7/8" high. Frame shall be constructed of anodized aluminum.

Heaters. Unit shall include six 100-watt heater elements. Heaters shall be operated by three infinite-control knobs with variable heat input from 20-100% capacity. Six stirrup supports shall be included.

Condensers. Six metal condensers with Type 304 stainless steel heads shall be cone-shaped with crown-like points. Six automatic pressure-release valves shall be included.

Glassware and Accessories. Unit shall include all of the following components: twelve 100 ml beakers; six alundum extraction thimbles, heat covers, beaker seals, beaker rings, upper condenser gaskets, sample tubes and reclaiming tubes.

Plumbing Connections. Unit shall have a 3/8" IPS control valve located on the upper left side for connection to a cold water supply. A 3/4" IPS water outlet located on the upper right side shall allow connection to an open drain of at least 3/4" IPS.

Electrical. Unit shall be completely assembled and factory wired for 115 volt, 50/60 Hz, 5.2 amp AC operation. A pilot light shall glow red when unit is on. An on/off switch and six-foot, 3-wire cord and plug shall be provided.

Shipping weight 144 lbs.

Accessories



3505300 Goldfish Fat Extractor Replacement Beakers

100 ml beakers specifically designed for use with Labconco Goldfish Fat Extractor.

Manufactured of thick-wall borosilicate glass with flanged and ground tops to facilitate connection to condenser. Package of 6.

Shipping weight 2 lbs.

1315600 Transformer

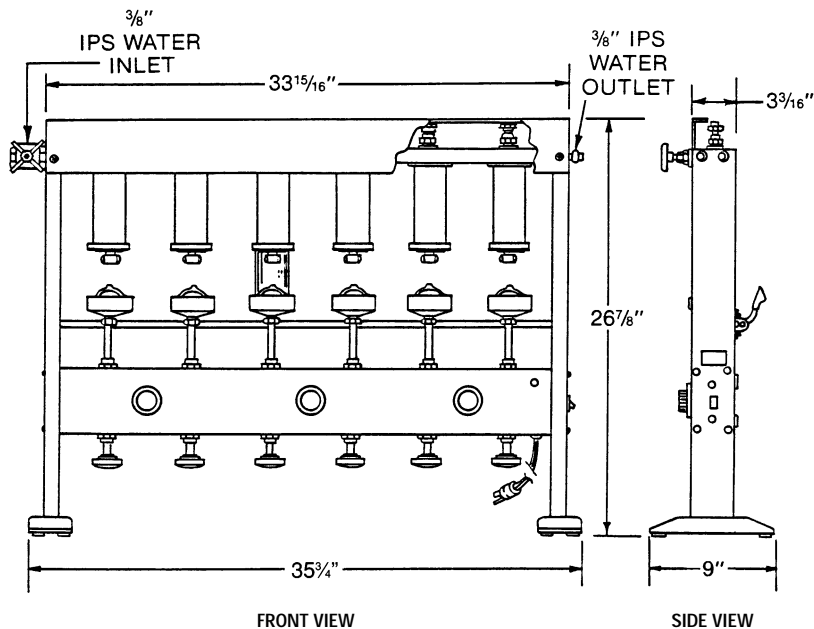
For use with 230 volt, 50/60 Hz, 1000-watt operation.

Shipping weight 21 lbs.

3505900	Alundum thimble, 22 x 80 mm, pkg./6
3505300	Beaker, glass, 100 cc. 3 1/4" high, pkg./6
3519100	Wave Washer Beaker Seal, Type 301 stainless steel
3516000	Gasket, condenser, upper, pkg./6
3506300	Gasket condenser, drip shield
3506200	Reclaiming tube, glass, pkg./6
3505400	Beaker ring
3506100	Sample tube container (thimble holder) glass, pkg./6
3518500	Heat cover

Dimensional Data

Goldfish Fat Extractor





3000100 Crude Fiber Apparatus

The Crude Fiber Apparatus is used in the determination of crude fiber in feed, food and other agricultural products. The Apparatus is a reflux condenser designed to operate with speed and accuracy. This apparatus is widely used by state, federal and industrial control labs and is listed by the AOAC.

The procedure involves subjecting a sample to the simulated action of the digestion system. Samples are boiled in acid and washed and then boiled in alkali and washed again. Remaining solids are isolated and termed insoluble fiber or crude fiber — the indigestible parts of agricultural products such as cellulose and other materials.

Features and Benefits

Construction

Sturdy anodized aluminum framework supports manifold.

Electric Heaters

Six 350-watt heaters are provided. Six infinite control knobs direct the variable heat input from 20-100% of capacity. The spring compression connection between the beaker and condenser element holds the beaker in place, preventing bumping and possible breakage when boiling begins. The tight seal keeps acid and alkali at constant volumes during the boiling stages, yet is readily disengaged by lowering the heater assembly.

Condensers

The stainless steel condenser has an inverted cone base. This cone directs the condensate back toward the sides of the beaker, which helps wash down froth and fiber that may adhere to the beaker sides.

Glassware

Twelve tall-form, straight-sided 600 ml beakers, manufactured of durable thick-wall borosilicate glass, are provided.

Plumbing Connections

The Crude Fiber Apparatus is completely factory assembled. The only connections required for operation are to a water source and an electrical receptacle.

Basic Steps

The Crude Fiber Apparatus is recommended for use in the determination of crude fiber content. The following basic steps are used:

1. Samples and reagent are placed in the 600 ml beaker.
2. The beaker is placed on the heater, which is raised until a spring compression connection is made between the beaker and condenser.
3. Heat is applied. As the temperature increases, the boiling solution reaches the condenser, and the process of refluxing begins.
4. An infinite heat control is supplied for each heater that allows stepless heat control to obtain the proper boiling and refluxing rate.
5. After the specified period, the contents of the beaker are filtered, then washed in boiling water repeatedly.
6. Residue on filter is boiled with caustic reagents and filtered again.
7. The remaining residue is dried, cooled, weighed and recorded as crude fiber.

Crude Fiber Apparatus

Specifications

3000100 Crude Fiber Apparatus

Unit. 35 11/16" wide x 9" deep x 27 3/16" high. Frame shall be constructed of anodized aluminum mounted on a Colorlith base.

Heaters. Unit shall include six 350-watt heaters. Heaters shall be operated by six individual infinite-control knobs with variable input from 20-100% capacity and with pilot lights for each heater.

Condensers. Unit shall include six Type 304 stainless steel condensers with inverted cone bases.

Glassware. Unit shall include twelve tall-form, straight-sided 600 ml beakers of thick-wall borosilicate glass.

Plumbing Connection. Unit shall have a 3/8" IPS control valve located on the upper left side for connection to a cold water supply. A 3/8" IPS water outlet located on the upper right side shall allow connection to an open drain line of at least 1/2" IPS.

Electrical. Unit shall be completely assembled and pre-wired to the on/off switch for 115 volt, 50/60 Hz, 18.3 amp AC operation. A power cord and plug shall be required.

Shipping weight 137 lbs.

3000200 Crude Fiber Apparatus

Specifications shall be the same as for 3000100 except for the following.

Electrical. Unit shall be completely assembled and pre-wired to the on/off switch for 230 volt, 50/60 Hz, 9.1 amp AC operation. An on/off switch shall be provided. A power cord and plug shall be required.

Accessories



5521000 Oklahoma State Filter

Designed for use with suction. The filter-screen assembly is made entirely of stainless steel and consists of a one-piece funnel with a threaded cap.

The cap holds a 200-mesh stainless steel screen against a perforated back-up plate for easy screen replacement. The entire assembly is machined smooth and assembled to minimize fiber loss.

5520100 Replacement Screen

5520200 Back-up Plate



5510000 California Büchner Funnel

This stainless polyethylene, two-piece Büchner Funnel is modified by the addition of a 200-mesh stainless steel screen which is firmly heat sealed into the bottom of the upper section.



3004300 Crude Fiber

Replacement Beakers

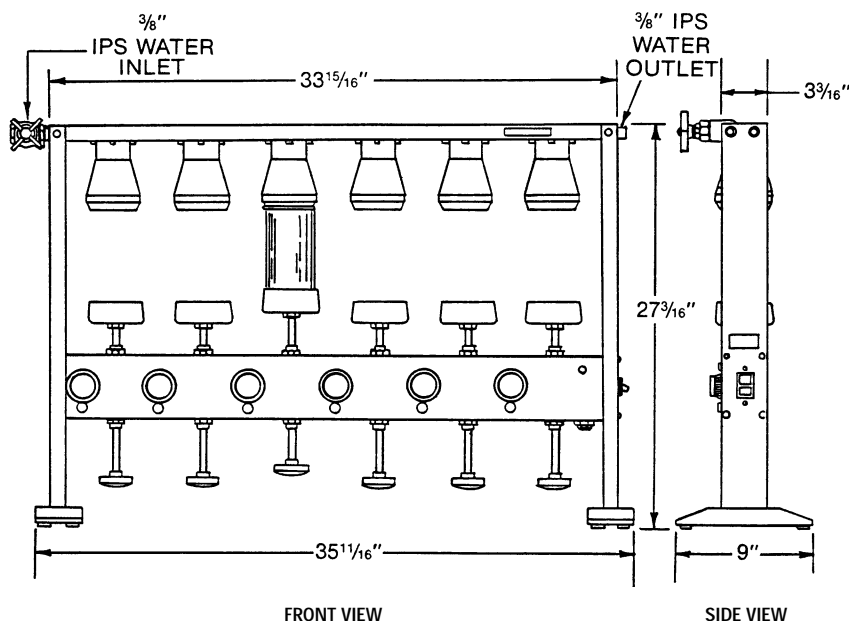
600 ml tall form beakers for use with Labconco Crude Fiber Apparatus. Manufactured of durable thick-wall borosilicate glass. With graduated volumetric markings to 600 ml.

Six per package.

Shipping weight 3 lbs.

Dimensional Data

Crude Fiber Apparatus



For more than 70 years, the Labconco name has stood for quality workmanship and exceptional service. This commitment to excellence is fostered throughout our company — from the men and women who design our products, to the conscientious craftsmen who manufacture them, to the sales representatives who tailor them to your needs.



Chemical Fume Hoods and Blowers Enclosures and Clean Benches



HEPA-Filtered Safety Cabinets, Enclosures and Clean Benches



Laboratory Animal Research Enclosures



Glove Boxes



Water Purification Systems



Glassware Washers



Digital Chloridimeters



Multiple Sample Evaporation Systems



Laboratory Carts and Benches



Vacuum Desiccator



Centrifugal Concentrators and Cold Traps



Freeze Dry Systems



Density Gradient Fractionators



Blood Drawing Chairs

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