

## Extraction

**Electromantle Extraction Heaters and Heater/Stirrers****No need for multiple units**

- Simultaneously heat samples with different boiling points with independent temperature controllers
- Don't get burned—case remains cool to the touch
- Increase efficiencies by adding stirring option
- Heat up to 450°C; stir from 50 to 1000 rpm on stirrer models

**What's included:** three ½" (12.7 mm) dia support rods, and 6-ft (1.8 m) power cord.

**Specifications**

**Maximum element temperature:** 450°C

**Housing material:** polypropylene top on powder-coated aluminum

**Thermal insulation:** ceramic fiber/mineral wool

**Stirring speed range (combination models only):** 50 to 1000 rpm



Number of positions	Flask capacity	Power (VAC, Hz)	Plug type	Heaters			Heater/stirrers		
				Catalog number	Watts	Price	Catalog number	Watts	Price
Three	250 mL	115, 50/60	US	<a href="#">GY-03076-03</a>	450		<a href="#">GY-03076-15</a>	490	
		230, 50/60	UK	<a href="#">GY-03076-04</a>	450		<a href="#">GY-03076-16</a>	490	
		230, 50/60	Euro	<a href="#">GY-03076-05</a>	450		<a href="#">GY-03076-17</a>	490	
	500 mL	115, 50/60	US	<a href="#">GY-03076-06</a>	600		<a href="#">GY-03076-18</a>	640	
		230, 50/60	UK	<a href="#">GY-03076-07</a>	600		<a href="#">GY-03076-19</a>	640	
		230, 50/60	Euro	<a href="#">GY-03076-08</a>	600		<a href="#">GY-03076-20</a>	640	
Six	100 mL	115, 50/60	US	<a href="#">GY-03076-24</a>	360		<a href="#">GY-03076-36</a>	440	
		230, 50/60	UK	<a href="#">GY-03076-25</a>	420		<a href="#">GY-03076-37</a>	500	
		230, 50/60	Euro	<a href="#">GY-03076-26</a>	420		<a href="#">GY-03076-38</a>	500	
	250 mL	115, 50/60	US	<a href="#">GY-03076-27</a>	900		<a href="#">GY-03076-39</a>	980	
		230, 50/60	UK	<a href="#">GY-03076-28</a>	900		<a href="#">GY-03076-40</a>	980	
		230, 50/60	Euro	<a href="#">GY-03076-29</a>	900		<a href="#">GY-03076-41</a>	980	

**Soxhlet Extraction Glassware Systems****No more trapped liquid**

- Easily and efficiently extract solids from solvent

**Components**

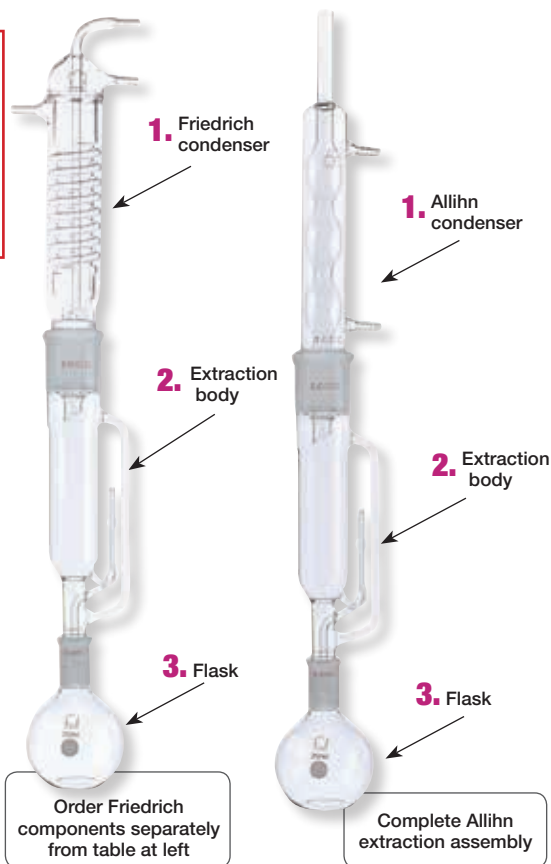
Key	Description	Volume	Joint ⌀ Size	Catalog no.	Price
<b>Allihn-only glassware</b>					
1	Condenser	125 mL	34/45	<a href="#">GY-99037-26</a>	
	Condenser	250 mL	45/50	<a href="#">GY-99037-28</a>	
	Condenser	300 mL	55/50	<a href="#">GY-99037-30</a>	
<b>Friedrich only glassware</b>					
1	Condenser	125 mL	34/45	<a href="#">GY-99037-32</a>	
	Condenser	250 mL	45/50	<a href="#">GY-99037-34</a>	
	Condenser	300 mL	55/50	<a href="#">GY-99037-36</a>	
<b>Common Friedrich/Allihn glassware</b>					
2	Extractor body	125 mL	Top: 34/45 Bottom: 24/40	<a href="#">GY-99037-38</a>	
	Extractor body	250 mL	Top: 45/50 Bottom: 24/40	<a href="#">GY-99037-40</a>	
	Extractor body	300 mL	Top: 55/50 Bottom: 24/40	<a href="#">GY-99037-42</a>	
3	Flat-bottom flask	125 mL	24/40	<a href="#">GY-99037-44</a>	
	Flat-bottom flask	250 mL	24/40	<a href="#">GY-99037-46</a>	
	Flat-bottom flask	300 mL	24/40	<a href="#">GY-99037-48</a>	
3	Round-bottom flask	125 mL	24/40	<a href="#">GY-99037-60</a>	
	Round-bottom flask	250 mL	24/40	<a href="#">GY-99037-62</a>	
	Round-bottom flask	300 mL	24/40	<a href="#">GY-99037-64</a>	
	Round-bottom flask	500 mL	24/40	<a href="#">GY-99037-66</a>	

**Complete assembly includes** an Allihn bulb condenser with 55/50 joint, 500 mL round bottom flask, and extractor body; order thimbles on page 264.

[GY-99037-18](#) Complete assembly

**REQUIRED System Components**

- 1) Condenser
- 2) Extractor body
- 3) Flask
- 4) Thimble.....page 264



## Pressure Reaction Vessels

### Protect your reactions and yourself

- Inert borosilicate glass construction with PVC coating for safety
- Millimeter reference scale to mark changes in your sample volume
- Pressure tested to 2x their pressure rating

Pressure reaction vessels allow for full observation of chemical reactions in a safe vessel. Ideal for viewing reactions of mixed compounds and viewing temperature and pressure changes of liquids or gasses. Typical applications include hydrolysis, hydrogenation, polymerization, catalysis, and isomerization. Other uses include corrosion studies, solubility studies, and spray and pressure characteristics of compounds.

**Caution:** Safety precautions should be taken with glass under pressure. Maximum safe pressure depends on overall vessel condition. Additional shielding is strongly recommended.

Capacity (oz)	Internal liquid volume	Maximum operating pressure	Catalog number	Price
<b>Reaction vessel</b>				
3	88 mL	225 psi	<a href="#">GY-63400-00</a>	
6	170 mL	125 psi	<a href="#">GY-63400-02</a>	
12	355 mL	75 psi	<a href="#">GY-63400-04</a>	
<b>Reaction vessel with coupling</b>				
3	88 mL	225 psi	<a href="#">GY-63400-12</a>	
6	170 mL	125 psi	<a href="#">GY-63400-14</a>	
12	355 mL	75 psi	<a href="#">GY-63400-16</a>	
<b>Reaction vessel with clear plastic shield and coupling</b>				
3	88 mL	225 psi	<a href="#">GY-63400-24</a>	
6	170 mL	125 psi	<a href="#">GY-63400-26</a>	
12	355 mL	75 psi	<a href="#">GY-63400-28</a>	

### Multiport Stirring Assembly

Includes 12-oz reaction vessel, rugged stainless steel head and stirrer assembly for gathering chemical reaction data. Unit features (5) 1/8" ports.

Assembly provides a controlled environment for constant stirring and handles highly viscous materials. It enables the use of pressure control gauges and temperature probes, and allows easy injection or extraction of samples.



63400-30

- [GY-63400-30](#) Multiport stirring assembly with 12-oz reaction vessel
- [GY-63400-90](#) Pressure gauge for use with 63400-30
- [GY-63400-92](#) Reducing adapter for use with 63400-30



63400-02



Reaction vessel 63400-26 with needle valve 63400-88

### Accessories

**Clear Acrylic Shields** provide added safety without obstructing view of the reaction. These shields have holes in the bottom for increased air circulation or liquid circulation in immersion baths.

- [GY-63400-52](#) Clear acrylic shield for 3-oz reaction vessel
- [GY-63400-54](#) Clear acrylic shield for 6-oz reaction vessel
- [GY-63400-56](#) Clear acrylic shield for 12-oz reaction vessel

**Stainless Steel (SS) Protective Wire Mesh** provides greater safety protection than the clear acrylic shield but limits view.

- [GY-63400-58](#) Protective wire mesh for 3-oz reaction vessel
- [GY-63400-62](#) Protective wire mesh for 12-oz reaction vessel

**Coupling Components.** A complete coupling consists of a female coupling (select aluminum or SS), male coupling (63400-66), insert, and O-ring. Use PFA insert and O-ring for high-temperature applications. For corrosive applications, use Viton® O-ring.

- [GY-63400-64](#) Female coupling, aluminum
- [GY-63400-72](#) Female coupling, SS
- [GY-63400-66](#) Male coupling, SS
- [GY-63400-76](#) Male coupling, SS for use with 3-oz reaction vessel 63400-24 only
- [GY-63400-68](#) Polyethylene insert
- [GY-63400-78](#) PFA insert
- [GY-63400-70](#) Neoprene® O-ring
- [GY-63400-74](#) PFA O-ring
- [GY-63400-86](#) Viton O-ring

**Needle Valve** provides flow control of gases at inlet pressures up to 2000 psi. Useful for water, compressed air and vacuum conditions.

- [GY-63400-88](#) Needle valve, 1/8" NPT(M), SS inlet and outlet
- [GY-63400-80](#) Needle valve adapter, 1/8" NPT. Includes rubber washer and neoprene O-ring
- [GY-63400-82](#) Replacement rubber washer
- [GY-63400-84](#) Replacement neoprene O-ring

# Mojonnier Ether Extraction System for Fat Analysis

## Ensure compliance

AOAC Method 989.05

### 1. Extraction Flask

Use this flask to measure fat content in dairy and other food products. Extraction chamber has a diameter of 35 mm; top opening accepts a #0 stopper. See pages 897-899 for stoppers.

Capacity	Catalog number	Price
25 mL	<a href="#">GY-34590-65</a>	



1.

34590-65

2.

17360-40



**REQUIRED System Components**

- 1) Extraction Flask
- 2) Centrifuge
- 3) Explosion proof hot plate, [see page 448](#)

### 2. Centrifuges

Use these centrifuges to perform acid hydrolysis for your fat analysis. Small centrifuges 17360-01 and -40 hold up to eight Mojonnier extraction flasks; large centrifuge 17360-45 holds up to 12 Mojonnier extraction flasks.

Centrifuges are constructed of 319 aluminum and polished to a satin finish. All models feature sealed manual brakes and safety switch. Easily mount external motor switch up to 6 feet away. Switch is enclosed in an explosion-proof and waterproof housing.

Number of flasks	Speed	Maximum RCF	Power	Catalog number	Price
8			110 VAC, 60 Hz	<a href="#">GY-17360-01</a>	
8	600 rpm	100 x g	220 VAC, 50 Hz	<a href="#">GY-17360-40</a>	
12			220 VAC, 50 Hz	<a href="#">GY-17360-45</a>	

## Extraction Thimbles

### Protect purity during extraction

- Seamless, high-purity filters for extraction and air monitoring
- Used in soxhlet apparatus for dust sampling or for extracting soluble compounds using organic solvents

Made of cellulose, glass fiber, or silica fiber. Typical applications include analysis of fats, oils, grease, organics, pesticides, pollutants, and additives in plastic/rubber materials.

**Cellulose Thimbles** are suitable for extraction of organic compounds and dust sampling. Lipid content is <0.1% by weight; thickness is 1.5 mm.

**Glass Fiber Thimbles** of borosilicate glass are acid washed for minimum trace metal content. They are acid resistant (except hydrofluoric) and ideal for high-temperature extractions up to 932°F (500°C). Thickness is 1.6 mm.

**Quartz Fiber Thimbles** are tapered for ease in loading into stack samplers. Heat resistant up to 1832°F (1000°C). Thickness is 2.2 mm.

Dia x H	Qty/pk	Catalog number	Price/pk
<b>Cellulose thimbles (Grade No. 84)</b>			
19 x 90 mm	25	<a href="#">GY-29821-44</a>	
22 x 65 mm		<a href="#">GY-29821-08</a>	
25 x 60 mm		<a href="#">GY-29821-02</a>	
25 x 80 mm	25	<a href="#">GY-29821-46</a>	
25 x 90 mm		<a href="#">GY-29821-10</a>	
25 x 100 mm		<a href="#">GY-29821-48</a>	
28 x 100 mm		<a href="#">GY-29821-50</a>	
30 x 80 mm	25	<a href="#">GY-29821-14</a>	
30 x 100 mm		<a href="#">GY-29821-12</a>	
33 x 80 mm		<a href="#">GY-29821-04</a>	
33 x 100 mm		<a href="#">GY-29821-52</a>	
43 x 123 mm		<a href="#">GY-29821-06</a>	
<b>Glass fiber thimbles (Grade No. 86R)</b>			
19 x 90 mm	25	<a href="#">GY-29821-16</a>	
25 x 90 mm		<a href="#">GY-29821-20</a>	
25 x 100 mm		<a href="#">GY-29821-18</a>	
30 x 80 mm	25	<a href="#">GY-29821-24</a>	
30 x 100 mm		<a href="#">GY-29821-22</a>	
33 x 80 mm		<a href="#">GY-29821-26</a>	
33 x 100 mm		<a href="#">GY-29821-28</a>	
43 x 123 mm		<a href="#">GY-29821-28</a>	
<b>Quartz fiber thimbles (Grade No. 88R)</b>			
19 x 90 mm	25	<a href="#">GY-29821-30</a>	
25 x 100 mm		<a href="#">GY-29821-32</a>	
30 x 80 mm		<a href="#">GY-29821-36</a>	
30 x 100 mm		<a href="#">GY-29821-34</a>	



Used in soxhlet apparatus for sampling and extraction applications



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# Babcock System for Fat Analysis

## Get accurate results, easily

– Conforms to AOAC Method 989.04

### 1. Babcock and Paley Bottles

Easily measure the percentage of butter fat in your sample with these specialized bottles. The body of each bottle is a reaction chamber, while the graduated neck is a measuring device. Use the Babcock bottles for measuring liquids and small samples. The Paley bottles feature a large opening on the side of the body to accommodate larger or viscous samples. All bottles measure 6½" H (16.5 cm).

Description	Size	Subdivision	Tolerance	Sample	Qty	Catalog number	Price
<b>Babcock bottles</b>							
Skim milk test	0.5%	0.01%	±0.025%	18 grams	12	<a href="#">GY-34590-00</a>	
					1	<a href="#">GY-34590-01</a>	
Milk test	8%	0.1%	±0.05%	18 grams	12	<a href="#">GY-34590-05</a>	
					1	<a href="#">GY-34590-06</a>	
Ice cream test	10%	0.1%	±0.1%	18 grams	12	<a href="#">GY-34590-10</a>	
					1	<a href="#">GY-34590-11</a>	
Ice cream/half & half test	20%	0.2%	±0.2%	9 grams	12	<a href="#">GY-34590-15</a>	
					1	<a href="#">GY-34590-16</a>	
Cream and cheese test	50%	0.5%	±0.5%	9 grams	12	<a href="#">GY-34590-25</a>	
					1	<a href="#">GY-34590-26</a>	
Cream test	50%	0.5%	±0.5%	18 grams	12	<a href="#">GY-34590-30</a>	
					1	<a href="#">GY-34590-31</a>	
<b>Paley bottles</b>							
Cheese and sour cream	20%	0.2%	±0.20%	9 grams	3	<a href="#">GY-34590-35</a>	
					1	<a href="#">GY-34590-36</a>	
Cheese	50%	0.5%	±0.5%	9 grams	3	<a href="#">GY-34590-40</a>	
					1	<a href="#">GY-34590-41</a>	



### REQUIRED System Components

- 1) Babcock or Paley
- 2) Pipette
- 3) Centrifuge
- 4) Orbital shaker



### 2. Pipettes



Model 34590-50 is designed to comply with the Pennsylvania modified Babcock as referenced in APHA 15.8. Models 34590-55, -56, -60, and -61 include a special rubber washer that allows air displaced by incoming milk to escape freely. Models 34590-55 and -56 meet ASTM Specification E 1043, Type II A requirements; models 34590-60 and -61 meet ASTM Specification E 1043, Type II B requirements. All pipettes feature permanent brown-stain scales.

Description	Capacity	Tolerance	Qty	Catalog number	Price
Skim milk test, to contain	9 mL	±0.05 mL	1	<a href="#">GY-34590-50</a>	
Milk test, to contain	17.6 mL	±0.05 mL	12	<a href="#">GY-34590-55</a>	
			1	<a href="#">GY-34590-56</a>	
Milk test, to deliver	17.6 mL	±0.05 mL	12	<a href="#">GY-34590-60</a>	
			1	<a href="#">GY-34590-61</a>	

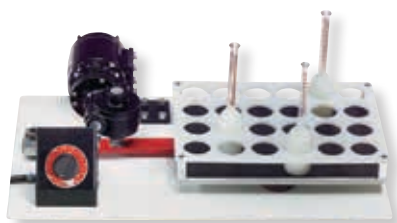
**Color-Coded Pipette Pumps** feature knurled thumb wheel for precise level measurement. Dispense by depressing plunger or rotating wheel. High-density polyethylene construction.

[GY-06221-03](#) Pipette pump; green, 10.0-mL capacity

[GY-06221-04](#) Pipette pump; red, 25.0-mL capacity

### 4. Variable-Speed Orbital Shaker

Obtain consistently accurate results every time with this orbital shaker. A unique orbital action and a low center of gravity provide minimum vibration to ensure complete integration of sample in 30 to 45 seconds.



### 3. Centrifuges

These centrifuges are specifically designed for Babcock testing. All models feature a heater, thermostat†, thermometer, speed indicator, and brakes in a durable cast aluminum housing. The control box on top of the centrifuge provides easy access to the pilot light, motor and heater switches.

†Thermostat is factory set for 140°F (60°C).



#### Specifications

- Speed:** 836 rpm
- Maximum RCF:** 166 x g
- Temperature range:** 88 to 200°F (31 to 93°C)
- Bottle size:** 6½"H x 1⅞" dia (16.5 x 3.7 cm)

Bottle capacity	110 VAC, 60 Hz models		220 VAC, 50 Hz models	
	Catalog number	Price	Catalog number	Price
8	<a href="#">GY-17360-00</a>		<a href="#">GY-17360-05</a>	
12	<a href="#">GY-17360-10</a>		<a href="#">GY-17360-15</a>	
24	<a href="#">GY-17360-20</a>		<a href="#">GY-17360-25</a>	

#### Specifications

- Speed range:** 40 to 400 rpm
- Bottle size:** 6" to 9"H (15.2 to 22.9 cm)

Bottle capacity	Power (VAC, Hz)	Catalog number	Price
24	110, 60 220, 50	<a href="#">GY-51300-10</a> <a href="#">GY-51300-15</a>	