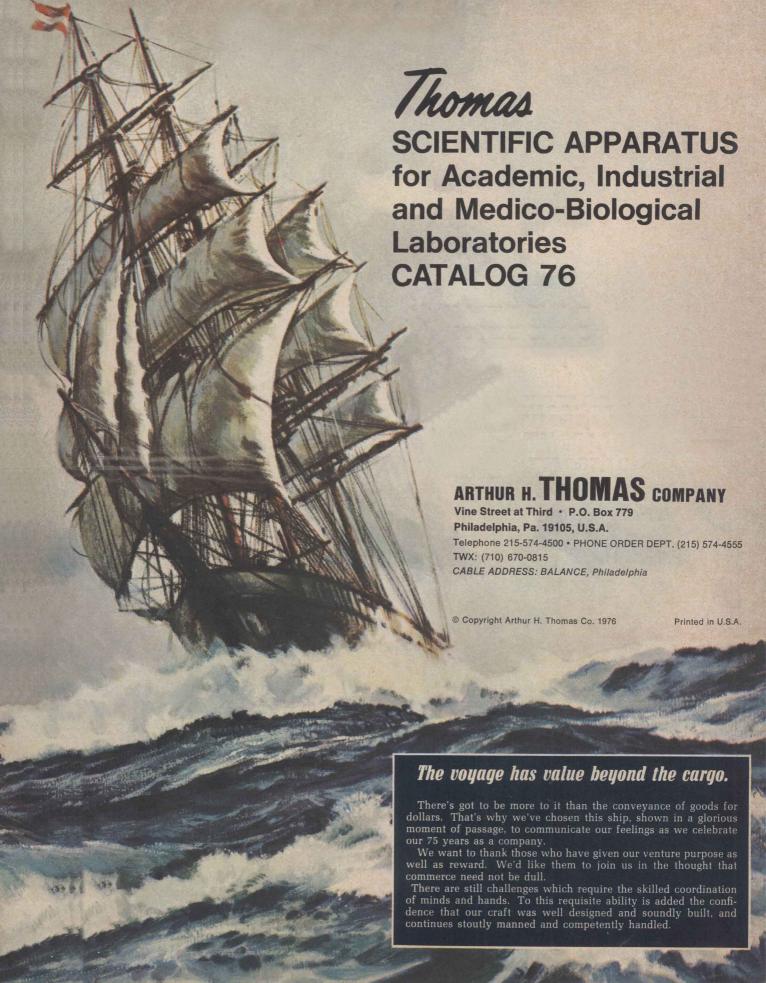


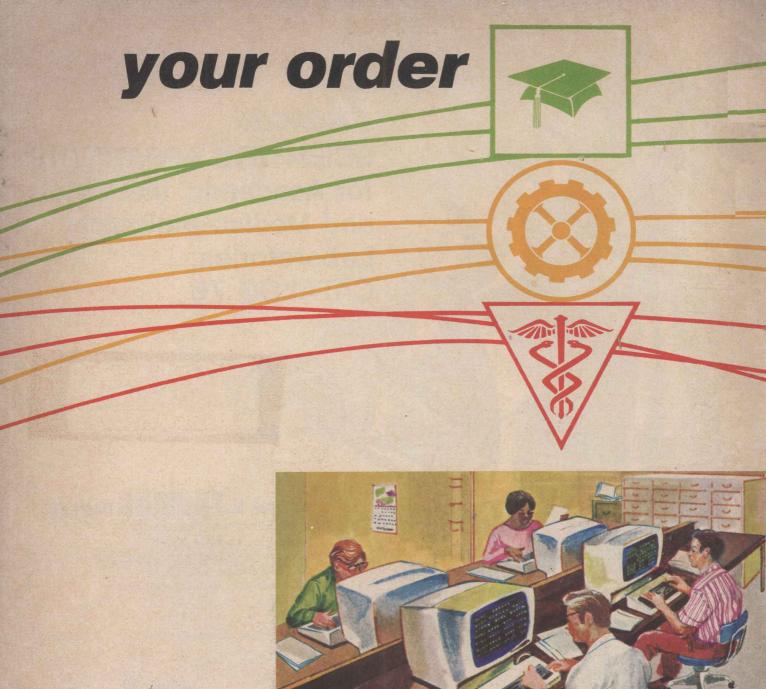
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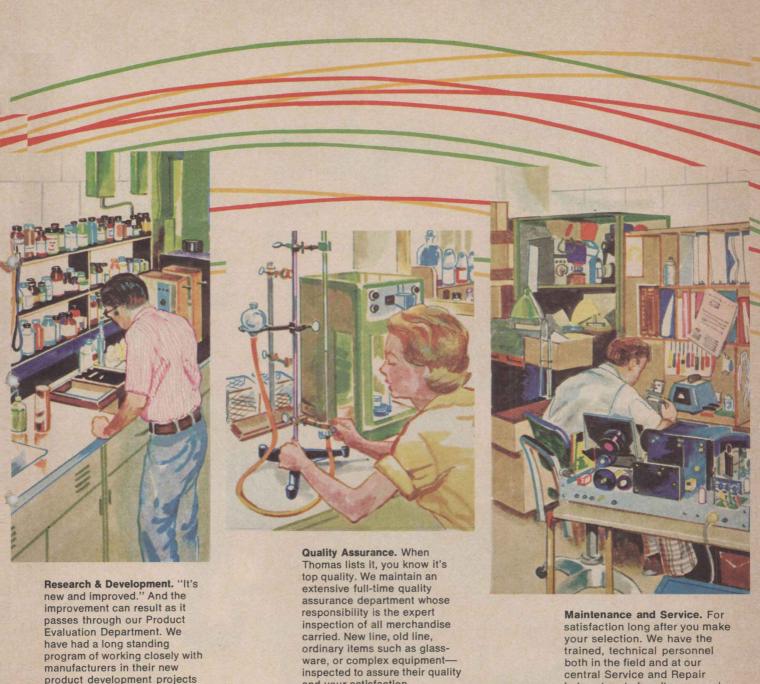


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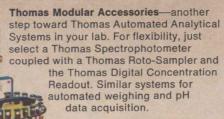
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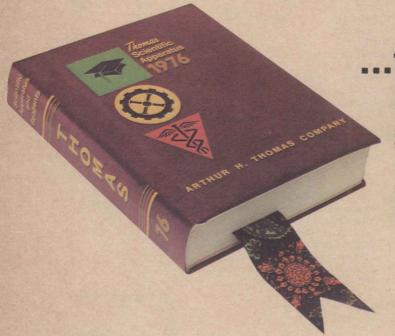
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#### **Acid Pails**

#### 1021-B40 ACID PAIL, Polyethylene

Lower density type, lightweight and durable. Capacity  $2\frac{1}{2}$  gallons, graduated inside at 1-pint and 1-liter intervals. With rolled rim, broad spout, and steel handle with polyethylene grip. Height  $10\frac{1}{2}$  inches, inside diameter at top  $9\frac{1}{2}$  inches, maximum overall width  $11\frac{1}{6}$  inches.

1021-B40 ACID PAIL ...... 3.10

# 1021-B60 ACID PAIL, Nalgene, Polypropylene (Nalge 7012-0110)

Capacity 11 quarts, with rolled rim and stainless steel handle with polypropylene grip. Autoclavable. Extra heavy weight and rigid walls for heavy duty use. Height 10 inches, inside diameter at top 10 inches, maximum overall width  $11\frac{1}{2}$  inches.

1021-B60	ACID PAIL	9.02
1021-B63	ACID PAIL. Case ⊕ of 6	48.71

#### 1021-B80 ACID PAIL, Styrene Rubber, Ace-Hide

A resilient, practically unbreakable container with reinforced rolled rim, drip-proof pouring spout, and removable, rubber-coated steel handle; for safe handling of many corrosive chemicals. Suitable for use with strong alkalies, concentrated hydrochloric, phosphoric and acetic acids, also hydrofluoric acid 50%, nitric acid 10% at room temperature, and sulfuric acid 50%, but should not be used with strong oxidants such as chromic acid. Capacity 3 gallons, with inside graduations at ½-gallon intervals. Height 12 inches, inside diameter at top 10½ inches, maximum overall width 13½ inches.







1021-B80

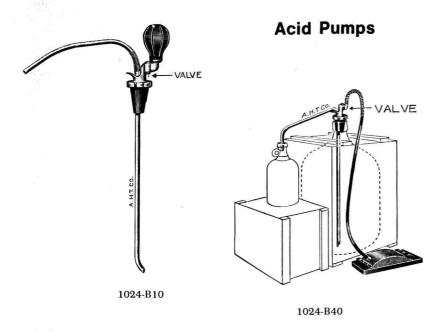
#### Suggestions for the effective use of this catalog...

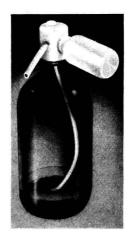
1021-B40

- Although our cataloging sequence is generally alphabetical, it is always best to consult the INDEX when searching for an item. Items are cross-referenced there under common names, author, and function.
- The catalog number is a specific identifier. Where items are shown in different sizes or types, each size or type has its individual number.
- 3. The catalog number also defines the unit of measure for any item. Where the same item is offered in more than one quantity, there is a separate number for each quantity offered. For example, a 250 ml beaker is offered as a package of 12 under 1530-M11. The same beaker is offered as a case of 48 under 1530-M13.
- 4. It is strongly suggested that the wording of our price lines be followed when ordering. Quantity ordered should also relate to the package quantity defined by the catalog number. For example, when ordering the beaker cited in the preceding paragraph, an order for 12 beakers should specify:

#### 1 - 1530-M11 BEAKER. Pkg of 12

(not 12 — 1530-M11 BEAKERS, which can be interpreted as an order for 12 packages).





1024-Q10 (Bottle shown is not included.)

#### 1024-B10 ACID PUMP, Thompson Pneumatic

Consisting of a lead delivery tube with rubber hand bulb and Teflon ball valve, fitted to a tapered polyethylene stopper, 1 inch diameter at bottom by 21/4 inches diameter at the top by 4 inches long, which fits bottles and carboys with inside diameter of neck from 1 to 2 inches. Can be used in carboys with neck i.d. up to 21/2 inches by means of accessory polyethylene adapter (see 1024-B65). The vertical tube is 24 inches long and delivery tube extends 16 inches from neck of carboy. Operation of the bulb creates pressure on top of the liquid and forces it out in a full, smooth stream. Flow is stopped by pressing the valve upward. Capacity approximately two gallons per minute. This device is compact and easily transferred from one container to another. Suitable for sulfuric, hydrofluoric or 85% phosphoric acids, carbon bisulfide, xylene, etc. Not suitable for concentrated hydrochloric, nitric or glacial acetic acids.

1024-B10 ACID PUMP ...... 37.50

#### 1024-B25 ACID PUMP, Thompson Pneumatic

Same as 1024-B10 but with polyethylene delivery tube, making it suitable for use with practically all acids, including acetic. Not suitable for concentrated nitric acid or carbon bisulfide.

1024-B25 ACID PUMP ...... 35.00

#### 1024-B40 ACID PUMP, Thompson Model F-H

Similar to 1024-B10 but with tubular bellows, which can be operated by foot or hand, in place of rubber bulb. Air capacity of bellows is approximately 40% greater than bulb. Permits free use of both hands.

1024-B40	ACID PUMP	47.00
	RUBBER BULB	4.05
1024-B65	ADAPTER	.86

## 1024-B75 DELIVERY TUBES, Thompson Pump 1024-B80

Fit 1024-B10, 1024-B25 and 1024-B40 Pumps. The 1024-B75 Tube is polyethylene, suitable for use in liquids cited in listing of 1024-B10 Pump. The 1024-B80 Tube is aluminum, suitable for concentrated nitric acid, gasoline, and phenol.

 1024-B75
 DELIVERY TUBE
 5.00

 1024-B80
 DELIVERY TUBE
 4.25

#### 1024-Q10 ACID PUMP, Polyolefin, Mallinckrodt

With threaded base for attachment to bottles with G.C.M.I. No. 38 screw neck, such as standard commercial 5-pint acid bottles. All parts directly in contact with liquid are of chemically resistant polyolefins. A 4 oz polyethylene bottle (1704-H26) fits threaded socket on side of the valve housing and serves as a pressure bulb to force liquid through delivery spout in a continuous stream at maximum rate of approximately 1000 ml per minute. Flow can be stopped immediately by pressing relief valve button on top of pump. Can be disassembled for cleaning.

Suitable for caustic solutions and most mineral acids, excepting perchloric acid. Polyolefins are attacked by oxidizing agents such as concentrated nitric and sulfuric acids, but it is possible to dispense such liquids provided the pump is detached and flushed immediately after use.

Furnished complete with 4 oz polyethylene bottle for use as pressure bulb; outflow tube 16 inches long  $\times$   $\$_{32}$ -inch bore; delivery spout, approximately 3 inches long  $\times$   $\$_{8}$ -inch outside diameter; and polyolefin gasket and adapter ring to provide airtight seal on bottles with various neck finishes. Without reservoir bottle.

1024-Q10	ACID PUMP	7.99
1024-Q12	ACID PUMP. Case of 12	87.12

#### **Battery-operated Pump**

Self-priming



1024-Q80

#### 1024-Q80 ACID PUMP, Battery-Operated, Presto-Tek

Centrifugal type, self-priming. Draws liquid through 17-inch plastic immersion tube at rate of 3 liters per minute. Exerts no pressure on walls of container; satisfies O.S.H.A. requirements in this regard for safe use on glass bottles and carboys. Usable in any type container with mouth diameter of 1½ inches or larger.

Polyethylene handle assembly contains 3-volt, 0.8-ampere pump motor and battery chamber. Motor is operated at 6100 r.p.m. by two 1.5-volt D batteries. Nylon impeller rotates in polyethylene enclosure at bottom of PVC immersion tube which contains the stainless steel drive shaft. Liquid is delivered through 4-inch polyethylene spout.

Tapered polyethylene adapter supports pump in mouth of bottles with neck i.d. of  $1\frac{1}{8}$  to  $1\frac{5}{16}$  inches. Overall length of pump,  $27\frac{1}{2}$  inches.

Not intended for use with flammable liquids. Unsuitable for prolonged exposure to strong acids and other corrosive liquids or solvents which would attack the plastics or stainless steel; limited dispensing of some liquids in this category is possible if pump is removed and flushed immediately after use.

Supplied without batteries; see 1481-C50 (2 are required).

#### **Piston-type Pump**

Non-pressurizing type



1024-R80 ACID PUMP, Polyethylene, Hand Piston Type, Nalgene (Nalge 6530-0010)

For controlled delivery of liquids from various standard drums, tanks, and carboys. Delivers approximately 1 gallon in 6 strokes. Immersion pipe is  $1^{13}$ <sub>16</sub> inches o.d.; maximum insertion length 34 inches. Removable delivery spout can be turned up to avoid dripping, is replaceable with standard  $1\frac{1}{2}$ -inch o.d. polyethylene tubing of desired length.

All parts in contact with liquid are chemically resistant, higher density polyethylene. Suitable for most mineral acids and caustic solutions. Pump should be rinsed promptly following use with strong oxidizing agents, hydrocarbons, and certain organic acids and esters. Not recommended for use with concentrated nitric acid, halogenated hydrocarbons, higher alcohols, or petroleum products.

Adapters, of lower density polyethylene, are offered separately to seal pump into mouth of standard containers.

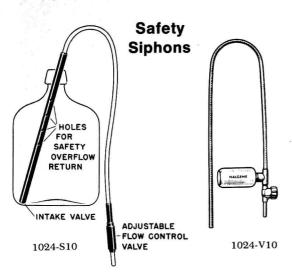
1024-R86 Adapter (Nalge 6531-0010) has 2-inch buttress thread, for polyethylene drums.

1024-R89 Adapter (Nalge 6531-0020) has 2-inch n.p.t. thread to fit standard steel drums.

1024-R92 Adapter (Nalge 6531-0030) has size 83B thread which fits Nalgene polyethylene carboys, 5, 6½, or 13 gallons capacity, such as 1732-F10.

Pump is supplied without adapter.

1024-R80	ACID PUMP	23.10
1024-R82	ACID PUMP. Case ⊕ of 6	124.74
1024-R86	ADAPTER, 2-inch	4.89
	ADAPTER, 2-inch NPT	
1024-R92	ADAPTER, 5/6.5/13-gallon	7.38



#### 1024-S10 ACID PUMP, Speare Safety Siphon

Plastic, for controlled delivery, without pressure, of a wide variety of acids, corrosives and other liquids from large containers such as acid carboys or drums. Consisting of a rigid Saran inlet casing, 11/16 inches in diameter, which houses priming pump and intake valve assemblies; and a semiflexible, polyethylene siphon tube  $\frac{5}{8}$ -inch diameter  $\times$  56 inches long fully extended. Sleeve-type flow control valve, also of Saran®, is located approximately 3 inches from outlet of siphon tube. Priming is accomplished by slowly pumping the siphon tube within the casing, with flow valve closed and inlet below liquid level. Once tube is filled, siphon action can be controlled by adjusting control valve at rates up to approximately 1 gallon per minute. Remains primed until liquid level falls below tip of inlet casing. Holes are provided for return of overflow. Saran (polyvinylidene chloride) and polyethylene have generally good chemical resistance, but the pump should not be used with concentrated oxidizing acids, petroleum products, or chlorinated hydrocarbons, and it should be rinsed following use with other hydrocarbons, bromine water, formic acid, or concentrated alkalies.

1024-S10	ACID PUMP	 30.00

### 1024-V10 SIPHONS, Nalgene Poly-Syphons 1024-V20

For controlled delivery of liquids from carboys, drums, etc. Entirely of lower density polyethylene. Consists of a semiflexible siphon tube with attached stopcock and squeeze type bottle which serves as priming bulb.

Siphon tube of 1024-V10 (Nalge 6520-0010) is  $\frac{3}{8}$ -inch bore, length 5 feet when fully extended; it is supplied as a coil without the formed bend shown in illustration. Stopcock,  $\frac{1}{4}$ -inch i.d., is needle valve type, allowing adjustment of flow down to a very slow rate, and has delivery spout  $\frac{1}{2}$ -inch o.d.

Siphon tube of 1024-V20 (Nalge 6521-0010) is  $\frac{1}{2}$ -inch bore  $\times$  8½ feet long; stopcock is  $\frac{1}{2}$ -inch i.d. with delivery spout  $\frac{11}{16}$ -inch o.d. for greater flow rate.

1024-V10	SIPHON, 3/8-inch	11.91
	SIPHON, 3/8-inch. Case $\oplus$ of $6$	64.31
1024-V20	SIPHON, 1/2-inch	15.74
	SIPHON, 1/2-inch, Case # of 6	85.00

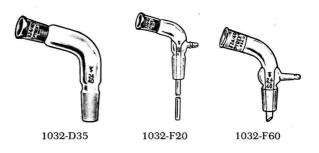
#### Adapter Tubes



#### 1032-C25 ADAPTER, ₹, Pyrex Brand (Corning 8840)

With \$24/40 joint at mouth. Delivery end is curved at an angle of 105° and tip is cut off at angle. Length approximately 180 mm.

1032-C25	ADAPTER	4.63
1032-C28	ADAPTER. Case 4 of 12	50.04



#### 1032-D35 ADAPTER, \$, Pyrex Brand (Corning 8940)

Same as 1032-C25, but with ₹ 24/40 joints at top and bottom.

1032-D35	ADAPTER	6.84
1032-D38	ADAPTER. Case ♣ of 12	73.92

#### 1032-F20 ADAPTER, Pyrex Brand (Corning 8945)

Similar to 1032-D35, i.e., with \$24/40 joints but with side tubulation and long inner tube sealed in above the side tubulation; for attachment to distillation assemblies operating at reduced pressure. Length approximately 295 mm overall; tube extends 170 mm below bottom of joint.

1032-F20	ADAPTER	9.03
1032-F23	ADAPTER. Case ♣ of 6	48.78

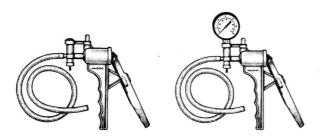
#### 1032-F60 ADAPTER, Pyrex Brand (Corning 8946)

Similar to 1032-F20 but with drip tip extending only 20 mm below inner joint. Length approximately 175 mm.

1032-F60	ADAPTER	9.80
1032-F63	ADAPTER. Case 4 of 6	52.92

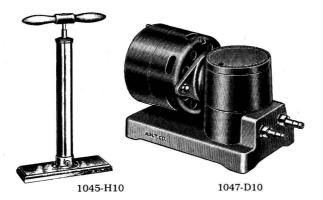
#### Air Pumps

#### See also Filter Pumps



1045-B20

1045-B35



#### 1045-B20 AIR PUMPS, Hand-Operated, Plastic, 1045-B35 Pressure-Vacuum, Nalgene

Compact, light duty pump, useful for numerous small-volume vacuum or pressure requirements in the laboratory or field. Produces vacuum of 25 inches Hg, which pump will hold for 24 hours; pressure at exhaust port 7 p.s.i. Molded of impact-resistant polystyrene, with finger grips in squeeze-type handle. Pumping rate is approximately 15 cc per stroke.

Length 7¾ inches. Weighs less than 8 ounces. Pump unit is sealed, requires no lubrication. Pushbutton discharge valve provides quick vacuum release without disconnecting line.

Inlet and outlet take  $\frac{1}{4}$ -inch bore tubing. Pumps are supplied with 2 feet of  $\frac{1}{4}$ -inch vinyl tubing.

1045-B20 Pump (Nalge 6131-0010) is without gauge. 1045-B35 Pump (Nalge 6130-0010) includes vacuum gauge with dial graduations reading 0 to 30 inches Hg in 1 inch divisions, 0 to 76 cm Hg in 1 cm.

1045-B20	HAND PUMP	17.50
1045-B22	<b>HAND PUMP.</b> Case ⊕ of 4	63.00
1045-B35	HAND PUMP, with gauge	22.50
1045-B37	HAND PUMP, with gauge. Case $\oplus$ of $4 \dots$	81.00

#### 1045-H10 AIR PUMP, Vacuum and Pressure

Of nickel-plated brass. Mounted on oak base. With chamber 16 inches long  $\times$   $2^{1}/_{8}$  inches diameter. Provides a vacuum of approximately 25 inches of mercury and an air pressure of approximately 40 lbs. per square inch. With separate valves and nipples for pressure and vacuum. Nipples take  $1/_{4}$ -inch tubing.

#### 1047-D10 AIR PUMP, Diaphragm Type

Motor driven, for moderate vacuum and pressure work. Provides vacuum up to 12 inches Hg, pressure to 10 p.s.i.; pumping capacity at 2 p.s.i. is 3.6 liters per minute. Air flow is maintained by pumping action of a Neoprene diaphragm, driven by a 1/82 h.p. aircooled, induction type motor. Suitable for continuous duty. This inexpensive unit, which introduces no oil into pumping system, is widely used for applications not requiring a heavier pump.

Base and pump housing are of cast aluminum. Overall dimensions  $7\frac{1}{4} \times 3\frac{5}{8} \times 4\frac{1}{4}$  inches high. Serrated connectors take tubing  $\frac{1}{4}$ -inch bore. With connecting cord and plug. For 120 volts, 60 Hz.



1047-E30

#### 1047-E30 AIR PUMP, Diaphragm Type

A vibration-driven, continuous duty pump for producing a constant flow of air, or moderate suction. Output is free of oil. Diaphragm and valves are Neoprene. Free air capacity 1.7 liters per minute. Built-in air filter mechanism requires no replacement or cleaning in normal use

Inlet and outlet are  $\frac{3}{16}$ -inch o.d. Housing is plastic,  $3 \times 5\frac{1}{2} \times 5\frac{1}{2}$  inches high. With connecting cord and plug for 120 volts, 60 Hz.

1047-E30 AIR PUMP ...... 21:50



1047-J20

#### 1047-J20 AIR PUMP, Silent Giant

A continuous duty pump of efficient, trouble-free design, intended originally for aquarium aeration. Pumping mechanism, suspended by springs inside an inner metal case, is driven electromagnetically, with very short piston stroke. Requires no oiling. Intake filters and sand filler are provided to trap dust.

Capacity 0.1 cu. ft. per minute of free air, 0.07 cu. ft. per minute at 2 p.s.i. Maximum pressure 2.7 p.s.i.

U.L. and C.S.A. approved.

Outlet is  $^{3}_{16}$ -inch o.d. Plastic housing measures  $^{4}_{12}$  inches diameter  $\times$   $^{5}_{12}$  inches high, mounted on sponge rubber feet. With cord and plug for 120 volts, 60 Hz; 4 watts.

1047-J20 AIR PUMP ...... 23.00

# Gast Air Pumps for Vacuum and Pressure



1048-H05



1050-A10

#### 1048-H05 AIR PUMP, Pressure/Vacuum, Gast Oilless Diaphragm Type

Quiet and rugged, with filtered oil-free output, for continuous vacuum and pressure work. Provides vacuum up to 24 inches Hg, pressure to 50 p.s.i. Pumping capacity at 50 p.s.i. is .25 cu. ft per minute of free air. Diaphragm is driven by a <sup>1</sup>/<sub>8</sub>-h.p. air-cooled, shaded pole motor with internal thermal overload protection. Valves are stainless steel.

Housing, head, and connecting rod are of cast aluminum. Symmetrical head permits inlet orientation at side, front or back. Overall dimensions  $7\times7^3/_4\times10^1/_2$  inches high. Complete with vacuum and pressure gauges and regulators. Vacuum gauge graduated 0 to 30 inches Hg and 0 to 760 mm Hg; pressure gauge graduated 0 to 100 lbs. and 0 to 7 bars.

# 1050-A10 AIR PUMPS, Gast Portable through 1050-A40

Air-cooled, motor-driven units complete with vacuum and pressure gauges, and thermal overload circuit breaker. Operable intermittently (10 minutes on, 10 minutes off) at maximum pressure of 25 lbs., or at 27-inch vacuum. Operable continuously at pressures up to 20 lbs., or 20-inch vacuum. Will pump 1.3 cubic ft. of air at atmospheric pressure; 0.45 cubic ft. per minute at 25 lbs. pressure. Require only  $6\frac{1}{2}\times15$  inches of bench space.

Cast iron rotor on motor shaft, fitted with four composition vanes, revolves in a precision machined housing of special iron alloy which is mounted directly on the motor. Pump has rubber feet and is equipped with carrying handle, and with air filters and oil trap. Vacuum gauge graduated 0 to 30 inches of mercury, pressure gauge graduated 0 to 30 lbs., and needle valves for precise regulation of pressure and vacuum are included. Motor rated at 1/6 h.p.; 1725 r.p.m.

Furnished with 1 quart oil and 3-wire cord with snap switch. The 120-volt models are rated at 4.2 amperes, the 240-volt model at 2.1 amperes.

1050-A10	PUMP, 120 V, 60 Hz	124.52
1050-A20	PUMP, 120 V, 50 Hz	154.07
1050-A40	PUMP, 240 V, 50 Hz	143.50

#### 1050-C05 REPLACEMENT PARTS through for Gast Vacuum-Pressure Pumps 1050-D33

Listings below are for the most frequently required replacement units. The 1050-C05 Parts Kit provides full set of parts which should be replaced simultaneously when pump performance diminishes. It contains a set of four 1050-C15 Vanes; one 1050-C27 End Plate Gasket; one 1050-C35 Jar Gasket, rubber, 2½ inches o.d. × ½6-inch thick and one 1050-C55 Gasket, paper, 15½6-inch diameter × ½6-inch thick, both for the exhaust filter; and the following items for replacement in the oiler-filter assembly: one set of 1050-C85 Felt Filter Rings, one 1050-D10 Felt Separator Disc, one 1050-D20 Wick, and one 1050-D33 Cork Gasket.

Not included in the kit are the 1050-C45 Chemistone element for the exhaust filter or the 1050-C65 Oil Reservoir (Jar).

Also listed separately is the 1050-C75 Oiler-Filter which includes the 1050-C65 Oil Reservoir and threaded metal cover with wick tube, as well as one each wick, filter ring, felt disc, and cork gasket as listed in 1050-C05 Parts Kit.

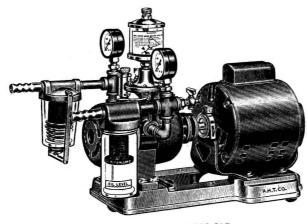
1050-C15       VANES. Set of 4       1.20         1050-C27       GASKET. Pkg of 12       1.20         1050-C35       GASKET. Pkg of 5       1.00         1050-C45       CHEMISTONE       1.60         1050-C55       GASKET. Pkg of 10       2.00         1050-C65       RESERVOIR. Pkg of 4       2.00         1050-C75       OILER-FILTER       5.30         1050-C85       RINGS. Set of 2       .60         1050-D10       SEPARATOR. Pkg of 10       1.00         1050-D20       WICK. Pkg of 10       .50         1050-D30       GASKET       1.00	1050-C05	PARTS KIT	3.40
1050-C27       GASKET. Pkg of 12       1.20         1050-C35       GASKET. Pkg of 5       1.00         1050-C45       CHEMISTONE       1.60         1050-C55       GASKET. Pkg of 10       2.00         1050-C65       RESERVOIR. Pkg of 4       2.00         1050-C75       OILER-FILTER       5.30         1050-C85       RINGS. Set of 2       .60         1050-D10       SEPARATOR. Pkg of 10       1.00         1050-D20       WICK. Pkg of 10       .50         1050-D30       GASKET       1.00	1050-C10	OIL, 1-quart bottle	2.70
1050-C35       GASKET. Pkg of 5       1.00         1050-C45       CHEMISTONE       1.60         1050-C55       GASKET. Pkg of 10       2.00         1050-C65       RESERVOIR. Pkg of 4       2.00         1050-C75       OILER-FILTER       5.30         1050-C85       RINGS. Set of 2       .60         1050-D10       SEPARATOR. Pkg of 10       1.00         1050-D20       WICK. Pkg of 10       .50         1050-D30       GASKET       .10	1050-C15	<b>VANES.</b> Set of 4	1.20
1050-C45       CHEMISTONE       1.66         1050-C55       GASKET. Pkg of 10       2.00         1050-C65       RESERVOIR. Pkg of 4       2.00         1050-C75       OILER-FILTER       5.30         1050-C85       RINGS. Set of 2       .60         1050-D10       SEPARATOR. Pkg of 10       1.00         1050-D20       WICK. Pkg of 10       .56         1050-D30       GASKET       .10	1050-C27	<b>GASKET.</b> Pkg of 12	1.20
1050-C55         GASKET. Pkg of 10         2.00           1050-C65         RESERVOIR. Pkg of 4         2.00           1050-C75         OILER-FILTER         5.30           1050-C85         RINGS. Set of 2         .60           1050-D10         SEPARATOR. Pkg of 10         1.00           1050-D20         WICK. Pkg of 10         .50           1050-D30         GASKET         .10	1050-C35	GASKET. Pkg of 5	1.00
1050-C65       RESERVOIR. Pkg of 4.       2.00         1050-C75       OILER-FILTER.       5.30         1050-C85       RINGS. Set of 2.       .60         1050-D10       SEPARATOR. Pkg of 10.       1.00         1050-D20       WICK. Pkg of 10.       .50         1050-D30       GASKET.       .10	1050-C45	CHEMISTONE	1.60
1050-C75       OILER-FILTER       5.30         1050-C85       RINGS. Set of 2       .60         1050-D10       SEPARATOR. Pkg of 10       1.00         1050-D20       WICK. Pkg of 10       .50         1050-D30       GASKET       .10	1050-C55		2.00
1050-C85       RINGS. Set of 2	1050-C65		2.00
1050-D10     SEPARATOR. Pkg of 10	1050-C75	OILER-FILTER	5.30
1050-D20         WICK. Pkg of 10         .50           1050-D30         GASKET         .10	1050-C85	RINGS. Set of 2	.60
1050-D30 GASKET	1050-D10	SEPARATOR. Pkg of 10	1.00
	1050-D20	WICK. Pkg of 10	.50
1050-D33 GASKET. Pkg of 12 1.20	1050-D30	GASKET	.10
	1050-D33	GASKET. Pkg of 12	1.20

#### **Oil-free Piston Pump**



1052-E10

#### **Gast Heavy Duty Pump**



1052-J15

#### 1052-E10 PUMP, Pressure/Vacuum, Gast Oilless Piston Type

A single-cylinder, positive displacement pump, suitable for air sampling as well as for general pressure and vacuum requirements. Motor-mounted piston has self-lubricating Teflon sealing rings. Provides oil-free exhaust at pressure up to 75 p.s.i., or vacuum up to 25 inches of mercury, in continuous operation. Will produce pressure to 100 p.s.i. in intermittent operation (10 minutes on, 10 minutes off). Free air displacement 1.3 cu. ft. per minute.

Pump valves are stainless steel; cylinder and piston parts are aluminum. Unit is equipped with safety pressure relief valve, intake filter and moisture trap, vacuum gauge scaled 0 to 30 inches Hg, pressure gauge scaled 0 to 100 p.s.i., valves for regulating vacuum and pressure, serrated tubing connector on inlet and outlet, and carrying handle. Weight 22.6 lbs. U.L. approved.

Overall dimensions  $14\frac{1}{2} \times 7\frac{1}{2} \times 11\frac{1}{2}$  inches high. Mounted on rubber suction feet. Includes 3-wire cord with switch and plug for 120 volts, 60 Hz, single phase; 3.4 amperes.

#### 1052-J15 AIR PUMP, Gast Heavy Duty Model

Suitable for continuous use, capable of moving 5.75 cu. ft. of free air per minute. Provides vacuum up to 28 inches, or pressures up to 10 p.s.i., 15 p.s.i. intermittent. Rotor is coupled to 1/3 h.p. capacitor-type motor mounted on metal base with rubber feet. Rotor shaft is fitted with ball bearing. Fans mounted on the rotor shaft cool the pump. Two petcocks regulate vacuum and pressure. A 9-oz oil reservoir on top of housing feeds automatically at 4-inch vacuum. Vacuum gauge reads 0 to 30 inches of mercury, and pressure gauge 0 to 30 lbs. Adjustable pressure relief valve set at approximately 20 lbs. Motor rated at 1725 r.p.m. Requires only  $9\frac{3}{4} \times 24$  inches of bench space.

The combined filter, muffler and trap on the pressure side consists of a glass jar with porous stone (Chemistone) element. Jar is easily removed by loosening the yoke. The combined oiler-filter on the vacuum side is glass-enclosed for oil level visibility.

Furnished with thermal overload circuit breaker, 1 quart 1050-C10 Oil, and 3-wire cord with snap switch and plug. Supplied for 120 volts, 60 Hz, single phase, but easily converted for 240 volts, 60 Hz, single phase. The 120-volt model is rated at 6 amperes, the 240-volt model at 3 amperes. Shipping weight 62 lbs.

1052-J15 PUMP ...... 217.25

#### 1052-K05 REPLACEMENT PARTS through for Gast Heavy Duty Pump 1052-K60

Listings below are for the most frequently required replacement units. The 1052-K05 Parts Kit provides full set of parts which should be replaced simultaneously when pump performance diminishes. It contains a set of four 1052-K10 Vanes; one 1052-K40 Rubber Jar Gasket, 27/8 inches o.d.  $\times 3/64$  inch thick, for the exhaust filter assembly; two ball bearings; two shaft seals; one body gasket which fits between endplate and pump body; one end cap gasket; two filter muffler felts; filter wick; oiler wick; cover gasket for oiler-filter; separator felt; and set of instructions.

Not included in the kit are the 1052-K50 Chemistone Element, approximately  $1\frac{3}{4}$  inches o.d.  $\times 2\frac{3}{4}$  inches long, supplied with the 1052-K20 Exhaust Filter Unit. Ports in cover of exhaust filter have  $\frac{3}{8}$ -inch i.p. female threads. Suitable for replacement on older pumps.

Also listed separately are the 1052-K60 Paper Gasket,  $1\frac{3}{4}$  inches o.d.  $\times \frac{1}{16}$  inch thick, 1052-K30 Jar,  $3\frac{5}{8}$  inches high  $\times 2\frac{7}{8}$  inches o.d. at top, both for the exhaust filter, and 1052-K15 Oil Reservoir with glass screw neck.

1052-K05	PARTS KIT	13.90
1052-K10	<b>VANES.</b> Set of 4	4.50
1052-K15	RESERVOIR. Pkg of 4	2.00
1052-K20	FILTER UNIT	15.40
1052-K30	JAR	3.20
1052-K40	JAR GASKET, rubber. Pkg of 5	3.00
1052-K50	CHEMISTONE	3.20
1052-K60	FILTER UNIT GASKET, paper. Pkg of 5	4.00

#### Welch Duo-Seal Vacuum Pumps

1055-C20 AIR PUMPS, Welch Duo-Seal through 1055-T20

These rotary, oil-sealed pumps are quiet-operating and vibrationless, designed for continuous duty, and factory-tested to assure satisfactory performance. The pump mechanism is contained in a metal case with oil level sight gauge, and drain plug at base. Motordriven pumps are completely mounted on rectangular base plate and are furnished with V-belt and belt guard.

Basic Construction. The rotor and hard steel wall of pump chamber are machined to produce a 0.0001-inch clearance over an arc of approximately 47°, providing a cylindrical seal between the intake and exhaust ports. Rotor has two opposing radial vanes, of iron, spring-loaded so that their outer edge continuously wipes chamber wall. This action sweeps gases in the crescent-shaped air space of pump chamber out through exhaust valve, twice during each revolution.

WELCH DUO-SEAL PUMP MOVEMENT



**Duo-Seal Models** have a patented feature which provides an outlet at the seal to carry off gas swept past the exhaust port. The cylindrical seal, which is continuously filled with a lubricating film of oil, prevents diffusion of exhaust gases back into the intake side. Two-stage Duo-Seal Pumps contain two of the above described pump units mounted in series on a common shaft.

**Wegner Type Pumps** have a single pump unit and do not have the Duo-Seal feature.

Vented Exhaust (Gas Ballast). Admits a controllable proportion of atmospheric air into exhaust cycle to facilitate discharge of exhaust vapors without condensation. This reduces contamination of pump oil and is particularly effective for removing water vapor. Reduction in attainable vacuum is only slight, as the pump design prevents leakage of air from exhaust cycle into the evacuated system. However, pumping capacity is reduced, particularly at higher vacuum. Vent can be adjusted while pump is operating and can be fully closed to obtain maximum vacuum and pumping capacity. The vented exhaust is standard on all models except 1055-C20 and 1055-C40.

Belt Guards. Pumps with motors are furnished with an installed guard which meets OSHA safety standards. Guards are steel and totally enclose belt and pulley, but are easily removable for servicing.

Exhaust Filters. Effectively trap oil mist discharged from the exhaust port when pumping large volumes of air. Oil droplets are removed by a replaceable two-stage filter element consisting of multiple layers of fine wire screen and special non-organic fiber. The oil collected is drained back into the pump oil reservoir. Filters are not included with pumps. See separate listings below.

**Pump Cart.** Offered separately. Allows rolling pump easily to desired location. Locking casters permit fixing position. See 1055-V65.

Welch pumps are shipped with full charge of oil and include an extra supply for replenishment.

Chief features of the individual Duo-Seal Pumps as well as Welch DirecTorr Pumps listed in this catalog are shown in the following table for quick comparison. Additional characteristics will be found in the individual listings.

Catalog Number	Model	Capacity, free air, liters/minute	Vacuum Attainable, microns Hg	Motor Rating, h.p.	Oil Requirement, qt	Overall Dimensions, length $ imes$ width $ imes$ height, inches
1055-C20	1399B	35	15	1/3	1/2	17 × 9 × 11 <sup>7</sup> / <sub>8</sub>
1055-G25	1400B	25	0.1	1/3	5/8	$17 \times 9 \times 12^{5/8}$
1055-J50	1405B	60	0.1	1/2	1/4	191/4 × 11 × 161/2
1055-Q20	1402B	160	0.1	1/2	21/4	$19\frac{1}{4} \times 12\frac{1}{4} \times 15\frac{5}{4}$
1055-T10	1397B	500	0.1	1	11/4	$25^{5/8} \times 13^{1/8} \times 18^{3/8}$
1056-D30	8805B	50	0.1	1/3	11/4	$18\frac{1}{2} \times 7\frac{1}{4} \times 12$
1056-E30	8810B	100	0.1	1/3	1	$18\frac{1}{2} \times 7\frac{1}{4} \times 12$
1056-F30	8815B	150	0.1	1/2	1 1/4	$20\frac{1}{2} \times 7\frac{1}{4} \times 12$