



Office and Shipping Location

ACE GLASS INCORPORATED

P.O. Box 688
1430 North West Boulevard
Vineland, NJ 08362-0688
Phone: 856-692-3333
Fax: 856-692-8919

Toll-Free:

1-800-223-4524

Fax: 1-800-543-6752

www.aceglass.com

E-mail: sales@aceglass.com

(International) export@aceglass.com

Copyright 2008 by **ACE GLASS INCORPORATED**, Vineland, NJ 08360 USA

Printed in U.S.A.

Table of Contents

Ace-Threds	346
Adapters	17
Beakers	51
Bottles	55
Chillers/Recirculators	570
Chromatography	80
Columns	82
Condensers	141
Cylinders	156
Distillation Apparatus	166
Drying Apparatus	194
DynaBlocs	438
Air Sampling Apparatus	201
Evaporators	215
Extraction Apparatus	227
Filter Reactors	443
Filtration	274
Flasks	236
Fritted Ware	275
Funnels	288
Gas Apparatus	305
Heating Mantles	309
Homogenizers	321, 661
Hydrogenation Apparatus	326
Instatherm® Oil Baths	329
Joints and Ace-Threds	337
Lab Supports, Clamps	739
Mini-Lab/Micro/Mini-Lab	357
Moisture Test Apparatus	387
No-Air Glassware	391
NMR Tubes	714
O-Rings	403
Photochemical Equipment	410
Pilot Plants	492
Plastic Tubing	729
Pressure Reactors	456
Pressure Tubes/Bottles	706
Process Pipe	722
Pumps	432
Reaction Equipment	438
Recirculators/Chillers	570
Rotary Evaporators	574
Safety Tips	16
Septa	587
Sonochemical Equipment	591
Stirrer/Hot Plates	653
Stirrer Motors	630
Stopcocks	666
Sublimation Apparatus	684
Technical Information	5
Temperature Controllers/Sensors	746
Thermometers	691
Trubore Stirrers/Bearings	601
Tubing and Rod	718
Vacuum Pumps	799
Vials	794

Specifications

The products in this catalog represent what we believe to be the most advanced design and construction. However, design improvements are constantly being made, and we reserve the right to modify specifications where we feel that a change is warranted.

Apparatus fabricated in accordance with ASTM, API, AOAC and other technical organization specifications such as USP, NIST, and NIOSH, are subject to modification by these organizations.

All precision-grade ware is warranted to be within the tolerance prescribed in ASTM Specifications. All laboratory-grade ware is twice precision-grade tolerances.

Special Apparatus

Orders or inquiries for special apparatus should be accompanied by prints or drawings, if possible. To prevent delay, and to enable us to more intelligently quote on your specials, all necessary dimensions and tolerances should be noted. **For technical information, design assistance and help please visit www.aceglass.com.**

The following information should also be furnished where applicable: joint sizes, Ace-Thred sizes, capacity, whether "to contain" or "to deliver," porosity of filter, and any abnormal operating conditions, such as extremely high pressure or temperature, to which the apparatus may be subjected.

We reserve the right to overrun or under run by 10% on orders for special items and to ship and invoice for amounts within this variation.

NOTE: Special items are not returnable.

Our research and drafting departments are always available to assist you in designing special apparatus. Your special will be assigned a permanent drawing number for future reference, duplication or change. You will be sent a drawing of your special for your approval/sign off before manufacturing begins.

Types of Glass

All ACE-manufactured glassware items listed in this catalog are, unless otherwise noted, fabricated from 33 expansion borosilicate glass, such as Pyrex® Brand Glass, a product of Corning Incorporated; KG-33 Glass, a product of Kimble Glass Company; Duran Glass, a product of Schott Glaswerke; Simax, a product of Kavalier Glaswork.

Breakage or Loss

In case of **Breakage**:

1. Notify ACE immediately.
2. Please retain all inner and outer cartons and packing material.
3. ACE will advise you whether the carrier will report to your location for inspection or if item(s) are to be returned for inspection.

In case of **Shortage**:

1. Notify ACE immediately.
2. A replacement will be issued upon confirming inventory discrepancy.

In case of **Loss**:

1. First, please verify with all your receiving departments that delivery was not made.
2. Notify ACE immediately.
3. ACE will contact the carrier for tracking information as applicable.
4. A replacement will be issued upon verification that the shipment was not delivered and upon confirmation that the carrier cannot locate shipment.

PLEASE NOTE:

All breakages and shortages must be reported within two weeks of receipt.

Returns and Repairs

Incoming material (returns or repairs) must be pre-approved by our Product Return Specialist. Please follow these steps to ensure our Receiving Department does not refuse your shipment.

1

Contact ACE for an **RA# (Return Authorization Number)**.

1-800-223-4524 (Vineland)

E-mail: returns@aceglass.com

2. Once an RA# is given, properly pack the item(s) in an inner and outer box/carton and write the RA# on the outside of the box. All used items are to be thoroughly cleaned and defined in the assignment of an RA#.
3. A 20% restocking fee will be assessed for returns (items ordered incorrectly or items no longer needed, etc.) unless arranged otherwise. ACE cannot accept responsibility for damage or destruction of glassware that occurs in your shipment to us. We strongly advise you to purchase additional insurance with your carrier.
4. For *Returns* that are the result of your receiving the item(s) broken, ACE cannot accept responsibility for **further** damage or destruction of glassware that occurs in the return shipment due to improper packing.
5. *Repairs* will be evaluated by our technicians. You will be advised if any pieces are beyond repair or cannot be salvaged economically. ACE cannot accept responsibility for further damage or destruction of any glassware that is damaged during return shipment.

PLEASE NOTE:

ACE cannot accept responsibility for material sent in without proper authorization

Prices and specifications are subject to change without prior notice. Although they are represented to be accurate, it is best to verify product specifications with ACE prior to purchase in the event they have been changed since publication of this catalog.

Order by Code

Each item in **Catalog 2008** has a two- or three-digit code in addition to the four- or five-digit number. This code appears above or immediately preceding the price of the item, and no other ordering information is needed since each individual size, capacity, etc. has its own code. **Example:** 5000 \$10/30 top \$14/35 bottom would be ordered as 5000-05.

The majority of items listed in this catalog are normally available from stock at our plant in Vineland, NJ.

In the event your entire order cannot be filled immediately, a partial shipment will be sent, with the back-ordered items following shortly. If you should desire the entire order to be sent in one shipment, please so specify on your purchase order.

Unless otherwise specified on the order, we will ship material by what we consider the "best way."

Ways to Order

PHONE	856-692-3333 800-223-4524
FAX	856-692-8919 800-543-6752
CREDIT CARD	VISA MasterCard American Express
MAIL	P.O. Box 688 Vineland, NJ 08362
WEB SITE	www.aceglass.com
E-MAIL	sales@aceglass.com
INTERNATIONAL	export@aceglass.com

ACE Glassware Discounts

All ACE-manufactured glassware, identified with a spade (♠), listed in Catalog 2008 is subject to the following dollar value discounts. Items marked by a star (★) or that have no designation whatsoever are not subject to this discount.

- 10% on purchases of \$500.00 and over
- 12% on purchases of \$1000.00 and over
- 15% on purchases of \$1500.00 and over

Terms: Net 30 days (Domestic only)

Minimum Order: \$25.00

**Prices in this catalog are effective
January 2, 2008, F.O.B. Vineland, NJ and
are subject to change without notice.**

Corning Ware

A number of items listed in this catalog are products of Corning Incorporated, and are identified by the trademark Pyrex®. ACE GLASS INCORPORATED is a franchised Corning Dealer and offers these products in addition to ACE-manufactured ware in order to afford you as complete a line as possible of quality laboratory glassware.

**ACE
Laboratory Glassware
is intended for
laboratory use only.**

**Proper
laboratory procedures
and safety practices
should always
be followed.**

INTERNATIONAL SALES

Ways to Order

Mail: ACE GLASS Incorporated
International Sales Dept.
1430 N. West Blvd — P.O. Box 688
Vineland, NJ 08360-0688 USA

Phone: 856-692-3333

Fax: 856-692-8919

E-mail: export@aceglass.com

Methods of Payment

- Wire Transfer
- Irrevocable, payable on-sight, and confirmed letter of credit
- Payment in advance by check or money order, in US Funds only
- Credit Card: Amex, Visa, MasterCard, etc.

Trademarks

Adjusta-Chrom, DynaBloc, Dura-Vac, FETFE, Flex-Grip, Instatherm, Mini-Lab, Micro/Mini-Lab, Stir-Lube, ZDS, and Trubore are Registered Trademarks of ACE GLASS INCORPORATED.

Chemraz is a Registered Trademark of Greene Tweed & Co.

Cimarec is a Registered Trademark of Thermo Fisher.

Hi-Vac is a Registered Trademark of Hi-Vac Products Inc.

IKAMG, IKATRON, VIBRAX, ULTRA-TURRAX and IKA are Registered Trademarks of IKA Works, Inc.

Kel-F is a Registered Trademark of 3M Company.

Lab-Guard and Therm-O-Watch are Registered Trademarks of Glas-Col.

LabJaws and Flexaframe are Registered Trademarks of Troemner Co.

Nylon, Delrin, Kalrez, Viton, Surlyn, Tefzel, Teflon, and Krytox are Registered Trademarks of E. I. Dupont & Co.

Omnifit is a Registered Trademark of Omnifit Ltd.

Poly-Jaque and Polystormor are Registered Trademarks of Bel-Art Products.

Poly-Seal is a Registered Trademark of Poly-Seal Corp.

Powerstat is a Registered Trademark of Superior Electric Co.

Precision Seal and Suba Septa are Trademarks of Sigma-Aldrich.

Pyrex, Corex, Vycor, and Pyroceram are Registered Trademarks of Corning Incorporated.

Rodaviss is a Registered Trademark of S.A.V. France.

Swagelok is a Registered Trademark of Crawford Fittings.

V-Vial is a Registered Trademark of Wheaton Science Products Division.

Manufacturers whose quality products are listed in this catalog:

- | | | |
|-----------------------------|-------------------------------|-------------------------------|
| ■ Arrow Engineering | ■ Hanovia | ■ Quartz Scientific, Inc. |
| ■ Bel Art Products | ■ Huber | ■ Schott Glaswerke |
| ■ Brinkmann/Heidolph | ■ Hyvac | ■ Scientific Development Co. |
| ■ Brinkmann/Lauda | ■ IKA Works | ■ Sigma-Aldrich |
| ■ Brinkmann/Radleys | ■ I.W. Tremont | ■ SGE |
| ■ Cannon Instrument Co. | ■ Julabo | ■ Sonics & Materials, Inc. |
| ■ Cowie Technology | ■ Lamson & Goodnow Mfg. Co. | ■ The Superior Electric Co. |
| ■ CSC Scientific | ■ Master Appliance | ■ Thermo Fisher Scientific |
| ■ E. I. Dupont & Co. | ■ Omnifit | ■ Troemner |
| ■ Electrothermal | ■ Optimize Technologies, Inc. | ■ Ultra-Violet Products, Inc. |
| ■ DIGIVAC | ■ Parr Instrument Co. | ■ The West Company |
| ■ Glas-Col Apparatus | ■ Poly-Seal Corp. | ■ Wheaton Scientific |
| ■ Greene, Tweed & Co., Inc. | ■ Pope Scientific | ■ Worldwide Glass Resources |
| ■ W.A. Hammond Drierite Co. | ■ Popper & Sons, Inc. | |

Reference Guide to Ace-Thred Sizes

Size	Accepts Tube O.D., mm	Use Bushing Number	Use With O-Ring No.	Optional Ferrule	Suggested Uses
Mini #7	6-7	5029-10	7855-704	11710-07	A, B, I
Midi #11	9-10.5	7506-02	7855-708	11710-11	D, E, F, G
Maxi #15	12.5-14	7506-06	7855-716	11710-15	C, H
	16-17	7506-08	7855-720	11710-18	H, L
Giant #25	24-25	7506-10	7855-734	11710-25	K
	34-35	7506-12	7855-740	—	K, L
Jumbo #50	47-48	7506-14	7855-744	11710-50	K, L
	80	7506-20	7855-782	—	—

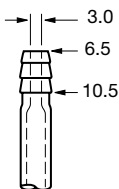
A—Thermometers, **B**—Bleed Tubes, **C**—Electrodes, **D**—Sensing Probes, **E**—Thermowells,
F—Gas Dispersion Tubes, **G**—Vacuum Take-Offs, **H**—Inlet and Outlet Tubes,
I—Miniature Electrodes, **K**—Manifolds, **L**—Immersion Wells

Fraction Conversion

Length, Fractional Inches	Millimeters
1/16	1.6
1/8	3.2
3/16	4.8
1/4	6.4
5/16	7.9
3/8	9.5
7/16	11.1
1/2	12.7
9/16	14.3
5/8	15.9
11/16	17.5
3/4	19.1
13/16	20.6
7/8	22.1
15/16	23.8

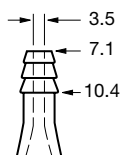
Hose Connection Size Guide

Dimensions in Millimeters



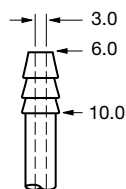
A

Use with
7.9mm (5/16")
I.D. Tubing



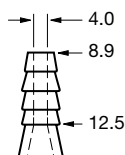
B

Use with
7.9mm (5/16")
or 9.5mm (3/8")
I.D. Tubing



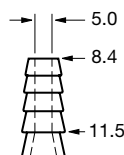
C

Use with
7.9mm (5/16")
or 9.5mm (3/8")
I.D. Tubing



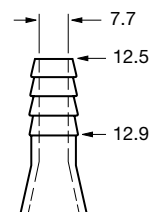
D

Use with
9.5mm (3/8")
I.D. Tubing



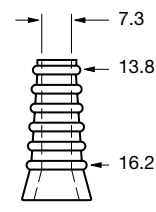
E

Use with
9.5mm (3/8")
or 11.1mm (7/16")
I.D. Tubing



F

Use with
11.1mm (7/16")
or 12.7mm (1/2")
I.D. Tubing



G

Use with
15.9mm (5/8")
I.D. Tubing

Specifications for Joints, Threads, and Stopcocks



Standard Taper

Symbol used to designate interchangeable joints, stoppers and stopcocks that comply with the requirements of Commercial Standard CS-21 published by N.I.S.T.



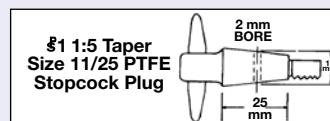
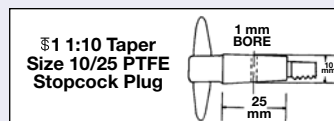
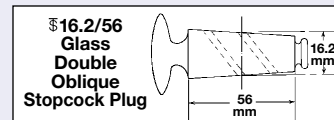
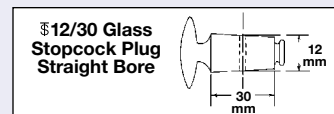
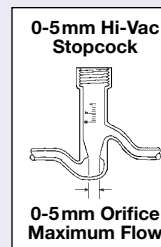
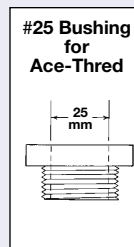
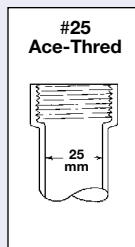
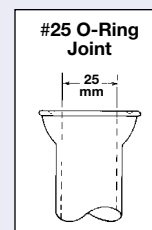
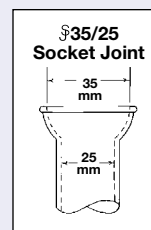
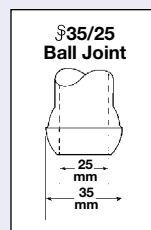
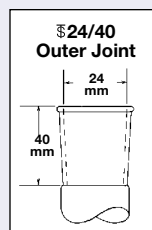
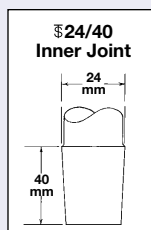
Spherical Joint

Symbol designates spherical joints that comply with CS-21.



Product Standard

Symbol designates stopcock plugs made of PTFE that meet requirements of N.I.S.T. Voluntary Product Standard PS 28-70.



Plastic Properties	Low Density Polyethylene (LDPE)	High Density Polyethylene (HDPE)	Polypropylene (PP)	PTFE FEP	Polycarbonate (PC)	Polymethylpentene (PMP)
Temperature Limit, °C	80	120	135	205	135	175
Specific Gravity	0.92	0.95	0.90	2.15	1.20	0.83
Tensile Strength, psi	2000	4000	5000	3000	8000	4000
Brittleness Temperature, °C	-100	-100	0	-270	-135	20
Water Absorption, %	<0.01	<0.01	<0.02	<0.01	0.35	<0.01
Flexibility	excellent	rigid	rigid	excellent	rigid	rigid
Transparency	translucent	translucent	translucent	translucent	clear	clear

O-Ring Compatibility Chart

	Viton	Silicone	Buna-N	FETFE	Ethylene Propylene	CAPFE	Kalrez	Chemraz
Alcohols	E	E	F-G	E	G-E	E	E	E
Aldehydes	P	F	P	E	F	E	E	E
Aliphatic Hydrocarbons	E	P-G	E	E	P	E	E	E
Ammonia	E	E	G	E	G	E	E	E
Aromatics	E	P	P	E	P	E	E	E
Chlorinated Hydrocarbons	E	P	F-P	E	P	E	E	E
Concentrated Bases	E	E	G	E	E	E	E	E
Concentrated Mineral Acids	F-G	P	G	E	E	E	E	E
Ether THF	P	E	P	P	G	E	E	E
Fuel Oils	E	F	E	E	P	E	E	E
Ketones	P	P	P	P	G-E	E	E	E
Compression Set	E	G-E	G	E	G-E	P	E	E
Temperature Limits° C	-23 TO 204	-62 TO 260	-54 TO 121	-23 TO 240	-54 TO 149	-73 TO 204	-37 TO 260	-20 TO 232

KEY: E=EXCELLENT P=POOR; G=GOOD; F=FAIR

Conversion Factors

Length

1 millimeter (mm)	0.1 centimeter (cm)
1 centimeter	 0.01 meter (M)
1 centimeter	0.394 inch
1 inch	2.540 centimeters
1 meter	 3.2808 feet
1 foot	 0.305 meter

Area

1 square centimeter (cm)	0.1550 square inch
1 square inch	6.452 square centimeters
1 square meter (M)	 10.764 square feet
1 square foot	 0.09290 square meter

Mass

1 gram	0.03527 ounce (Avoirdupois)
1 ounce (Avoirdupois)	 28.3495 grams
1 kilogram	 2.20462 pound (Avoirdupois)
1 pound (Avoirdupois)	0.45359 kilogram

Volume

1 cubic centimeter	0.001 liter (L)
1 cubic centimeter	0.0610 cubic inch
1 cubic inch	16.3872 cubic centimeter
1 cubic meter	35.314 cubic feet
1 cubic foot	 0.02832 cubic meter

Capacity

1 milliliter (mL)	0.03382 ounce (U.S. Liquid)
1 ounce (U.S. Liquid)	29.573 milliliters
1 liter (L)	 1.05671 quarts (U.S. Liquid)
1 quart (U.S. Liquid)	0.94633 liter
1 liter	0.26418 gallon (U.S. Liquid)
1 gallon (U.S. Liquid)	3.78533 liters
1 lambda	0.001 cc / 1 microliter

Power

1 watt	 0.73756 foot pound per second
1 foot pound per second	 1.3582 watts
1 watt	 0.056884 BTU per minute
1 BTU per minute	 17.580 watts
1 watt	0.001341 horsepower (U.S.)
1 horsepower (U.S.)	754.7 watts
1 watt	 0.01433 kilogram-calorie per minute
1 kilogram-calorie per minute	69.767 watts

Temperature

$$^{\circ}\text{C} = (\text{F}-32) / 5.9$$

$$^{\circ}\text{F} = 9/5 \text{ C} + 32$$

Glass Properties

Unless otherwise specified, ACE GLASS brand glassware is fabricated from Corning 7740, Kimble KG-33 or Schott-Duran® glass and conforms to federal specifications DD-G-541B and ASTM E-438. Also meets the U.S. Pharmacopoeia specs for Type I Borosilicate Glass. Glass properties are those represented by the aforementioned companies.

Composition (approximate percent)

	Corning 7740	Duran
SiO ₂	80.6%	81%
B ₂ O ₃	13.0%	13%
Na ₂ O/K ₂ O	4.1%	4%
Al ₂ O ₃	2.3%	2%

Properties

	Corning 7740	Schott-Duran
Coefficient of Expan.	32.5 x 10 ⁻⁷ cm/cm/°C	3.3 x 10 ⁻⁶ cm/cm/°K
Strain Point	510°C	510°C
Anneal Point	560°C	560°C
Softening Point	821°C	815°C
Density	2.53 g/cm ³	2.23 g/cm ³
Temperature Limits	230°C (Normal use) 400°C (Extreme, short-term use only)	230°C (Normal use) 400°C (Extreme, short-term use only)
Max. Thermal Shock	160°C	160°C
Refractive Index	1.474 ¹	1.474 ¹

¹At Sodium D Line

Reference Guide to ACE Boiling Flasks

Capacity, mL	Approx. O.D. mm	Approx. O.D. Inches	Capacity, mL	Approx. O.D. mm	Approx. O.D. Inches	Capacity, mL	Approx. O.D. mm	Approx. O.D. Inches
5	25	1.0	200	75	3.0	12000	285	11.22
10	31	1.24	250	82	3.25	22000	350	13.78
15	35	1.4	300	86	3.385	50000	457	18.0
20	38	1.5	500	100	4.0	72000	508	20.0
25	42	1.68	1000	125	5.0			
50	50	2.0	2000	160	6.3			
100	58	2.25	3000	180	7.0			
			5000	225	8.86			

Needle Sizes

Gauge	O.D. in./mm	I.D. in./mm†	Wall Thickness in./mm	Gauge	O.D. in./mm	I.D. in./mm†	Wall Thickness in./mm
33	.0082/.21	.0042/.11	.002 /.05	21	.0323/.82	.0202/.51	.006 /.15
32	.0093/.24	.0042/.11	.002 /.05	20	.0358/.91	.0237/.60	.006 /.15
31	.0103/.26	.0052/.13	.0025/.06	19	.0420/1.07	.0270/.69	.0075/.19
30	.0123/.31	.0062/.16	.003 /.08	18	.0500/1.27	.0330/.84	.0085/.22
29	.0133/.34	.0072/.18	.003 /.08	17	.0580/1.47	.0420/1.07	.008 /.20
28	.0143/.36	.0072/.18	.0035/.09	16	.0650/1.65	.0470/1.19	.009 /.23
27	.0163/.41	.0082/.21	.004 /.10	15	.0720/1.83	.0540/1.37	.009 /.23
26s	.0187/.47	.0050/.13	.007 /.18	14	.0830/2.11	.0630/1.60	.010 /.25
26	.0183/.46	.0102/.26	.004 /.10	13	.0950/2.41	.0710/1.80	.012 /.31
25s	.0203/.51	.0060/.15	.007 /.18	12	.1090/2.77	.0850/2.16	.012 /.31
25	.0203/.51	.0102/.26	.005 /.13	11	.1200/3.05	.0940/2.39	.013 /.33
24	.0223/.57	.0122/.31	.005 /.13	10	.1340/3.40	.1060/2.69	.014 /.36
23	.0253/.64	.0133/.34	.006 /.15				
22s	.0283/.72	.0060/.15	.011 /.28				
22	.0283/.72	.0162/.41	.006 /.15				

†mm are nominal

Pressure Equivalents

Micron or Millitorr	Torr or mm of Hg
1000	100
100	10 ⁻¹
10	10 ⁻²
1	10 ⁻³
0.05	5x10 ⁻⁴
0.1	10 ⁻⁴
0.01	10 ⁻⁵
0.001	10 ⁻⁶

Flask Stoppers

Stopper Number	Approximate Diameter at Small End, mm	Length of Ground Zone, mm	Diameter at Large End, mm
8	7.25	10 ±1.0	8.25
9	8	14 ±1.0	9.40
13	12	14 ±1.0	13.40
16	15	15 ±1.0	16.50
19	18	17 ±1.0	19.70
22	20	20.5 ±1.0	22.05
27	25	21.5 ±1.0	27.15
32	30	21.5 ±1.0	32.15
38	35	30 ±1.0	38.00

ACE Glass Fiber Filter Discs

ACE Designation	Porosity Maximum Pore Diameter Range (micron)	Corning Equivalent	Kimble Equivalent	Uses
A	145-174	EC (170-220)	EC (170-220)	Coarse Filtration
B	70-100	—	—	Coarse Filtration
C	25-50	C (40-60)	C (40-60)	Gas Dispersion
D	10-20	M (10-15)	M (10-15)	Extraction
E	4-8	F (4-5.5)	F (4-5.5)	Extraction
VF	2-2.5	VF (2-2.5)	—	Bacteria Filtration
UF	0.9-1.4	UF (0.9-1.4)	—	Bacteria Filtration

Pressure Conversions

Absolute									Gauge Pressure	
cm of Hg	Torr or mm of Hg	Micron	Atmo-sphere	lb/ in. ²	ton/ ft. ²	gram/ cm ²	ft. of H ₂ O	in. of Hg	lb. in.	in. of Hg
76	760	760000	1	14.7	1.06	1033	33.9	29.9	0.00	0.00
70	700	700000	0.921	13.53	0.975	952	31.2	27.6	1.16	2.36
60	600	600000	0.79	11.6	0.835	816	26.8	23.6	3.10	6.30
50	500	500000	0.659	9.67	0.696	680	22.3	19.7	5.03	10.2
40	400	400000	0.526	7.74	0.557	545	17.8	15.7	6.97	14.2
30	300	300000	0.395	5.8	0.417	408	13.4	11.8	8.90	18.1
20	200	200000	0.263	3.87	0.278	272	8.92	7.87	10.8	22.0
10	100	100000	0.132	1.94	0.139	136	4.46	3.94	12.8	26.0
5	50	50000	0.006	0.967	0.07	68	2.23	1.97	13.7	27.9
1	10	10000	0.013	0.194	0.014	13.6	0.446	0.394	14.5	29.5
0.1	1	1000	0.001	0.019	0.001	1.36	0.045	0.039	14.68	29.88
0	0	0	0	0	0	0	0	0	14.7	29.92

Selecting a Septa

Material(s)	Compatible	Incompatible	Resealability
Butyl Rubber	Acetone, alcohols, diethylamine, DMSO, MEK, sodium peroxide	Benzene, chloroform, DMF, HF, HCL, phenol, toluene, xylene	Very good
Butyl Rubber/PTFE	PTFE resistance until punctured, then septa or liner will have compatability of butyl rubber		Teflon does not reseal after being punctured
PTFE		Diethylamine, fluorine	Single injection use
Red Rubber	Acetone, alcohols, diethylamine, DMSO, sodium peroxide	Chloroform, DMF, HF, HCL, MEK, phenol, toluene, xylene	Excellent
Red Rubber/PTFE	PTFE resistance until punctured, then septa or liner will have compatability of red rubber		Teflon does not reseal after being punctured
Silicone	Alcohol, DMF, DMSO, hydrogen peroxide, sodium hydroxide	ACN, benzene, chloroform, hexane, HCL, MEK, THF, toluene	
Silicone/PTFE	PTFE chemical resistance until punctured, then septa or liner will have compatability of silicone		Teflon does not reseal after being punctured
Viton®	Alcohols, benzene, chlorinated solvents, HF, heptane, hexane	Acetone, ACN, DMF, dioxane, pyridine, ketones, MEK, THF	Good

NOTE: All septa liners are designed for a variety of applications. Individual performance requirements may vary; therefore, it is recommended that customers perform the proper tests to determine which septa or liner is most suitable for the exact application.

Tubing Sizer for Peristaltic Pumps

								
Tubing sizes								
Inner diameter (mm):	0.8	1.7	3.1	4.8	6.3	4.8	6.3	7.9
Outer diameter (mm):	4.0	4.9	6.3	8.0	9.5	9.8	11.3	12.9
Wall thickness (wt) (mm):	1.6	1.6	1.6	1.6	1.6	2.5	2.5	2.5
Max. pressure (continuous/short time) (bar):	0.7/1.7	0.7/1.7	0.7/1.7	0.5/1.5	0.5/1.5	0.8/1.8	0.8/1.8	0.8/1.8
Suction height (mH ₂ O):	8.8	8.8	8.8	8.8	6.7	8.8	8.8	8.8
Flow rates in combination with pump head/pump drive								
SP quick	min.	max.	min.	max.	min.	max.	min.	max.
PD 5106/PD 5206 (ml/min):	1.6	40	6.8	169	25.7	643	56	1,400
PD 5006 (ml/min):	3.3	40	14.1	169	53.6	643	116.7	1,400
PD 5101/PD 5201 (ml/min):	0.3	8.0	1.4	34	5.2	129	11.2	280
PD 5001 (ml/min):	0.7	8.0	2.8	34	10.7	129	23.3	280
SP standard/SP vario	min.	max.	min.	max.	min.	max.	min.	max.
PD 5106/PD 5206 (ml/min):	2.4	60.2	10.4	260	41.2	1,029	86.3	2,157
PD 5006 (ml/min):	5.0	60.2	21.7	260	85.8	1,029	179.8	2,157
PD 5101/PD 5201 (ml/min):	0.5	12.0	2.1	52	8.2	206	17.3	431
PD 5001 (ml/min):	1.0	12.0	4.3	52	17.2	206	36	431

See page 435 of this catalog for a complete listing of Peristaltic Pumps



ACE Quality Laboratory & Scientific Product Lines Include...

Hydrogenation/Gas Apparatus —

Featuring heavy-walled pressure-tested glass reaction vessels and connectors with Ace-Threds — eliminates rubber stoppers. **Page 326.**

Pilot Plant/Reaction Equipment —

Standard and custom-designed portable reactors from 10 to 200 Liters. **Page 438.**

Pressure Reactor Systems — 500 to 5,000 mL capacity.

Pressure limits to 45 psig/100°C. **Page 456.**

Instatherm® Oil Baths — Rapid, even heat, very efficient, no super-heating. **Page 329.**

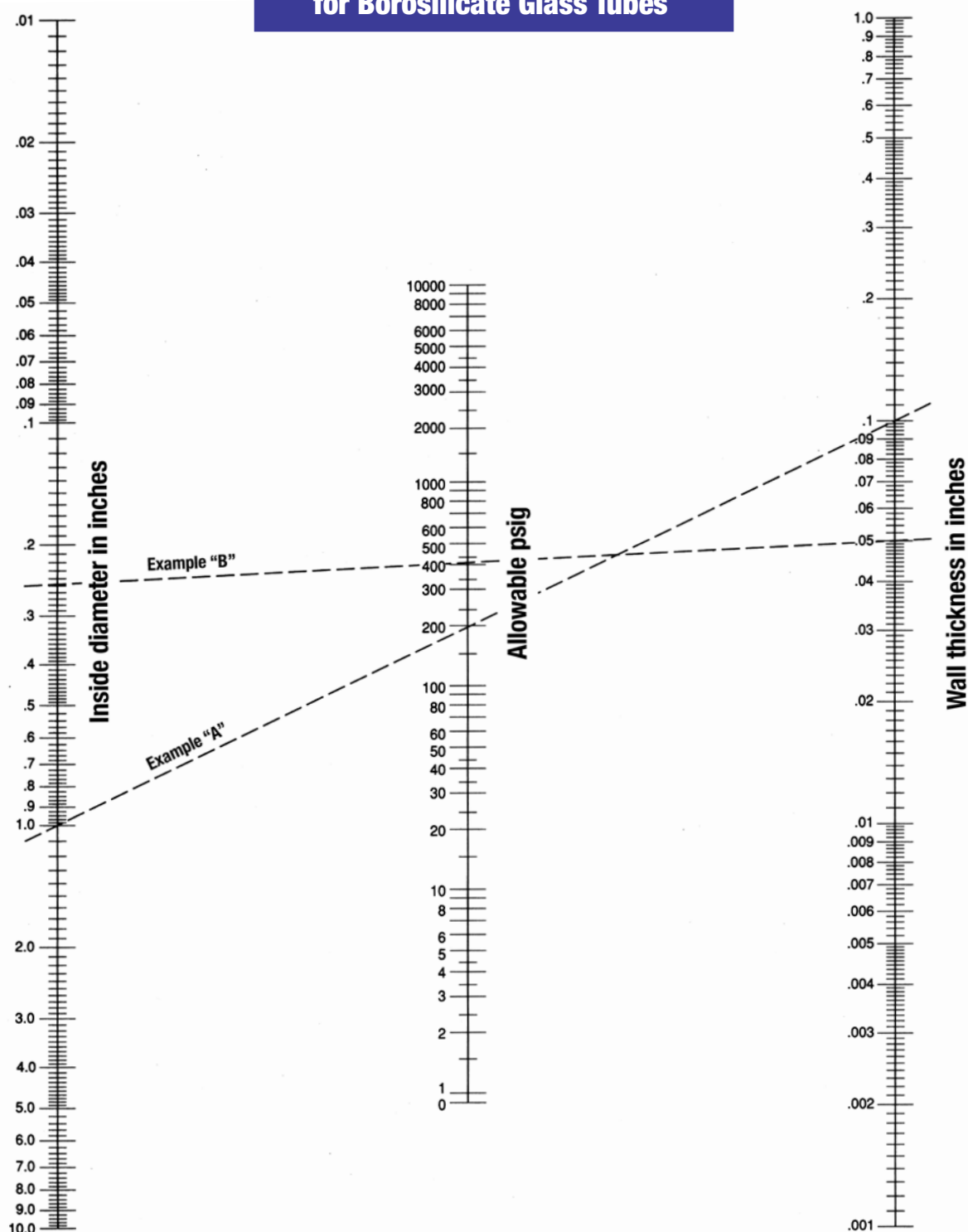
Temperature Controllers — Wide choice of dependable, accurate temperature controllers for ACE Oil Baths, mantles, immersion heaters, etc. **Page 746.**

Sonochemistry — Complete line of glassware and equipment used to promote and enhance chemical reactions through the use of ultrasonic energy. **Page 591.**

Micro/Mini-Lab® — The original microscale-sized glassware designed exclusively for ACE by Drs. Dana W. Mayo, Ronald M. Pike and Samuel S. Butcher of Bowdoin College. **Page 357.**

Multi-Step Filter Reactors — 150 to 6,000 mL capacity, single or multi-step filter reactors. **Page 443.**

Nomogram of Allowable Pressures for Borosilicate Glass Tubes



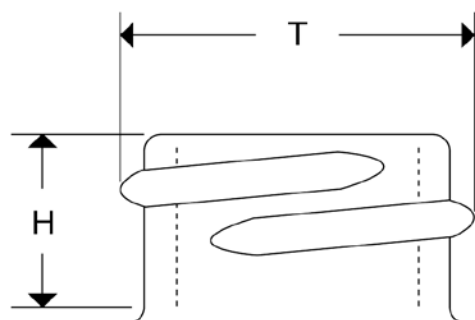
CAUTION: With any glassware used for pressure or vacuum applications, great care must be taken in handling. The strength of the glass can be degraded due to scratches, checks and abrasions. Always use protective shielding and eyewear when working with glass under pressure.

GPI Thread Finishes

GPI refers to the "Glass Packaging Institute" which is responsible for establishing and issuing uniform standards regarding the types of finishes produced by American Glass Manufacturers. GPI replaces the former GCMI or "Glass Container Manufacturers Institute." When a cap is designated as 15-425, it means that the diameter across the threaded area is approximately 15 millimeters. (See "T" dimension on illustration below.) The numerical 425 designates a specific style. The methods employed in manufacturing

containers and culture tubes from tubing do not include a transfer ring as commonly observed on mold-blown vessels. As a result, the "H" dimension may vary slightly from GPI's published values. Since the "H" dimension is not designated in the size code, the chart below will assist in differentiating styles of finishes having similar thread diameters. The dimensions listed are averages. The finishes below appear in this catalog.

GPI Thread Finish Comparison Chart



**400
425**



430



415

"T" Dimension	"H" Measurements in millimeters (mm)				
	400	410	415	425	430
8				6.52	
10				6.86	
13			11.22	7.50	
15			13.90	7.50	
18	9.05	13.03	15.42		15.34
20	9.50	13.82	18.59		15.34
22	9.50	14.60	21.01		15.34
24	10.25	16.15	24.05		16.43
28	10.25	17.73	27.23		18.39
33	9.85				19.69
38	9.85				24.03
38					22.00

Suggested Screw Cap Application Torque

(Reference U.S.P. XXI, page 1240)

Cap Size (Millimeters)	Torque (Inch-Pounds)	Cap Size (Millimeters)	Torque (Inch-Pounds)
8*	3-5	38	15-23
10*	4-6	43	17-26
13*	5-7	48	19-29
15	6-9	53	21-32
18	7-11	58	23-35
20	8-12	63	25-38
22	9-13	70	28-42
24	10-15	83	34-49
28	11-17	89	36-53
33	13-20	120	48-72

*Not included in USP table.

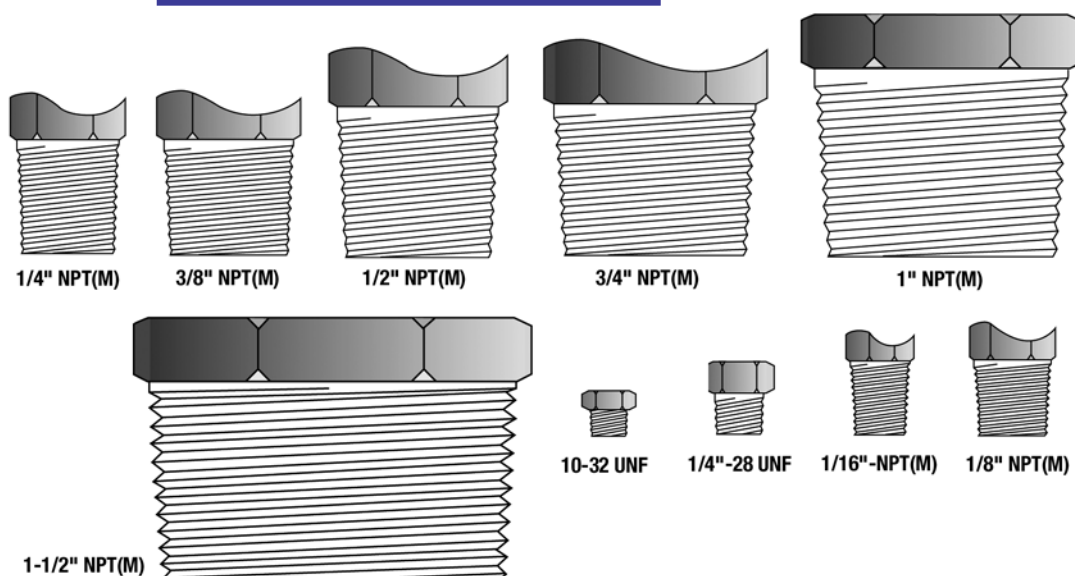
The figures at left are offered as guidelines for automatic capping machines. Obviously, variables such as cap and liner material and product characteristics play an important part in correct torque application.

The recommended procedure for checking capping machines torque application is as follows:

Apply caps to a representative number of product filled containers with the torque required. Then, the cap removal torque is established. Once the removal torque for a known application is established, the machine can be checked at intervals for proper application torque by measuring removal cap torque.

Standard Pipe Thread Fittings

The illustrations are actual size. If you have any questions as to the size of fitting you require, simply compare the threads per inch, the diameter and length of the threading, and the taper of the threading of your existing fittings to these drawings.



Sterilization Reference Guide

Method	Procedure
Autoclave:	Cycle is 121°C, 15 psig (1bar) 20 min
Dry Heat:	170°C for 60 min
Gas:	Ethylene Oxide for formaldehyde
Microwave:	Transmission of microwaves
Gamma Irradiation:	High energy ionizing gamma radiation from a Cobolt 60 source
Chemical Disinfectants:	Quaternary Ammonium Compounds, Iodophors, Formalin, Benzalkonium Chloride, Ethanol, etc.

Viscosity Conversion Factors

Viscosity is the resistance to flow due to the internal friction within a fluid. This is generally expressed as the force required to move one unit area one unit distance. Kinematic and absolute viscosity are related by the density of the fluid.

Kinematic Viscosity

Multiply to get	→	to get
ft ² /sec	←	centistokes
ft ² /sec	0.092903	sq. meters/sec
sq. meters/sec	10.7639	ft ² /sec
sq. meters/sec	1000000.0	centistokes
centistokes	0.000001	sq. meters/sec
centistokes	0.0000107639	ft ² /sec

Absolute or Dynamic Viscosity

Multiply to get	→	to get
lbf-sec/ft ²	←	centipoises
lbf-sec/ft ²	47880.26	Pascal-sec
centipoises	0.000102	kg-sec/sq. meter
centipoises	0.001	lbf-sec/ft ²
Pascal-sec	0.0208854	Pascal-sec
Pascal-sec	1000	centipoises

Absolute to Kinematic Viscosity

Multiply to get	→	to get
centipoises	←	centistokes
centipoises	1/density (g/cm ³)	centistokes
centipoises	0.00067197/density (lb/ft ³)	ft ² /sec
lb-sec/ft ²	32.174/density (lb/ft ³)	ft ² /sec
kg-sec/m ²	9.80665/density (kg/m ³)	sq. meters/sec
Pascal-sec	1000/density (g/cm ³)	centistokes

Kinematic to Absolute Viscosity

Multiply to get	→	to get
centistokes	←	centipoises
sq. meters/sec	density (g/cm ³)	centipoises
ft ² /sec	0.10197 x density (kg/m ³)	kg-sec/m ²
ft ² /sec	0.03108 x density (lb/ft ³)	lbf-sec/ft ²
centistokes	1488.16 x density (lb/ft ³)	centipoises
centistokes	0.001 x density (g/cm ³)	Pascal-sec
sq. meters/sec	1000/density (g/cm ³)	Pascal-sec

*Sometimes absolute viscosity is given in terms of pounds mass. In this case—centipoises x 0.000672 = lbfm/ft sec.

Dilatant Liquids—viscosity increases as shear rate increases. Mixers can bog down and stall after initially mixing such liquids. Dilatant liquids include slurries, clay, and candy compounds.

Newtonian Liquids—viscosity remains constant regardless of shear rate or agitation. As mixer speed increases, flow increases proportionately. Newtonian liquids include water, mineral oils, and hydrocarbons.

Pseudoplastic Liquids—viscosity decreases as shear rate increases, but initial viscosity may be sufficiently great to prevent mixing. Typical pseudoplastic liquids are gels, latex paints, and lotions.

Thixotropic Liquids—as with pseudoplastic liquids, viscosity decreases as shear rate or agitation increases. When agitation is stopped or reduced, hysteresis occurs and viscosity increases. Often the viscosity will not return to its initial value. Thixotropic liquids include soaps, tars, shortening, glue, inks, and peanut butter.

Chemical Resistance for Plastic Resins @ 20°C

	Classes of Substances										
	Acids, dilute or weak	Acids, strong & conc.	Alcohols, aliphatic	Alde- hydes	Bases	Esters	Hydro- carbons, aliphatic	Hydro- carbons, aromatic	Hydro- carbons, haloge- nated	Ke- tones	Oxidiz- ing agents, strong
ACL	✗	✗	▲	■	▲	▲	●	●	▲	▲	✗
ECTFE/ETFE	●	▲	●	●	●	●	●	●	●	▲	■
FEP/TFE/PFA	●	●	●	●	●	●	●	●	●	●	●
FLPE	●	●	●	▲	■	●	●	●	▲	●	■
XLPE	●	●	●	▲	●	▲	▲	▲	■	▲	■
HDPE/XLPE	●	●	●	▲	●	▲	▲	▲	■	▲	■
LDPE	●	●	●	▲	●	▲	■	■	✗	▲	■
PC	●	✗	▲	■	✗	✗	■	✗	✗	✗	✗
PCT	●	■	●	■	▲	■	●	✗	✗	■	✗
PTE	●	✗	●	✗	✗	✗	●	✗	✗	✗	✗
PMMA	▲	✗	✗	▲	■	✗	▲	✗	✗	✗	✗
PMP	●	●	●	▲	●	▲	■	■	✗	■	■
PP/PPCO	●	●	●	▲	●	▲	▲	■	■	▲	■
PS	●	■	●	✗	●	✗	✗	✗	✗	✗	✗
PSF	●	▲	▲	■	●	✗	▲	✗	✗	✗	▲
PUR	▲	■	■	▲	✗	✗	●	✗	✗	✗	✗
PVC Bottles	●	●	●	✗	●	✗	●	✗	✗	✗	▲
Flexible PVC Tubing	●	■	▲	✗	▲	✗	■	✗	✗	✗	■
PVDF	●	●	●	●	●	▲	●	●	✗	✗	▲
TPE	●	■	●	✗	●	✗	✗	✗	✗	✗	✗

Resin Codes

ACL	Acetal (Polyoxymethylene)
ECTFE	Halar® ECTFE (Ethylene-Chlorotrifluoroethylene Copolymer)
ETFE	Tefzel® ETFE (Ethylene-Tetrafluoroethylene)
FEP	Teflon® FEP (Fluorinated Ethylene Propylene)
FLPE	Fluorinated High-Density Polyethylene
HDPE	High-Density Polyethylene
LDPE	Low-Density Polyethylene
PC	Polycarbonate
PCT	Poly (1,4 Cyclohexylene Dimethylene Terephthalate)
PET	Polyethylene Terephthalate
PFA	Teflon® PFA (Perfluoroalkoxy)
PMMA	Polymethyl Methacrylate (Acrylic)
PMP	Polymethylpentene ("TPX®")
PP	Polypropylene
PPCO	Polypropylene Copolymer
PS	Polystyrene
PSF	Polysulfone
PUR	Polyurethane
PVC	Polyvinyl Chloride
PVDF	Polyvinylidene Fluoride
TFE	Teflon® TFE (Tetrafluoroethylene)
TPE	Thermoplastic Elastomer
XLPE	Cross-Linked High-Density Polyethylene

Chemical Resistance Classifications

- 30 days of constant exposure causes no damage. Plastic may even tolerate for years.
- ▲ Little or no damage after 30 days of constant exposure to the reagent.
- Some effect after seven days of constant exposure to the reagent. Depending on the plastic, the effect may be crazing, cracking, loss of strength or discoloration. Solvents may cause softening, swelling and permeation losses with LDPE, HDPE, PP, PPCO and PMP. The solvent effect on these five resins are normally reversible; the part will usually return to its normal condition after evaporation.
- ✗ Not recommended for continuous use. Immediate damage may occur. Depending on the plastic, the effect will be a more severe crazing, cracking, loss of strength, discoloration, deformation, dissolution or permeating loss.

Care and Handling of Borosilicate Glass

Always inspect your glass before use, even when purchased new. Bumping of glass in transit or in washing is always possible, and this can cause small fractures or star cracks. You can usually see these when you hold the vessel up to normal sunlight. If you should have one, a polariscope is an even better way to view the glass for stress. If it's cracked or abraded — even if it's minor — the glass can fail under elevated pressure or temperature.

When washing, always take care not to bump glass together or against the wall of a sink. Also, always use a soft bristle brush or a brush with a plastic or soft wooden handle. This will help cut down on scratching. Never use HF or strong alkali soaps or acids.

When using glass labware, always make sure it's borosilicate glass or quartz -- some bottles used in lab work or sampling are made of soda lime or soft glass, and these do not have the temperature, pressure or autoclaving capability of standard borosilicate or quartz labware.

Autoclaving of Glass: Always make sure of the materials you are working with. Most lab glass is 32-33 expansion borosilicate glass. Standard borosilicate glass is autoclaveable. One cautionary measure is to always let the autoclave and glass cool and vent slowly. Most failures are due to two things: glassware that has a scratch or

abrasion and can fail when autoclaved; or a very rapid cool down or return to atmospheric pressure.

Depyrogenation and ashing or extreme heat cleaning of lab glass ware

Any abrasions, micro-cracks or star cracks will weaken the glass and degrade performance. And any of these issues will certainly cause the glass to fail when using high temperature ovens. Ashing glass in mechanical ovens or furnaces over 500° for long periods of time will cause the glass to weaken, and in some cases, even fail. It will certainly shorten the life span of your glassware.

Borosilicate glass temperatures:

- Standard use — up to 230-240°C.
- Extreme use — for short intervals — 400°C.

Cleaning Laboratory Glassware

Introduction

Laboratory procedures require exact methods and should include good glassware cleaning to insure excellent lab results. In all instances, labware should be physically clean, including both chemical-residue-free and grease-free, and in many cases, it should even be sterile. All Class A glassware used in precise measuring of liquids should have fully wettable surfaces. A good test is to use distilled water and see if the water wets all the inner surfaces equally. Grease or residues will not only contaminate the reaction and test results, but will also alter the measurement of the liquids.

Good cleaning practices should also be accompanied by good inspection of the glass surfaces for chips, cracks or abrasions which cause mechanical failure.

Cleaning

Always wash glass labware immediately after use. If a thorough cleaning is not immediately possible, always allow the glassware to soak. If not cleaned immediately some residues may be impossible to remove.

Most new glass is slightly alkaline and should be washed upon receipt and generally can be soaked in a 1% HCL or HNO₃ solution before wash and DI rinse.

Never soak for long periods in strong alkaline solutions as this will damage the glass.

Always follow up a soap or acid wash with a good DI water rinse.

Always use soft brushes with a wooden or soft plastic handle to avoid abrasion. Do not use wire brushes or brushes with a wire core as this can abrade the glass.

Glass cleaners

Alconox is the best cleaner to use, as it is not abrasive. In fact, Alconox offers a full line of detergents for soaking, hand washing and automatic washers. A detergent, such as a non-abrasive dishwasher soap, will also work well. Always use soft brushes. Always rinse glass well and do a final DI rinse. If you need to do an acid wash, always rinse the soap off the glass completely or it may cause a reaction and leave a film on the glass. There are many lab detergents available commercially such as; Mallinckrodt's KleanAR and Chem-Solv. Texwipe and EM Science also make good cleaning detergents

Chromic Acid or Chromerge

Chromic Acid/Chromerge are great cleaners, and will also remove organic residues. Use gloves and well ventilate the area when using chromic acid, as it is a carcinogen and very corrosive. Make sure metal clamps or flanges are removed. It is best to fill the vessel or soak the item in the solution for a short time in a plastic tub so that you can contain the wash material, then rinse immediately several times before proceeding to a detergent wash. Make sure the residual chromic acid is diluted after use and disposed of properly and according to your local and/or company regulations.

Occasionally, stronger acid washes are necessary for certain types of precipitates or residues. It is best to keep these very dilute, and they should be used in an area where there is good ventilation. Make sure you contain the residual acid and dissolved material for proper disposal. This method should only be used when absolutely necessary. Disposal of seriously stained glass maybe a less troublesome and less expensive course of action than using strong acid washes.

Clearing Laboratory Glassware (continued):

One other caution: strong acid or Chromerge-type washes may damage the graduation markings.

Removal of Grease

Grease is best removed by boiling the glass in a weak solution of sodium carbonate. Acetone or any other organic solvent can be used also, followed by several water and DI water rinses.

Other stains

For permanganate stains, use a mixture of equal 3% sulfuric acid and 3% hydrogen peroxide.

For iron stains, use a solution containing one part hydrochloric acid and one part water.

For bacteriological contamination, glassware should be soaked in a disinfectant solution, steam autoclaved, and then flowed by a suitable washing and rinsing.

Caution: Make sure you refer to MSDS sheets for the cleaning solutions and the materials that were in the glassware to insure that there won't be any adverse reactions from the combination of the materials.

Ultrasonic Cleaners

Ultrasonics is a good method of cleaning glassware. Ultrasonic cleaners that are heated will be the best type and generally combined with a mild detergent they will clean most residues off of glassware. We typically clean all glass in our factory both during and after the fabrication process in heated ultrasonic cleaners.

Rinsing

Glassware should always have a water rinse after any cleaning procedure followed by a DI rinse. It is best to give smaller pieces such as test tubes a soaking rinse followed by a DI soaking rinse. Glass pipettes are best soaked in a suitable pipette washer and washed and given both a water rinse and DI soaking rinse.

Drying

Oven drying at 100°C is best for all glassware. If this is not convenient, rack drying will work.

Steam Autoclaving or Sterilizing

Proper protocol for steam autoclaving of borosilicate glassware is 15-20 minutes at 100-120°C. Always leave closures off or loose during autoclaving.

Inspection after cleaning

Always inspect all glassware before steam autoclaving for cracks, chips or damage. If it is already damaged, the autoclave procedure will cause your glassware to break.

Remember: all labware is generally borosilicate glass, especially if it's made in the USA. The suggestions herein refer to borosilicate labware only. Bottles are generally NOT borosilicate glass and are made from soda lime or soft glass. Bottles do not have the temperature range or autoclave range of borosilicate glass. Please refer to the manufacturer's cleaning procedures for these containers. Do not mix bottles and labware in the same washers or heat dryers, and especially not during autoclaving procedures.

Cleaning Glass Fiber Frits

Flow Characteristics

Aqueous flow rate from 0.5 to 200cc/min./cm² at 100mm Hg. pressure drop are covered in the porosities A to E. A tabulation of these flow rates for various porosities is almost meaningless since operating conditions vary so widely. In addition, a number of interesting phenomena occur that may rapidly change the flow rate of a given filter by a factor of two or more, particularly in filters of smaller pore size. Hence, any discussion of flow rate becomes detailed and involved. Glass filters carry a negative charge.

Care and Cleaning

Only materials that attack glass will affect these filters, i.e. HF, Alkalies, H₃PO₄. HF attacks rapidly; the others, relatively slowly.

Inasmuch as surface scratches materially reduce the strength of glass, scratching the envelope in the vicinity of the disc should be guarded against, particularly on large filters, since this is the area of maximum stress under vacuum. Mechanical cleaning can be accomplished by reverse-flow washing. This is the most effective mechanical means. Do not exceed 1.06 Kg/cm² pressure.

For Chemical Cleaning, the following is recommended:

Material to be Removed:	Removal Agent:
Barium Sulfate	Concentrated H ₂ SO ₄ plus a small amount of KClO ₄ to 80-90°C and soak
Fat	CCl ₄
Mercury	Hot HNO ₃
Mercuric Sulfide	Hot Aqua Regia
Organic Residues	Warm concentrated H ₂ SO ₄ plus a small amount of KNO ₃ and soak
Silver Chloride	NH ₄ OH
Sugars & Glucose	Hot H ₂ SO ₄ plus HNO ₃
Free Carbon	Heat in a muffle furnace to 482°C in an oxidizing atmosphere. Cooling may be at the rate of -12°C/min. or greater, but thermal shock must not exceed 93°C.
Dia (micron) = $\frac{30\delta}{P}$	Surface tension in a dynes/cm at test temperature P = mm Hg. where first bubble appears.

The test liquid must wet the filter; that is, the contact angle must be negligible.

Lab Glassware Safety Tips

Unsticking glass to glass joints and stopcocks

If a freezer is available, place the part inside for a brief period of time. Then use gloves and gently twist apart. If a freezer is not convenient, use a hair dryer or a similar type heat gun to gently heat the area. Again, wear gloves and gently twist apart.

If you are fortunate enough to have a glassblower on site, let them dislodge the joint or stopcock.

Best recommendation for prevention: use stopcock grease or use PTFE sleeves for joints. You might also consider using PTFE stoppers or PTFE hollow stoppers instead of glass stoppers.

To unstick PTFE stopcocks

Simply put the part in a freezer overnight and gently twist apart.

Safety shields — use of glass under pressure

Always use shields or safety coated glassware when using high pressures. Most standard borosilicate glassware with standard wall weight has only a 15-20 PSI pressure rating at room temperature. Elevating the temperature will lower the pressure capability. It's best to check with our Ace Engineering Department if you plan to work with higher temperatures and pressures. Finally, make sure you always use safety glasses and shields when working at higher temperatures and pressures.

It may sound very simplistic, but always make sure you have the proper size vessels and flasks when working, especially when doing any exothermic reactions, to allow for changes in volume or for boil over.

Ace-Safe Connectors

The most common lab injuries are from broken or chipped glass. One innovation from ACE is our Ace-Safe connectors, which utilize Ace-Threds and plastic hose barbs. This not only reduces breakage and injury, but is also economical, as you only have to replace the plastic barb (if it does snap off) rather than replacing the entire vessel. See Ace-Safe connectors all throughout this catalog.

Glass wall weight and uniformity

Uniform, consistent glass wall weight is very important. A thin wall is not as bad as some manufacturers would like you to think. A uniform, thin wall is excellent for heating and has good thermal properties, while a thick wall is good for mechanical shock but not as good thermally as a thinner wall. But wall uniformity is very important throughout. The lip of a beaker or the neck of a flask and the corners on a beaker should be rounded and uniform, or both thermal and mechanical breakage can occur. Our glass blanks and tubing are mainly from Schott glass, and are very uniform with consistent wall thicknesses.

5000/9092 ADAPTER Reducing ♠

§ joint at top and bottom.

Top Outer	Bottom Inner	Order Code	Each	Top Outer	Bottom Inner	Order Code	Each	Top Outer	Bottom Inner	Order Code	Each
10/30	14/20	9092-08	21.87	14/35	24/40	5000-25	29.90	24/40	50/50	5000-46	61.28
10/30	14/35	5000-05	27.47	14/35	29/42	5000-26	32.52	24/40	55/50	5000-47	65.92
10/30	19/38	5000-07	27.93	19/22	24/40	9092-25	27.57	24/40	60/50	5000-49	73.08
10/30	24/40	5000-09	28.33	19/38	24/40	5000-30	29.99	24/40	71/60	5000-50	93.40
10/30	29/42	5000-10	28.37	24/40	14/20	5000-36	30.00	24/40	103/60	5000-51	215.72
14/20	14/20	9092-12	22.08	24/40	29/42	5000-38	32.13	29/42	34/45	5000-53	33.91
14/20	19/22	9092-14	22.88	24/40	24/40	5000-39	29.90	29/42	45/50	5000-56	51.18
14/20	24/25	9092-16	24.59	24/40	34/45	5000-41	36.12	29/42	55/50	5000-58	67.07
14/20	24/40	9092-24	26.20	24/40	40/50	5000-43	47.32	45/50	55/50	5000-66	92.22
14/35	19/38	5000-23	28.75	24/40	45/50	5000-45	50.10	45/50	71/60	5000-68	106.68



5000
9092

5005/9092 ADAPTER Enlarging ♠

§ joint at top and bottom.

Top Outer	Bottom Inner	Order Code	Each	Top Outer	Bottom Inner	Order Code	Each	Top Outer	Bottom Inner	Order Code	Each
14/20	10/30	9092-10	21.87	24/40	10/30	5005-08	27.51	29/42	14/35	5005-23	30.29
19/22	14/20	9092-20	25.73	24/40	12/30	5005-10	27.51	29/42	24/40	5005-24	33.79
19/38	14/20	9092-21	26.20	24/40	14/20	9092-26	27.88	34/45	24/40	5005-28	38.62
19/38	14/35	5005-06	28.42	24/40	14/35	5005-12	28.35	34/45	29/42	5005-30	40.75
24/25	14/20	9092-22	27.35	24/40	19/22	9092-28	27.74	45/50	24/40	5005-36	67.36
24/25	14/35	9092-27	27.35	24/40	19/38	5005-14	30.19	45/50	29/42	5005-38	63.55
								55/50	24/40	5005-42	74.72

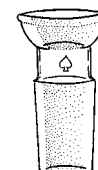


5005
9092

5020 ADAPTER Reducing and Enlarging ♠

§ joint at top and § at bottom.

Top § Socket	Bottom § Inner	Order Code	Each	Top § Socket	Bottom § Inner	Order Code	Each
18/9	24/40	5020-10	33.76	35/20	24/40	5020-25	36.95
28/15	24/40	5020-20	34.33	35/25	24/40	5020-30	37.07
28/15	29/42	5020-22	36.49	35/25	29/42	5020-32	36.94



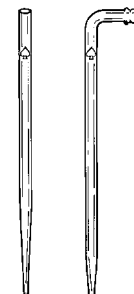
5020

For spherical joint clamps, see catalog nos. 7666-7670.

9059 ADAPTER Bleed ♠

With drawn capillary tip for the introduction of gases below the liquid surface. Used with 9095 Rubber Adapter (page 46) or 9058 (page 49). Can also be used with #7 Ace-Thred, i.e., 5028 (page 20). Outside diameter is 7mm. Length approx. 27cm (10-3/4 inches). Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

	Order Code	Each
Straight Adapter	9059-08	4.86
Bent Adapter	9059-12	10.60

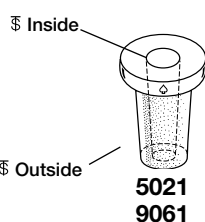


9059

**9328****9328 ADAPTER** *Bleed Capillary* ♠

Length measured from top of joint to tip. Use with 5/16-inch I.D. Tubing, Size A. See page 5 for more detailed Hose Connection information.

	For Flask Size, mL	Length, mm	Joint	Order Code	Each
For use with 9465 type flasks. }	50	70	14/20	9328-18	30.51
	50	80	14/20	9328-22	30.51
For use with 9443 and 9448 style head and flask. }	50	184	14/20	9328-02	32.70
	100	207	14/20	9328-04	32.70

**5021
9061****5021/9061 ADAPTER** *Bushing* ♠

Bushing type with ⌘ joints.

⌘ Inside	⌘ Outside	Order Code	Each	⌘ Inside	⌘ Outside	Order Code	Each	⌘ Inside	⌘ Outside	Order Code	Each
10/18	14/20	9061-05	27.02	14/20	24/40	5021-14	30.54	24/40	29/42	5021-28	35.52
10/30	14/20	9061-10	27.02	14/20	29/42	5021-15	33.32	24/40	34/45	5021-30	45.98
10/30	14/35	5021-05	30.00	14/35	19/38	5021-18	29.53	29/42	34/45	5021-35	56.41
10/30	19/38	5021-07	31.97	14/35	24/40	5021-20	33.33	24/40	45/50	5021-36	74.63
10/30	24/40	5021-09	35.09	14/35	29/42	5021-22	36.35	29/42	45/50	5021-94	74.88
10/30	29/42	5021-12	37.54	19/38	24/40	5021-24	31.09	34/45	45/50	5021-39	75.14
14/20	19/22	9061-16	27.02	19/38	29/42	5021-26	35.79				

**13430****13430 ADAPTER** *Bushing, PTFE* ♠

Bushing type, fabricated from PTFE, with ⌘ joints.

⌘ Outer	⌘ Inner	Order Code	Each	⌘ Outer	⌘ Inner	Order Code	Each
10/30	14/35	13430-05	8.68	24/40	29/42	13430-25	17.84
10/30	19/38	13430-07	9.33	24/40	34/45	13430-28	18.67
14/35	19/38	13430-11	9.85	29/42	34/45	13430-32	18.67
14/35	24/40	13430-13	12.16	45/50	24/40	13430-40	105.05
19/38	24/40	13430-16	12.16	45/50	29/42	13430-42	106.14
19/38	29/42	13430-18	14.49	45/50	34/45	13430-44	81.65
19/38	34/45	13430-21	18.67				

**13441****13441 ADAPTER** *Bellows, PTFE* ★

PTFE Bellows used for correct alignment of ⌘ joints and relieves stress in reaction systems. Operates to 200° C.

⌘ Outer	⌘ Inner	Order Code	Each
19/22	19/22	13441-19	52.95
19/38	19/38	13441-23	57.19
24/40	24/40	13441-28	63.87
29/42	29/42	13441-32	67.85
45/50	45/50	13441-36	79.43

5024 ADAPTER *Thermometer* ♦

£ inner joint at bottom and £ 10/30 outer joint at top which is offset and angled for use in multiple neck flasks.

£ Joint	Order Code	Each
24/40	5024-10	36.49
29/42	5024-20	39.01



5024

5025 ADAPTER *Reducing and Enlarging* ♦

£ joint at top and £ at bottom.

Top £ Outer	Bottom £ Ball	Order Code	Each	Top £ Outer	Bottom £ Ball	Order Code	Each
24/40	28/15	5025-17	32.57	24/40	65/40	5025-24	104.51
24/40	35/20	5025-19	35.82	29/42	35/25	5025-27	42.03
24/40	35/25	5025-21	36.49				



5025

5026 ADAPTER *Conversion, Ace-Thred to £ Joint* ★

This PTFE adapter is used to connect Ace-Thred to inner £ joint. This item is supplied with one FETFE O-Ring.

Ace-Thred Size	Outer £ Joint	Order Code	Each	Ace-Thred Size	Outer £ Joint	Order Code	Each
15	14/20	5026-15	42.94	25	14/20	5026-24	73.87
15	24/40	5026-20	49.52	25	24/40	5026-26	73.87



5026

**Ace Threaded Adapters Give You
A Versatile, Grease-Free, No-Clamp Connection!**
*Position Thermocouples, Thermometers, Gas Dispersion Tubes, Thermowells,
or Electrodes, etc., easily with these Adjustable-Depth Connectors.*



**5028
Adapter**

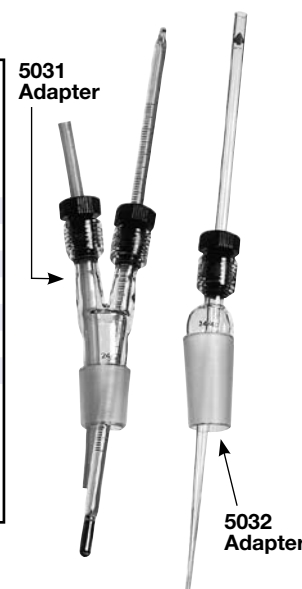
**5261
Adapter**

The Original Ace-Thred Connectors

Reference Guide to Ace-Threds

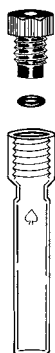
Size		Accepts Tube O.D., mm	Use Bushing Number	Use with O-Ring No.	Optional Ferrule	Suggested Uses
Mini	#7	6.5-7	5029-10	7855-704	11710-07	A,B,I
Midi	#11	9-10.5	7506-02	7855-708	11710-11	D,E,F,G
Maxi	#15	12.5-14	7506-06	7855-716	11710-15	C,H
	#18	16-17	7506-08	7855-720	11710-18	H,L
Giant	#25	24-25	7506-10	7855-734	11710-25	K
	#36	34-35	7506-12	7855-740	—	K,L
Jumbo	#50	47-48	7506-14	7855-744	11710-50	K,L
	#80	75	7506-20	7855-782	—	—

A—Thermometers, B—Bleed Tubes, C—Electrodes, D—Sensing Probes, E—Thermowells,
F—Gas Dispersion Tubes, G—Vacuum Take-Offs, H—Inlet and Outlet Tubes,
I—Miniature Electrodes, J—Wire Electrodes, K—Manifolds, L—Immersion Wells.



**5031
Adapter**

**5032
Adapter**



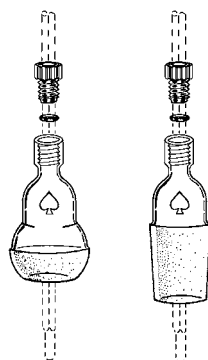
5027

5027 ADAPTER *Tube, "Mini" #7 Ace-Thred ♠*

Straight tube with #7 Ace-Thred at one end for use with 5029 Nylon bushing. O.D. of tube is 12.7mm, medium wall. Length is approximately 114mm. Complete includes glass member, 5029-10 Nylon bushing and FETFE® O-Ring. For extra O-Rings order 7855-704.

Order Code	Glass Member	Order Code	Nylon Bushing	Order Code	Complete
5027-05	11.39	5029-10	2.27	5027-20	13.55

For larger Ace-Threds, see 7644, page 346.



5028-24

5028 ADAPTER *"Mini" #7 Ace-Thred ♠*

With ground joint at bottom and threaded Nylon bushing at top which tightens into #7 Ace-Thred to form an O-Ring compression seal with thermometers, bleed tubes, etc. Nylon bushing comes complete with FETFE O-Ring. \$ 10/10 size will accommodate thermometers up to 6.4mm diameter, all others will accommodate 7mm diameters. Suitable for vacuum work. Supplied complete with 5029-10 Nylon bushing. For extra O-Rings, order 7855-704.

Joint	Order Code	Complete	Joint	Order Code	Complete
\$10/10	5028-24	24.15	\$24/40	5028-30	24.19
\$14/10	5028-25	23.29	\$29/42	5028-32	28.56
\$14/20	5028-26	24.13	\$18/9	5028-38	29.27
\$19/22	5028-28	23.98	\$35/25	5028-42	31.48



5028-27

5028 ADAPTER *"Mini" #7 Ace-Thred, with PTFE Ferrule ♠*

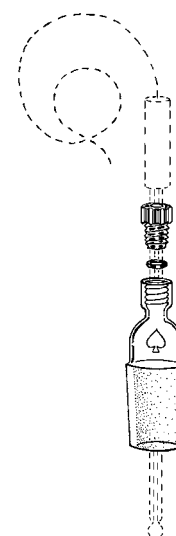
With inner joint at bottom and #7 Ace-Thred at top. Suitable for most vacuum work. Supplied complete with Nylon bushing and PTFE Ferrule in place of O-Ring. For extra ferrules, order 11710-07.

\$ Joint	Order Code	Complete
14/20	5028-27	24.31
24/40	5028-31	24.41

5028 ADAPTER *Electrode, "Mini" #7 Ace-Thred ♠*

With inner joint at bottom and #7 Ace-Thred at top. For use with any probes up to 8mm diameter. Suitable for most vacuum work. Supplied complete with 5029-30 Nylon bushing and FETFE O-Ring. For extra O-Rings, order 7855-704.

⌘ Joint	Order Code	Complete
14/20	5028-117	28.36
24/40	5028-119	30.33



5028-117

5029 BUSHING *Nylon or PTFE ♠*

Machine threaded Nylon or PTFE bushing with hole in center or solid. For use with 5027, 5028, 5031, 5032, 5034, 5086, 5092, 5101, 5136, 5261, 5263 and other apparatus with #7 internal threads. Two FETFE O-Rings supplied with bushing.

Note: Solid bushing is for drilling different size hole, only. NOT intended for use as a stopper. For stoppers, see 5803 or 5846.

	Order Code	Nylon	Order Code	PTFE
With 7.5 mm hole	5029-10	2.27	5029-35	10.98
With 8 mm hole	5029-30	7.11	5029-31	10.98
Solid	5029-20	6.80	5029-40	10.80
With 7.5 mm hole, for use with PTFE Ferrule	5029-12	2.36	5029-45	10.98
Extra O-Rings			7855-704	12.27/Dozen



5029

If O-Rings are a problem, see 11710, PTFE Ferrules for use with Ace-Threds, on page 348.

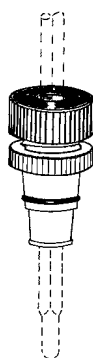
8299 ADAPTER *Thermometer, ⌘10/20 ♠*

Made of PTFE with Nylon knurled nut to adapt standard chemical thermometers up to 6mm O.D. For use in ⌘ 10/18 or ⌘ 10/30 joints. Simple to use: insert thermometer to desired depth, tighten nut.

Order Code	Each
8299-10	12.93

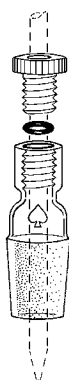


8299

**8300****8300 ADAPTER Thermometer** ♠

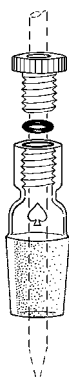
PTFE adapter with FETFE O-Ring for use with plain stem thermometers, gas inlet tubes, etc. O-Ring compression seal allows adjustable depth positioning. The J 10/18 size will accommodate tubes up to 6.5mm, all other sizes up to 7mm. Except for the J 10/18 size all have external O-Ring seal (Order Codes indicated in table). All include internal O-Ring 7855-711.

J Joint	External FETFE O-Ring	Order Code	Each	J Joint	External FETFE O-Ring	Order Code	Each
10/18	n/a	8300-05	21.67	24/25	7855-715	8300-16	24.32
14/20	7855-710	8300-07	13.69	29/26	7855-719	8300-21	27.24
19/22	7855-713	8300-09	16.74				

**5030-20****5030/7506 ADAPTER "Midi" #11 Ace-Thred** ♠

With ground joint at bottom and #11 Ace-Thred at top. Will accept inner tubes with diameters of 9mm to 10.5mm such as thermowells, gas dispersion tubes, vacuum take-offs, etc. Suitable for most vacuum work. Supplied complete with Nylon bushing and FETFE O-Ring. For extra O-Rings, order 7855-708. See 6470 for thermowell.

Joint	Order Code	Glass Member	Order Code	Nylon Bushing	Order Code	Complete
J 19/22	5030-04	24.80	7506-02	9.31	5030-20	34.11
J 24/40	5030-06	25.45	7506-02	9.31	5030-22	34.76
J 29/42	5030-08	29.83	7506-02	9.31	5030-24	39.14
J 45/50	5030-60	45.83	7506-02	9.31	5030-19	55.14
J 35/25	5030-16	35.54	7506-02	9.31	5030-28	44.85

**5030-40****5030/7506/8042 ADAPTER "Maxi" #15 Ace-Thred** ♠

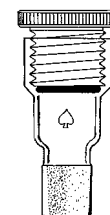
With ground joint at bottom and #15 Ace-Thred at top. Will accept tubes with diameters of 12.5 to 14mm such as electrodes, inlet and outlet tubes, etc. Suitable for most vacuum work. Supplied complete with Nylon bushing and FETFE O-Ring. For extra O-Rings, order 7855-716.

Joint	Order Code	Glass Member	Order Code	Nylon Bushing	Order Code	Complete
J 24/40	8042-15	27.03	7506-06	10.09	5030-40	37.12
J 29/42	8042-17	28.89	7506-06	10.09	5030-42	38.98
J 45/50	8042-21	43.77	7506-06	10.09	5030-45	53.86
J 35/25	8042-35	31.09	7506-06	10.09	5030-44	41.18

5030/7506/8067 ADAPTER “Giant” #25 or #36 Ace-Thred ♦

With ground inner joint at bottom and either a #25 or #36 Ace-Thred that accepts outside diameters of 24-25mm and 34-35mm, respectively (Note: Joint size limits size O.D. of inserted tube). This item can be used with Sonochemical Equipment. Code -70 will accept 9852-41 Slide Adapter; code -76 will accept 9852-45 Slide Adapter and/or 9814 Sonochemical Horn with extenders. (Note: When using horn with extenders, depth distances must be determined for proper operation.) Complete item supplied with Nylon bushing and FETFE O-Ring. For O-Ring replacements, see “Reference Guide to Ace-Threds” on page 5.

Joint	Thread Size	Order Code	Glass Member	Order Code	Nylon Bushing	Order Code	Complete
24/25	#25	5030-52	31.83	7506-10	17.29	5030-70	49.12
24/25	#36	5030-55	53.31	7506-12	41.23	5030-76	94.54
45/50	#36	5030-78	69.21	7506-12	41.23	5030-80	110.44
45/50	#25	8067-18	87.37	7506-10	17.29	5030-84	104.66
50/55	#25	8067-20	90.06	7506-10	17.29	5030-86	107.35
71/60	#25	8067-22	98.81	7506-10	17.29	5030-88	116.10
55/50	#36	8067-24	92.53	7506-12	41.23	5030-90	133.76

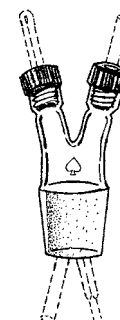


5030-70

5031 ADAPTER “Twin” Ace-Thred ♦

With inner joint at bottom and two off-set Ace-Threds ports at top. Two threaded openings enable you to insert two inner tubes, such as a thermometer and bleed tubes, through the same joint. The 24/25 medium length joint is compatible with 24/40 full length outer joints. Supplied complete with two Nylon bushings and FETFE O-Rings. For extra O-Rings, order 7855-704 (for #7), 7855-708 (for #11) or 7855-716 (for #15).

Thread Size	Joint	Order Code	Complete
#7	24/25	5031-10	69.26
#7	29/42	5031-12	72.92
#11	45/50	5031-24	87.24
#15	45/50	5031-33	92.99
#11 & #15	45/50	5031-86	104.67



5031

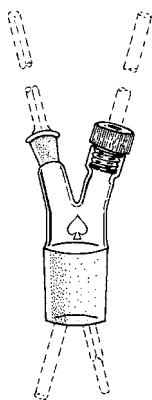
5032 ADAPTER Offset, Ace-Thred ♦

Thermometer adapter with inner joint at bottom and top threaded piece offset and angled approximately 10° for use in multiple neck flasks. Threaded Nylon bushing tightens into glass piece to form an O-Ring compression seal with thermometers, bleed tubes, etc. up to 7mm diameter. Thread at top not only allows for variable vertical positioning of thermometers, etc. but also, because of the 10° angle, by rotating joint you can position the thermometer in the bottom of the flask. Supplied complete with Nylon bushing and FETFE O-Ring. For extra O-Rings, order 7855-704. For extra bushings, order 5029-10.

Joint	Order Code	Complete
19/22	5032-18	35.54
24/40	5032-22	30.48
29/42	5032-25	32.96

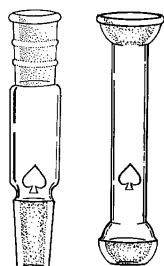


5032

**5034****5034 ADAPTER** *Twin* ♠

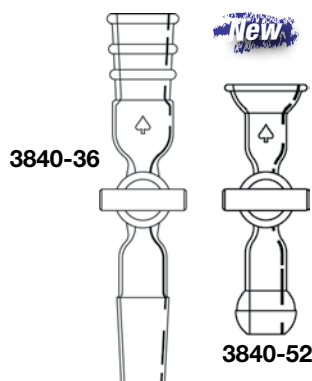
With inner F joint at bottom, one #7 Ace-Thred and one F 10/18 outer joint, offset at the top. Threaded opening will accept 6.5 to 7mm diameter thermometers, bleed tubes, etc. The F 24/25 medium length joint is compatible with a full length F 24/40 joint. Supplied complete with 5029-10 Nylon bushing and FETFE O-Ring. For extra O-Rings, order 7855-704.

F Joint	Order Code	Complete
24/25	5034-11	64.53

**5035****5035 ADAPTER** *Straight Connecting* ♠

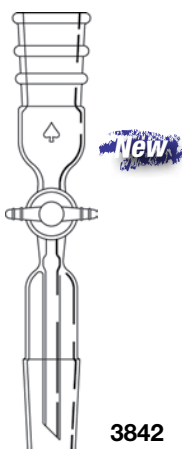
With F or F joints at top and bottom. Length stated is approximate overall length.

F Joints	Length, mm	Order Code	Each	F Joints	Length, mm	Order Code	Each
19/38	150	5035-05	28.78	28/15	142	5035-25	33.77
24/40	150	5035-10	30.05	35/20	142	5035-30	36.41
29/42	150	5035-15	32.58	35/25	142	5035-35	36.41

**3840-52****3840 ADAPTER** *Straight Connecting with Glass Stopcock* ♠

With glass plug and F Inner and outer or F ball and socket joints at top and bottom.

Plug Bore, mm	Bottom Inner F Joint	Top Outer F Joint	Order Code	Each	Plug Bore, mm	Bottom Ball F Joint	Top Socket F Joint	Order Code	Each
2	14/20	14/20	3840-04	136.15	4	28/15	28/15	3840-52	114.59
2	24/40	24/40	3840-08	138.42	4	35/25	35/25	3840-56	114.59
2	29/42	29/42	3840-12	138.42					
4	14/20	14/20	3840-32	181.53					
4	24/40	24/40	3840-36	186.07					
4	29/42	29/42	3840-39	187.21					

**3842****3842 ADAPTER** *Straight Connecting with PTFE Stopcock, F Joints* ♠

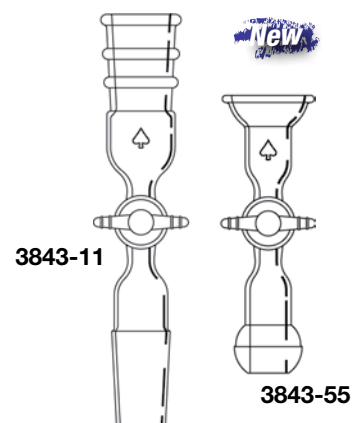
With 1:5 PTFE plug and F Inner and outer joints at top and bottom, with drip tip in lower position.

Plug Bore, mm	Bottom Inner F Joint	Top Outer F Joint	Order Code	Each
4	24/40	24/40	3842-11	109.42

3843 ADAPTER *Straight Connecting with PTFE Stopcock, ♦*

With 1:5 PTFE plug and ₤ Inner and outer or § ball and socket joints at top and bottom.

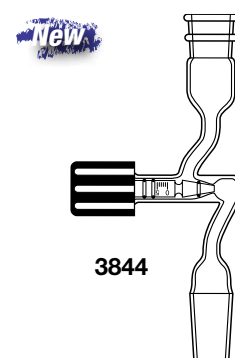
Plug Bore, mm	Bottom Inner ₤ Joint	Top Outer ₤ Joint	Order Code	Each	Plug Bore, mm	Bottom Ball § Joint	Top Socket § Joint	Order Code	Each
4	14/20	14/20	3843-09	135.02	4	28/15	28/15	3843-55	111.18
4	24/40	24/40	3843-11	136.15	4	35/25	35/25	3843-58	114.59
4	29/42	29/42	3843-15	136.15					
6	14/20	14/20	3843-33	157.71					
6	24/40	24/40	3843-37	158.84					
6	29/42	29/42	3843-40	161.11					



3844 ADAPTER *Straight Connecting with Easy Action Stopcock, ₤ Joints ♦*

With Easy Action threaded plug and ₤ Inner and outer joints at top and bottom.

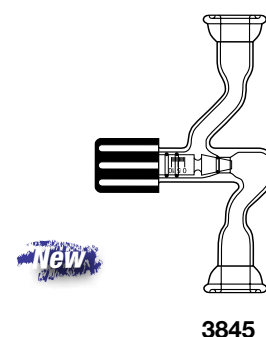
Plug Bore, mm	Bottom Inner ₤ Joint	Top Outer ₤ Joint	Order Code	Each	Plug Bore, mm	Bottom Inner ₤ Joint	Top Outer ₤ Joint	Order Code	Each
0-3	14/20	14/20	3844-05	113.24	0-10	24/40	24/40	3844-47	206.86
0-3	24/40	24/40	3844-07	140.98	0-10	29/42	29/42	3844-49	208.00
0-3	29/42	29/42	3844-09	140.98					
0-5	14/20	14/20	3844-31	184.89					
0-5	24/40	24/40	3844-34	189.51					
0-5	29/42	29/42	3844-36	190.68					



3845 ADAPTER *Straight Connecting with Easy Action Stopcock, O-Ring Joints ♦*

With #15 O-Ring joint at top and bottom. Supplied with two O-Rings.

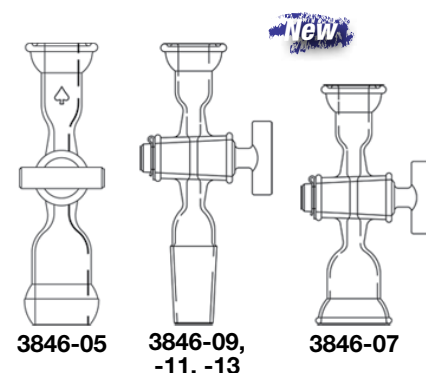
Plug Bore, mm	Bottom O-Ring Joint	Top O-Ring Joint	Order Code	Each
0-5	#15	#15	3845-05	98.21
0-10	#15	#15	3845-10	216.32

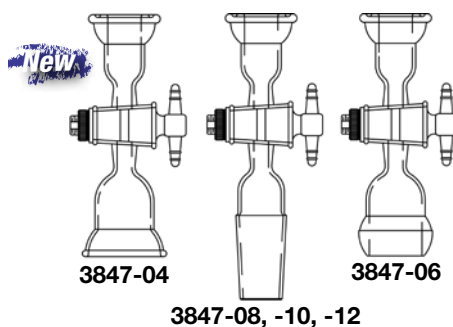


3846 ADAPTER *Straight Connecting with #15 O-Ring, Glass Stopcock ♦*

With 4mm glass plug stopcock and #15 O-Ring top joint and either ₤ or § joints at bottom.

Plug Bore, mm	Bottom Joint	Top O-Ring Joint	Order Code	Each
4	§ 35/25 Ball	#15	3846-05	110.71
4	§ 35/25 Socket	#15	3846-07	110.71
4	₤ 24/40	#15	3846-09	133.30
4	₤ 29/42	#15	3846-11	135.56
4	₤ 14/20	#15	3846-13	129.92




3847 ADAPTER *Straight Connecting with #15 O-Ring, PTFE Stopcock* ♦

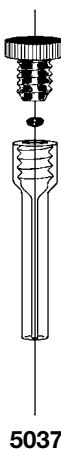
With 4mm PTFE plug stopcock and #15 O-Ring top joint and either ⌘ or ⌘ joints at bottom.

Plug Bore, mm	Bottom Joint	Top O-Ring Joint	Order Code	Each
4	⌘ 35/25 Socket	#15	3847-04	110.71
4	⌘ 35/25 Ball	#15	3847-06	110.71
4	⌘ 24/40	#15	3847-08	129.92
4	⌘ 29/42	#15	3847-10	135.56
4	⌘ 14/20	#15	3847-12	124.27


5036/9071 ADAPTER *Straight Connecting* ♦

With ⌘ outer joints at both ends.

⌘ Joints	Length Between Joints, mm	Order Code	Each
14/35-14/35	30	9071-01	25.51
14/35-14/35	70	9071-03	25.51
14/35-14/35	120	9071-05	26.50
24/40-24/40	70	5036-04	27.76
24/40-24/40	120	5036-06	30.55
29/42-29/42	70	5036-07	32.29
29/42-29/42	120	5036-08	36.81
24/40-24/40	175	5036-10	39.66
29/42-29/42	175	5036-12	44.19


5037 ADAPTER *Adjustable Electrode, Ace-Thred* ♦

Threaded adapter for use with platinum or other electrodes that normally would be step sealed to glass. With threaded bushing and silicone rubber septum for sealing, the electrode may be adjusted for depth or removed if desired. Capillary of glass is 1½–2mm with 76mm of stem for sealing to apparatus. Size is determined by bore of hole in bushing. Overall length of glass approximately 140mm. Supplied complete with one 12901 septum.

Size, mm	Order Code	Glass	Order Code	Bushing	Order Code	Complete
1/2	5037-03	22.13	5037-08	13.58	5037-10	37.03
1	5037-03	22.13	5037-12	13.44	5037-20	36.89
1-1/2	5037-03	22.13	5037-22	13.44	5037-30	36.89

For extra silicone rubber septa, order **12901-42**

Optional Septa:

Silicone rubber with PTFE face, order **8787-40**

For microscale adapters with ⌘14/10 joints, see Catalog Nos. 9557-9574.


5038 ADAPTER *Adjustable Electrode, with joint, Ace-Thred* ♦

Similar to 5037 except with ⌘ inner joint opposite threaded end. Complete includes glass, 12901-42 septum and bushing. For replacement septum, see 5037.

Size mm	⌘ Joint	Order Code	Glass Only	Order Code	Bushing Only	Order Code	Complete
1/2	14/20	5038-04	35.28	5037-08	13.58	5038-06	50.18
1	14/20	5038-04	35.28	5037-12	13.44	5038-16	50.04
1-1/2	14/20	5038-04	35.28	5037-22	13.44	5038-26	50.04
1/2	24/40	5038-05	36.66	5037-08	13.58	5038-07	51.56
1	24/40	5038-05	36.66	5037-12	13.44	5038-17	51.42
1-1/2	24/40	5038-05	36.66	5037-22	13.44	5038-27	51.42
1-1/2	29/42	5038-08	38.81	5037-22	13.44	5038-28	53.57

5039 ADAPTER *Straight Connecting* ♦

With ¤ inner joints at both ends.

¤ Joints	Length Between Joints, mm	Order Code	Each
24/40-24/40	30	5039-03	35.38
24/40-24/40	70	5039-05	35.38
24/40-24/40	120	5039-07	35.92
29/42-29/42	30	5039-09	37.01
29/42-29/42	70	5039-11	37.56
29/42-29/42	120	5039-13	38.65

5039

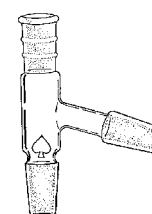


New

5040/9074 ADAPTER *75° Side Arm* ♦

With inner joints at bottom and side, outer joint at top.

Top Outer ¤ Joint	Side Inner ¤ Joint	Bottom Inner ¤ Joint	Order Code	Each
14/20	14/20	14/20	9074-02	42.57
19/22	19/22	19/22	9074-04	42.97
24/40	24/40	24/40	5040-10	50.33
29/42	29/42	29/42	5040-12	52.14
24/40	45/50	45/50	5040-96	150.72

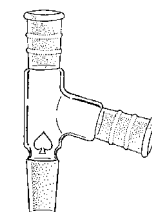


**5040
9074**

5045 ADAPTER *75° Side Arm* ♦

With outer joints at top and side, inner joint at bottom.

¤ Joints	Order Code	Each
24/40	5045-10	61.67

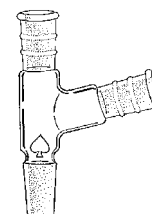


5045

5050 ADAPTER *105° Side Arm* ♦

With outer joints at top and side, inner joint at bottom.

¤ Joints	Order Code	Each
24/40	5050-10	52.07
29/42	5050-12	53.53



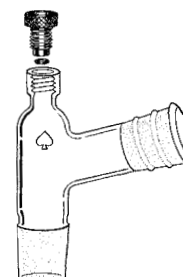
5050-10

5050 ADAPTER *105° Side Arm, with Ace-Thred* ♦

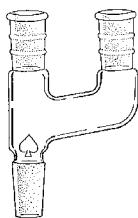
With outer joint on side, inner joint at bottom, and Ace-Thred at Top. Not supplied with Bushing and O-Ring, which must be ordered separately.

¤ Joints	Ace-Thred Size	Order Code	Each (Glass Only)
45/50	#25	5050-86	153.64
45/50	#15	5050-96	150.52

	For Size	Order Code	Each
Bushing w/O-Ring, only	#15	7506-06	10.09
Bushing w/O-Ring, only	#25	7506-10	17.29

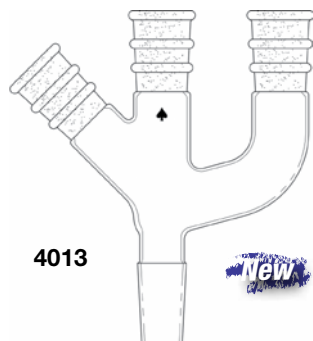


5050-86

**5055
9067****5055/9067 ADAPTER** *Claisen* ♠

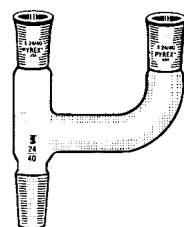
With parallel side arm, outer joints at top, inner joint at bottom.

⌘ Joints	Order Code	Each	⌘ Joints	Order Code	Each
14/20	9067-02	51.96	24/40	5055-10	58.02
19/22	9067-04	53.57	29/42	5055-15	65.16

**4013****4013 ADAPTER** *Claisen, Modified* ♠

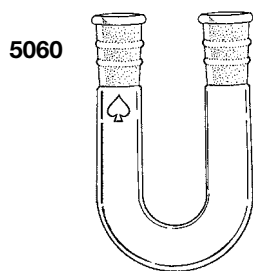
Claisen style adapter with an additional ⌘ outer joint at a 45° angle to the vertical outer joint.

Height x Width, mm	⌘ Joint	Order Code	Each
117 x 105	14/20	4013-08	74.72
165 x 150	24/40	4013-10	89.66
170 x 155	29/42	4013-12	89.66

**4015****4015 ADAPTER** *Claisen* ♠**Corning 9040**

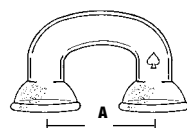
PYREX® brand Claisen type adapter with ⌘ joints.

Corning Code	Approx. Lgth., mm	⌘ Joint	Quantity in Case	Order Code	Case Price
9040-24	160	24/40	6	4015-20	455.66

**5060****5060 ADAPTER** “U” ♠

Connecting adapter, U-shaped, with ⌘ outer joints at both ends.

⌘ Joint Combination	Order Code	Each
24/40-24/40	5060-10	42.51

**5065****5065 ADAPTER** “U” ♠

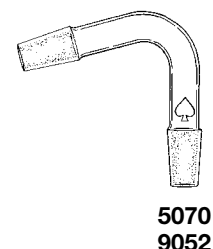
Connecting adapter, U-shaped, with spherical joints at both ends.

⌘ Joint Combination	A, mm	Order Code	Each
12/5 Socket-12/5 Socket	31	5065-22	35.40
18/11 Socket-18/11 Socket	75	5065-29	38.30
28/15 Socket-28/15 Socket	75	5065-32	41.92

5070/9052 ADAPTER 75° Angle ♠

With ₪ inner joint at both ends.

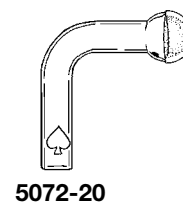
₪ Joints	Order Code	Each
14/20-14/20	9052-08	26.90
14/35-24/40	9052-12	28.79
24/40-24/40	5070-10	32.56
29/42-29/42	5070-15	35.11



5072 ADAPTER 90° Angle ♠

Connecting adapter with spherical ball at one end, other end plain.

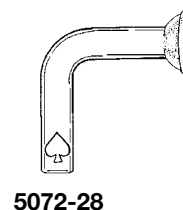
₪ Joint	Order Code	Each
12/5	5072-20	19.62
18/9	5072-22	20.30
28/15	5072-24	20.30



5072 ADAPTER 90° Angle ♠

Connecting adapter with spherical socket joint at one end, other end plain.

₪ Joint	Order Code	Each
12/5	5072-28	20.30
18/9	5072-30	21.21
28/15	5072-34	22.90



5072 ADAPTER 90° Angle ♠

With spherical joints at both ends.

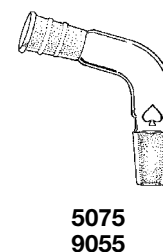
₪ Joint Combination	Order Code	Each
12/5 Ball-12/5 Socket	5072-37	37.52
12/5 Socket-12/5 Socket	5072-38	38.06
28/15 Ball-28/15 Socket	5072-43	43.30
28/15 Socket-28/15 Socket	5072-45	46.44



5075/9055 ADAPTER 105° Angle

With ₪ joint at top and bottom.

₪ Joints	Order Code	Each	₪ Joints	Order Code	Each
14/20	9055-04	♠ 31.55	29/42	5075-15	♠ 38.42
24/40	5075-10	♠ 34.39	45/50	5075-45	★ 108.10

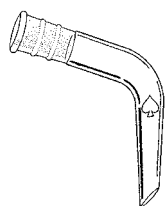


9056 ADAPTER 160° Angle ♠

Designed to go from angled flask side joints to vertical position.

₪ Joints	Order Code	Each
14/20	9056-08	29.37





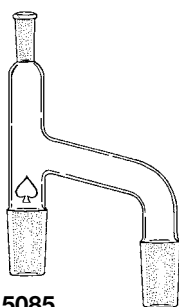
5080
9083

5080/9083 ADAPTER *Distillate Take-Off* ♠

With ₤ joint, 105° angle.

₤ Outer Joint	Order Code	Each
14/20	9083-08	22.04
24/40	5080-10	26.24

➤ ₤14/10 SIZE LISTED IN MICRO/MINI-LAB SECTION.

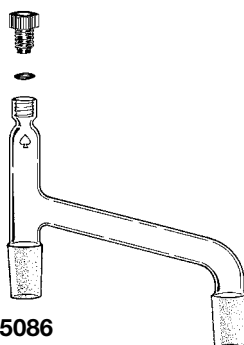


5085

5085 ADAPTER *Distilling* ♠

For connecting distilling column with vertical condensers. Top outer joint ₤ 10/30 is for 76mm immersion thermometer. Side arm at 75°, vertical side arm 17.8cm from center tube.

₤ Inner Joints	Order Code	Each
24/40	5085-10	60.46

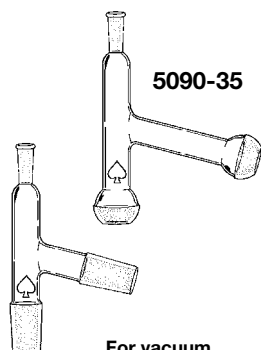


5086

5086 ADAPTER *Distilling, Ace-Thred* ♠

For connecting distilling column with vertical condenser. Top has #7 Ace-Thred for use with 5029 bushing and adjustable length thermometer. Side arm at 75°, vertical side arm 17.8cm from center tube. Supplied complete with 5029-10 Nylon bushing and FETFE O-Ring. For extra O-Rings order 7855-704.

₤ Inner Joints	Order Code	Complete
24/40	5086-54	69.91



5090
9077

For vacuum jacketed version of 5090, see 5140.

5090/9077 ADAPTER *75° Angle* ♠

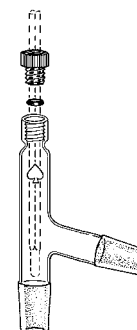
With ₤ or ₤ joint at bottom and side. Top thermometer joint is for 76mm immersion.

Top Outer Joint	Immersion Depth	Side Inner Joint	Bottom Inner Joint	Order Code	Each
₤10/18	25mm	₤14/20	₤14/20	9077-02	41.35
₤10/30	25mm	₤14/20	₤14/20	9077-06	41.35
₤10/30	25mm	₤19/22	₤19/22	9077-16	42.53
₤10/30	76mm	₤24/40	₤24/40	5090-10	48.23
₤10/30	76mm	₤29/42	₤29/42	5090-15	52.37
₤10/30	76mm	₤35/25	₤35/25	5090-35	57.64

5092 ADAPTER 75° Angle, #7 Ace-Thred ♠

With 3/8" inner joint at bottom and side. Top has #7 Ace-Thred for use with 5029 Nylon bushing and adjustable length thermometer. Supplied complete with 5029-10 Nylon bushing and FETFE O-Ring. For extra O-Rings, order 7855-704.

3/8" Joints	Order Code	Complete
24/40	5092-54	53.30

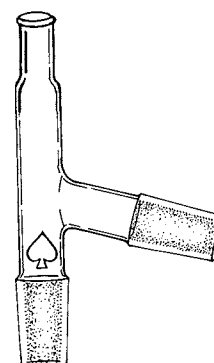


5092

5095 ADAPTER 75° Angle, Outlet Tube ♠

With 3/8" inner joint at bottom and side, 15.8 mm O.D. x 9.5 mm I.D outlet tube at top.

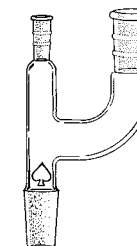
3/8" Joints	Order Code	Complete
24/40	5095-10	42.69



5100 ADAPTER Offset ♠

With 3/8" 10/30 thermometer joint for 76mm immersion.

3/8" Joint	Order Code	Each
24/40	5100-10	57.47

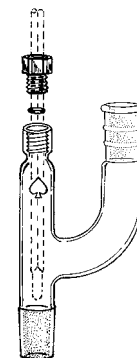


5100

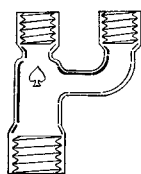
5101 ADAPTER Offset, #7 Ace-Thred ♠

With #7 Ace-Thred for use with 5029 Nylon bushing and adjustable length thermometer. Supplied with 5029-10 Nylon bushing and FETFE O-Ring. For extra O-Rings, order 7855-704.

3/8" Joints	Order Code	Each
24/40	5101-54	56.00

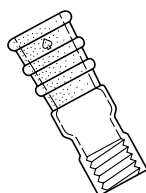


5101

**5102****5102 ADAPTER** *Offset, #7 and #15 Ace-Threds ♠*

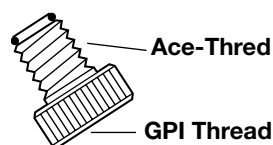
With #15 Ace-Thred at bottom and two #7 Ace-Threds at top, one offset. Used with 8648 Temperature Measurement Apparatus for 7482 Hydrogenation/Gas Apparatus. Glass only, NOT supplied with 5029-200 Nylon Bushings and O-Rings.

Bottom Thread	Top Threads	Order Code	Each
#15	#7	5102-05	41.34

**13290-34****13290 ADAPTER** *Conversion, Ace-Thred to ⌘ Joint ♠*

Glass Adapter with #15 or #25 Ace-Thred to ⌘ 24/40 or ⌘ 29/42 outer joint. For use with 13290 Connecting Adapter (below) to connect vial or flasks to Rotary Evaporators.

Ace-Thred Size	Outer ⌘ Joint	Order Code	Each	Ace-Thred Size	Outer ⌘ Joint	Order Code	Each
15	24/40	13290-34	19.16	25	24/40	13290-37	67.98
15	29/42	13290-44	20.63	25	29/42	13290-47	69.46

**13290-11/121****13290 ADAPTER** *Vial, PTFE, Rotary Evaporator ★*

PTFE Adapter with #15 or #25 Ace-Thred and GPI thread to connect 13290 Conversion Adapter (above) to matching vial for use in Rotary Evaporators. Suitable for vacuum work. Supplied with either FETFE or Chemraz O-Ring. Note! FETFE not suitable for use with methylene chloride or acetone, use Chemraz.

GPI Thread	Ace-Thred	With FETFE O-Ring		With Chemraz O-Ring	
		Order Code	Each	Order Code	Each
8-425	15	13290-11	16.75	13290-121	55.87
13-425	15	13290-13	16.75	13290-123	55.87
15-425	15	13290-15	16.75	13290-125	55.87
18-400	15	13290-18	16.75	13290-128	55.87
20-400	15	13290-20	16.75	13290-130	55.87
22-400	15	13290-22	16.75	13290-132	55.87
24-410	15	13290-24	16.75	13290-134	55.87
24-410	25	13290-26	48.18	13290-136	130.35

**5110****5110 ADAPTER** *Septum Inlet, Single Port ♠*

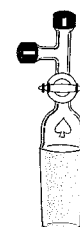
Sampling adapter with ⌘ inner joint at bottom and septum port at top for handling air-sensitive materials. Supplied with septum. For extra septa, order 9096-32, page 587.

⌘ Joint	Order Code	Each
14/20	5110-13	25.57
24/40	5110-11	25.57

5111/9094 ADAPTER *Septum Inlet, with Stopcock* ♦

Sampling adapter with F inner joint at bottom, 2 mm bore PTFE or glass stopcock and two septum ports at top. Used to handle air-sensitive materials. Supplied with two septa. For extra septa, order 9096-32, page 587.

F Joint	Stopcock Type	Order Code	Each
14/20	PTFE	9094-04	90.53
14/20	Glass	9094-14	70.65
24/40	PTFE	5111-09	89.32
24/40	Glass	5111-19	72.84



**5111
9094**

5112/9091 ADAPTER *Septum Inlet, Two Ports* ♦

Sampling adapter with F inner joint at bottom and two septum at top for handling air-sensitive materials. Supplied with two septa. For extra septa, order 9096-32, page 587.

F Joint	Order Code	Each
14/20	9091-03	45.73
24/40	5112-14	50.93



**5112
9091**

5113 ADAPTER *Septum Inlet, Single Syringe Port* ♦

Sampling adapter with F inner joint at bottom and 8-425 GPI thread at top that accepts a 9590-44 Cap with hole and a 8787-40 PTFE faced septum to allow insertion of a syringe needle. Supplied complete with cap and septum. For replacement caps, order 9590-44, for replacement septa, order 8787-40.

F Joint	Order Code	Complete
14/20	5113-13	27.14
24/40	5113-23	28.91



5113

5114 ADAPTER *with Stopcock and Syringe Port* ♦

With F inner joint at bottom and 8-425 GPI thread at top that accepts a 9590-44 Cap with hole and a 8787-40 PTFE faced septum to allow insertion of a syringe needle. Stopcock is 2mm bore PTFE plug. Supplied complete with cap and septum. For replacement caps, order 9590-44, for replacement septa, order 8787-40.

F Joint	Order Code	Complete
14/20	5114-14	54.06
19/22	5114-19	56.24
24/40	5114-24	56.06
29/42	5114-29	56.69

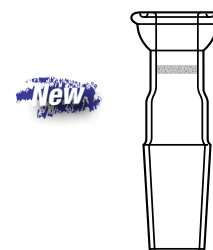


5114

5117 ADAPTER *Connecting, O-Ring Joint to F Inner with Frit* ♦

Used with 8737, 8738, 8739, 8743 and 8745 Vacuum Manifolds as port connections. #15 O-Ring Joint on one end, inner Joint and Porosity B (70-100 micron) opposite. Supplied with one O-Ring.

O-Ring Joint	F Joint	Order Code	Each
#15	14/20	5117-18	47.70
#15	19/22	5117-21	47.94



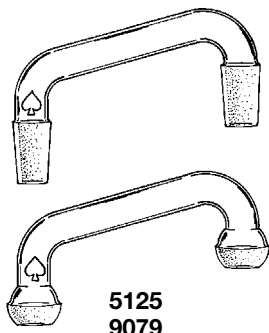
5117-21


5120

5120 ADAPTER *Pour Out* ♠

Convenient adapter for pouring from flasks or funnel without pouring over ground joint.

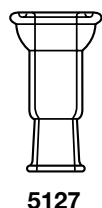
Inner Joint	Order Code	Each
24/40	5120-14	23.44


**5125
9079**

5125/9079 ADAPTER *Connecting* ♠

With ₤ or § joints.

Distance Between Joints, mm	Joints	Order Code	Each
100	₤14/20	9079-08	41.98
150	₤14/20	9079-12	41.98
170	₤24/40	5125-10	50.24
170	§35/25	5125-35	62.47

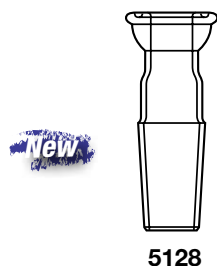

5127

New

5127 ADAPTER *Connecting, O-Ring Joint to ₤ Outer* ♠

Used with 8737, 8738, 8739, 8740, 8743 and 8745 Vacuum Manifolds as port connections. #15 O-Ring Joint on one end, outer Joint opposite. Supplied with one O-Ring.

O-Ring Joint	Inner Joint	Order Code	Each
#15	14/20	5127-04	30.72
#15	19/22	5127-06	31.02
#15	24/40	5127-20	32.20

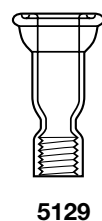

5128

New

5128 ADAPTER *Connecting, O-Ring Joint to ₤ Inner* ♠

Used with 8737, 8738, 8739, 8740, 8743 and 8745 Vacuum Manifolds as port connections. #15 O-Ring Joint on one end, inner Joint opposite. Supplied with one O-Ring.

O-Ring Joint	Inner Joint	Order Code	Each
#15	14/20	5128-07	30.41
#15	19/22	5128-11	31.02
#15	24/40	5128-26	32.20


5129

New

5129 ADAPTER *Connecting, O-Ring Joint to Ace-Thred* ♠

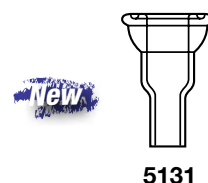
Used with 8737, 8738, 8739, 8740, 8743 and 8745 Vacuum Manifolds as port connections. #15 O-Ring Joint on one end, Ace-Thred opposite. Supplied with one O-Ring.

O-Ring Joint	Ace-Thred Size	Order Code	Each
#15	#7	5129-07	47.57
#15	#11	5129-11	50.97
#15	#15	5129-15	50.97
#15	#25	5129-25	55.50

5131 ADAPTER *Connecting, O-Ring Joint to Straight Tube** ♠

Used with 8737, 8738, 8739, 8740, 8743 and 8745 Vacuum Manifolds as port connections. #15 O-Ring Joint on one end, straight tube opposite. Supplied with one O-Ring.

O-Ring Joint	Tube Size	Order Code	Each
#15	3/8- inch	5131-30	20.05
#15	1/2-inch	5131-40	20.05

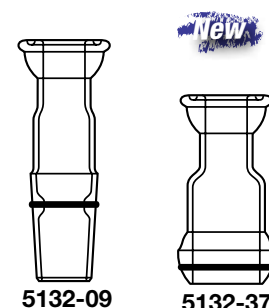


*Sized for use with Cajon® or Swagelok® compression fittings.

5132 ADAPTER *Connecting, O-Ring Joint to Inner or Ball O-Ring Joint* ♠

Used with 8737, 8738, 8739, 8740, 8743 and 8745 Vacuum Manifolds as port connections. #15 O-Ring Joint on one end, O-Ring Seal Inner or Ball opposite. Supplied with one O-Ring.

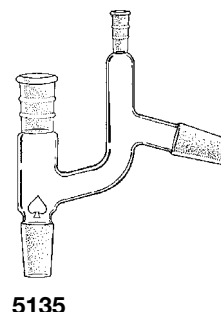
O-Ring Joint	Joint	Order Code	Each
#15	§14/20	5132-06	38.71
#15	§24/40	5132-09	39.31
#15	§28/15	5132-34	71.26
#15	§35/20	5132-37	71.26



5135 ADAPTER *Claisen* ♠

With § 10/30 joint at top side arm for 76mm immersion thermometer.

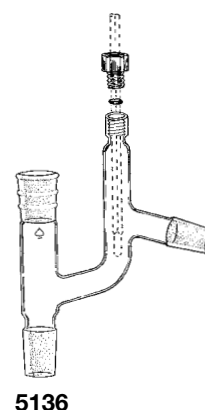
§ Joints	Order Code	Each
14/20	5135-06	74.41
19/22	5135-08	77.36
24/40	5135-10	90.45
29/26	5135-12	95.08
29/42	5135-14	95.08

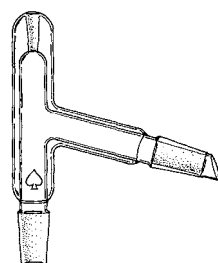


5136 ADAPTER *Claisen, #7 Ace-Thred* ♠

Top side arm has #7 Ace-Thred for use with 5029 Nylon bushing and adjustable length thermometer. Supplied complete with 5029-10 Nylon bushing and FETFE O-Ring. For extra O-Rings, order 7855-704.

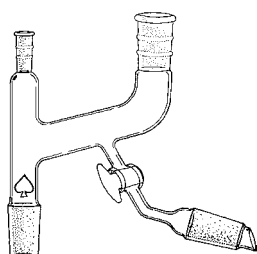
§ Joints	Order Code	Each
24/40	5136-54	100.98



**5140****5140 ADAPTER** *Vacuum Jacketed* ♦

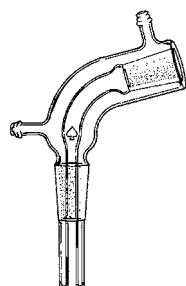
Used as distilling head for connecting top of column with condenser. Top joint $\text{\text{S}}$ 10/30 for 76mm immersion thermometer.

$\text{\text{S}}$ Joints	Order Code	Each
24/40	5140-10	283.11

**5150
9068****5150/9068 ADAPTER** *Claisen* ♦

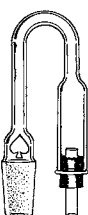
With glass or 1:5 solid PTFE stopcock plug on lower side arm. Top joint on center tube is $\text{\text{S}}$ 10/30 for 76mm immersion thermometer. All other joints are $\text{\text{S}}$ 14/20 or $\text{\text{S}}$ 24/40. Take-off arm is at 75° angle to the vertical. Plugs are 2mm bore.

Plug Style	Thermometer $\text{\text{S}}$ Joint	All Other $\text{\text{S}}$ Joints	Order Code	Each
Glass	10/30	14/20	9068-06	160.04
Glass	10/30	24/40	5150-10	171.20
PTFE	10/30	24/40	5150-29	190.46

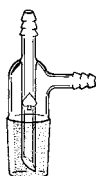
**5155****5155 ADAPTER** *105° Angle* ♦

With water-cooled $\text{\text{S}}$ joints. Extension below joint is 50mm. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

$\text{\text{S}}$ Joints	Order Code	Each
24/40	5155-10	262.04

**5170****5170 ADAPTER** *Drying Tube* ♦

$\text{\text{S}}$ Inner Joint	Order Code	Each
19/38	5170-05	39.84
24/40	5170-10	40.02
29/42	5170-15	42.45
Rubber Stopper and Adapter Tube, only		5170-40 9.53

**5175****5175 ADAPTER** *Liquid Inlet* ♦

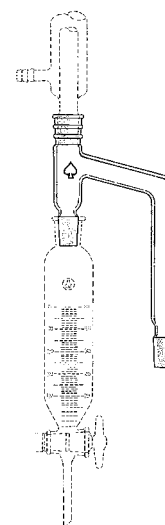
With $\text{\text{S}}$ inner joint and vacuum take-off. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

$\text{\text{S}}$ Joint	Order Code	Each
24/40	5175-10	40.55

5179/9101 ADAPTER *Moisture Trap* ♠

Unique adapter used in place of a Dean & Stark Moisture Test Receiver. Simply add a condenser to top ⌘ outer joint, any graduated funnel from 125mL to 2000mL to bottom ⌘ inner joint, attach sample flask to ⌘ inner side arm joint and you have a moisture test receiver.

Top Outer ⌘ Joint	Bottom Inner ⌘ Joint	Inner Side Arm ⌘ Joint	Order Code	Each
14/20	14/20	14/20	9101-20	70.84
24/40	24/40	24/40	5179-07	80.18

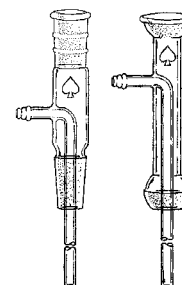


**5179
9101**

5190 ADAPTER *Gas Inlet* ♠

Side tube with hose connection. Stem below joint is 175mm. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

⌘ Joints	Order Code	Each	⌘ Joints	Order Code	Each
24/40	5190-10	48.74	35/25	5190-35	57.88
29/42	5190-15	54.91			



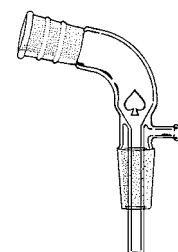
5190

5192/9124 ADAPTER *Vacuum Take-off, Short Stem* ♠

Outer joint at angle of 105°. Hose connection opposite top joint. Stem on 9124-05,-07 is even with joint; on 5192-12, -16 stem is below joint, 30mm. See page 5 for more detailed Hose Connection information.

⌘ Joints	Tubing Size (inches)	Order Code	Each
14/20	5/16 or 3/8 (B)	9124-05	45.29
19/22	5/16 (A)	9124-07	46.86
24/40	5/16 or 3/8 (C)	5192-12	52.19
29/42	5/16 or 3/8 (C)	5192-16	52.99

➤ ⌘14/10 SIZE LISTED IN MICRO/MINI-LAB SECTION.

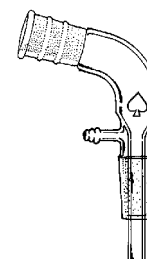


5192-12

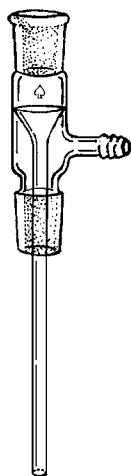
5192 ADAPTER *Vacuum Take-off, Short Stem* ♠

Outer joint at angle of 105°. Hose connection faces same direction as top joint. Stem below joint, 30mm. Use with 3/8-inch or 5/16-inch I.D. Tubing, Size C. See page 5 for more detailed Hose Connection information.

⌘ Joints	Order Code	Each
24/40	5192-45	52.18



5192-45

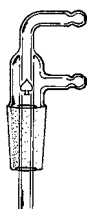


9121

9121 ADAPTER *Vacuum, Long Stem* ♦

Useful as a vacuum adapter or addition tube. Stem length below joint, 130mm. Use with 5/16-inch I.D. Tubing, Size A. See page 5 for more detailed Hose Connection information.

§ Joints	Order Code	Each
14/20	9121-04	40.85
24/40	9121-06	49.22
29/42	9121-08	51.24

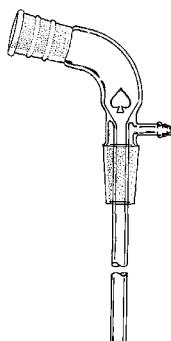


5193

5193 ADAPTER *Vacuum Take-off, Short Stem* ♦

Stem below joint is 30 mm. Use with 3/8-inch or 5/16-inch I.D. Tubing, Size C. See page 5 for more detailed Hose Connection information.

§ Inner Joint	Order Code	Each
24/40	5193-08	33.17

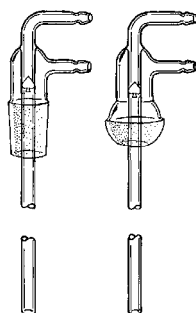


**5195
9124**

5195/9124 ADAPTER *Vacuum Take-off, Long Stem* ♦

Outer joint at angle of 105°. Used with distillation set-ups. With long stem. Hose connection opposite joint. Stem below joint is 175mm. See page 5 for more detailed Hose Connection information.

§ Joints	Tubing Size (Inches)	Order Code	Each
14/20	5/16 or 3/8 (B)	9124-06	45.29
24/40	5/16 or 3/8 (C)	5195-10	49.23
29/42	5/16 or 3/8 (C)	5195-15	54.71



5196

5196 ADAPTER *Vacuum Take-off, Long Stem* ♦

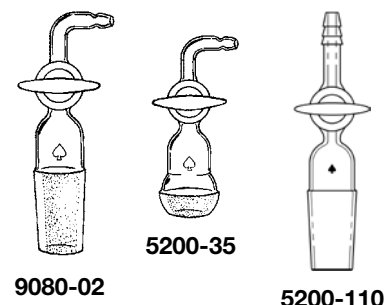
Stem below joint is 250mm. Use with 3/8-inch or 5/16-inch I.D. Tubing, Size C. See page 5 for more detailed Hose Connection information.

Joint	Order Code	Each
§ 24/40	5196-10	31.92
§ 29/42	5196-15	36.99
§ 35/25	5196-35	40.28

5200/9080 ADAPTER with Glass Stopcock ♦

With hose connection and ₤ or § joint. Plug bore for codes 5200-15 and 5200-35 is 3mm; all others are 2mm. For stopcock plugs, see 8223. See page 5 for more detailed Hose Connection information. Codes 110 and 115 have straight tube connection.

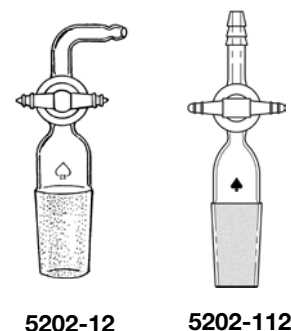
Joint	Tubing Size (Inches)	Order Code	Each
₤ 14/20	5/16 (A)	9080-02	49.91
₤ 19/22	5/16 (A)	9080-08	50.24
₤ 19/38	5/16 or 3/8 (C)	5200-05	56.99
₤ 24/40	5/16 or 3/8 (C)	5200-10	57.64
₤ 29/42	5/16 or 3/8 (C)	5200-15	63.19
₤ 24/40	5/16 or 3/8 (C)	5200-110	56.14
₤ 29/42	5/16 or 3/8 (C)	5200-115	56.14
§ 35/25	—	5200-35	71.90



5202/9080 ADAPTER with 1:5 PTFE Plug ♦

With hose connection, ₤ inner joint and 1:5 solid PTFE 2mm bore stopcock plug. For stopcock plug, see 8224-04. See page 5 for more detailed Hose Connection information. Codes 5202-110, 5202-112, 5202-114 and 9080-112 and 9080-118 have straight tube connection.

₤ Joint	Tubing Size (Inches)	Order Code	Each
14/20	5/16 (A)	9080-12	63.45
19/22	5/16 (A)	9080-18	64.86
14/20	5/16 (A)	9080-112	51.42
19/22	5/16 (A)	9080-118	51.42
24/40	5/16 or 3/8 (C)	5202-12	69.21
24/40	5/16 or 3/8 (C)	5202-110	55.12
29/26	5/16 or 3/8 (C)	5202-112	55.12
29/42	5/16 or 3/8 (C)	5202-114	55.12

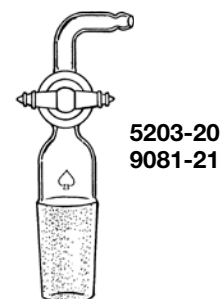


➔ ₤14/10 SIZE LISTED IN MICRO/MINI-LAB SECTION.

5203/9081 ADAPTER with 1:5 PTFE Metering Valve ♦

With hose connection, ₤ inner joint and 1:5 solid PTFE 2mm bore stopcock plug with metering valve. For replacement plug, see 8232-14. See page 5 for more detailed Hose Connection information.

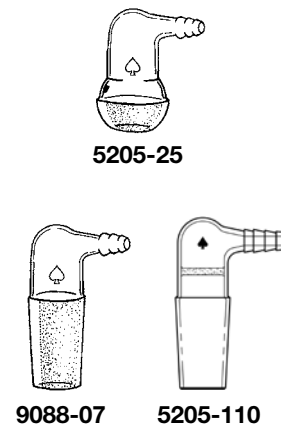
₤ Joint	Tubing Size (Inches)	Order Code	Each
14/20	5/16 (A)	9081-21	83.19
24/40	5/16 or 3/8 (C)	5203-20	88.87

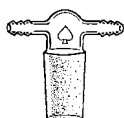


5205/9088 ADAPTER Connecting Hose ♦

With ₤ inner or § ball joint and hose connection. See page 5 for more detailed Hose Connection information. Codes 110-114 have an integral porosity A fritted disc.

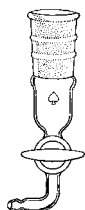
Joint	Tubing Size (Inches)	Order Code	Each
₤ 14/20	5/16 (A)	9088-07	18.74
₤ 19/22	5/16 (A)	9088-09	19.39
₤ 19/38	3/8 (D)	5205-05	20.38
₤ 24/40	3/8 (D)	5205-10	20.04
₤ 29/42	3/8 (D)	5205-15	20.46
§ 28/15	3/8 (D)	5205-25	21.61
§ 35/25	3/8 (D)	5205-35	25.88
₤ 19/22	5/16 (A)	5205-110	29.61
₤ 24/40	3/8 (D)	5205-112	30.21
₤ 29/42	3/8 (D)	5205-114	30.48



**5206****5206 ADAPTER** *Twin Connecting Hose* ♦

With ⌘ inner joint and twin hose connections opposite each other. Normally used with 6620 Re-flux Apparatus, page 188, to allow inert gas flow over top of apparatus to maintain oxygen free system. Use with 3/8-inch or 5/16-inch I.D. Tubing, Size C. See page 5 for more detailed Hose Connection information.

⌘ Joint	Order Code	Each
14/20	5206-04	24.07
24/40	5206-10	24.58
29/42	5206-12	24.86
45/50	5206-20	38.10

**5210-10****5210 ADAPTER** *with Glass Stopcock* ♦

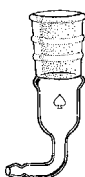
With ⌘ outer joint and hose connection. Plug bore is 2mm. For stopcock plug, see 8223-02. Use with 3/8-inch or 5/16-inch I.D. Tubing, Size C. See page 5 for more detailed Hose Connection information.

⌘ Joint	Order Code	Each
24/40	5210-10	63.64

**5210-40****5210 ADAPTER** *with 1:5 PTFE Plug* ♦

With ⌘ outer joint, hose connection and 1:5 solid PTFE stopcock plug. Plug bore is 2mm. For stopcock plug, see 8224-04. Use with 3/8-inch or 5/16-inch I.D. Tubing, Size C. See page 5 for more detailed Hose Connection information.

⌘ Joint	Order Code	Each
24/40	5210-40	70.04

**5215****5215 ADAPTER** *Connecting Hose* ♦

With ⌘ outer joint. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

⌘ Joint	Order Code	Each
24/40	5215-10	23.30

**5216-10****5216-23****5216-110****5216/9069 ADAPTER** *Connecting Hose* ♦

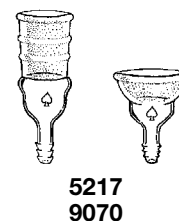
With ⌘ inner or ⌘ ball joint at bottom and straight hose connection at top. See page 5 for more detailed Hose Connection information. Codes 5216-110, 5216-116, 5216-118, 9069-115 and 9069-116 have integral porosity A fritted disc.

Joint	Tubing Size (Inches)	Order Code	Each
⌘ 14/20	5/16 (A)	9069-05	16.86
⌘ 19/22	5/16 (A)	9069-06	17.72
⌘ 14/20	5/16 (A)	9069-115	28.56
⌘ 19/22	5/16 (A)	9069-116	28.56
⌘ 24/40	5/16 or 3/8 (C)	5216-10	19.29
⌘ 29/42	5/16 or 3/8 (C)	5216-15	21.22
⌘ 18/9	5/16 or 3/8 (C)	5216-23	20.55
⌘ 35/25	5/16 or 3/8 (C)	5216-35	24.21
⌘ 24/40	5/16 or 3/8 (C)	5216-110	28.30
⌘ 29/26	5/16 or 3/8 (C)	5216-116	29.39
⌘ 29/42	5/16 or 3/8 (C)	5216-118	29.39

5217/9070 ADAPTER *Connecting Hose* ♦

With ⌘ outer or ⌘ socket joint at one end and a hose connection at the other end. See page 5 for more detailed Hose Connection information.

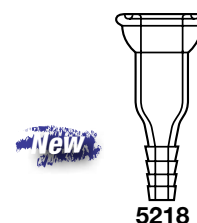
Joint	Tubing Size (Inches)	Order Code	Each
⌘ 14/20	5/16 (A)	9070-02	22.15
⌘ 24/40	5/16 or 3/8 (C)	5217-10	21.66
⌘ 18/9	5/16 or 3/8 (C)	5217-23	21.66
⌘ 28/15	5/16 or 3/8 (C)	5217-11	22.30
⌘ 35/25	5/16 or 3/8 (C)	5217-35	26.43
⌘ 35/20	7/16 or 1/2 (F)	5217-40	22.87



5218 ADAPTER *Connecting, O-Ring to Hose Connection* ♦

With O-Ring joint at one and hose connection at other end. Use with 7/16-inch or 1/2-inch I.D. Tubing, Size F. See page 5 for more detailed Hose Connection information. FETFE O-Ring included.

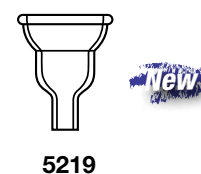
Joint Size	Tube O.D. (Inches)	Order Code	Each
15mm	7/16 or 1/2	5218-10	18.13



5219 ADAPTER *Connecting, Straight Tube* ♦

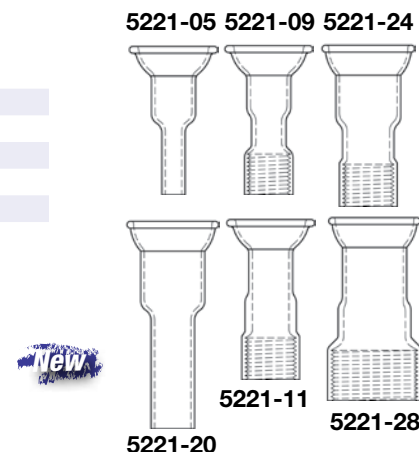
With ⌘ socket joint at one end and straight tube at the other end.

⌘ Joint	Tube O.D. (Inches)	Order Code	Each
35/20	3/8	5219-23	24.77
35/20	1/2	5219-26	24.77



5221 ADAPTER *Connecting, Outer Socket Joint* ♦

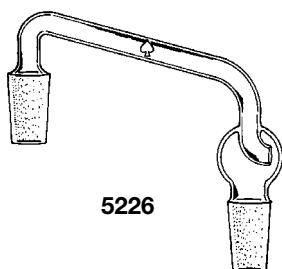
⌘ Outer Joint Connects to	⌘ Size	Order Code	Each
10mm tube	28/15	5221-05	23.81
#11 Ace-Thred	28/15	5221-09	29.17
#15 Ace-Thred	28/15	5221-11	33.93
3/4-inch tube	35/25	5221-20	25.00
#15 Ace-Thred	35/25	5221-24	31.84
#25 Ace-Thred	35/25	5221-28	33.93



5225/9086 ADAPTER *Distilling Trap* ♦

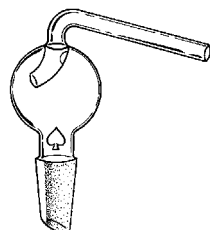
⌘ Joints	Order Code	Each	⌘ Joints	Order Code	Each
14/20	9086-02	85.18	29/42	5225-15	57.48
24/40	5225-10	53.51			



**5226****5226 ADAPTER** *Kjeldahl Trap* ♦

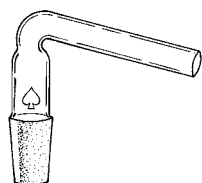
Distance between center of joints is approximately 200mm.

§ Joints	Order Code	Each
24/40	5226-10	109.32

**5230****5230 ADAPTER** *Distilling Trap* ♦

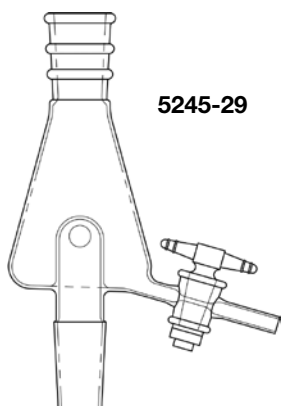
With outlet tube bent at 75° angle.

§ Joints	Order Code	Each
24/40	5230-10	48.62

**5235****5235 ADAPTER** *Distilling* ♦

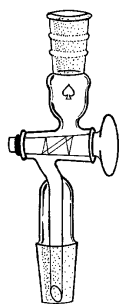
With 8mm O.D. outlet tube bent at 75° angle.

§ Joints	Order Code	Each
24/40	5235-10	21.28

**5245-29****5245 ADAPTER** *Sampling* ♦

With 1:5 solid PTFE stopcock plug connected to side of apron for removing distillate or sample. Plug bore is 2mm. Approximate capacity 125mL. Code -04 has #7 Ace-Thred after stopcock, code -29 has plain tubing. For replacement plug, see 8224-04.

§ Joints	Order Code	Each
24/40	5245-04	168.58
24/40	5245-29	156.47

**5250****5250 ADAPTER** *Adjustable Flow Stopcock* ♦

§ Joints	Order Code	Each
24/40	5250-10	107.89

5257 ADAPTER "Splash Guard," with Fritted Disc, Firestone* ♠

§ medium length joints, top and bottom, that will accept full length § joints, plus a coarse porosity A (147-174 micron) fritted disc that assures no carry-over in the event of pot splash-up. Overall length is kept to a minimum to effect best distillation.

Top Outer § Joint	Bottom Inner § Joint	Order Code	Each
14/20	14/20	5257-43	67.50
24/25	24/25	5257-49	73.12
24/25	29/26	5257-53	76.09
24/25	45/35	5257-62	112.09

*Designed by Dr. Raymond Firestone (U.S. Patent No. 4,267,150)

This item is for use with rotary evaporators.



5257-43

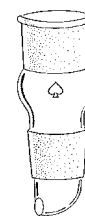
5258 ADAPTER "Splash Guard," Firestone* ♠

§ medium length joints, top and bottom, that will accept full length § joints. When inserted into flask, splash guard combines with flask neck to give best protection against pot splash-up. Overall height is kept to a minimum to effect best distillation.

Top Outer § Joint	Bottom Inner § Joint	Order Code	Each
14/20	14/20	5258-06	52.48
24/25	24/25	5258-12	53.66
24/25	29/26	5258-16	57.26
24/25	45/35	5258-62	92.37

*Designed by Dr. Raymond Firestone (U.S. Patent No. 4,267,150)

This item is for use with rotary evaporators.

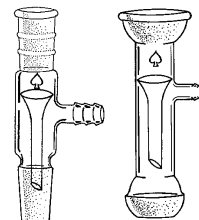


5258-12

5260/9123 ADAPTER Vacuum ♠

With side hose connection and drip tip. See page 5 for more detailed Hose Connection information.

Joints	Tubing Size (Inches)	Order Code	Each
§14/20	5/16 or 3/8 (B)	9123-06	40.17
§19/22	5/16 or 3/8 (B)	9123-08	41.57
§24/25	3/8 (D)	5260-07	51.25
§24/40	3/8 (D)	5260-10	51.25
§29/42	3/8 (D)	5260-15	55.05
§35/25	3/8 (D)	5260-35	58.10

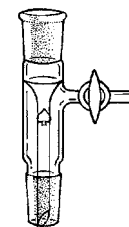


**5260
9123**

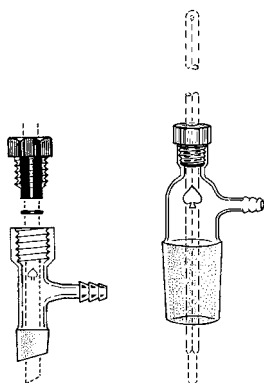
9175 ADAPTER Vacuum, with Stopcock ♠

Vacuum adapter with 2mm bore stopcock on side arm. For replacement plug, see 8223-02.

§ Joints	Order Code	Each
14/20	9175-04	84.06



9175



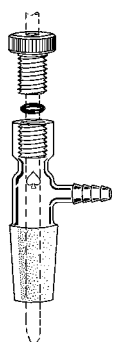
5261-06

5261-16

5261 ADAPTER with Hose Connection, "Mini" #7 Ace-Thred ♠

With F inner joint at bottom, #7 Ace-Thred at top and serrated hose connection. Will accommodate thermometers, bleed tubes, etc. up to 7mm diameter. Suitable for most vacuum work. Supplied complete with 5029-10 Nylon bushing and FETFE O-Ring. For extra O-Rings, order 7855-704. See page 5 for more detailed Hose Connection information.

F Joint	Tubing Size (Inches)	Order Code	Complete
14/10	5/16 (A)	5261-06	32.54
14/20	5/16 (A)	5261-08	31.05
19/22	5/16 (A)	5261-12	34.07
24/40	3/8 (D)	5261-16	33.25
29/42	3/8 (D)	5261-20	34.18

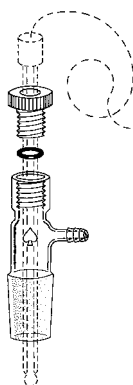


5261-36

5261 ADAPTER with Hose Connection, "Midi" #11 Ace-Thred ♠

With F inner joint at bottom, #11 Ace-Thred at top and a serrated hose connection. Will accept inner tubes with diameters of 9mm to 10.5mm such as thermowells, gas dispersion tubes, vacuum take-offs, etc. Suitable for most vacuum work. Supplied complete with Nylon bushing and FETFE O-Ring. For extra O-Rings, order 7855-708. See page 5 for more detailed Hose Connection information.

F Joint	Tubing Size (Inches)	Order Code	Glass Member	Order Code	Nylon Bushing	Order Code	Complete
19/22	5/16A	5261-35	39.93	7506-02	9.31	5261-36	49.24
24/40	3/8 (D)	5261-37	40.85	7506-02	9.31	5261-38	50.16
29/42	3/8 (D)	5261-39	42.79	7506-02	9.31	5261-40	52.10



5261-57

5261 ADAPTER with Hose Connection, "Maxi" #15 Ace-Thred ♠

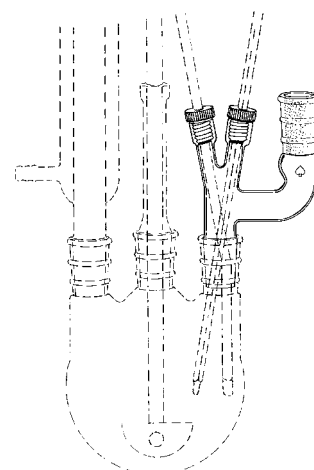
With F inner joint at bottom, #15 Ace-Thred at top and a serrated hose connection. Will accept inner tubes with diameters of 12.5mm to 14mm such as electrodes, inlet and outlet tubes, etc. Suitable for most vacuum work. Supplied complete with Nylon bushing and FETFE O-Ring. For extra O-Rings, order 7855-716. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

F Joint	Order Code	Glass Member	Order Code	Nylon Bushing	Order Code	Complete
24/40	5261-56	41.98	7506-06	10.09	5261-57	52.07
29/42	5261-58	44.91	7506-06	10.09	5261-59	55.00

5263 ADAPTER *Multineck, "Mini" #7 Ace-Thred ♠*

With 1/8" inner joint at bottom, two #7 Ace-Threds and one 1/8" outer joint at top. Ace-Threds would commonly be used for thermometers and gas inlet tubes thus leaving joint for condenser, addition funnel, still head, etc. 1/8" 24/25 medium length joint is compatible with 1/8" 24/40 full length joint. Supplied complete with two 5029-10 Nylon bushings and FETFE O-Rings. For extra O-Rings, order 7855-704.

1/8" Top Outer	1/8" Bottom Inner	Order Code	Each
24/40	24/25	5263-17	112.01

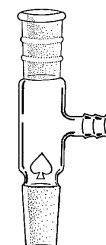


5263

5265/9119 ADAPTER *Gas Inlet ♠*

With side hose connection. See page 5 for more detailed Hose Connection information.

Outer 1/8" Joint	Inner 1/8" Joint	Hose Connection Size (Inches)	Order Code	Each
14/10	14/10	5/16 or 3/8 (B)	9119-22	35.89
14/20	19/38	5/16 (A)	9119-02	36.44
24/40	24/40	3/8 (D)	5265-10	37.41

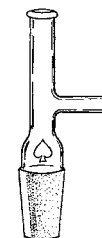


**5265
9119**

5266 ADAPTER *Thermometer ♠*

With vacuum take-off or gas addition tube. Center tube 13mm O.D., side tube 6mm O.D.

1/8" Inner Joint	Order Code	Each
24/40	5266-10	33.12



5266

9554 ADAPTER *Thermometer Holder ♠*

Used in various Mini-Lab assemblies to hold standard thermometer. For rubber adapter, see 9095.

1/8" Inner Joint	Order Code	Each
14/20	9554-05	11.39
19/22	9554-09	11.48



9554

**9095****9095 ADAPTER** *Rubber* ♦**Corning 7715**

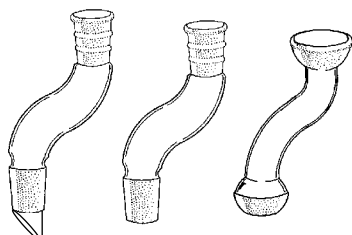
CORNING® brand rubber adapter. Used to hold thermometers.

Corning Code	Approx. O.D. x I.D., mm	Quantity in Case	Order Code	Case Price
7715	17 x 13	1	9095-05	4.37

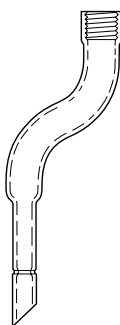
**5267****5267 ADAPTER** *Vacuum Filtration* ♦

Used for reduced pressure filtration with 7186 style, plain stem Buchner funnels. Top is tooled to accept a pluro stopper, bottom has a ⌘ inner joint. Serrated hose connection has a second ring of 13.5mm O.D. Inserting the recommended size pluro stopper and the next smaller size allows use of smaller capacity funnels; i.e., in ⌘ 24/25 size, insertion of 31mm x 16mm and 22mm x 11mm will allow use of 15 or 30mL capacity funnels. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

⌘ Joint	Uses Pluro Stopper, I.D.	Fits Funnel Cap., mL	Order Code	Complete
14/20	17mm x 7mm	2	5267-06	37.84
19/22	17mm x 7mm	2	5267-08	44.27
24/25	31mm x 16mm	140	5267-11	55.22
24/40	31mm x 16mm	140	5267-15	55.22
29/26	60mm x 36mm	4000	5267-18	56.19
29/42	60mm x 36mm	4000	5267-20	64.93

**5268-54**
9089-40**5268-10**
9089-08**5268-35****5268/9089 ADAPTER** *Offset*

WITHOUT DRIP TIP			WITH DRIP TIP		
Joints	Order Code	Each	Joints	Order Code	Each
⌘14/20	9089-08	♦ 31.48	⌘14/20	9089-40	♦ 30.49
⌘24/40	5268-10	♦ 32.23	⌘24/40	5268-54	♦ 32.60
⌘29/42	5268-15	♦ 35.98	⌘29/42	5268-56	♦ 36.32
⌘45/50	5268-21	★ 95.68	⌘45/50	5268-58	★ 96.87
⌘35/25	5268-35	♦ 42.06			

**5269****5269 ADAPTER** *Offset, with Ace-Thred* ♦

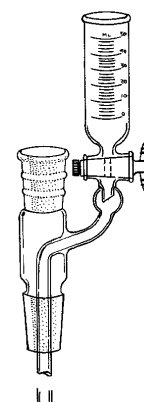
Offset adapter with #15 Ace-Thred offset to a 14mm OD tube with O-Ring groove. For use with Ace Pressure Reactors to locate condenser, etc., away from stirrer. NOT supplied with bushing or O-Ring. Order 7506-06 for Bushing and O-Ring.

Order Code	Each
5269-12	34.56

5270 ADAPTER *Additive ♦*

Graduated separatory funnel with 1:5 solid PTFE stopcock plug and dropping bulb. Capacity 50mL, in 1mL subdivisions. Plug bore is 2mm. For replacement, see 8224-04.

§ Joints	Order Code	Each
24/40	5270-29	186.85

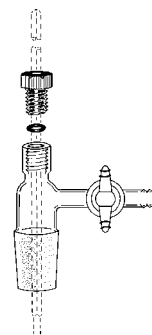


5270

5272 ADAPTER *with Stopcock, "Mini" #7 Ace-Thred ♦*

With § inner joint at bottom, #7 Ace-Thred at top, and 1:5 solid PTFE 2mm bore stopcock plug with hose connection. Thread is supplied with Nylon bushing and FETFE O-Ring that allows compression seal with thermometers, bleed tubes, etc. Will accommodate thermometers up to 7mm O.D. For extra O-Rings, order 7855-704. Use with 5/16-inch or 3/8-inch I.D. Tubing, Size C. See page 5 for more detailed Hose Connection information.

§ Joints	Order Code	Each
24/40	5272-15	88.47



5272

ACE Scientific Glass Repair Service

www.aceglass.com

ACE Custom Glass Design Service

www.aceglass.com

1-800-223-4524

**5278 ADAPTER** *pH Probe, Pilot Plant*

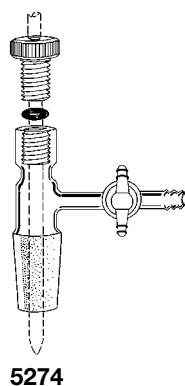
Adapter Tube, 25mm O.D., with a #15 Ace-Thred at one end, other end open. Insert 1/2-inch probe in open end down to and thru the Ace-Thred, leaving enough exposed to secure with 7506 Bushing and O-Ring to make a compression seal. Adapter Tube is held in flask $\mathbb{S}$ joint with 5030 "Maxi" Adapter, again with a compression seal, thus making the tube vertically adjustable. Complete item consists of Glass Adapter Tube, 7506 PTFE Bushing with FETFE or Chemraz O-Ring and 5030 "Maxi" Adapter.

Length, cm (In.)	With FETFE O-Ring		With Chemraz O-Ring	
	Order Code	Complete	Order Code	Complete
61 (24)	5278-40	♠ 122.82	5278-141	★ 160.33
91 (36)	5278-44	♠ 123.49	5278-145	★ 161.00
122 (48)	5278-48	♠ 124.15	5278-149	★ 161.66

Replacement Items:

ADAPTER TUBE, Glass only				BUSHING, PTFE only, with O-Ring			
Length, cm (In.)	Order Code	Each		For Thread Size	O-Ring Type	Order Code	Each
61 (24)	5278-14	♠ 19.19		15	FETFE	7506-27	♠ 31.56
91 (36)	5278-18	♠ 19.86		15	Chemraz	7506-127	★ 69.07
122 (48)	5278-23	♠ 20.52					

ADAPTER, "Maxi," #25 Ace-Thred to $\mathbb{S}$ 45/50 Joint, only							
$\mathbb{S}$ Joint	Order Code	Glass Member	Order Code	Nylon Bushing	Order Code	Complete	
45/50	8065-16	♠ 54.78	7506-10	♠ 17.29	5030-53	♠ 72.07	

**5274 ADAPTER** *with Stopcock, "Maxi" #15 Ace-Thred* ♠

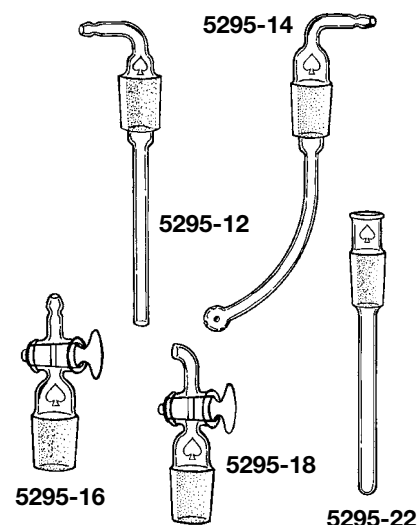
With $\mathbb{S}$ inner joint at bottom, #15 Ace-Thred at top and 1:5 solid PTFE 4mm bore stopcock with hose connection off side. Top thread will accept inner tubes with diameters of 12.5 to 14mm such as electrodes, finger condensers, etc. Suitable for most vacuum work. Supplied complete with Nylon bushing and FETFE O-Ring. For extra O-Rings, order 7855-716. Use with 5/16-inch or 3/8-inch I.D. Tubing, Size C. See page 5 for more detailed Hose Connection information. For replacement stopcock plug, see 8224-12.

$\mathbb{S}$ Joint	Order Code	Complete
45/50	5274-43	114.02

5295 ADAPTER ₪ Joints ♠

A general line of adapters supplied with inner joints to be used in assemblies for distillation, extraction or your own requirements. **On codes -14 and -22, please specify capacity and catalog number of item into which the adapter is to be placed.** We will supply the lower tube with the proper curvature, if required. Can be supplied for flask capacities up to 72 liters. See page 5 for more detailed Hose Connection information. Replacement stopcock plugs for Codes -16 and -18, see 8223-02.

	Order Code	₪ Joint 24/40	Order Code	₪ Joint 29/42
Gas Inlet Tube, supplied cut to length desired below joint. Use Tubing size 3/8-inch (D).	5295-12	29.80	—	—
Aeration Tube. Use Tubing size 3/8- or 7/16-inch (E).	5295-14	33.98	—	—
Outlet Stopcock with Straight Tip. Use Tubing size 5/16- or 3/8-inch (C)	5295-16	49.86	5295-30	51.23
Outlet Stopcock with Bent Tip	5295-18	53.86	—	—
Thermometer Well	5295-22	28.43	—	—



5295/9058 ADAPTER ₪ Joints ♠

A general line of adapters supplied with inner joints to be used in assemblies for distillation, extraction or your own requirements. We will supply the lower tube with the proper curvature, if required. Can be supplied for flask capacities up to 72 liters. See page 5 for more detailed Hose Connection information.

	Order Code	₪ Joint 14/20	Order Code	₪ Joint 19/22	Order Code	₪ Joint 24/40
Thermometer Adapter. I.D. will accept 7mm O.D. Thermometer or Tube. For use with 9095-05	9058-04	15.47	9058-06	15.67	5295-24	23.84



9099 ADAPTER Thermocouple Well ♠

A special well fabricated from glass that is worked to a very thin wall for better heat transfer. Fabricated in two sizes for either 25mm or 76mm immersion, length of tube being measured from the bottom of the ground joint.

₪ Inner Joint	Order Code	25mm	Order Code	76mm
14/20	9099-06	29.85	9099-10	30.03
10/30	9099-08	29.85	9099-12	30.03

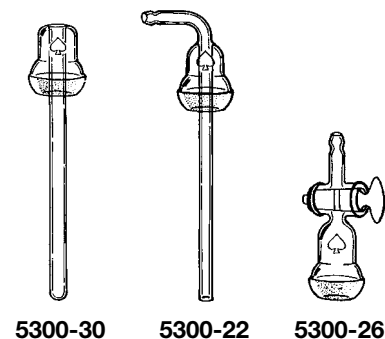


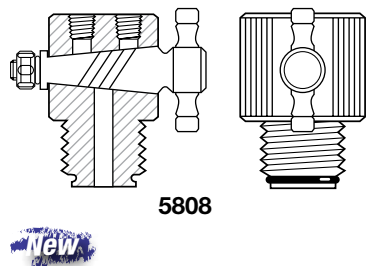
5300 ADAPTERS ₪ Joints ♠

A general line of adapters supplied with spherical joints to be used in assemblies for distillation, extraction, or your own requirements. **On code -30, please specify capacity and catalog number of item into which the adapter is going to be placed.** These adapters are made to fit side necks of 6950 flasks. Can also be supplied for flask capacities up to 72 liters.

Use with 5/16-inch or 3/8-inch I.D. Tubing, Size C. See page 5 for more detailed Hose Connection information. Replacement stopcock plug for Code -26, see 8223-06.

	Order Code	₪ Joint 35/25
Gas Inlet Tube, supplied cut to length desired below joint. Please specify.	5300-22	34.53
Outlet Stopcock with Straight Tip	5300-26	59.10
Thermometer Well, please specify.	5300-30	36.96



**5808****5808 ADAPTER** *PTFE, Purge with Shutoff* ♠

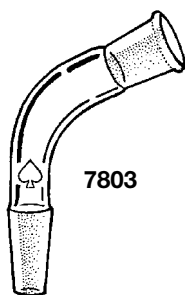
PTFE purge/shutoff adapter allows purging of air-sensitive contents from within our 8648 pressure vessels. Ace-Thred adapter features two top taps, either 1/4-inch UNF or 1/8-inch NPT, controlled by a two-way stopcock.

Ace-Thred Size	Tap Size	Order Code	Each
#15	1/4-inch-28 UNF	5808-05	94.51
#15	1/8-inch NPT	5808-09	94.51
#25	1/4-inch-28 UNF	5808-16	144.08
#25	1/8-inch NPT	5808-18	144.08
#36	1/4-inch-28 UNF	5808-24	273.17
#36	1/8-inch NPT	5808-27	273.17

**7645****7645 ADAPTER** *PTFE Pour Spout* ♠

PTFE threaded pour spout with FETFE O-Ring. Prevents material contact with threads.

Ace-Thred Size	Order Code	Each
#15	7645-04	44.65
#25	7645-07	78.73
#50	7645-15	110.46

**7803****7803 ADAPTER** *Angled, 115°* ♠

With standard taper joints, one 14/20 outer and one 14/35 inner, or one 24/25 outer and one 24/40 inner.

Inner ♂ Joint	Outer ♀ Joint	Order Code	Each
14/35	14/20	7803-12	34.65
24/40	24/25	7803-25	35.81

**8273****8273 ADAPTER** *Cap* ♠

15mm O-Ring joint to blank cap.

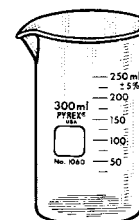
Joint Size	Order Code	Each
15mm	8273-05	14.44

4027 BEAKER *Berzelius, Tall Form* ★

Corning 1060

PYREX® brand, with spout. Graduated. Reference: ASTM E 960.

Corning Code	Cap., mL	Approx. O.D. x Hght., mm	Grad. Range, mL	Grad. Interval, mL	Quantity Per		Order Code	Shelf-Pack Price	Case Price
					Shelf-Pack	Case			
1060-100	100	50 x 79	20-80	10	12	48	4027-06	58.73	204.28
1060-200	200	56 x 102	25-150	25	12	48	4027-09	62.54	217.53
1060-300	300	64 x 118	25-250	25	12	48	4027-11	69.32	241.13
1060-400	400	69 x 127	25-325	25	6	36	4027-13	37.65	196.44
1060-500	500	75 x 136	50-450	50	6	30	4027-21	41.37	179.88
1060-600	600	79 x 152	50-550	50	6	24	4027-25	53.57	186.34
1060-1L	1000	89 x 187	50-950	50	6	18	4027-29	71.83	187.39



4027

5324 BEAKER MUG *Heavy Duty, Graduated* ♦

400 mL heavy duty graduated beaker mug.

Order Code	Each
5324-10	17.94

New



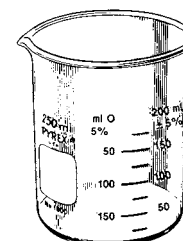
5324

5328 BEAKER *Griffin Low Form* ★

Corning 1000

PYREX® brand, with lip, pouring spout and double scale graduation. 10mL size NOT graduated.

Corning Code	Cap., mL	Approx. O.D. x Hght., mm	Grad. Range, mL	Grad. Interval, mL	Quantity Per		Order Code	Shelf-Pack Price	Case Price
					Shelf-Pack	Case			
1000-10	10	25 x 32	—	—	12	48	5328-07	55.27	192.23
1000-20	20	32 x 40	5-15	5	12	48	5328-11	47.83	166.38
1000-30	30	35 x 53	5-25	10	12	48	5328-13	47.35	164.70
1000-50	50	42 x 56	10-40	10	12	48	5328-15	47.35	164.70
1000-100	100	50 x 72	20-80	10	12	48	5328-17	50.10	174.25
1000-150	150	57 x 86	20-140	10	12	48	5328-19	45.44	158.05
1000-250	250	68 x 90	25-200	25	12	48	5328-21	47.99	166.92
1000-400	400	77 x 110	25-325	25	12	48	5328-23	56.40	196.18
1000-600	600	90 x 124	50-500	50	6	36	5328-25	35.79	186.75
1000-800	800	98 x 135	50-750	50	6	24	5328-27	49.45	172.01
1000-1L	1000	108 x 158	50-1000	50	6	24	5328-29	67.46	234.66
1000-1XL	1500	121 x 166	200-1400	100	4	16	5328-31	54.51	189.61
1000-2L	2000	131 x 193	200-2000	100	4	8	5328-33	89.20	155.13
1000-3L	3000	146 x 216	250-2500	125	1	6	5328-35	38.34	200.04
1000-4L	4000	160 x 250	500-3500	250	1	6	5328-37	70.68	368.74



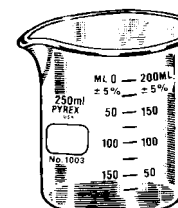
5328

5331 BEAKER *Heavy-Duty, Low Form* ★

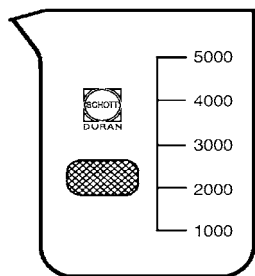
Corning 1003

PYREX® brand, with lip, pouring spout and capacity scale.

Corning Code	Cap., mL	Approx. O.D. x Hght., mm	Grad. Range, mL	Grad. Interval, mL	Quantity Per		Order Code	Shelf-Pack Price	Case Price
					Shelf-Pack	Case			
1003-150	150	57 x 89	20-140	20	12	48	5331-09	90.50	314.78
1003-250	250	68 x 90	25-200	25	12	48	5331-11	89.36	310.83
1003-400	400	77 x 110	25-325	25	12	48	5331-13	116.51	405.26
1003-600	600	90 x 124	50-500	50	6	36	5331-15	67.87	354.11
1003-1L	1000	108 x 156	50-1000	50	6	24	5331-19	129.52	450.52
1003-2L	2000	131 x 180	200-1800	200	4	8	5331-23	176.52	306.99
1003-4L	4000	160 x 250	500-3500	250	1	4	5331-26	86.18	299.76

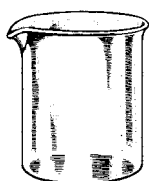


5331

**5332****5332 BEAKER** *Heavy-Wall, Pilot Size ★***Schott**

Heavy walled beakers with spout. 5000mL size only, graduated.

Capacity, mL	O.D., mm	Height, mm	Order Code	Each
10,000	225	340	5332-33	284.63
15,000	260	390	5332-36	377.49
20,000	285	430	5332-39	440.62

**5334****5334 BEAKER** *Quartz, Low Form ★*

With pouring spout.

Cap., mL	Approx. x Hght., mm	O.D.	Order Code	Each	Cap., mL	Approx. O.D. x Hght., mm	Order Code	Each
50	45 x 50		5334-06	67.82	500	84 x 112	5334-20	178.11
100	51 x 62		5334-08	74.65	600	90 x 119	5334-22	250.88
250	67 x 86		5334-14	126.53	1000	107 x 140	5334-26	275.47
400	80 x 105		5334-18	174.14				

**Additional
capacities available –
contact ACE**

**5340****5340 BEAKER** *Jacketed*

Jacketed beaker with one upper and one lower hose connection on opposite sides. Without pouring spout. See page 5 for more detailed Hose Connection information.

Cap., mL	Approx. Inside Hght.,mm	Approx. Inside Dia., mm	Tubing Size (Inches)	Order Code	Each
100	61	48	3/8 (D)	5340-03	♠ 92.78
250	89	65	3/8 (D)	5340-05	♠ 109.68
400	112	75	3/8 (D)	5340-10	♠ 140.36
600	152	81	3/8 (D)	5340-15	♠ 162.06
1000	175	91	3/8 (D)	5340-18	♠ 191.04
2000	190	119	7/16 or 1/2 (F)	5340-20	♠ 325.31
3000	225	133	7/16 or 1/2 (F)	5340-25	♠ 372.20
4000	232	150	7/16 or 1/2 (F)	5340-30	★ 676.99
5000	250	160	7/16 or 1/2 (F)	5340-35	★ 863.11

5340 BEAKER *Jacketed, with “Ace-Safe” Connectors*

Same jacketed beaker listed above, except inlet/outlet have Ace-Thred in place of the serrated fittings for use with an “Ace-Safe” tubing connection barb. 100mL, 250mL and 400mL have #7 Ace-Thred for 1/4-inch Tubing; all other capacities have #15 Ace-Thred for 3/8-inch or 1/2-inch Tubing. For replacement connectors, see 5853. Supplied complete with hose connection with O-Ring and Nylon bushing.

**5340****New**

**ACE-SAFE
Connector**

Cap., mL	Approx. Inside Hght.,mm	Approx. Inside Dia., mm	For Tubing Size (In.)	Order Code	Each
100	61	48	1/4	5340-103	♠ 95.16
250	89	65	1/4	5340-105	♠ 111.99
400	112	75	1/4	5340-110	♠ 142.28
600	152	81	3/8	5340-115	♠ 159.00
1000	175	91	3/8	5340-118	♠ 193.46
2000	190	119	3/8	5340-120	♠ 325.64
3000	225	133	1/2	5340-125	♠ 373.71
4000	232	150	1/2	5340-130	★ 675.33
5000	250	160	1/2	5340-135	★ 860.37

5500 BEAKER *PTFE* ★

Molded, pure PTFE beaker with pour spout. Inert with smooth internal finish. Bottom machined for flatness to facilitate good heat transfer.

New

Capacity, mL	Height, mm	O.D., mm	Order Code	Each
100	68	54	5500-05	16.90
250	97	66	5500-07	26.14
400	106	80	5500-09	38.05
600	125	90	5500-11	56.89
1000	155	100	5500-13	87.82



5500-05

5500 BEAKER *Thermotech™, PTFE* ★

Pure inert PTFE beaker with pour spout. Bottom surface has molded stabilized PTFE-Carbon outer surface for better heat transfer and to handle higher temperatures up to 270°C.

Capacity, mL	Height, mm	O.D., mm	Order Code	Each
100	74	56	5500-22	40.15
250	94	75	5500-24	51.62
400	112	85	5500-26	80.30

New



5500-22

6228/6231 BEAKER *Pilot Plant*

Large sizes for batch operations and mixing large volumes of measured liquids.

Capacity, mL	Subdiv., mL	Approx. Height, mm	O.D., mm	Order Code	Each
5,000	100	457	152	6228-05	♠ 297.96
10,000	100	457	223	6228-10	♠ 471.64
15,000	500	390	260	6231-21	★ 444.79
20,000	500	430	285	6231-27	★ 489.39

6228/6231



6233

new**6233 BEAKER** *Big Jars* ★

Cylindrical jars with side indents for easier handling. Made of heavy wall glass, the jars are graduated. **Caution: Do not apply open flame or heat.** Also available with poly safety coating.

Capacity, L	Subdiv., mL	Order Code	Each
7.25	500	6233-07	436.04
9.25	500	6233-09	498.35
17	1,000	6233-17	568.57
26.5	2,000	6233-26	696.55
32	2,000	6233-32	1,130.34



8793

8793 WATCH GLASS ★**Corning 9985**

PYREX® brand, plain watch glass/beaker cover. Molded to same radius of curvature for convenient stacking.

Corning Code	Diameter, mm	Fits Beaker Size	Quantity Per		Order Code	Shelf-Pack Price	Case Price
			Shelf-Pack	Case			
9985-65	65	150 mL	12	144	8793-03	32.92	343.49
9985-90	90	400 mL	12	144	8793-07	39.54	412.56



12037

12037 HEATING MANTLE ★

For Griffin-type beaker. CSA approved.

For Flask Cap., mL	Wattage	Order Code	Each
50	40w-115v	12037-04	185.00
100	100w-115v	12037-06	196.00
150	100w-115v	12037-08	201.00
250	140w-115v	12037-10	206.00
400	240w-115v	12037-12	214.00
600	325w-115v	12037-14	242.00
800	350w-115v	12037-16	266.00
1000	430w-115v	12037-18	280.00
2000	550w-115v	12037-20	293.00
3000	630w-115v	12037-22	307.00
4000	710w-115v	12037-24	327.00



12420

12420 BEAKER *Griffin, Low Form* ♠

Griffin-style **polypropylene** beakers for general laboratory use. Autoclavable. Combines “no-drip” pouring with unbreakability and maximum translucency. Approximate raised volume scales. Tapered walls for safe handling and convenient stacking.

Cap., mL	No. in Pkg.	No. in Case	Order Code	Per Pkg.	Case Price
50	12	48	12420-06	30.00	117.00
100	12	48	12420-08	28.00	111.00
150	12	48	12420-10	43.00	170.00
250	6	36	12420-12	25.00	147.00
400	6	36	12420-14	25.00	150.00
600	4	24	12420-16	26.00	156.00
1000	3	12	12420-18	20.00	79.00
2000	1	6	12420-20	16.00	94.50
4000	1	6	12420-22	31.00	183.00

10300 BEAKER *Stainless Steel*

Seamless, polished, sanitary, 304 stainless steel, with handy pouring spout.

Capacity, mL	Approx. I.D.x Hght.,mm	Quantity in case	Order Code	Each
125	55 x 65	12	10300-04	80.30
250	64 x 84	12	10300-08	63.13
600	83 x 117	6	10300-10	72.74
1200	101 x 154	6	10300-13	90.49
2000	122 x 182	6	10300-16	133.25
3000	138 x 209	6	10300-18	129.56
4000	153 x 229	6	10300-20	177.75

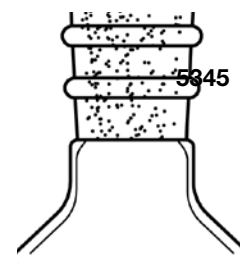


10300

5345 BOTTLE *Single Neck ♠*

Made of heavy wall glass, with ₪ outer joint. For stoppers, see 8250.

Capacity, mL	₪ Joint	Order Code	Each	Capacity, mL	₪ Joint	Order Code	Each
500	24/40	5345-12	44.81	2000	29/42	5345-20	88.41
1000	24/40	5345-16	47.16	4000	29/42	5345-24	135.58



BOTTLES

5365 BOTTLE *Woulff ♠*

Three-neck, made of heavy wall glass with ₪ outer joints.

Capacity, mL	₪ Joints	Order Code	Each
1000	24/40	5365-10	198.08

5365



5388 BOTTLE *Aspirator ★*

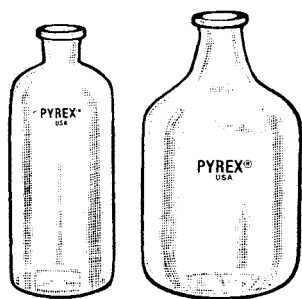
Corning 1220

PYREX® brand, heavy wall aspirator bottle. Hose connection outlet near bottom is 10mm O.D. thru 1000mL; 15mm on all other capacities.

Corning Code	Capacity mL	Rubber Stopper No.	Approx. O.D. x Hght., mm	Quantity Per		Order Code	Shelf-Pack Price	Case Price
				Shelf Pack	Case			
1220-250	250	2	70 x 132	6	18	5388-03	285.20	744.01
1220-500	500	4	86 x 164	6	12	5388-06	449.00	780.87
1220-1l	1000	6	107 x 200	1	6	5388-11	79.46	414.56
1220-2l	2000	6	133 x 250	1	6	5388-16	104.51	545.25
1220-4l	4000	10	165 x 298	1	4	5388-21	165.26	574.83
1220-2x	9500	12	187 x 476	—	1	5388-26	—	302.92
1220-3x	13250	12	238 x 445	—	1	5388-29	—	372.32
1220-5	19000	12	292 x 508	—	1	5388-31	—	531.91

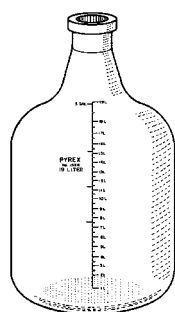


5388

**5391****5391 BOTTLE** *Solution ★***Corning 1595**

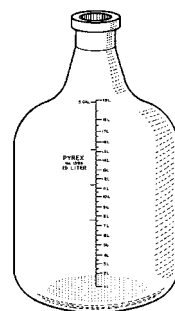
PYREX® brand, solution bottles. The 9.5 and 13.25 liter sizes are conventional bottle shape; 19 and 45.5 liter sizes are similar in design to a carboy. Necks are tooled for uniform fit with stoppers. These bottles can be graduated, see 4050, on page 56.

Corning Code	Cap., Liters	Approx. Cap., Gal.	Approx. Dia., mm	Approx. Height, mm	Rubber Stopper No.	Quantity in Case	Order Code	Case Price
1595-2X	9.5	2.5	187	470	12	4	5391-11	670.98
1595-3X	13.25	3.5	238	445	12	4	5391-16	850.03
1595-5	19.0	5	292	508	12	1	5391-21	311.06
1595-12	45.5	12	406	584	12	1	5391-26	671.78

**4050****4050 BOTTLE** *Solution, Graduated ★***Corning 1596**

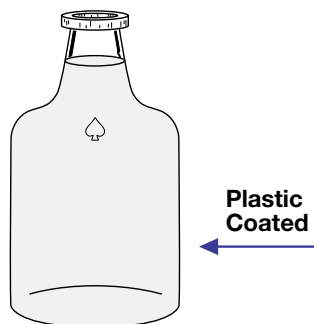
PYREX® brand, solution bottles, similar to 5391, except with black enamel double scale graduations in 500 mL increments. The 9.5 and 13.5 liter sizes are conventional bottle shape; 19 liter size is similar in design to a carboy. Necks are tooled for uniform fit with stoppers.

Corning Code	Cap., Liters	Approx. Cap., Gal.	Approx. Dia., mm	Approx. Height, mm	Rubber Stopper No.	Quantity in Case	Order Code	Case Price
1596-9L	9.5	2.5	187	476	12	4	4050-33	752.91
1596-13L	13.25	3.5	238	438	12	4	4050-37	917.18
1596-19L	19.0	5	292	508	12	1	4050-39	321.57

**4051****4051 BOTTLE** *Graduated, Coated ★***Corning 61596**

PYREXPLUS® brand, solution bottles, with protective polymer coating for added safety. The design is similar to a carboy. Necks are tooled for uniform fit with stoppers. Graduated in 500mL increments with black enamel.

Corning Code	Cap., Liters	Approx. Cap., Gal.	Approx. Dia., mm	Approx. Height, mm	Rubber Stopper No.	Quantity in Case	Order Code	Case Price
61596-19L	19.0	5	292	508	12	1	4051-35	440.60

**5393****5393 BOTTLE** *Solution, Plastic Coated ♦*

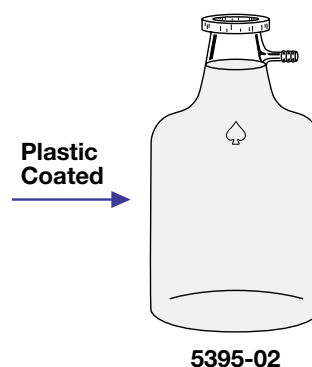
Coated to neck with PVC safety coating to reduce potential breakage and exposure to laboratory personnel when handling hazardous material. Carboy style bottles with sloping shoulders. Necks are tooled for uniform fit with stoppers. Stopper not supplied.

Cap., Liters	Approx. Cap., Gal.	Approx. Dia., mm	Approx. Height, mm	Rubber Stopper No.	Order Code	Each
9.5	2.5	187	476	12	5393-06	294.66
13.25	3.5	238	438	12	5393-07	338.76
19.0	5	292	508	12	5393-09	399.99

5395 BOTTLE *Solution, Plastic Coated* ♠

Solution bottles with serrated vacuum take-off. Bottles are coated to neck with plastic safety coating. This translucent coating forms a protective film around the glass that will help contain both flying particles and dangerous chemicals should the glass break. Maximum temperature limit 80°C. Higher temperature coatings available on special order. All sizes have the sloping shoulders of the carboy style of bottle. Necks are tooled for uniform fit with stoppers. Use with 7/16-inch or 1/2-inch I.D. Tubing, Size F. See page 5 for more detailed Hose Connection information. Stopper not supplied.

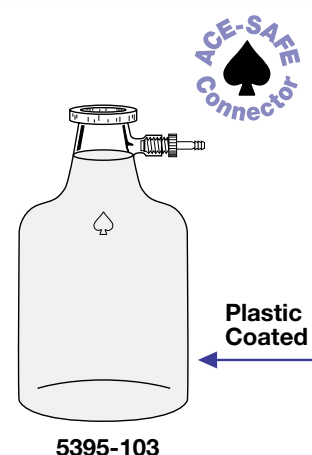
Cap., Liters	Approx. Cap., Gal.	Approx. Dia., mm	Approx. Height, mm	Rubber Stopper No.	Order Code	Each
9.5	2.5	187	476	12	5395-02	361.19
13.25	3.5	238	438	12	5395-04	404.54
19.0	5	292	508	12	5395-06	453.53



5395 BOTTLE *Solution, Plastic Coated, with "Ace-Safe"* ♠

Same bottle as listed, with vacuum takeoff and plastic coated, except takeoff has a #15 Ace-Thred in place of the serrated fitting for use with an "Ace-Safe" tubing connection barb for 3/8-inch I.D. tubing. For replacement hose connections, see 5853. Supplied complete with hose connection with O-Ring and Nylon bushing. Stopper not supplied.

Cap., Liters	Approx. Cap., Gal.	Approx. Dia., mm	Approx. Height, mm	Rubber Stopper No.	Order Code	Each
9.5	2.5	187	476	12	5395-103	380.12
13.25	3.5	238	438	12	5395-105	423.58
19.0	5	292	508	12	5395-107	455.38



6989 BOTTLE *Filtering, with Removable PP Hose Connection* ★

Schott

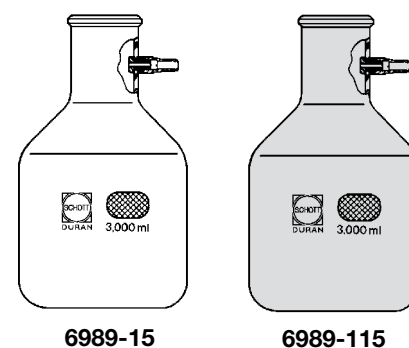
Heavy wall, bottle shaped, filtering flask with removable Polypropylene hose connection and/or plastic tubulature. Offered clear or plastic coated. Plastic coated are steam autoclavable at 135°C. For replacement Hose Connection Assembly, order 6989-40.

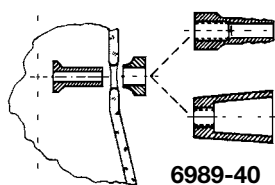
CLEAR GLASS

Capacity, mL	Body O.D., mm	Height, mm	Neck I.D., mm	Order Code	Each
3,000	170	295	60	6989-15	111.19
5,000	185	360	70	6989-18	179.65
10,000	240	420	70	6989-21	268.96
15,000	255	500	70	6989-24	346.06
20,000	290	535	70	6989-27	433.92

PLASTIC COATED

Capacity, mL	Body O.D., mm	Height, mm	Neck I.D., mm	Order Code	Each
3,000	170	295	60	6989-115	159.01
5,000	185	360	70	6989-118	241.01
10,000	240	420	70	6989-121	362.98
15,000	255	500	70	6989-124	422.23
20,000	290	535	70	6989-127	499.23



**6989-40 REPLACEMENT HOSE CONNECTION SET ★**

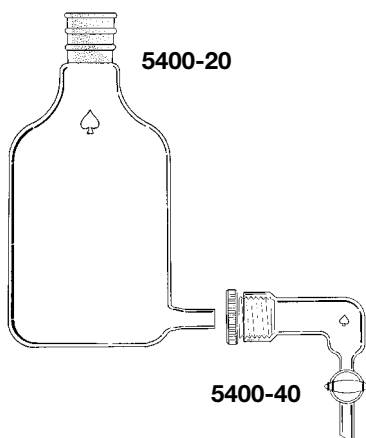
PP hose connection, straight, and tubulature replacement set for 6989 Bottles.

Package Qty.	Order Code	Per Package
10	6989-40	61.55

5398**5398 BOTTLE Serum ★****Corning 1585**

PYREX® brand, serum bottles. Necks are tooled for uniform fit with stoppers.

Corning Code	Capacity, Liters	Approx. Dia., mm	Approx. Height, mm	Rubber Stopper No.	Quantity in Case	Order Code	Case Price
1585-4L	4	165	287	8	8	5398-06	850.48
1585-9L	9	203	408	8	4	5398-11	674.00

**5400 BOTTLE Dispensing, with ⌘ Outer Joint ♠**

With 24mm O.D. drain extension near bottom for attaching stopcock shutoff valve. Shutoff is an 8mm bore PTFE plug stopcock with a #25 Ace-Thred at a right angle. Ace-Thred attaches to drain extension via a 7506-10 Nylon Bushing and FETFE O-Ring. The 9.5 and 13.5 liter sizes are conventional bottle shape; 19 liter is similar in design to a carboy. Neck is ⌘ 45/50 joint rather than a tooled neck for a rubber stopper. For full length stopper, order 8250-20. Order each part separately.

Approx. Capacity, Liters	Approx. Diameter, mm	Approx. Height, mm	Neck ⌘ Joint	Order Code	Flask only Each
9.5	187	476	45/50	5400-20	315.48
13.25	238	445	45/50	5400-27	351.75
19.0	292	508	45/50	5400-33	419.72
Shutoff Valve, only				5400-40	197.69
Bushing, Nylon, w/O-Ring				7506-10	17.29

12477**12477 BOTTLE Aspirator with Spigot ♠**

Constructed of polyethylene with polyethylene spigot and screw closure. Quick-action spigot, for easy, positive control, leakproof operation and long life. Suitable for collecting and dispensing distilled water, handling acids. Leakproof closures.

Cap., liters	No. in Case	Order Code	Each	Case Price
4.0	6	12477-02	76.00	454.50
8	6	12477-04	108.00	643.50
20	4	12477-06	130.00	517.00
25	4	12477-08	157.00	626.00

5407**5407 BOTTLE Dropping ★****Corning 1340**

PYREX® brand. With pipet stopper and rubber nipple. Stopper is not covered by specifications, but ground to an interchangeable 1:10 taper.

Corning Code	Approx. Capacity, mL	Approx. O.D. x Hght. w/Stopper, mm	Quantity in Case	Order Code	Case Price
1340-30	30	35 x 110	12	5407-11	365.77
1340-125	125	55 x 150	12	5407-21	485.71

5411 BOTTLE *Reagent, Plain, Narrow Mouth* with Flathead Stopper ★

Corning 1500

PYREX® brand, which offers the superior resistance to chemical attack more necessary with small containers, where the ratio of surface exposed to volume of liquid is greater.

Corning Code	Cap., mL	Approx. Dia., mm	Approximate Height with Stopper, mm	Bottle Stopper No.	Quantity Per		Order Code	Shelf-Pack Price	Case Price
					Shelf-Pack	Case			
1500-125	125	55	136	19	6	48	5411-09	147.10	1,023.29
1500-250	250	70	160	19	1	36	5411-13	25.57	800.40
1500-500	500	86	198	24	1	24	5411-17	32.04	668.74
1500-1L	1000	107	235	29	1	24	5411-21	55.05	1,148.97
1500-2L	2000	133	282	29	1	6	5411-25	129.97	678.10



5411

5414 RESERVOIR *Graduated Glass, Reagent* ★

Heavy-wall borosilicate glass bottle with three PTFE Valves with Tefzel Keys. Pressure-tight PTFE coated Fluoron forms a seal within cap; hence, fluid contact is restricted to glass, PTFE and Tefzel. The three individually controlled valves permit the application of gas under pressure to the bottle for venting, flushing, or delivery of the bottle contents to one or two points. Bottles may be pressurized in isolation or in series with the other bottles. One of the valves may be used to allow corrosive fumes to be vented safely. Rated to 14 psi at ambient; **must be adequately shielded when under pressure**. Each bottle is provided with a three-valve, 1/4-28UNF cap ideal for use with our 5859 and 5855 tubing connectors.

Codes -05 thru -20 are clear glass reagent bottles (also available ambered).

Codes -135 thru -143 are U.V. resisting plastic coated solvent delivery bottles.

Reagent Reservoir, Clear, with Netting & Cap			Solvent Reservoir, Coated, with Cap		
Cap., mL	Order Code	Each	Cap., mL	Order Code	Each
250	5414-07	186.81	250	5414-137	198.59
500	5414-10	186.81	500	5414-139	198.59
1000	5414-15	186.81	1000	5414-141	206.40



5414-05



5414-135

Accessory Items

	Order Code	Each
Cap only, with valves	5414-502	127.22
Filter, Sparger, PTFE, 3 micron	5414-30	16.15
Filter, Sparger, PTFE/Stainless Steel, 10 micron	5414-31	26.40
Filter, Bottle Bottom, PTFE, 10 micron	5414-32	30.05
Filter, Bottle Bottom, Polypropylene, 20 micron	5414-33	6.50
Filtered Check Valve, PTFE, 10 micron	5414-34	35.30

For Cap only with valves,
order **5414-502**

5415 BOTTLE *Specific Gravity* ♦

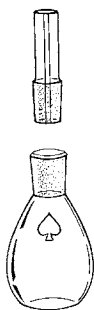
Conical shape flask for maximum stability. Supplied with non-mercury thermometers for accurate reading. Thermometer has a range of 14 to 37°C, 0.2 subdivisions with 10/18 joint. The 50mL size complies with ASTM Method of Test D 153. Thermometer is 25mm immersion.

Capacity, mL	Approx. Assembled Height, mm	Order Code	Bottle only	Order Code	Therm. only.	Order Code	Complete
10	168	5415-05	79.38	5415-06	79.38	5415-08	181.55
50	186	5415-12	93.57	5415-06	79.38	5415-16	195.76

10/18 Cap, only **Order Code 5415-07** 22.81



5415

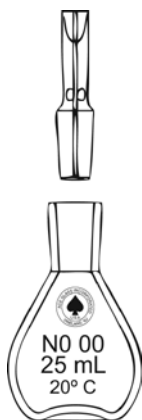


5420
5425

5420 BOTTLE *Specific Gravity* ♠

Guy-Lussac type unadjusted for calibration in the laboratory. When adjusted, suitable for ASTM D 369.

Capacity, mL	Stopper	Order Code	Bottle only	Order Code	Stopper only.	Order Code	Complete
2	7/12	5420-04	36.76	5420-05	25.93	5420-06	62.69
10	7/18	5420-16	36.04	5420-17	25.86	5420-18	61.89
25	10/18	5420-22	44.93	5420-23	26.25	5420-24	71.16

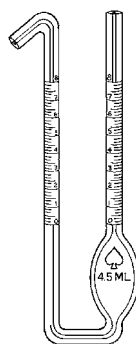


5425

5425 BOTTLE *Specific Gravity, Calibrated* ♠

Similar to 5420 except calibrated (2mL- ± 0.05 mL; 5, 10, 25mL- ± 0.10 mL) and engraved.

Capacity, mL	Order Code	Each
2	5425-05	129.14
5	5425-10	130.61
10	5425-15	135.44
25	5425-20	145.26

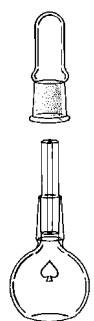


5437

5437 SPECIFIC GRAVITY PYCNOMETER TUBE ♠

A method for measurement of light hydrocarbon liquids as per ASTM D 941.

Bulb Cap., mL	Order Code	Each
4.5	5437-12	181.04



5475

5475 BOTTLE *Specific Gravity* ♠

Weld, unadjusted. Similar in design to No. 5420 except provided with cap to reduce evaporation losses when using volatile liquids. Stopper is 10/18 and cap 14/20 outer for both capacities.

Capacity, mL	Order Code	Complete
10	5475-05	99.98
25	5475-10	107.17

5530 SERUM BOTTLE ♠

These borosilicate glass serum bottles meet the requirements of the Pharmacopoeia of the United States for Type I glasses. Repeated sterilization does not affect Type I qualities. Offer maximum protection for delicate injectables and biological materials. With large mouth openings for ease in filling, emptying and cleaning. Available in clear glass and amber glass to protect light-sensitive solutions.

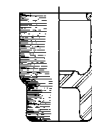
Capacity, mL	Mouth I.D. x O.D., mm	Diameter x Height, mm	Case Quantity	Order Code	Case Price
5	13 x 20	23 x 47	288	5530-08	150.03
10	13 x 20	25 x 54	288	5530-10	209.96
20	13 x 20	32 x 58	288	5530-12	256.44
30	13 x 20	37 x 63	288	5530-14	315.89
50	13 x 20	43 x 73	288	5530-16	396.40
60	13 x 20	41 x 91	144	5530-18	221.18
100	13 x 20	52 x 95	144	5530-20	304.86
125	13 x 20	54 x 107	144	5530-22	428.78



5530-08

5531 RUBBER STOPPER FOR SERUM BOTTLES ♠

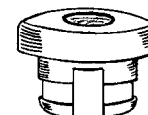
For Mouth I.D. x O.D.	Case Qty.	(A) Sleeve Style, Red Rubber		(B) Flange Style, Red Rubber For Use with Aluminum Seals	
		Order Code	Case Price	Order Code	Case Price
13 x 20	1000	5531-06	314.40	5531-23	148.56
For Mouth I.D. x O.D.	Case Qty.	(C) Slotted, Gray Butyl For use with Aluminum Seals		(D) Flange Style, Red Rubber	
		Order Code	Case Price	Order Code	Case Price
13 x 20	1000	5531-33	183.66	5531-45	180.82



5531-06



5531-23, -45



5531-33

12908 SEPTA FOR SERUM BOTTLES *for Use with*

Aluminum Seals ★

TUF-BOND® STRUCTURALLY BONDED PTFE TO SILICONE SEPTA

For Mouth O.D., mm	Size O.D., mm x Thickness, mm	Package Quantity	Order Code	Per Package
20	19 x 3	72	12908-60	167.11

TUF-BOND® is a registered trademark of Pierce Chemical Co.

5532 ALUMINUM SEALS FOR SERUM BOTTLES ♠

For use with flange and slotted style stoppers.

Type: One-piece, center disc tears out.				Type: One-piece, seal tears completely off.			
For Mouth O.D., mm	Case Quantity	Order Code	Case Price	For Mouth O.D., mm	Case Quantity	Order Code	Case Price
20	1000	5532-07	73.36	20	1000	5532-27	65.49



5532-07



5532-27



5533-05

5533 E-Z HAND CRIMPER ★

For attaching aluminum seals. E-Z Crimper features a new ergonomic design cushioned handle that aids in reducing hand fatigue and provides a higher degree of comfort for the user. Each crimper is labeled for quick identification for seal size. Can be autoclaved.

For Seal Size, mm	Order Code	Each
11	5533-03	249.55
20	5533-05	253.11



5534-24

5534 PLIERS DECAPPER ★

For 20 mm seals only.

Order Code	Each
5534-24	70.47



5535

5535 E-Z DECAPPER ★

E-Z Decapper features a new ergonomic design cushioned handle that aids in reducing hand fatigue and provides a higher degree of comfort for the user. Labeled for quick identification for seal size. The new design removes seals quickly and efficiently. Can be autoclaved.

For Seal Size, mm	Order Code	Each
11	5535-03	252.73
20	5535-07	260.17



5537

5537 BOTTLE *Borosilicate Glass, without Cap ♠*

Bottles of low-alkali content to prevent changes of pH and maintain the purity of contents. Large opening, special lip and sloping shoulders facilitate pouring and cleaning. Used for distilled water, analytical standards and reagents when fitted with a polyethylene-lined cap, or for the mixing and storage of culture media when fitted with a rubber-lined cap. Also available with PTFE liners that are inert to most chemicals. Rubber and PTFE-lined caps can be autoclaved. Graduated bottles show approximate volumes and have label space for pencil markings. For protection, these bottles are offered with safety coating. Autoclavable.

Note: ORDER CAPS SEPARATELY.

SAFETY COATED BOTTLE ONLY WITH GRADUATIONS

Cap., mL	Diameter x Height, mm	Screw Cap Size	Case Quantity	Order Code	Case Price
125	55 x 119	33-430	48	5537-03	147.87
250	67 x 148	33-430	48	5537-05	210.49
500	88 x 188	33-430	24	5537-09	160.85
1000	102 x 221	38-430	24	5537-11	204.47

BOTTLE ONLY WITH GRADUATIONS

Cap., mL	Diameter x Height, mm	Screw Cap Size	Case Quantity	Order Code	Case Price
125	55 x 119	33-430	48	5537-103	260.45
250	67 x 148	33-430	48	5537-105	354.57

**BLACK PLASTIC
SCREW CAPS ONLY**

PTFE LINER			
Cap Size	Case Quantity	Order Code	Case Price
33-430	100	12487-64	287.58
38-430	100	12487-65	315.43

POLYETHYLENE LINER

Cap Size	Case Quantity	Order Code	Case Price
33-430	200	12487-53	207.03
38-430	200	12487-54	239.47

RUBBER LINER

Cap Size	Case Quantity	Order Code	Case Price
33-430	200	12487-40	210.68
38-430	200	12487-41	267.50

5539 BOTTLE *Laboratory, GL Thread ★*

Schott

Chemically resistant and stable laboratory bottles, fabricated from borosilicate glass. Supplied graduated with red plastic, removable pouring ring¹ that allows drip-free operation and plastic cap with PTFE liner. For use up to 180°C. Not suitable for vacuum or pressure use. Can be hot air sterilized or autoclaved.

Cap., mL	Approx. Cap., Oz.	GL Thread Size	O.D., mm	Height, mm w/Cap	Case Qty.	Order Code	Case Price
25 ¹	.87	25	36	74	10	5539-05	79.05
50	1.3	32	46	91	10	5539-08	111.28
100	4	45	56	105	10	5539-10	136.22
250	9	45	70	143	10	5539-15	147.57
500	16	45	86	181	10	5539-18	168.30
1000	33	45	101	230	10	5539-22	211.23
2000	66	45	136	267	10	5539-25	408.72
5000	169	45	186	340	1	5539-30	131.40
10000	338	45	234	415	1	5539-35	247.36
15000	507	45	277	450	1	5539-41	331.25
20000	676	45	300	510	1	5539-44	456.35

¹25 mL size NOT supplied with ring.



5539-05

Due to varying conditions, Ace cannot guarantee these vessels from breakage under pressure.

ALL LABORATORY SAFETY PROCEDURES SHOULD BE OBSERVED.

Always work behind a shield.

5539 BOTTLE *Laboratory, Safety Coated, GL Thread ★*

Schott

Chemically resistant and stable laboratory bottles, fabricated from borosilicate glass and plastic coated for protection against mechanical damage and to prevent leakage of contents should the glass break. Supplied graduated with red plastic, removable pouring ring that allows drip-free operation and plastic cap with PTFE liner. For use from -20 to 135°C. Not suitable for vacuum or pressure use. Height measurement is with cap. Autoclavable or good for hot air sterilization.

Capacity, mL	GL Thread Size	O.D., mm	Height, mm	Case Qty.	Order Code	Case Price
100	45	56	108	10	5539-105	187.67
250	45	70	146	10	5539-115	203.32
500	45	86	183	10	5539-118	231.87
1000	45	101	230	10	5539-122	299.16
2000	45	136	267	10	5539-125	565.98
5000	45	186	340	1	5539-130	173.25



5539-105

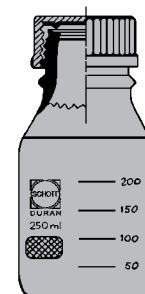
5539 BOTTLE *Laboratory, Ambered, GL Thread ★*

Schott

Chemically resistant and stable laboratory bottles, fabricated from borosilicate glass and ambered for protection of liquids sensitive to light. Supplied graduated with red plastic, removable pouring ring that allows drip-free operation and plastic cap with PTFE liner. For use up to 180°C. Not suitable for vacuum or pressure use. Height measurement is with cap. Autoclavable or good for hot air sterilization.

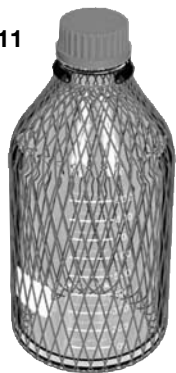
Capacity, mL	GL Thread Size	O.D., mm	Height, mm	Case Qty.	Order Code	Case Price
25*	25	36	74	10	5539-205	200.62
50	32	46	91	10	5539-208	213.93
100	45	56	105	10	5539-210	269.06
250	45	70	143	10	5539-215	358.19
500	45	86	181	10	5539-218	432.62
1000	45	101	230	10	5539-222	529.05
5000	45	186	340	1	5539-230	221.30
10000	45	234	415	1	5539-235	407.35
15000	45	277	450	1	5539-241	484.49
20000	45	300	510	1	5539-244	905.33

*25 mL size NOT supplied with ring.



5539-205

5539-211

**5539 BOTTLE** *Laboratory, Netted, GL Thread* ★**Schott**

Chemically resistant and stable laboratory bottles, fabricated from borosilicate glass and netted for protection against mechanical damage. Supplied graduated with red plastic, removable pouring ring that allows drip-free operation and plastic cap with PTFE liner. For use from -20 to 135°C. Not suitable for vacuum or pressure use. Height measurement is with cap. Autoclavable or good for hot air sterilization.

Capacity, mL	GL Thread Size	O.D., mm	Height, mm	Case Qty.	Order Code	Case Price
100	45	56	108	10	5539-211	33.22
250	45	70	146	10	5539-216	35.38
500	45	86	183	10	5539-219	37.66
1000	45	101	230	10	5539-224	38.81
2000	45	136	267	10	5539-225	82.61

5546

**5546 BOTTLE** *Boston Round, Safety Coated, Clear* ★

Clear glass bottles, fabricated of soda lime, flint glass, PVC safety coated to reduce potential breakage and exposure to laboratory personnel in handling hazardous materials. Supplied without caps. For caps, see 12489, page 66. Not autoclavable.

Cap., Oz.	Dia. x Hgt*, mm	Screw Cap Size	Pkg. Qty.	Order Code	Pkg. Price
8	62 x 140	24-400	6	5546-08	24.29
16	76 x 170	28-400	6	5546-10	38.17
32	96 x 208	33-400	4	5546-12	34.01
80*	135 x 291	38-439C	2	5546-20	26.74

*80 oz. with jug handle

5547

**5547 BOTTLE** *Boston Round, Safety Coated, Amber* ★

Amber glass bottles to protect light sensitive compounds, fabricated of soda lime, flint glass, PVC safety coated to reduce potential breakage and exposure to laboratory personnel in handling hazardous materials. Supplied without caps. For caps, see 12489, page 66. Not autoclaveable.

Cap., Oz.	Dia. x Hgt*, mm	Screw Cap Size	Pkg. Qty.	Order Code	Pkg. Price
8	62 x 140	24-400	6	5547-09	24.29
16	76 x 170	28-400	6	5547-11	38.17
32	96 x 208	33-400	4	5547-13	33.66
1 Gal.	160 x 336	38-439C	2	5547-21	39.25

5549 — Clear

**5549 BOTTLE** *Wide Mouth, Safety Coated, Clear or Amber* ★

Clear glass bottles fabricated of soda lime, flint glass, PVC coated to reduce potential breakage and exposure to laboratory personnel in handling hazardous materials. Supplied without caps. For caps, see 12489, page 66. Not autoclaveable.

Color	Cap., Oz.	Dia. x Hgt*, mm	Screw Cap Size	Pkg. Qty.	Order Code	Pkg. Price
Clear	8	75 x 90	70-400	6	5549-08	33.93
Clear	16	89 x 147	70-400	6	5549-16	35.51
Clear	32	97 x 180	70-400	4	5549-32	27.00

*Height without cap

Note that 5546, 5547, and 5549 Bottles are NOT autoclaveable.

5555 BOTTLE *Storage, Heavy Wall, Epoxy Coated ♠*

Heavy wall glass storage bottles with #15 Ace-Thred are intended only for storage of low-boiling liquids at room temperatures or at not less than -20°C. They are designed to resist internal pressures up to 100 psig, as low as -20°C. The low pressure rating is based primarily on the rating for PTFE T.F.E. When purged with an inert gas before filling, peroxide formation is not progressive as in metal containers. Bottles are safety coated to the neck with a translucent, protective film to help prevent shattering and reduce spills.

Closures are inert PTFE plugs with FETFE O-Rings that will not freeze. Two closure styles available: one with O-Ring positioned at front of the thread (5846); the other with O-Ring at top of thread (5845). (Note! Chemraz® O-Rings are available for use with aggressive compounds that would attack FETFE.)

For other pressure bottles, with larger threads, see 8648.



5555

With 5845 "Back Seal" Closure

Cap., mL	Order Code	Complete
50	5555-22	68.48
125	5555-24	103.02
*250	5555-32	114.00

With 5846 "Front Seal" Closure

Cap., mL	Order Code	Complete
50	5555-23	68.99
125	5555-25	103.53
*250	5555-33	114.51

COMPONENTS:

	Order Code	Each		Order Code	Each
Bottle, only, 50mL	5555-02	38.53	Replacement O-Rings for 5845		
Bottle, only, 125mL	5555-03	73.07	FETFE O-Rings, Pk/6	7855-730	15.75
Bottle, only, 250mL	5555-06	84.05	Chemraz O-Ring, Pk/1	7859-530	77.98
PTFE Plug, only	5845-47	29.95	Replacement O-Rings for 5846		
PTFE Plug, only	5846-48	39.20	FETFE O-Rings, Pk/12	7855-716	17.73
			Chemraz O-Ring, Pk/1	7859-516	39.59

- **Plastic Coating** is largely UV absorbent (to 380nm)
- Autoclavable in steam, max. 135°C.
- Not suitable for pressure, vacuum, freezing, or for microwave operation.
- Do not use distilled water or vacuum for cooling.

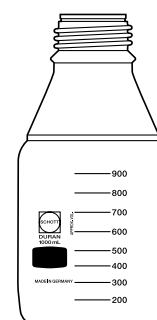
5557 BOTTLE *Vacuum/Pressure Resistant, GL Thread ★*

Schott

Chemically resistant and stable laboratory bottles, approved for use under vacuum pressures up to 1.5 bar at ambient. Supplied Bottle only, with blue graduations, without cap or pouring ring. For cap and ring, see 7622. Available clear, amber or plastic coated. Temperature range up to a maximum of 140°C.

Capacity, mL	Type	GL Thread Size	O.D., mm	Height, mm	Case Qty.	Order Code	Bottle only Case Price
1000	Clear	45	101	225	10	5557-20	232.86
1000	Amber	45	101	225	10	5557-121	520.15
1000	Plastic Coated	45	101	225	10	5557-214	294.26

Vacuum/Pressure Rated



5557-20

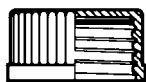
7622 CAPS/POURING RINGS for GL Threaded Bottles ★

Schott

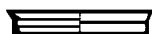
Screw caps and pouring rings for use with Schott GL threads. Red caps have PTFE liner, all others are with lip seal.

Color-Coded Caps


7622-02



7622-14



7622-52

CAPS

For Thread Size	Material	Color	Upper Temp. Limit, °C	O.D., mm	Height, mm	Case Qty.	Order Code	Case Price
25	PP ¹	Blue	140	33	19	10	7622-02	23.98
25	PBT ²	Red	200	33	19	10	7622-14	47.57
32	PP	Blue	140	40	24	10	7622-04	23.98
32	PBT	Red	200	40	24	10	7622-21	73.98
45	PP	Blue	140	54	26	10	7622-06	28.77
45	PP	Yellow	140	54	26	10	7622-32	28.77
45	PP	Green	140	54	26	10	7622-35	28.77
45	PP	Grey	140	54	26	10	7622-37	28.77
45	PBT	Red	200	54	26	10	7622-24	110.50

POURING RINGS

For Thread Size	Material	Color	Upper Temp. Limit, °C	Height, mm	Case Qty.	Order Code	Case Price
32	PP	Blue	140	4	10	7622-52	10.16
45	PP	Blue	140	4	10	7622-54	11.04
32	PBT	Red	200	4	10	7622-56	26.82
45	PBT	Red	200	4	10	7622-58	28.97

¹PP is Polypropylene: -40°C to +140°C

²PBT is Polybutyleneterephthalate: -45°C to +200°C

12489 CAP PTFE Lined, Only ★

Plastic screw caps with PTFE liners for use with 5546, 5547 and 5549 bottles.

Cap Size	Quantity Per Pkg.	Order Code	Package Price	Cap Size	Quantity Per Pkg.	Order Code	Package Price
22-400	6	12489-04	6.41	33-400	4	12489-18	6.62
24-400	6	12489-08	10.56	38-430	4	12489-26	12.38
28-400	4	12489-16	8.30	70-400	4	12489-30	22.36

5560 BOTTLE Laboratory, Square, GL Thread ★

Chemically resistant square bottles, fabricated from borosilicate glass. Supplied graduated with blue polypropylene, removable pouring ring that allows drip-free operation and blue PP cap. Supplied with cap and pouring ring. For use from -40°C up to 140°C. Not suitable for vacuum or pressure use. Can be hot air sterilized. Height measurement is with cap.

5560



Capacity, mL	GL Thread Size	O.D., mm	Height, mm	Case Qty.	Order Code	Case Price
100	32	50	109	10	5560-10	154.11
250	45	64	143	10	5560-15	173.72
500	45	78	181	10	5560-20	216.37
1000	45	94	222	10	5560-25	306.95

12431 BOTTLE HDPE Rectangular ♦

Rectangular shape wide mouth bottles take less shelf space. Sturdy, heavy-wall construction for laboratory use and drug storage. Made of high-density polyethylene with leakproof screw closures. Well suited for shipping and storing both liquids and dry materials.



12431

Cap., mL	Screw Cap Size	No. in Case	Order Code	Case Price
120	38	72	12431-05	153.06
500	43	48	12431-11	91.61
1000	53	24	12431-15	76.53

12461 BOTTLE *Wash, Economy* ♦

A new through-the-top wash bottle at a money-saving price. Bottle, tubing and tip are made of polyethylene with polyalomer cap and nozzle. Molded tip dispenses uniform stream, can be cut back to increase flow.

Cap., mL	No. in Pkg.	No. in Case	Order Code	Per Pkg.	Case Price
125	12	48	12461-07	45.00	177.00
250	12	36	12461-09	45.00	135.00
500	6	24	12461-11	27.00	106.00
1000	3	12	12461-13	21.00	81.00



12461

12464 SAFETY WASH BOTTLE *Safety Labeled* ♦

Guaranteed leakproof wide mouth wash bottles made of flexible, impact-resistant polyethylene with color-coded polyalomer closure and spout. Standard Diamond Alert symbols indicate what type hazard the contents may present. Available in 500 mL (6/pkg, 12/case).

Chemical	Capacity, mL/oz	Order Code	Per Pkg. 6	Per Case 12
Acetone	500/16	12464-02	31.00	61.00
Ethanol	500/16	12464-06	31.00	61.00
Methanol	500/16	12464-10	31.00	61.00
Isopropanol	500/16	12464-14	31.00	61.00
Toluene	500/16	12464-16	31.00	61.00
Water	500/16	12464-18	31.00	61.00

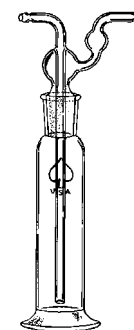


12464

5516 BOTTLE *Gas Washing* ♦

Dreschel, high form with 24/40 joint on all sizes.

Capacity, mL	Order Code	Bottle only	Order Code	Stopper only	Order Code	Complete
125	5516-05	40.62	5516-06	55.41	5516-08	96.03
500	5516-14	49.67	5516-15	55.50	5516-16	105.17

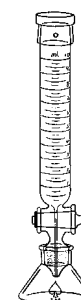


5516

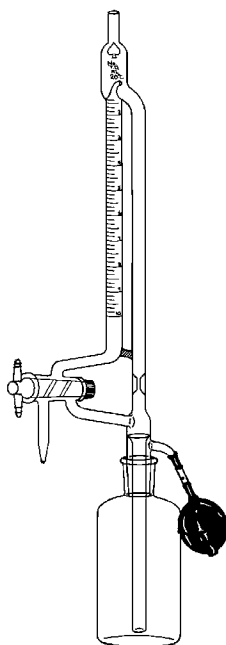
5625 BOTTLE *Weighing* ♦

Smith Buret for dispensing precise quantities of liquids. The wide base adds stability when placed on a balance pan. Complete apparatus consists of a flask, buret and cap stopper. With a 19/10 cap type stopper joint as illustrated, and a 12/10 joint at the bottom. The overall height has been reduced to a minimum in order that it can be used on single pan balances.

Capacity, mL	Order Code	Flask	Order Code	Buret	Order Code	Cap Stopper	Order Code	Complete
10	5625-05	33.75	5625-06	175.36	5625-07	16.26	5625-08	225.39



5625

**5735****5735 BURET** *Automatic, with 1:5 PTFE Plug* ★

Simplified design provides greater strength, resulting in longer service life, easier repair in the event of breakage and elimination of hold-up in the immersed tube. Supplied complete with pressure bulb, polyethylene release tube and reservoir bottle.

Cap., mL	Subdiv., mL	Bottle Cap., mL	Joint	Order Code	Buret	Order Code	Bottle	Order Code	Complete
10	1/20	1000	24/40	5735-11	335.63	5345-16	47.16	5735-40	398.39
25	1/10	1000	24/40	5735-16	348.82	5345-16	47.16	5735-44	411.58
50	1/10	2000	29/42	5735-21	384.35	5345-20	88.41	5735-46	488.36

	Order Code	Each
Rubber Bulb and Release Tube (only)	5747-10	15.60
Replacement Stopcock Plug	5735-98	60.88

**5747****5747 RUBBER BULB & RELEASE TUBE** ♠

Consisting of rubber bulb and polyethylene release tube. For use with 5735.

Order Code	Complete
5747-10	15.60

**5758****5758 BURET** *Both Ends Open* ♠

Graduated buret open at top and bottom. Top is beaded, bottom is fire polished. Used in fabrication of apparatus requiring graduation.

Cap., mL	Scale Length, mm	Overall Length, mm	Subdivisions, mL	Order Code	Each
25	290-350	390-450	1/10	5758-04	57.56
100	500-600	600-700	1/5	5758-08	94.13
250	310-350	410-450	1	5758-10	144.40

5760 BURET ♠

Laboratory grade, without delivery tip or rubber connection.

Capacity, mL	Subdivisions, mL	Order Code	Each
10	1/20	5760-10	50.51
50	1/10	5760-20	78.97



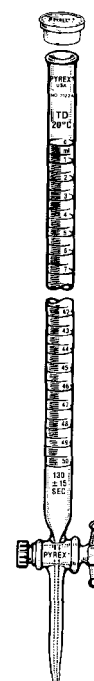
5760

5765 BURET *Straight Stopcock,* *with PTFE Plug, with Dust Cover* ★

Corning 2122A

PYREX® brand, with Accu-Red™ markings. Suitable for use in schools and institutional laboratories not requiring the accuracy of Class A models. For stopcock plugs, see 8223, 2mm.

Corning Code	Capacity, mL	Grad. Interval, mL	Tolerance, ±mL	Approx. O.D. x Hght., mm	Quantity in Case	Order Code	Case Price
2122A-10	10	5/100	0.04	9 x 560	1	5765-60	114.61
2122A-25	25	1/10	0.06	12 x 560	1	5765-62	118.48
2122A-50	50	1/10	0.10	14 x 750	1	5765-64	120.05
2122A-100	100	2/10	0.20	18 x 752	1	5765-66	144.81



5765



4057

4057 BURET *Straight Stopcock,
with PTFE Plug, with Dust Cover, Class A ★*

Corning 2103

PYREX® brand, with Accu-Red™ markings. Capacity tolerances on these burets is established by ASTM E 287 and they are calibrated in accordance with ASTM E 542. All sizes furnished with 2mm bore PTFE stopcock plug. The buret has colored markings, fine sharp lines and easy-to-read numbers.

Corning Code	Capacity, mL	Grad. Interval, mL	Tolerance, ±mL	Approx. O.D. x Hght., mm	Quantity in Case	Order Code	Case Price
2103-10	10	5/100	0.02	9 x 560	1	4057-42	138.11
2103-25	25	1/10	0.03	12 x 560	1	4057-45	147.66
2103-50	50	1/10	0.05	14 x 750	1	4057-47	158.11
2103-100	100	2/10	0.10	18 x 752	1	4057-50	181.36



5768

5768 BURET *Dispensing, with PTFE Stopcock ★*

Corning 2094

PYREX® brand, with Accu-Red™ markings.

Corning Code	Cap., mL	Grad. Interval, mL	Tolerance, ± mL	Approx. O.D. x Hght., mm	Stopcock Size	Quantity in Case	Order Code	Case Price
2094-250	250	1	2.0	33 x 580	4	1	5768-31	156.05
2094-500	500	5	2.5	41 x 695	4	1	5768-36	174.61
2094-1L	1000	10	5.0	50 x 810	6	1	5768-41	208.09

5771 BURET *Dispensing* ♠

Laboratory grade. Hose barb for 1/4-inch tubing at bottom.

Capacity, mL	Scale Length, mm	Approx. Overall Length, mm	Subdivisions, mL	Order Code	Each
500	400	600	5	5771-35	157.13
1000	530	705	10	5771-40	199.63

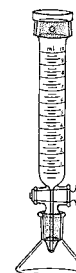


5771

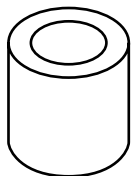
9176 WEIGHING BURET AND FLASK ♠

Smith type for dispensing precise quantities of liquids. The wide base on the flask enables the operator to place the entire unit on the balance pan. Capacity of flask and buret is 10 mL. Lower joint is $\text{J } 14/20$.

Capacity, mL	Order Code	Flask	Order Code	Buret	Order Code	Cap Stopper	Order Code	Complete
10	9176-05	30.22	9176-03	154.83	9176-07	21.32	9176-02	206.38



9176

**3865****New****3865 CLONING CYLINDER** ♠

Clone a single cell or group of cells by surrounding them with this glass cylinder. Dip the end of the cylinder into a sterile silicone grease before pressing to the bottom of a culture flask to create an isolated well.

Dimensions O.D. x Height, mm	Case Quantity	Order Code	Per Case
6 x 8	125	3865-06	52.89
8 x 8	125	3865-08	52.89
10 x 10	125	3865-10	61.03

3865 CLONING CYLINDER ♠

Cylinders for use in the Disinfectant Procedure as described in the 1992 J.A.O.A.C. Hard Surface Carrier Test for Efficacy Testing of Disinfectants: Collaborative Study. Tubes are glazed on both ends.

Dimensions O.D. x Height, mm	Case Quantity	Order Code	Per Case
8 x 8	125	3865-52	59.67
10 x 10	125	3865-55	73.22

**3868****New****3868 FILLING BELL** Aseptic ♠

For aseptic filling of vessels. Rubber tubing is attached to the top hose connection, the receiving vessel is placed inside the bell.

For Use With	Hose O.D., mm	Dimensions I.D. x Height, mm	Order Code	Case/2
Tubes	11.0	22 x 75	3868-02	45.98
Tubes	11.0	41 x 95	3868-04	70.49
Bottles	11.0	49 x 95	3868-05	77.29
Bottles	11.0	70 x 130	3868-07	90.85
Bottles	12.7	104 x 140	3868-10	143.73

**3874****New****3874 FLASK** Culture, Fernbach, Triple Baffled, Beaded Neck ♠

Wide mouth flask designed for culturing organisms requiring a large surface-area-to-volume ratio. Triple baffles on the bottom edges to achieve maximal oxygen transfer to culture medium. Beaded neck is 63 mm I.D. and accepts cotton plugs or rubber stoppers. Caution! Do not place on direct heat source.

Capacity, mL	Dimensions O.D. x Height, mm	Order Code	Case/3
1800	200 x 157	3874-18	284.77
2800	205 x 225	3874-30	359.18

3875 FLASK *Culture, Fernbach, Baffled, Plain Neck, without Closure* ♦

With a long-style 38 mm neck for plastic or Stainless Steel closures. Triple baffles are located at the center of the bottom to achieve maximal oxygen transfer to culture medium. Caution! Do not place on direct heat source.

Capacity, mL	Closure Size, mm	Dimensions O.D. x Height, mm	Order Code	Case/3
1800	38	200 x 157	3875-20	488.19
2800	38	205 x 250	3875-31	359.18



3877 FLASK *Culture, Fernbach, Baffled, Screw Cap* ♦

Wide mouth flask designed for culturing organisms requiring a large surface-area-to-volume ratio. Triple baffled on the bottom outside edges to achieve maximal oxygen transfer to culture medium. Supplied with GL45 polypropylene cap. Caution! Do not place on direct heat source.

Capacity, mL	Dimensions O.D. x Height, mm	Pkg. Qty.	Order Code	Each
1800	200 x 157	1	3877-30	122.03
2800	205 x 225	1	3877-45	131.54



3879 FLASK *Culture, Fernbach, 38 mm Neck, without Closure* ♦

Designed for culturing organisms requiring a large surface-to-volume ratio. With long 38 mm neck that takes Stainless Steel or plastic closures. Without baffles.

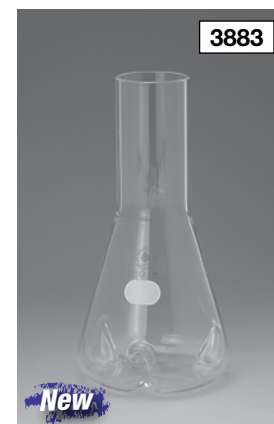
Capacity, mL	Closure Size, mm	Dimensions O.D. x Height, mm	Order Code	Case/3
1800	38	200 x 157	3879-18	370.21
2800	38	205 x 250	3879-30	341.69



3883 FLASK *Shaker, with Three Side Baffles, without Closures* ♦

Long-style neck with three side baffles to enhance gas transfer when used with rotary or reciprocating shakers. Long neck reduces splashing and is designed for polypropylene closures.

	Approx. O.D. x Height, mm	Approx. Neck O.D., mm	Case Quantity	Order Code	Case
Flask, only, 50 mL	60 x 105	18	12	3883-03	276.62
Flask, only, 125 mL	67 x 140	25	12	3883-05	244.11
Flask, only, 250 mL	80 x 160	38	12	3883-07	251.40
Flask, only, 300 mL	88 x 170	38	12	3883-09	284.65
Flask, only, 500 mL	100 x 205	38	12	3883-11	305.17
Flask, only, 1000 mL	130 x 240	38	6	3883-13	215.62
Flask, only, 2000 mL	160 x 295	38	3	3883-15	195.26





3884 FLASK *Shaker, without Closure* ♦

With long-style neck for use with plastic closures. Ideal for growing, storing and mixing of aerobic and anaerobic cultures.

Capacity, mL	Dimensions O.D. x Height, mm	Closure Size, mm	Case Quantity	Order Code	Case
25	40 x 90	18	24	3884-05	244.23
50	50 x 100	18	24	3884-10	260.30
125	70 x 140	25	12	3884-15	142.39
250	85 x 155	38	12	3884-19	169.21
300	90 x 165	38	12	3884-23	172.55
500	100 x 200	38	12	3884-26	183.79
1000	130 x 240	38	6	3884-30	138.31
2000	160 x 300	38	3	3884-34	143.81
4000	205 x 370	38	3	3884-37	305.11
6000	237 x 410	38	3	3884-40	1,342.45



3887 FLASK *Shaker, with Three Deep Baffles, without Closures* ♦

Long-style neck with three extra deep baffles to enhance gas transfer when used with rotary or reciprocating shakers. Long neck reduces splashing and is designed for polypropylene closures.

	Approx. O.D. x Height, mm	Approx. Neck O.D., mm	Case Quantity	Order Code	Case
Flask, only, 50 mL	50 x 100	18	12	3887-05	227.79
Flask, only, 125 mL	67 x 140	25	12	3887-07	229.40
Flask, only, 250 mL	80 x 160	38	12	3887-09	231.13
Flask, only, 300 mL	88 x 170	38	12	3887-11	234.22
Flask, only, 500 mL	100 x 200	38	12	3887-13	244.11
Flask, only, 1000 mL	130 x 240	38	6	3887-17	185.52
Flask, only, 2000 mL	160 x 300	38	3	3887-19	151.75
Flask, only, 3000 mL	185 x 327	38	3	3887-22	306.31
Flask, only, 4000 mL	207 x 370	38	3	3887-24	414.96



3889 FLASK *Shaker, Baffled, with Beaded Neck* ♦

Used for converting homogenous tissue samples into cell suspensions by digestion of connective tissues.

	Approx. O.D. x Height, mm	Case Quantity	Order Code	Case
Flask, only, 125 mL	67 x 105	12	3889-14	200.11
Flask, only, 250 mL	80 x 130	12	3889-18	215.68
Flask, only, 500 mL	100 x 170	12	3889-22	398.73
Flask, only, 1000 mL	130 x 215	6	3889-24	219.70
Flask, only, 2000 mL	160 x 285	3	3889-29	184.50

3890 FLASK *Shaker, Deep Baffles, with Beaded Neck* ♦

Used for converting homogenous tissue samples into cell suspensions by digestion of connective tissues.

	Approx. O.D. x Height, mm	Case Quantity	Order Code	Case
Flask, only, 250 mL	85 x 130	12	3890-04	217.29
Flask, only, 300 mL	90 x 140	12	3890-06	221.37
Flask, only, 500 mL	100 x 170	12	3890-09	244.11
Flask, only, 1000 mL	130 x 215	6	3890-13	184.29
Flask, only, 2000 mL	160 x 285	3	3890-18	163.92



3891 FLASK *Shaker, with Three Side and Three Bottom Baffles, without Closures* ♦

Similar to 3887, except these long-style neck flasks have three extra-deep baffles on side and bottom to enhance gas transfer when used with rotary or reciprocating shakers. Long neck reduces splashing and is designed for polypropylene closures.

	Approx. O.D. x Height, mm	Approx. Neck O.D., mm	Case Quantity	Order Code	Case
Flask, only, 250 mL	80 x 160	38	12	3891-06	341.75
Flask, only, 500 mL	100 x 200	38	12	3891-11	422.96
Flask, only, 1000 mL	128 x 240	38	6	3891-14	301.03
Flask, only, 2000 mL	158 x 300	38	3	3891-20	226.47
Flask, only, 2000 mL	184 x 327	38	3	3891-25	351.05
Flask, only, 3000 mL	205 x 370	38	3	3891-29	463.78

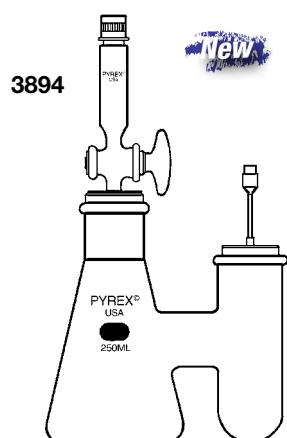


3893 FLASK *Shaker, with Four Bottom Baffles, without Closures* ♦

With four bottom baffles. Long-style 38 mm neck. Used for converting homogenous tissue samples into cell suspensions by digestion of connective tissues. With constricted neck to reduce spillage and foaming.

	Approx. O.D. x Height, mm	Case Quantity	Order Code	Case
Flask, only, 250 mL	81 x 160	12	3893-07	296.27
Flask, only, 500 mL	100 x 200	12	3893-12	325.56
Flask, only, 1000 mL	128 x 240	6	3893-16	240.83



**3894 FLASK** *Biometer, with Stopcock* ★

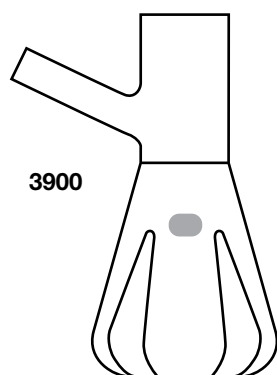
Use to measure production of carbon dioxide produced by microorganisms grown on a variety of culture media over long periods of time. Minimizes the need for commonly used gas trains. Also useful in Bioremediation studies. Supplied complete with #6 rubber stopper in the flask neck, #7 rubber stopper in the side tube, and 16-gauge needle. Delivery funnel has a 15-415 PTFE-lined screw cap and 12/30 stopcock plug with 2mm bore.

	Approx. Overall x Height, mm	Case Quantity	Order Code	Each
Flask, only, 250 mL	140	1	3894-15	75.18
Delivery funnel with stopcock and cap	144	1	3894-20	72.05
Flask, only, 1000 mL	—	1	3894-25	16.96
Complete, 250 mL	—	1	3894-40	129.53
Replacement cap, phenolic, with PTFE liner	—	288	4240-11	248.89

**3897 FLASK** *Trypsinizing, with Beaded Neck, Baffled* ♦

Used for converting homogenous tissue samples into cell suspensions by digestion of connective tissues. Heavy beaded neck accepts cotton plugs. Four extra-deep baffles enhance vigorous agitation.

	Approx. O.D. x Height, mm	Case Quantity	Order Code	Case
Flask, only, 35 mL	50 x 100	3	3897-04	82.60
Flask, only, 75 mL	70 x 115	3	3897-08	98.82
Flask, only, 150 mL	85 x 130	3	3897-12	103.73
Flask, only, 300 mL	100 x 175	3	3897-14	123.23
Flask, only, 700 mL	130 x 215	2	3897-19	117.44
Flask, only, 1500 mL	160 x 285	2	3897-21	184.43
Flask, only, 3000 mL	205 x 350	2	3897-25	439.36

**3900 FLASK** *Trypsinizing, with Sidearm, Long Neck, Baffled* ★**Corning 4462**

Used for converting homogenous tissue samples into cell suspensions by digestion of connective tissues. Designed with well below the sidearm to prevent unseparated tissues from being poured out of the flask. Four extra-long, extra-deep baffles promote vigorous agitation. Sidearm is 16mm O.D. Long-style neck on flask and sidearm accommodates plastic closures. Closures sold separately.

Corning Code		Approx. O.D. x Height, mm	Height of Baffles, mm	Center Neck O.D., mm	Case Qty.	Order Code	Each
4462-50	Flask, only, 35 mL	51 x 105	30	18	3	3900-07	562.16
4462-125	Flask, only, 75 mL	67 x 135	50	25	3	3900-11	663.37
4462-250	Flask, only, 150 mL	82 x 155	70	38	3	3900-15	762.88
4462-500	Flask, only, 300 mL	101 x 200	95	38	3	3900-19	907.85
4462-1L	Flask, only, 700 mL	129 x 255	105	38	2	3900-22	862.50
4462-2L	Flask, only, 1500 mL	160 x 290	125	38	2	3900-26	975.27

3902 FLASK *Trypsinizing, with Sidearm, Screw Caps, Baffled* ♦

Used for converting homogenous tissue samples into cell suspensions by digestion of connective tissues. Phenolic screw cap with rubber liner on neck and sidearm. Designed with well below the sidearm to prevent unseparated tissues from being poured out of the flask. Three extra-long, extra-deep baffles promote vigorous agitation.

Capacity, mL	Approx. O.D. x Height, mm	Height of Baffles, mm	Center Neck G.P.I.	Sidearm G.P.I.	Case Quantity	Order Code	Case
75	70 x 135	50	38-430	20-415	3	3902-32	219.67
150	85 x 160	70	38-430	20-415	3	3902-34	227.83
300	100 x 200	95	38-430	20-415	3	3902-36	231.87



3906 FLASK *Media Storage and Dispensing, Bottom Hose* ♦

Used for sterile dispensing; use with an aseptic filling bell. Bottom 1/2-inch hose connection assures aseptic drainage. With beaded rim.

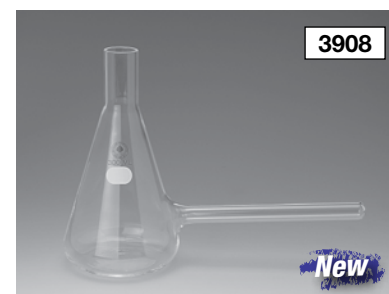
Capacity, mL	Stopper Size	Approx. O.D. x Height, mm	Case Quantity	Order Code	Case
250	#6	80 x 130	6	3906-03	235.95
500	#6	101 x 183	6	3906-05	216.86
1000	#9	128 x 225	6	3906-07	369.01
2000	#9	158 x 290	3	3906-09	257.74
4000	#10	205 x 355	3	3906-11	488.19
6000	#11	235 x 395	2	3906-13	400.03



3908 FLASK *Nephelo Culture, without Closures* ♦

Long-style neck accommodates a 25 mm Stainless Steel or plastic closure. Ideal for growing, and mixing of aerobic and anaerobic cultures. Side arm fits standard spectrophotometers.

Capacity, mL	Sidearm Size, mm	Order Code	Case/4
125	14 x 130	3908-20	115.28
300	14 x 130	3908-24	120.67



3910 FLASK *Nephelo Culture, with Screw Cap* ♦

Threaded neck with cleanout port and angled sidearm. Ideal for growing and mixing of aerobic and anaerobic cultures. Supplied with GPI #38-430 and GPI #18-415 nontoxic, rubber-lined phenolic screw caps.

Capacity, mL	Sidearm Size, mm	Order Code	Case/4	Capacity, mL	Sidearm Size, mm	Order Code	Case/4
300	12 x 130	3910-03	260.34	300	19 x 130	3910-31	246.79
500	12 x 130	3910-05	253.59	500	19 x 130	3910-33	253.59
1000	12 x 130	3910-07	252.19	1000	19 x 130	3910-35	248.15
300	14 x 130	3910-22	244.11				
500	14 x 130	3910-24	242.71				
1000	14 x 130	3910-26	257.66				



**3912 FLASK** *Nephelo Culture, Triple Baffled, without Closures* ♦

Long-style neck accommodates a 25 mm Stainless Steel or plastic closure. Ideal for growing, storing and mixing of aerobic and anaerobic cultures. Has standard cuvette size side arm.

Capacity, mL	Sidearm Size, mm	Order Code	Case/4
300	12 x 130	3912-03	143.75
300	14 x 130	3912-05	145.07
300	19 x 130	3912-07	162.70

**3914 FLASK** *Nephelo Culture, Triple Baffled, with Screw Cap* ♦

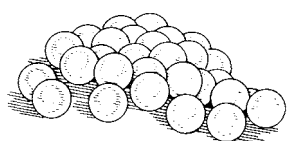
hreaded neck with cleanout port and depressed sidearm. Ideal for growing, storing and mixing of aerobic and anaerobic cultures. Supplied with GPI #38-415 and GPI #18-415 nontoxic, rubber-lined phenolic screw caps.

Capacity, mL	Sidearm Size, mm	Order Code	Case/4
300	14 x 130	3914-07	260.34
500	14 x 130	3914-11	292.89
300	19 x 130	3914-19	265.82
500	19 x 130	3914-24	303.77

New**3918 CLOSURES** *Stainless Steel* ♦

Closures for use with long-style necks on culture flasks. Autoclaveable.

For Neck Size, mm	Case. Quantity	<i>With Finger Indents</i>		<i>Without Finger Indents</i>	
		Order Code	Case	Order Code	Case
13	144	3918-50	282.37	3918-56	232.72
16	144	3918-51	320.00	3918-57	270.22
18	144	3918-52	339.00	3918-58	286.67
20	144	3918-53	352.00	3918-59	313.74
25	72	3918-54	232.61	3918-61	184.64

**8035****8035 BEADS** *Solid Borosilicate Glass* ♦

PYREX® brand solid glass beads. Useful as packing for distillation columns, mixing beads and boiling stones. Packaged in 0.45 kg. (1 lb.) boxes, with a packing volume of approximately 360 cm³.

Approx. Diameter, mm	Avg. Count Per Pound	Case Qty.	Order Code	Per Case
3 ± 3/4	13,600	4	8035-03	975.60
4 ± 3/4	5,700	4	8035-05	825.40
5 ± 3/4	3,000	4	8035-07	638.20
6 ± 3/4	1,700	4	8035-09	688.00

13846 ROTATOR ★

Variable speed rotator driven by a continuous-duty motor that can withstand a demanding schedule and long hours of operation. Uses include embedding electron microscopy, tissue-culture specimens, blood cell suspensions, washing of precipitates, disintegrating tablets, extracting, dissolving slow-reacting samples, homogenizing blood solids with plasma, and rotating closed containers for dialysis bags, to mention a few. A unique clamping device utilizes leverage to assure selected motor position and permits positioning of the motor at any point within a 110° arc. Containers remain visible during rotation. Sturdy, stable, well balanced, compact base handles substantial loads. Cord-attached speed control module allows convenient placement to avoid danger when starting or stopping rotation. **Supplied complete with the friction-drive test tube head.** Size: 10-1/8 W x 10-11/16 D x 9-13/16 H (inches). Rating: 1.5A, 50/60 Hz. On/Off switch separate from speed control, fuse protected, 6', 3-wire cord. Load weight capacity: 5 lbs. Finish: foxtip gray and charcoal.

Description	Input Voltage	RPM	Product Weight, lbs.	Order Code	Each
Motor Drive and Base	120V	2- 83	17.0	13846-12	827.00
Motor Drive and Base	240V	2- 83	17.0	13846-33	850.00
Motor Drive and Base	120V	.17-8.3	17.0	13846-16	913.00
Motor Drive and Base	240V	.17-8.3	17.0	13846-35	936.00
Riser for Rotator*			4.5	13846-40	224.00

Replacement Heads:

Friction Drive Test Tube Head¹

Aluminum disc with spring clips to hold test tubes; clips are adjustable. Size: 14 inches (36 cm). Supplied with 31 spring clips to accommodate 10mm-18 mm diameter tubes and 16 clips to accommodate 20mm-30mm diameter tubes.

Tissue Culture Tube Head

Designed to hold 108 mini tissue culture tubes, each up to 16 mm diameter. Size: 13 W x 14 D x 13 H Inches (33 x 35.6 x 33 cm). Consists of a drum, 12-inch (30.5 cm) in diameter with 108 openings.

Twin Disc Test Tube Head

Designed to hold a combination of test tubes, bottles syringes, etc. Tubes are easily removed by deflecting leaf spring between disks. Accepts 22 pieces of glassware each up to 25 mm in diameter or 44 pieces up to 16 mm.

*Optional Riser lifts unit so larger glassware will clear bench.

¹Supplied with Motor Drive and Base

13846-12



13846-57



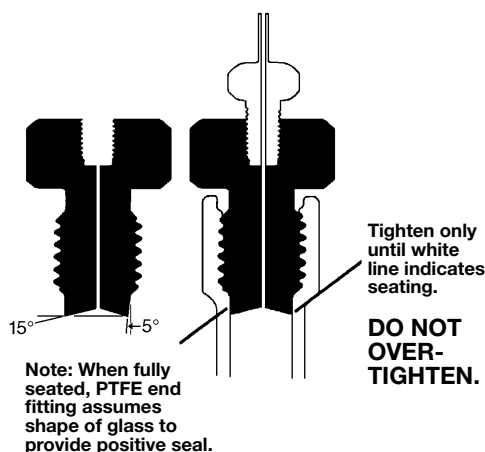
13846-59



ACE offers a complete line of liquid chromatography columns, fittings and related components featuring Ace-Threds: the easy-to-assemble, internally threaded glass that uses Nylon® or PTFE fittings.

- Michel-Miller High Performance Low Pressure System operates up to 300 psi without O-Rings.
- Adjusta-Chrom®, a recycling column, uses Ace-Threds for easy adjustment of bed volumes.
- Ion-Exchange Columns for precious metals recovery.
- System II is supplied with Ace-Threds and uses O-Rings to make a leak-tight seal.
- General columns, plain or with joints, with or without stopcocks, are also offered.

Three Different Leak-tight Seals



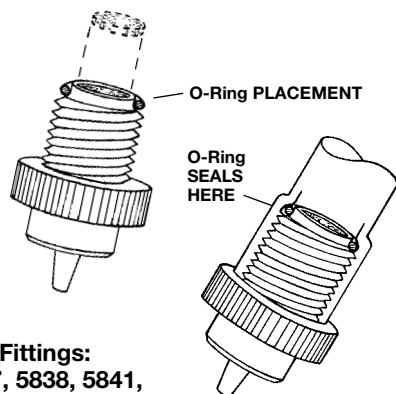
Michel-Miller Style (No O-Rings)

**PTFE fitting that seals
without O-Rings.**

See Fittings:
5801, 5802, 5803, 5805, 5807

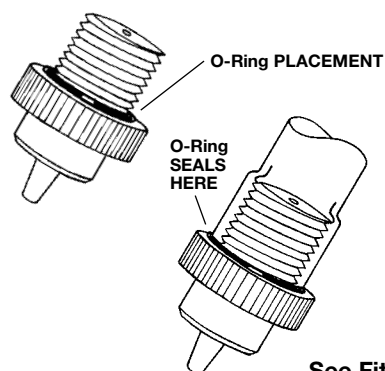
Ace-Thred Style (O-Ring Seals – at Front or Back)

FRONT SEAL



See Fittings:
5837, 5838, 5841,
5843, 5844, 5846

BACK SEAL



See Fittings:
5840, 5842, 5845

Accessories for Packed Columns and Solvent Delivery Systems

5539 SOLVENT RESERVOIR *Glass, GL-45 Thread with Netting* ★

Borosilicate glass bottle, GL-45 thread at top, with solid cap. Supplied complete with cap and protective netting.

Capacity, mL	Maximum Pressure (psi)	Order Code	Complete
250	21.7	5539-216	35.38
500	21.7	5539-219	37.66
1000	21.7	5539-224	38.81



5539-211

8648 SOLVENT RESERVOIR *Glass, #25 Ace-Thred, w/o Netting*

Borosilicate glass bottle, only, with internal #25 Ace-Thred at top. Use 5810-25 or 5810-35 with 7506-10 Bushing to make tubing connections to bottle. Order netting for these bottles separately.

Capacity, mL	Maximum Pressure (psi)	Order Code	Bottle only Each
300	60	8648-140	★ 155.17
950	60	8648-155	★ 246.15
1850	60	8648-157	★ 386.48



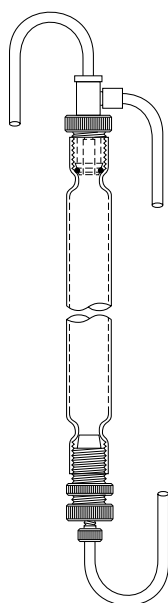
8648

<i>Netting, only</i>			<i>Accessories</i>		
For Bottle	Order Code	Each		Order Code	Each
8648-140	11850-18	★ 6.51	Adapter, one Hole	5810-25	★ 55.31
8648-155	11850-21	★ 7.02	Adapter, two Hole	5810-35	★ 56.91
			Bushing, #25	7506-10	♠ 17.29

11850 PROTECTIVE NETTING ★

Protective pre-cut netting (only) for 5539 and 8648 reservoir bottles

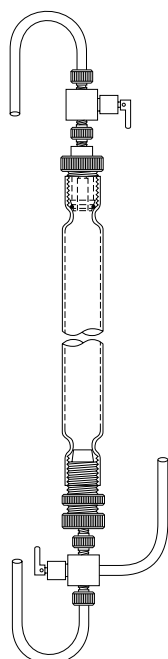
Capacity, mL	Color	Order Code	Each
300	Yellow	11850-18	6.51
1000	Red	11850-21	7.02
2000	Green	11850-27	8.00

**5796-60**

5796 INJECTION RESERVOIR COLUMN

Complete column includes column with #11 threads, two #11 to 1/4-inch-28 UNF End Adapters (one Easy Adapt with syringe and tubing connection) and 1/16-inch x one-foot tubing with connectors.

Capacity, mL	Column Size	Maximum Pressure	Order Code	Column only ♣	Order Code	Column Complete ★
32	2.2cm x 13cm	200	5796-34	58.38	5796-60	Priced
75	2.5cm x 16cm	200	5796-38	68.89	5796-74	Upon
148	4.0cm x 17cm	150	5796-44	76.70	5796-80	Request

**5796-68**

5796 INJECTION RESERVOIR COLUMN FOR SOLIDS

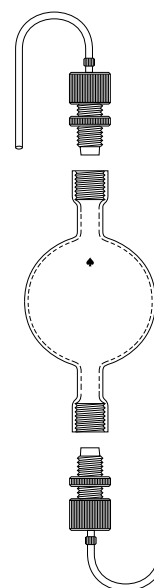
Complete column includes column with #11 or #25 top thread and #11 bottom thread, one Easy Adapt to 1/4-inch-28, one End Fitting #11 to 1/4-inch-28 UNF with 10-20 micron disc, two valves (three-way and four-way) and 1/16-inch x one-foot tubing with connectors.

Cap., mL	Column Size	Maximum Pressure	Thread Size	Order Code	Column only ♣	Order Code	Column Complete ★
32	2.2cm x 13.0cm	200	#11-#11	5796-34	58.38	5796-68	Priced
75	2.5cm x 16.5cm	200	#25-#11	5796-50	70.85	5796-77	Upon
148	4.4cm x 16.5cm	150	#25-#11	5796-52	78.98	5796-84	Request

5824 INJECTION RESERVOIR BULB

Complete column includes two #11 to 1/4-inch-28 UNF End Adapters and 1/16-inch x 1 foot tubing with connectors.

Capacity, mL	Maximum Pressure	Order Code	Bulb only	Order Code	Complete ★
250	50	5824-05	♠ 56.98	5824-45	Priced Upon Request



5824

5932 SYRINGE *Luer Lock, Gas Tight* ★

For sample introduction in 5790 Solvent Delivery Systems. PTFE coated plunger with luer lock.

Capacity, mL	Order Code	Each
5	5932-08	51.90

See Needles on page 139 of this catalog.



5932

5796 DIRECT INJECTION RESERVOIR COLUMN

Direct injection on column of liquid/solid. Consists of column with #11 Ace-Threds, #11 Easy Adapt with Bushing, #11 End Fitting with 10-20 micron frit, 1/4-inch-28 UNF male Union and Compression Tool.

Capacity, mL	Column Size	Maximum Pressure	Order Code	Column only ♠	Order Code	Column Complete ★
2	1.1cm x 1.5cm	200	5826-09	33.00	5796-55	Priced Upon Request
5	1.1cm x 5cm	200	5826-11	33.38	5796-57	Priced Upon Request



5796-55



5796-57

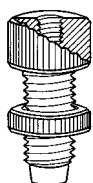


5796-76

5796 DIRECT INJECTION RESERVOIR COLUMN ★

Direct injection on column of liquid/solid. Consists of column with #25 to #11 Ace-Threads, #25 Easy Adapt with Bushing, #11 End Fitting with 10-20 micron frit, 1/4-inch-28 male Union and Compression Tool.

Capacity, mL	Column Size	Maximum Pressure	Order Code	Column Complete
26	2.5cm x 7cm	200	5796-76	Priced Upon Request

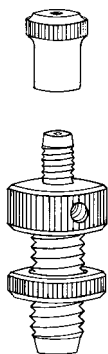


5801

5801 ADAPTER *End Fitting, 1/4-inch-28 to Ace-Thred, Michel-Miller ♠*

Precision-made replacement PTFE End Fitting for use at either end of the 5792 Michel-Miller columns. Designed to make a leak-tight seal without the use of O-Rings. Simply tighten until white ring appears indicating a seal has been made, then secure locknut; no need to over tighten. Male thread is size designation and matches thread size of column. Female thread at top is 1/4-inch-28 UNF with Helicoil to accept flanged end tubing fittings listed under 12689. Bore is 1.5mm (.060-inches). Can be used with 5795 Columns shown on page 87 and 5820 Columns on page 94. Codes -46, -47 and -48 normally use paper filter discs, 5814, to retain packing material; codes -53, -55 and -57 are supplied with replaceable Por. D (10-20 micron) glass filter discs in end. **For replacement glass discs: code -53, order 5848-05; code -55, order 5848-13; code -57, order 5848-42.**

For Thread Size, mm	Without Disc		With Disc	
	Order Code	Each	Order Code	Each
7	5801-46	44.21	5801-53	71.52
11	5801-47	45.95	5801-55	102.66
15	5801-48	51.34	5801-57	80.28



5807

5807 ADAPTER *Injection Port, Michel-Miller ♠*

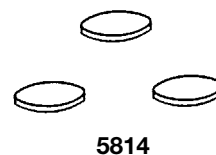
A simple, all-PTFE septum injector that allows for the most efficient use of 5795 Michel-Miller Non-packed Columns. Also for use at either end of the 5795 Michel-Miller Packed Columns listed on pages 87 and 88. Allows direct on-column injection to the center of the filter disc at top of column without stopping the solvent flow. Designed to make a leak-tight seal without the use of O-Rings. Simply tighten until white ring appears indicating a seal has been made, then secure locknut; no need to over tighten. Top thread is 5/16-inch-24 UNF for use with injection port cap that holds the 12898 septum. Male thread is size designation and matches thread size of columns. Side female thread at top is 1/4-inch-28 UNF with Helicoil to accept only flanged end tubing fittings listed under 12689, below. Bore is 1.5mm (.060-inches). Can be used with 5795 Columns shown on page 87 and 5820 Columns on page 94.

For Thread Size, mm	Order Code	Complete
7	5807-48	69.89
11	5807-49	70.54

5814 FILTER DISCS ★

For use with 5801 End Fittings to retain packing material. Fabricated from a specially pure, very uniform, highly absorbent paper.

For Thread Size, mm	Disc Dia. mm	Package Qty.	Order Code	Per Pkg.
7	7.5	12	5814-206	2.69
11	10.5	12	5814-211	4.17
15	14.6	12	5814-215	7.28

**5826 ADAPTER** *Column, Small Sample Injection* ♠

Miniature column, with #7-#7 or #11-#11 Ace-Threds.

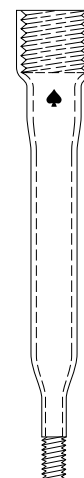
Size	Approx. Cap., mL	Order Code	Each
#7-#7	0.9	5826-07	32.88
#11-#11	2.0	5826-09	33.00
#11-#11	5.0	5826-11	33.38

**5826 ADAPTER** *Column, Small Sample Injection* ★

Sample injection glass column with #11 Ace-Thred at one end and 1/4-inch-28 UNF *male* thread at the other end.

To avoid breakage, ACE does not recommend threading 1/4-inch-28 end directly into end fitting on column but rather making a connection using 12764-34 and 12780-04.

Size	Approx. Cap., mL	Order Code	Each
#11 – 1/4-inch-28 UNF	6	5826-60	67.63



The Michel-Miller Chromatography System has been designed for high performance, low pressure liquid chromatography (HPLPC) in analytical or preparative applications.

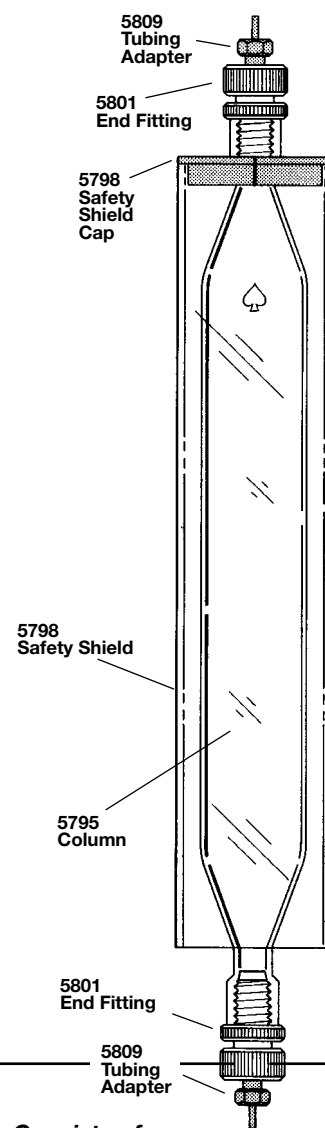
This system provides the chromatographer with a complete concept of high performance liquid chromatography for use at low (0-100 psi) and moderate (100-300 psi) pressures.

With a sound packing procedure and proper selection of packing material, the user can expect separations equal or superior to the most sophisticated systems available, including pre-packed columns, at a fraction of the cost.

Better columns because:

- Simple to assemble
- Constructed of borosilicate glass and PTFE — no O-Rings
- Safe operation to 300 psi, with safety shield
- Usable with various packing materials
- Chemically inert
- Zero dead volume
- Analytical or Preparative
- Leak free

*Designed and tested by Karl H. Michel and Robert F. Miller at The Lilly Research Laboratories, Indianapolis, IN (US Patent #4,131,547).

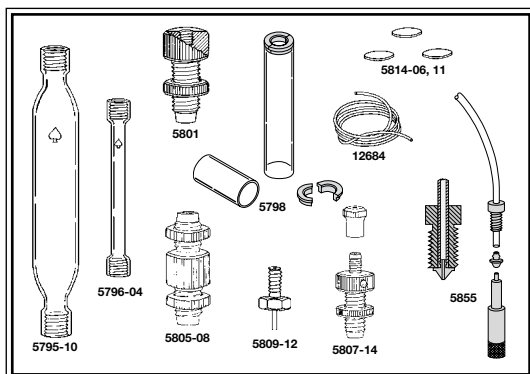


Michel-Miller Starter Kits (Non-Packed Columns)

Analytical — Consists of:

One each 5795-04, 5795-10, 5805-08, 5807-14, 5814-06, 5814-11, 5855-10, 5855-73, 5855-80, 12684-19, 12684-28; Two each 5798-30, 5798-31, 5801-07, 5801-14, and 5809-12.

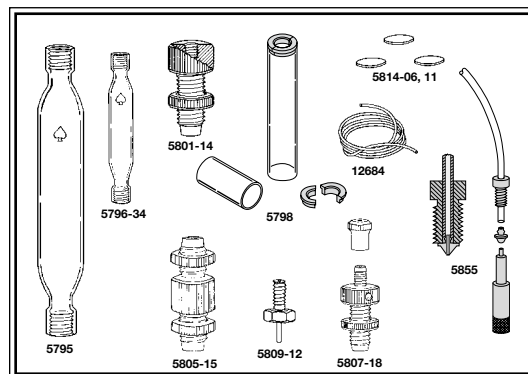
Order Code	Per Kit ♦
5795-202	725.06



Preparative — Consists of:

One each 5795-10, 5795-16, 5795-24, 5796-34, 5814-11, 5855-10, 5855-73, 5855-80, 12684-19, 12684-28; Two each 5798-34, 5798-35, 5805-15, 5807-18; Four each 5801-14 and 5809-12.

Order Code	Per Kit ♦
5795-208	1,174.26



Note: Starter Kits include only the basic items for operation.
Such items as a pressure gauge, pump, valves, etc, are not included.

Epoxy-coated Chromatographic columns increase safety and durability

- Chemically resistant to dilute acids, most salts and solvents
- Maximum temperature limit 235°C
- Note maximum pressure ratings

Need a different size column?
We'll make it for you.
Visit www.aceglass.com
for more information.

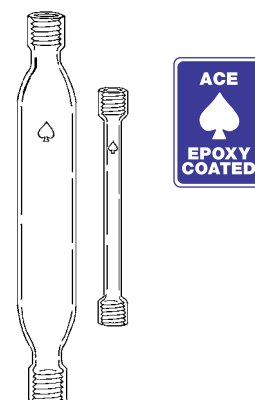
Easy assembly
with
Ace-Threds

5795 CHROMATOGRAPHY COLUMN

Michel-Miller (Non-packed), Epoxy Coated ♦

Designed for high performance, low pressure liquid chromatography (HPLPLC) and **epoxy coated externally for added protection against scratching**. Column end geometry allows the sample to be introduced at the inlet as a narrow band and at the outlet will not increase band width nor distort peak shape. The conical design of the three larger columns reduces flow path length differences. This shape avoids dead volume that can form with square end fittings. For use with 5801, 5802, 5803, 5805, and 5807 PTFE Fittings, without O-Rings, pages 86 and 87. The 8mm I.D. column has #7 Ace-Thred at both ends; the three larger columns have #11 Ace-Threds. **These columns are intended for operation at elevated pressures and should always be used with 5798 Plastic Safety Shields**. Use filter paper disc, 5814, to retain packing. I.D. of column is measured at largest diameter; effective length is distance between threads.

Column I.D. mm	Effective Length, mm	Ace-Thred Size	MAX. PSI	Order Code	Each
8	250	7	300	5795-04	33.89
21	300	11	300	5795-10	61.82
40	350	11	250	5795-16	95.81
51	450	11	200	5795-24	114.88



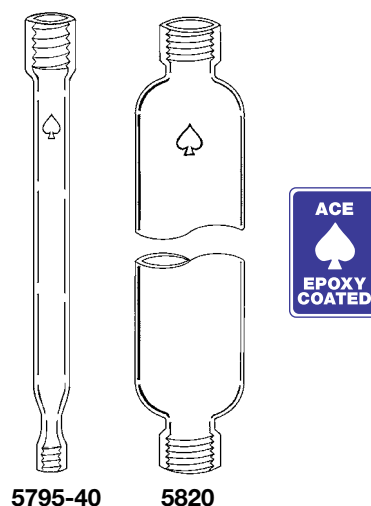
5795-04

5795/5820 CHROMATOGRAPHIC COLUMN

Michel-Miller (Non-packed), Epoxy Coated ♦

Larger size columns designed for high performance, low pressure liquid chromatography (HPLPLC) when used with 5801 and 5805 PTFE Fittings, without O-Rings. **These columns are epoxy coated externally for added protection against scratching**. 5795 columns have conical design at outlet end only so as not to increase band width nor distort peak shape. Also included in this listing are 5820 columns with straight thru ends for use as packing column or as operating column. Note thread size when ordering so proper size fitting can be ordered. **These columns are intended for operation at elevated pressures, and they should always be used with 5798 Plastic Safety Shields**. End fittings for #11, #15, #25 threads are listed on page 88; end fittings for #50 threads are listed on page 105.

Column I.D. mm	Effective Length, mm	Ace-Thred Size	MAX PSI	Order Code	Each
11	300	11-11	300	5820-06	33.47
15	300	15-15	300	5820-18	36.07
15	450	15-15	200	5820-22	38.80
25	450	25-25	200	5820-36	48.91
25	600	25-25	200	5820-39	50.17
25	450	25-11	200	5795-40	69.72
25	600	25-11	200	5795-48	78.15
50	600	50-50	200	5820-57	107.31
50	600	50-11	200	5795-54	129.73



5795-40

5820

CAUTION

For Chromatography Use Only

Not intended for use with 40 micron or smaller packing which will cause operating pressures to exceed safe limits of glass.

ALWAYS USE A SAFETY SHIELD



5796

**5796 CHROMATOGRAPHIC PRE-COLUMN***Michel-Miller (Non-packed), Epoxy Coated ♠*

For use with 5795 Michel-Miller Columns as a pre-column to enable the chromatographer to add prepurified sample mixtures to main column. This technique allows silica gel or alumina packed main columns to be reused several times. Suitable also for use in final stages of slurry packing. **Pre-column is epoxy coated for added protection against scratching** and stacks on top of the main column using 5805 Coupling.

Effective length of column is 130mm, I.D. 22mm. Threads are #11 Ace-Thred.

Order Code	Each
5796-34	58.38

Cap Code	For Ace-Thred Size	Cap Code	For Ace-Thred Size
-127	7	-137	11
-127	11	-138	25
-133	11	-144	50
-134	15	-146	11
		-180	11

5798 SAFETY SHIELD *Plastic, Michel-Miller ♠*

Acrylic safety shield and polyethylene cap for use with Michel-Miller Columns to insure safe operation at pressures to 300 psi. Top thread of column is hung in polyethylene cap; cap is then held by the plastic shield. Clamp the shield, not the column. Size A for 5795 codes -03, -04, -10 and 5796-34; size AA for 5792-05, -35; size AAA for 5792-07, -69, 5795-10; sizes B, BB for 5792 codes -09, -11, -67, 5795 codes -10, -16, -24 and 5820-04; size BBB for 5792-08; sizes E, EE for 5820-16, -20; sizes F, FF for 5795-40, -48 and 5820-34, -37; size G for 5795-54 and 5820-55; size H for 5792-85; size I for 5792-89. Wall thickness of shield is 3mm.



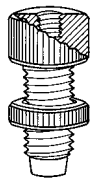
5798

Size	I.D. mm	Length cm	Order Code	Cap only	Order Code	Shield only	Order Code	Complete
AA	32	13	5798-127	17.36	5798-26	12.55	5798-230	29.91
A	32	25	5798-127	17.36	5798-31	12.90	5798-232	30.26
AAA	32	30	5798-127	17.36	5798-40	13.15	5798-234	30.51
BBB	57	17	5798-133	19.93	5798-33	16.46	5798-235	36.39
B	57	33.5	5798-133	19.93	5798-35	16.81	5798-236	36.74
BB	70	45	5798-137	24.47	5798-53	48.42	5798-240	72.89
E	57	33.5	5798-134	19.93	5798-35	16.81	5798-249	36.74
EE	57	45	5798-134	19.93	5798-50	21.07	5798-252	41.00
F	57	45	5798-138	19.93	5798-50	21.07	5798-256	41.00
FF	57	60	5798-138	19.93	5798-55	26.39	5798-258	46.32
G	76	60	5798-144	29.44	5798-62	53.53	5798-264	82.97
H	76	60	5798-146	29.44	5798-62	53.53	5798-266	82.97
I	95	75	5798-180	60.83	5798-72	104.95	5798-272	165.78

Important: The 5798 Shields are made of plastic and are NOT resistant to most solvents.

5801 ADAPTER *End Fitting, 1/4-inch-28 UNF to Ace-Thred, Michel-Miller ♠*

Precision made PTFE End Fitting for use at either end of the 5795 Michel-Miller, or 5820 Columns. Designed to make a leak-tight seal without the use of O-Rings. Simply tighten until white ring appears indicating a seal has been made, then secure locknut; no need to over-tighten. #7 and #11 normally use paper filter disc, 5814-06 or 5814-11 respectively, to retain packing material. Larger fittings use PTFE screens; see 5814, codes -13 or -16. Female thread at top is 1/4-inch-28 to accept standard miniature plumbing systems. Bore is 1.5mm (.060 inches). Male thread is size designation and matches thread size of columns. Use 5838-54 and 7855-829 for #50 size End Fitting.



5801

For Thread Size, mm	Order Code	Each	For Thread Size, mm	Order Code	Each
7	5801-07	42.83	15	5801-18	53.41
11	5801-14	43.49	25	5801-22	64.11

5802 ADAPTER *End Fitting, NPT to Ace-Thred, Michel-Miller* ♠

PTFE adapter, precision made, for use when making NPT thread connectors to Ace-Threds. One end designed to make leak-tight seal with Ace-Thred without use of O-Rings, other end accepts NPT male thread. Use 5844-78 or -85 and 7855-829 for #50 size.

***Note: 12770 nipple or 12770 tube fitting connector is necessary to make these connections.**

N.P.T Thread Size (Inches)	Order Code	#7 Thread	Order Code	#11 Thread	Order Code	#15 Thread	Order Code	#25 Thread
1/16	5802-04	41.75	5802-12	46.95	—	—	—	—
1/8	5802-08	41.75	5802-14	45.04	5802-17	55.48	—	—
1/4	—	—	5802-15	45.04	5802-19	53.23	5802-37	63.99
3/8	—	—	—	—	5802-27	55.48	5802-40	63.39

**5802**

Note: Valve Adapters, #5839, for use with 5802, can be found on page 104.

5803 STOPPER *Michel-Miller* ♠

Precision made PTFE stoppers for use at either end of the 5795 Michel-Miller, 5820 Columns or all 7644 Ace-Threds when a leak-tight seal without the use of O-Rings is desired. Use 5846-52 and 7855-829 for #50 size.

For Thread Size, mm	Order Code	Each	For Thread Size, mm	Order Code	Each
7	5803-05	42.10	15	5803-11	47.50
11	5803-08	44.26	25	5803-25	62.17

**5803****5805 COUPLING** *Michel-Miller* ♠

Precision made PTFE coupling with 316 stainless steel liner for connecting Michel-Miller, or 5820 Columns when packing. Designed to make a leak-tight seal without the use of O-Rings. Simply tighten until white ring appears indicating a seal has been made, secure locknut; no need to tighten further. Male thread is size designation and matches thread size of columns.

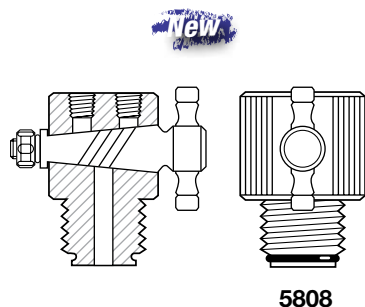
For Thread Size, mm	Order Code	Each	For Thread Size, mm	Order Code	Each
7-7	5805-03	54.83	15-15	5805-20	63.29
7-11	5805-08	55.85	25-25	5805-28	115.27
11-11	5805-15	57.88	50-50	5805-32	270.65

**5805****5807 ADAPTER** *Injection Port, Michel-Miller* ♠

A simple, all PTFE, septum injector port that allows for the most efficient use of the 5796 Michel-Miller Columns. Allows direct on-column injection to the center of the filter disc at top of column without stopping the solvent flow. Top thread is 5/16-inch-24 UNF for use with injection port cap that holds the 12898 septum. Side female thread is 1/4-inch-28 UNF to accommodate the 5809, 5854, 5855 and 12724 tubing connectors or other miniature plumbing systems. Bottom male thread is size designation and refers to thread on 5795 columns. Complete item supplied with one PTFE coated silicone rubber septum. For paper filter discs, see 5814. For extra septa, see 12898. Not suitable for larger columns; we recommend a loop and valve system. Call or email for details.

Ace-Thred Size	Order Code	Complete
7	5807-14	68.68
11	5807-18	69.32

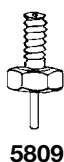
**5807**



5808 ADAPTER *PTFE, Purge, with Shutoff* ♦

PTFE adapter for use with 8648 Pressure Vessels to allow purging of air-sensitive contents. Male Ace-Thred at bottom, two 1/4-inch-28 UNF or two 1/8-inch NPT female taps at top with directional knob shutoff for both. Turn shutoff to open one side to evacuate, turn 180° to close vacuum side and purge contents of flask. Turn shutoff 90° to close both openings.

Ace-Thred	Tap Size	Order Code	Each
15	1/4-inch-28 UNF	5808-05	94.51
15	1/8-inch NPT	5808-09	94.51
25	1/4-inch-28 UNF	5808-16	144.08
25	1/8-inch NPT	5808-18	144.08
36	1/4-inch-28 UNF	5808-24	273.17
36	1/8-inch NPT	5808-27	273.17



5809 ADAPTER *Tubing* ♦

Stainless steel tubing adapter for use with 5801 End Fitting Adapters to connect tubing to the 5795 Michel-Miller Columns. Thread is 1/4-inch-28 UNF. Extension opposite thread is 1.5mm O.D. (.060 inches).

Order Code	Each
5809-12	36.20

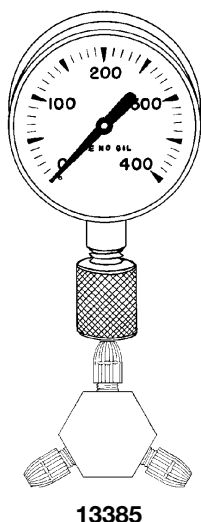


5813 FILTER COLUMN *Michel-Miller* ♦

For use with Michel-Miller Liquid Chromatography System as filter to assure only clean solvent enters column. Threads are #7 Ace-Thred for use with 5801-07 End Fitting. Usually positioned, in line, between pump and column using 1/4-inch-28 UNF tubing connectors such as 5854, 5855 or 12724. Glass only is supplied. Fittings must be ordered separately. Filter material, such as glass wool, not supplied.

Column I.D., mm	Approx. Effective Length, mm	Order Code	Each
8	85	5813-23	32.69
8	150	5813-26	32.69
15	150	5813-32	32.69

**Recommended
for use with
MICHEL-MILLER
Columns**



13385 GAUGE *Pressure* ★

0-400 psi pressure gauge for monitoring pressure in laboratories; especially suited for use with the Michel-Miller HPLPLC System or other LP chromatography systems. Available with brass or 316 SS internals. Gauge measures 2-1/2 inches with 1/4-inch NPT bottom. Supplied complete with a Nylon adapter that has 1/4-inch-28 UNF male thread and 12720 Three-Way Tubing Connector for direct in-line connection.

	Order Code	Brass Internals	Order Code	316 SS Internals
Gauge, only	13385-12	51.12	13385-14	234.27
Adapter, Nylon	13385-20	26.03	13385-20	26.03
Tubing Connector	12720-25	58.55	12720-25	58.55
Complete	13385-35	135.70	13385-38	318.85

13265 PUMP *Liquid Chromatography*

Improved solvent delivery pump exceptionally well suited for preparative chromatographic columns and new high performance columns. The directly coupled valveless piston design and synchronous motor drive provide exceptional stroke-rate accuracy, quiet performance and long motor life. The operating rate is independent of pumping load variations or fluctuations in line voltage and can be stalled indefinitely without damage. Features of this pump are low dead volume, bottoming piston action for increased bubble control and higher flow rates, built-in flow control knob, multi-position tilt stand, and optional dial flow indicator. Full flow range of 0–1380mL/hr at pressures to 100 psig. Fluids contact only virgin PTFE and hard ceramic (alumina). **Note: Ceramic liner NOT suitable for use with “dry” fluids like HEXANE. Order pump with carbon liner for this type application. See below.**

Instant reverse feature without having to change tube connections allows easy and direct column back-flush. Precise flow rate setting readout is attained by use of the optional Dial Indicator with direct reading count hands. Responds to slightest turn of the pump adjustment knob. One revolution of primary pointer equals 10% of maximum flow (each increment on dial represents 1/1000 of maximum flow rate). Secondary dial indicates each 10%.

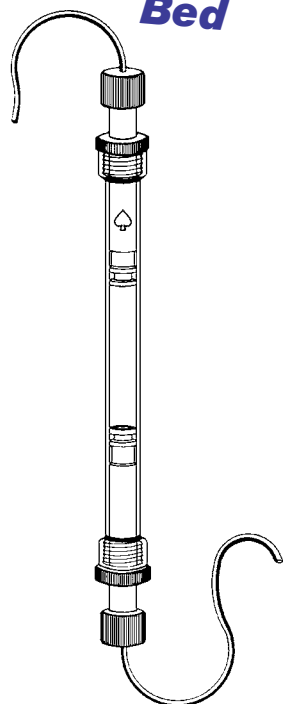
Also available for this pump, but NOT supplied with complete item, is a Micrometer Flow Adjustment Kit, Cat. No. 13625-40. This kit allows precise stroke adjustment of 1 part in 1000 (.1%) and maximum repeatability of flow settings.

The smooth sinusoidal output (72 pulses per minute) is easily damped in critical applications by use of an air column though, in most cases, sufficient damping occurs in the tubing and column. Pump head inlet and outlet have 1/4-inch NPT female threads. To facilitate direct connection of 1/4-inch-28 UNF low “dead volume” fittings, Cat. Nos. 5854 or 5855, use Low Flow Fitting Kit, Cat. No. 13265-45, supplied with pump. Totally enclosed ball bearing motor operates on 110v, 50/60 cycles and is supplied with 1.8 meter three-wire power cord with molded plug. Measures: 26.7cm x 12.1cm x 13.7cm wide (10-1/2 x 4-3/4 x 5-3/8 inches wide). Shipping weight: 4.1 Kg (9 lbs). Complete item consists of Pump, with Low Flow Fitting Kit and Dial Flow Indicator.

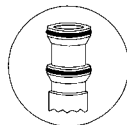
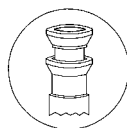
**13265**

Order Code		Priced Upon Request
Pump Only (ceramic liner and piston)	13265-10	
Dial Indicator Kit	13265-42	
Complete	13265-17	
Pump Only (carbon liner, S-S piston)	13265-11	
Dial Indicator Kit	13265-42	
Complete	13265-18	
Optional:		
Low Flow Fitting Kit*	13265-45	

*Supplied no charge with purchase of Pump Only or Complete.

Adjustable Bed**5815****5815 ADJUSTA-CHROM Recycling Column ♦**

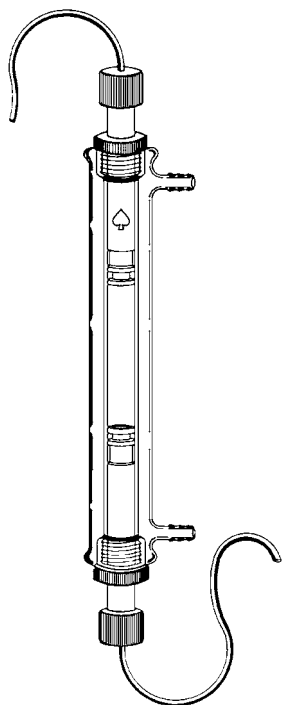
Adjustable bed chromatographic column used for recycling, ascending or descending applications allowing for quick and easy adjustment of the PTFE plunger. The Por. C (25-50 micron) glass disc gives rapid flow with a minimum of mixing. Pressure tight to 3.515 Kg/cm² (50 psi) at room temperature or slightly below. PTFE plunger available with PTFE or O-Ring seals.

**COLUMNS COMPLETE***PTFE Seals*

Length, mm	Order Code	10 mm I.D.	Order Code	25 mm I.D.
300	5815-03	403.48	5815-15	494.85
900	5815-07	512.98	5815-19	777.82

COLUMNS COMPLETE*O-Ring Seals*

Length, mm	Order Code	10 mm I.D.	Order Code	25 mm I.D.
300	5815-04	414.06	5815-16	506.29
900	5815-08	523.56	5815-20	789.26

**5819****5819 ADJUSTA-CHROM Recycling Column, Jacketed ♦**

Jacketed, adjustable bed chromatographic column used for recycling, ascending or descending applications. Completely jacketed for better temperature uniformity with a single bushing at each end allowing for quick and easy adjustment of the PTFE plunger.

The Por. C (25-50 micron) glass disc gives rapid flow with a minimum of mixing. Pressure tight to 3.515 Kg/cm² (50 psi) at room temperature or slightly below. PTFE plunger available with PTFE or O-Ring seals. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information..

COLUMNS COMPLETE*PTFE Seals*

Length, mm	Order Code	10mm I.D.	Order Code	25mm I.D.	Order Code	50mm I.D.
300	5819-02	530.79	5819-12	612.53	—	—
600	—	—	5819-14	677.38	—	—
900	—	—	—	—	5819-26	1,425.73

COLUMNS COMPLETE*O-Ring Seals*

Length, mm	Order Code	10mm I.D.	Order Code	25mm I.D.	Order Code	50mm I.D.
300	5819-03	541.37	5819-13	623.97	—	—
600	—	—	5819-15	688.82	—	—
900	—	—	—	—	5819-28	1,437.93

Note: Plunger Tips CANNOT be used with 5820 Columns.

PARTS FOR ADJUSTA-CHROME COLUMNS ♦

Replacement Parts for 5815 and 5819						
		For 10 mm I.D.		For 25 mm I.D.		For 50 mm I.D.
		Order Code	Each	Order Code	Each	Order Code Each
Glass Columns, Jacketed	300 mm	5819-27	319.35	5819-34	343.49	— —
	600 mm	—	—	5819-36	393.64	— —
	900 mm	—	—	—	—	5819-44 861.65
Glass Columns without Jacket	300 mm	5815-26	192.04	5815-33	225.81	— —
	900 mm	5815-30	207.82	5815-37	412.56	— —
Plunger Tip with Filter Disc and Collar (PTFE Seals)		5819-152	46.30	5819-153	49.20	5819-158 87.22
Plunger Tip with Filter Disc and Collar (O-Ring Seals)		5819-163	51.59	5819-164	54.92	5819-169 93.32
Extender only 15 cm		5819-54	38.76	5819-56	40.76	— —
Extender only 30 cm		5819-55	46.86	5819-57	48.11	— —
Extender Cap, only		5819-67	5.27	5819-69	8.27	— —
Extender with Cap, 15.2 cm (6 inches)		—	—	—	—	5819-70 44.78
Extender with Cap, 30.5 cm (12 inches)		—	—	—	—	5819-71 71.20
End bushing		7506-02	9.31	7506-10	17.29	7506-14 59.84
FETFE O-Rings, for Extender Bushing		7855-716 (12)	17.73	7855-734 (6)	18.05	7855-744 (3) 18.13
FETFE O-Rings, Plunger Tip		5819-181 (6)	16.38	5819-182 (6)	10.96	5819-183 (6) 13.84
PTFE Tubing 300 cm, 1-1/2 mm I.D.		12684-17	12.16	—	—	— —
PTFE Tubing 300 cm, 2 mm I.D.		—	—	12684-27	38.00	12684-27 38.00
Glass Filter Disc, only		5819-80 (6)	47.04	5819-82 (6)	62.71	5819-84 (3) 74.62

5816 COLUMN Michel-Miller, with Adjustable Bed ♦

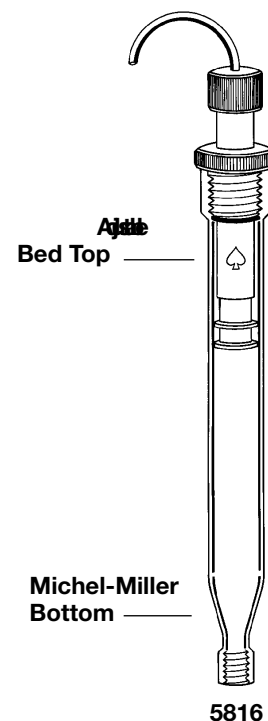
A combination of the high performance, low pressure Michel-Miller Chromatography line and Adjusta-Chrom Recycling Column. Top has adjustable fitting that allows for a bed height anywhere within **1-6 inches below thread**; i.e., if packing tends to expand or contract due to changing conditions, top fitting can be moved by loosening bushing and sliding plunger tip up or down. Plunger tip is all PTFE with a porosity C (25-50 micron) glass disc.

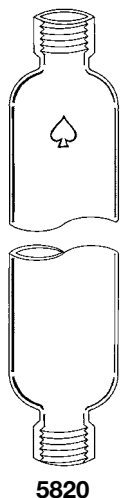
Bottom of column is standard #11 Ace-Thred Michel-Miller fitting for use with 5801-14 End Fitting and uses a 5814-11 Filter Disc.

(Note: 10 mm I.D. column is the same diameter top to bottom.) 5801 Fitting has a 1/4-inch-28 UNF tap for connecting small bore tubing, top fitting has connection for 2 mm I.D. PTFE tubing. Complete item supplied with adjustable top fitting and 5801-14 bottom End Fitting.

COLUMNS COMPLETE				
Length, mm	Order Code	10 mm I.D.	Order Code	25 mm I.D.
300	5816-34	286.82	5816-35	364.15
600	5816-37	298.97	5816-38	373.04
900	5816-40	310.16	5816-41	385.19

GLASS COLUMNS ONLY				
Length, mm	Order Code	10 mm I.D.	Order Code	25 mm I.D.
300	5816-05	131.53	5816-06	167.14
600	5816-09	143.68	5816-10	176.03
900	5816-13	154.87	5816-14	188.18





5820

5820 COLUMNS *Large Size, with Ace-Threds ♠*

Borosilicate glass columns for liquid chromatography, ion-exchange or activated carbon work featuring Ace-Thred connections. Threaded ends are compatible with fittings shown with other Chromatography Systems listed. Fittings, shown on next page, can be used with these columns and offer easy-to-change support screens with a variety of openings never before offered.

Column I.D., mm	Minimum Effective Length, mm (Inches)	Approx. Capacity, Liters	Ace-Thred Size	Order Code	Each
37	450 (18)	0.49	25	5820-104	100.35
75	300 (12)	1.84	50	5820-105	454.91
75	600 (24)	2.65	50	5820-107	491.96
75	1200 (48)	5.30	50	5820-109	570.71
100	1200 (48)	9.43	50	5820-116	650.75
100	1800 (72)	14.14	50	5820-119	717.79
150	1200 (48)	21.21	50	5820-125	1,043.87
150	1800 (72)	31.81	50	5820-129	1,115.64
150	2400 (96)	42.42	50	5820-133	1,188.59

Note: Columns of larger I.D. and longer than listed above can be fabricated. Also, most sizes can be jacketed. Call or email for details.

Support stand for 100 and 150mm columns listed under 12099.



ACE Quality Laboratory & Scientific Product Lines Include...

Hydrogenation/Gas Apparatus — Featuring heavy-walled pressure-tested glass reaction vessels and connectors with Ace-Threds — eliminates rubber stoppers. **Page 326.**

Pilot Plant/Reaction Equipment — Standard and custom-designed portable reactors from 10 to 200 Liters. **Page 438.**

Pressure Reactor Systems — 500 to 5,000 mL capacity. Pressure limits to 45 psig/100°C. **Page 456.**

Instatherm® Oil Baths — Rapid, even heat, very efficient, no super-heating. **Page 329.**

Temperature Controllers — Wide choice of dependable, accurate temperature controllers for ACE Oil Baths, mantles, immersion heaters, etc. **Page 746.**

Sonochemistry — Complete line of glassware and equipment used to promote and enhance chemical reactions through the use of ultrasonic energy. **Page 591.**

Micro/Mini-Lab® — The original microscale-sized glassware designed exclusively for ACE by Drs. Dana W. Mayo, Ronald M. Pike and Samuel S. Butcher of Bowdoin College. **Page 357.**

Multi-Step Filter Reactors — 150 to 6,000 mL capacity. single or multi-step filter reactors. **Page 443.**

Always follow proper safety procedures in the lab. Use protective clothing and shields where required.

5838/5857 ADAPTER End-Fitting, with NPT ♦

For use as column end fitting that allows connection of appropriate size Ace-Thred to tubing connectors with NPT threads.

5838 adapters are fabricated of **PTFE** and supplied complete with one 100 micron polyethylene disc support, one 350 micron polypropylene screen support with polyethylene retainer ring, and FETFE O-Ring. The screen with retainer ring support has a large pore size and offers less resistance to flow. However, when smaller particle size packing is used, it will be necessary to replace the screen and retainer ring with the 100 micron support.

The 5857 fittings are machined of **polypropylene** for strength. A "coin" tightened locking retainer nut is used to hold 350 micron support screen firmly in place. Each adapter, #25 and #50, is supplied with retainer lock nut, 350 micron screen and FETFE O-Ring.

For Thread Size, mm	NPT Size, Inches	Order Code	Each
11	1/8	5838-72	39.52
15	1/8	5838-75	41.84
15	1/4	5838-76	41.84
25	1/4	5838-78	65.09
50	3/8	5838-80	158.41
80	3/8	5838-82	227.20
25	1/4	5857-05	92.38
25	3/8	5857-10	92.38
50	3/8	5857-15	182.42
50	1/2	5857-20	182.42

Replacement Parts For 5838

Ace-Thred Size	100 Micron PE Disc	Retainer Ring	350 Micron PP Screen	O-Ring
	Order Code	Order Code	Order Code	Order Code
11	5848-07	5857-32	5814-42	7855-708
15	5848-10	5857-34	5814-44	7855-710
25	5848-14	5857-36	5814-346	7855-727
50	5848-17	5857-38	5814-348	7855-729
80	5848-19	5857-52	5814-350	7855-764

For 5857

For Ace-Thred Size	Retainer Nut	350 Micron PP Screen	O-Ring
	Order Code	Order Code	Order Code
25	5857-80	5814-46	7855-727
50	5857-82	5814-48	7855-729

Additional micron size screen supports for 5857 are listed on page 95.

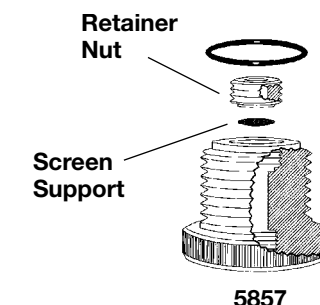
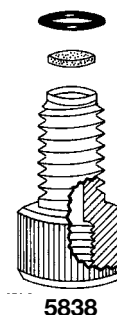
Turn to page 119 for 5857 with #80 Ace-Thred.

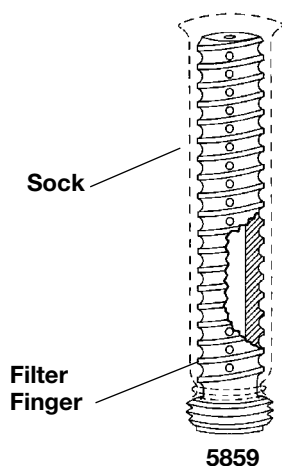
5814 SCREEN SUPPORT FILTER DISCS Polypropylene ♦

Screen support filter pre-cut discs used with 5857 End Fitting Adapters listed on page 103.

For Ace-Thred Size	350 Micron	295 Micron	210 Micron	105 Micron	Each
	Order Code	Order Code	Order Code	Order Code	Pkg/12
11	5814-42	5814-52	5814-62	5814-82	8.28
15	5814-44	5814-54	5814-64	5814-84	9.90
25	5814-46	5814-56	5814-66	5814-86	16.54
50	5814-48	5814-58	5814-68	5814-88	31.20

Note: Discs can also be supplied in polyethylene and fluorocarbon; however, since they are not stock items, a minimum quantity will be supplied. Phone for quotation.





5859 FILTER FINGER "Hi-Flow" ♠

Polypropylene filter finger with furrows and a sufficient number of drilled holes to permit flows up to 55 liters (15 gal.)/min. as is common in ion-exchange precious metals recovery work. Finger fits #50 size Ace-Thred end fittings, Catalog Nos. 5857-15 and 5857-20, by simply removing lock nut and replacing with filter finger. A polypropylene filter sock, sewn closed at one end, slips over filter finger and is held in place with a tight fitting O-Ring. Complete item consists of finger, 350 micron filter sock and retainer O-Ring. Spare socks and retainer O-Rings must be ordered separately.

Order Code	Complete
5859-20	146.16

Replacement Parts

Extra Socks			Extra Retainer O-Rings	
Sock Mesh Size	Order Code	Each	Order Code	Each Pkg./6
350 micron	5859-30	27.95	7855-734	18.05
295 micron	5859-32	27.96		
210 micron	5859-34	27.96		

5814 SCREEN SUPPORT FABRIC MATERIAL *Polypropylene* ★

Available by the yard in four different mesh sizes. Sock used with 5859 Filter Finger on page 96 is fabricated from this material.

Mesh Size, Microns	% Open Area	Mesh Count/in.	Thread Dia., Mic.	Order Code	Per Yard
350	34	42	250	5814-104	40.20
295	25	43	300	5814-107	55.28
210	34	71	150	5814-111	45.04
105	25	121	106	5814-154	77.68

Note: Fabric can be supplied in polyethylene and fluorocarbon. Ask for details.

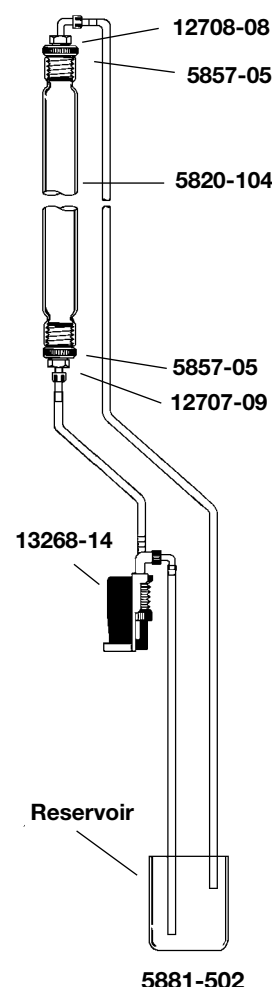
5881 ION-EXCHANGE ASSEMBLY Laboratory Size, #25 Ace-Thred

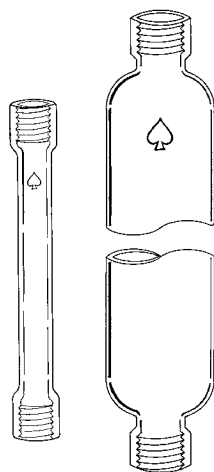
Unit is designed for metal recovery using Ion-Exchange resins such as Amborane.

Borosilicate glass column has #25 Ace-Thred at both ends. Polypropylene end fittings mate with Ace-Threds and form a leak-tight seal with FETFE O-Rings. Each end fitting has a "coin" tightened retainer that holds packing support screen firmly in place; screen can be replaced in seconds. Fittings have 1/4-inch npt female thread for connecting 3/8-inch O.D. flexible vinyl tubing from pump and reservoir using a 1/4-inch to 3/8-inch tubing connector. Normal flow is in upward direction. Column is easily held by ring stand and clamp.

Complete unit consists of one each 5820-104, 13268-14, 12679-26, 12681-812, 5814-46, 5814-56, 7855-727, 5881-150, 11077-18 and two each 5857-05, 12707-09 and 12708-08.

Description	Order Code	Each
Column, 37mm I.D. x 450mm long	5820-104	♠ 100.35
End Fitting, PP, #25 to 1/4-inch npt (2)	5857-05	♠ 92.38
Pump, Bellows Type, maximum capacity, 409 mL/min. Self primes to four feet. Polypropylene bellows and swivel connections for 3/8-inch I.D. tubing. Operates on 110v, 50/60Hz.	13268-14	★ 778.97
Tubing, vinyl, 3/8-inch I.D. x 1/2-inch O.D., 50 feet	12679-26	♠ 31.63
Tubing, PP, 3/8-inch O.D. x 75mm long, Pk/12	12681-812	♠ 24.54
Screen Support, PP, 350 micron, Pk/12	5814-46	♠ 16.54
Screen Support, PP, 295 micron, Pk/12	5814-56	♠ 16.54
O-Ring, FETFE, Size -121, Pk/12	7855-727	♠ 30.97
Connector Tube to M.P.T. (2)	12707-09	♠ 1.91
Elbow Tube to M.P.T. (2)	12708-08	♠ 2.72
Ring stand, rectangular steel base, finished in hard enamel, 127mm x 229mm. Rod is 9.5mm O.D. zinc-plated, 508mm high.	5881-150	★ 38.21
Clamp, three-prong, vinylized jaws	11077-18	★ 32.19
Complete	5881-502	★ 1,205.25





5820

5820 CHROMATOGRAPHY COLUMN ♠

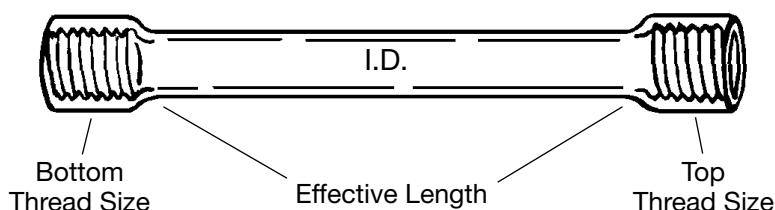
Rugged columns with internally threaded ends to which a wide choice of upper and lower end pieces can be fitted using 5837, 5838, 5840, 5841, 5842 and 5843 Fittings. Available in the diameters and lengths listed below. **Not for use with 5819 Fittings.**

Column I.D., mm	Minimum Effective Lgth., mm (Inches)	Approx. Capacity, Liters	Ace-Thred Size	Order Code	Each
11	300 (12)	.029	11	5820-04	32.12
11	300 (12)	.029	11	5820-06	33.47
11	450 (18)	.043	11	5820-08*	34.26
11	600 (24)	.057	11	5820-12	35.93
15	300 (12)	.053	15	5820-16	35.93
15	300 (12)	.053	15	5820-18*	36.07
15	450 (18)	.079	15	5820-20	38.38
15	450 (18)	.079	15	5820-22*	38.80
15	600 (24)	.11	15	5820-24	39.39
25	300 (12)	.15	25	5820-30	46.90
25	450 (18)	.22	25	5820-34	47.83
25	450 (18)	.22	25	5820-36*	48.91
25	600 (24)	.29	25	5820-37	50.20
25	600 (24)	.29	25	5820-39*	50.17
25	1200 (48)	.59	25	5820-40	67.71
37	450 (18)	.48	25	5820-104	100.35
50	300 (12)	.59	50	5820-50	88.77
50	450 (18)	.88	50	5820-53	100.36
50	600 (24)	1.18	50	5820-55	108.14
50	600 (24)	1.18	50	5820-57*	107.31
50	900 (36)	1.77	50	5820-59	135.36
50	1200 (48)	2.35	50	5820-58	104.82
75	300 (12)	1.32	50	5820-105	454.91
75	600 (24)	2.65	50	5820-107	491.96
75	1200 (48)	5.30	50	5820-109	570.71
100	1200 (48)	9.43	50	5820-116	650.75
100	1800 (72)	14.14	50	5820-119	717.79
150	600 (24)	10.60	50	5820-121	972.09
150	1200 (48)	21.20	50	5820-125	1,043.87
150	1800 (72)	31.80	50	5820-129	1,115.64
150	2400 (96)	42.20	50	5820-133	1,188.59

*Epoxy Coated

Need a different column?

Furnish the following information. We'll make it for you.

**FURNISH THIS INFO:**

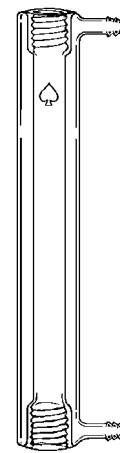
Column I.D. ¹	Effective Length	Bottom Thread Size ²	Top Thread Size ²

¹See Catalog No. 8802 for Tubing Sizes;
²See Catalog No. 7644 for Thread Sizes

5821 CHROMATOGRAPHIC COLUMN *Jacketed* ♠

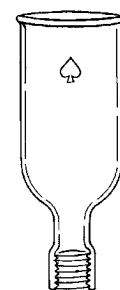
Columns are fully jacketed including internally threaded ends for circulation of heat exchange media. A wide choice of upper and lower end pieces can be fitted to columns using 5837, 5838, 5840, 5841, 5842 and 5843 fittings. Available in the diameters and lengths listed below. Turn to page 5 for hose connection sizing. **Not for use with 5819 fittings.**

Minimum Column I.D., mm	Approx. Effective Lgth., mm (Inches)	Capacity, Liters	Hose Conn. Size	Ace-Thred Size	Order Code	Each
11	300 (12)	.029	D	11	5821-05	151.67
11	600 (24)	.053	D	11	5821-09	164.69
15	300 (12)	.053	D	15	5821-13	168.58
15	450 (18)	.079	D	15	5821-15	171.67
15	600 (24)	.110	D	15	5821-17	181.17
25	300 (12)	.150	D	25	5821-24	196.53
25	450 (18)	.220	D	25	5821-26	207.55
25	600 (24)	.290	D	25	5821-28	216.30
25	1200 (48)	.590	D	25	5821-112	258.33
50	300 (12)	.590	D	50	5821-29	594.56
50	450 (18)	.880	D	50	5821-30	612.13
50	600 (24)	1.180	D	50	5821-31	635.11
50	1200 (48)	2.350	F	50	5821-32	669.59

**5821****5822 ADDITION FUNNEL** *Cylindrical* ♠

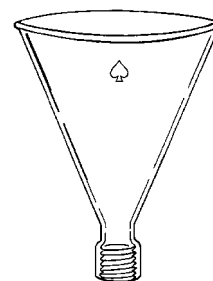
For charging columns. The capacity is approximately five times the largest column volume. Size listed is Ace-Thred designation which refers to I.D. of tubing above thread and corresponds to 5820 column diameter.

Size, mm	Capacity, mL	Order Code	Each
11	300	5822-05	56.08
15	600	5822-10	58.08
25	1500	5822-15	88.51
50	3000	5822-20	176.96

**5822-05****5822 ADDITION FUNNEL** *Conical* ♠

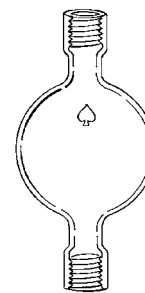
For same purpose as 5822 cylindrical funnel except with conical shape.

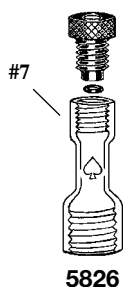
Size, mm	Capacity, mL	Top Dia., mm	Order Code	Each
11	300	51	5822-40	56.67
15	600	70	5822-45	59.06
25	2000	95	5822-50	89.52
50	3000	150	5822-55	178.17

**5822-40****5824 PREPARATIVE FUNNEL** ♠

Bulb type reservoir for preparative work. Both ends threaded. Top can be sealed with 5803, 5845 or 5846 solid plug. Size listed is Ace-Thred designation which refers to I.D. of tubing above thread and corresponds to 5820 column diameter.

Size, mm	Capacity, mL	Bulb O.D., mm	Order Code	Each
11	250	82	5824-05	56.98
15	500	100	5824-10	68.63
25	2000	160	5824-15	99.34
50	3000	180	5824-20	199.39

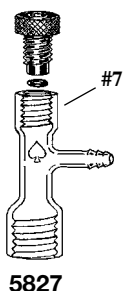
**5824**



5826 ADAPTER *Feed Tube* ♦

Threaded both ends. #7 thread at top is supplied with 5029 Nylon bushing and FETFE O-Ring for use with 5831, 5832 adjustable feed tubes. Size listed is Ace-Thred designation which refers to I.D. of tubing above lower thread and corresponds to 5820 column diameter. For extra bushings, order 5029-10. For extra O-Rings, order 7855-704.

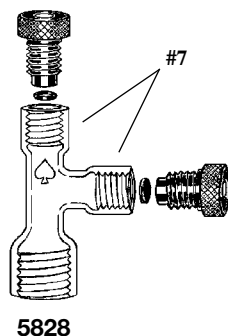
Size, mm	Order Code	Complete
11	5826-20	34.54
15	5826-24	39.71
25	5826-28	51.68
50	5826-30	96.20



5827 ADAPTER *Feed Tube* ♦

Similar to 5826 except with hose connection on side arm. See page 5 for more detailed Hose Connection information.

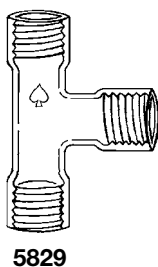
Size, mm	Tubing Size (Inches)	Order Code	Complete
11	3/8 (D)	5827-20	42.88
15	3/8 (D)	5827-24	46.47
25	3/8 (D)	5827-28	59.65
50	5/16 or 3/8 (C)	5827-30	105.38



5828 ADAPTER *Feed Tube, Septum* ♦

Similar to 5826 except with additional #7 threaded side opening for introduction of samples by hypodermic syringe. Supplied complete with one silicone rubber septum and two Nylon bushings with FETFE O-Rings. For extra septa, order 12904-06.

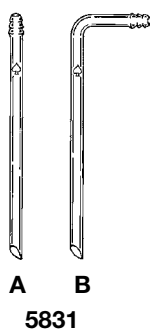
Size, mm	Order Code	Complete
11	5828-20	70.11
15	5828-24	76.99
25	5828-28	85.50
50	5828-30	136.25



5829 ADAPTER *Connecting* ♦

All three ends are threaded the same size. For bushings, see 7506.

Size, mm	Order Code	Complete
11	5829-04	57.33
15	5829-08	59.65
25	5829-12	77.75
50	5829-14	127.21



5831 FEED TUBE *Hose Connection* ♦

Permits packing of column without excessive drop impact. Also used for side arm introduction of effluent or may be used for pressurized operation. Used in conjunction with 5029 Nylon bushing. Supplied straight or bent. Use with 5/16-inch or 3/8-inch I.D. Tubing, Size C. See page 5 for more detailed Hose Connection information. Tube is 7mm O.D.

Length, mm (In.)	Order Code	A (Straight)	Order Code	B (Bent)
76 (3)	5831-04	7.01	5831-12	9.31

5832 FEED TUBE *Luer Tip* ♠

Similar to 5831 except with luer connection. Supplied straight only. Tube is 7mm O.D.

Length, mm (In.)	Order Code	Each
76 (3)	5832-04	13.08
457 (18)	5832-08	13.76

**5832****5834 ADAPTER** *Bottom Drip* ♠

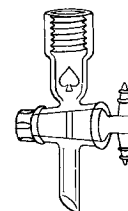
Drip tip for chemical type chromatography. I.D. of drip approximately 4mm. Size listed is Ace-Thred designation which refers to I.D. of tubing below thread and corresponds to 5820 column diameter.

Size, mm	Order Code	Each
11	5834-05	27.27
15	5834-10	28.11
25	5834-15	34.23
50	5834-20	58.58

**5834****5835 ADAPTER** *Bottom Drip, with 1:5 PTFE Stopcock* ♠

Drip tip for chemical type chromatography with 1:5 taper PTFE stopcock at bottom for controlling flow. Size listed is Ace-Thred designation which refers to I.D. of tubing below thread and corresponds to 5820 column diameter.

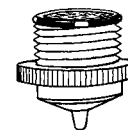
Size, mm	Bore, mm	Order Code	Each
11	2	5835-07	95.22
15	2	5835-11	102.66
25	4	5835-17	112.86
50	4	5835-21	205.81

**5835****5837 ADAPTER** *Bottom Drip, Luer* ♠

For use with all ACE threaded chromatography columns. Shallow taper at upper end minimizes mixing below the packing support. Bore is 1mm. Supplied with one FETFE O-Ring and one replaceable polyethylene packing support. For extra O-Rings, see page 403. For replacement packing support, either polyethylene or glass, see 5848.

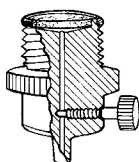
For Thread Size, mm	Order Code	Nylon	Order Code	PTFE
11	5837-06	24.12	5837-46	39.16
15	5837-11	28.64	5837-51	45.32
25	5837-16	39.27	5837-56	57.49
50	5837-21	90.95	5837-61	144.26
80	5837-27*	132.20	5837-65	348.64
				Each
Filter Disc Remover	5837-204			11.62

*Code -27 is fabricated from High Density Polyethylene. All others are nylon.

**5837-06**

5837 ADAPTER *Bottom Drip, Luer,
with Flow Regulator Valve ♠*

For use with all ACE threaded columns as bottom drip adapter with flow regulator valve. Bore is adjustable from 0 to 1 mm max. Shallow taper at upper end minimizes mixing below the packing support. Supplied with one FETFE O-Ring and one polyethylene packing support. For extra O-Rings, see page 403. For replacement packing support, either polyethylene or glass, see 5848, page 105.

**5837-08**

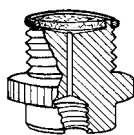
For Thread Size, mm	Order Code	Nylon	Order Code	PTFE
11	5837-08	62.96	5837-48	87.97
15	5837-13	66.81	5837-53	88.86
25	5837-19	75.19	5837-58	94.23
50	5837-23	124.41	5837-63	182.96

Replacement Parts

	For Thread Size, mm	Order Code	Each
Valve Stem, only, with O-Ring, PTFE	11, 15, 25, 50	5837-80	14.27
Valve Stem O-Rings/doz.		5837-180	6.99
Filter Disc Remover		5837-204	11.62

5838 ADAPTER *Bottom Drip,
Internally Threaded ♠*

For use with all ACE threaded chromatography columns. Shallow taper at upper end minimizes mixing below the packing support. Bore is 1mm. Supplied with 1/4-inch-28 UNF 2B internal thread that will accept 5854 or 5855 tubing connectors. Adapter can also be used at top of column as inlet adapter. Supplied with one FETFE O-Ring and one polyethylene packing support. For extra O-Rings, see page 403. For replacement packing support, either polyethylene or glass, see 5848, page 105.



1/4-28

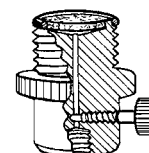
5838-05

For Thread Size, mm	Order Code	Nylon	Order Code	PTFE
11	5838-05	25.12	5838-43	39.23
15	5838-08	27.16	5838-47	43.86
25	5838-10	39.45	5838-51	57.08
50	5838-14	93.14	5838-54	150.35
			Order Code	Each
Filter Disc Remover			5837-204	11.62

5838 ADAPTER *Bottom Drip, Internally Threaded, with Flow Regulator Valve* ♠

With flow regulator valve and a 1/4-inch-28 UNF 2B internal thread for connection with 5854 or 5855 tubing connectors. Supplied with one FETFE O-Ring and one polyethylene packing support. For extra O-Rings, see page 403. For replacement packing supports, either polyethylene or glass, see 5848, page 105.

For Thread Size, mm	Order Code	Nylon	Order Code	PTFE
11	5838-07	62.30	5838-45	83.28
15	5838-09	65.91	5838-49	87.43
25	5838-13	71.83	5838-53	88.83
50	5838-16	116.38	5838-55	176.25



5838-07

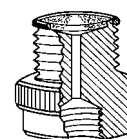
Replacement Parts

	For Thread Size, mm	Order Code	Each
Valve Stem, only, with O-Ring, PTFE	11, 15, 25, 50	5837-80	14.27
Valve Stem O-Rings/doz.		5837-180	6.99
Filter Disc Remover		5837-204	11.62

5838 ADAPTER *End Fitting, with NPT* ♠

For use as column end fitting that allows connection of appropriate size Ace-Thred to tubing connectors with NPT threads. Fabricated of PTFE, this adapter is supplied with one 100 micron polyethylene packing support, one 350 micron polypropylene screen support with polyethylene retainer ring, and one FETFE O-Ring. The screen with retainer ring support has a large pore size and offers less resistance to flow. When smaller particle size packing is used, it will be necessary to replace the screen and retainer ring with the 100 micron support. For extra O-Rings, see page 403. For replacement 100 micron supports, either polyethylene or glass, see 5848, page 105. For Retainer Ring replacement, see page 95.

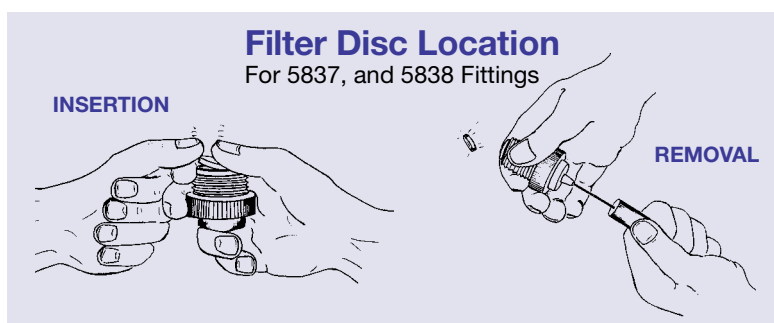
For Thread Size, mm	NPT Size, in.	Order Code	Each	For Thread Size, mm	NPT Size, in.	Order Code	Each
11	1/8	5838-72	39.52	25	1/4	5838-78	65.09
15	1/8	5838-75	41.84	50	3/8	5838-80	158.41
15	1/4	5838-76	41.84	80	3/8	5838-82	227.20

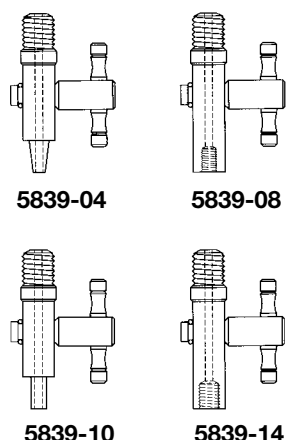


5838-72

Replacement 350 micron Polypropylene Filter screen:

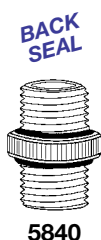
For 25 Thread (1.01 inches), Pk/12	5814-346	16.54
For 50 Thread (1.95 inches), Pk/12	5814-348	31.20



**5839 ADAPTER** Valve, PTFE ♠

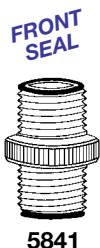
Bottom adapter with shutoff for use with Chromatography Adapters, 5802, 5838-72, 5844, or any adapter with a 1/4-inch FNPT to allow flow regulation. Offered with four different takeoff ends: male luer, 1/4-inch-28 UNF female, 1/8-inch FNPT, or 1/4-inch O.D. straight stock.

Style	Bore, mm	Order Code	Each
1/4-inch NPT—Male Luer	1.5	5839-04	42.55
1/4-inch NPT—1/4-inch-28 UNF	3.0	5839-08	47.35
1/4-inch NPT—1/4-inch Stock	3.0	5839-10	44.64
1/4-inch NPT—1/8-inch FNPT	3.0	5839-14	47.35

**5840 COUPLING** Nylon or PTFE ♠

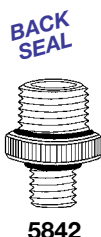
For coupling threaded columns together or to end fittings with single O-Ring seal for leak-tight engagement with hand pressure and no significant size reduction in I.D. Size listed refers to inside diameter of threads. Supplied with two FETFE O-Rings. For extra O-Rings, see page 403. Use with 5820 and 5821 columns.

For Thread Size, mm	Order Code	Nylon	Order Code	PTFE
11	5840-05	21.98	5840-45	38.88
15	5840-10	25.65	5840-47	42.39
25	5840-15	38.56	5840-49	55.01
50	5840-20	78.92	5840-51	163.22

**5841 COUPLING** Nylon or PTFE ♠

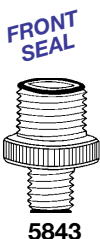
For coupling threaded columns together or to end fittings with single O-Ring seal for leak-tight engagement and with no significant size reduction in I.D. Size listed refers to inside diameter of threads and corresponds to 5820 and 5821 column diameter. Supplied with two FETFE O-Rings. For extra O-Rings, see page 403.

For Thread Size, mm	Order Code	Nylon	Order Code	PTFE
11	5841-06	22.23	5841-46	42.12
15	5841-12	26.84	5841-48	44.58
25	5841-16	40.43	5841-50	79.26
50	5841-22	91.79	5841-52	162.85

**5842 COUPLING** Reducing, Nylon or PTFE ♠

Same as 5840 except that one end is threaded for the next smallest diameter.

For Thread Size, mm	Order Code	Nylon	Order Code	PTFE
15-11	5842-05	24.92	5842-46	43.20
25-15	5842-10	40.88	5842-48	53.49
50-25	5842-15	72.82	5842-50	156.16

**5843 COUPLING** Reducing, Nylon or PTFE ♠

Similar to 5841 except that one end is threaded for the next smallest diameter.

For Thread Size, mm	Order Code	Nylon	Order Code	PTFE
15-11	5843-06	28.70	5843-47	44.24
25-15	5843-12	42.49	5843-49	58.27
50-25	5843-16	90.02	5843-51	158.54

5844 ADAPTER for Swagelok ♦

Adapter used with Ace-Thred for connecting tubing to threaded glass via a Swagelok connection. One end Ace-Thred, the other has an NPT female thread. Supplied with one FETFE O-Ring. For extra O-Rings, see below. Adapters are available in either Nylon or PTFE.

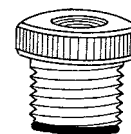
NYLON

NPT Thread Size (In.)	Order Code	#7 Thread	Order Code	#11 Thread	Order Code	#15 Thread	Order Code	#25 Thread	Order Code	#50 Thread
1/8	5844-16	30.51	5844-18	35.24	5844-20	37.25	5844-22	47.82	5844-24	76.27
1/4	—	—	—	—	5844-34	34.22	5844-36	43.92	5844-38	76.27

PTFE

NPT Thread Size (In.)	Order Code	#7 Thread	Order Code	#11 Thread	Order Code	#15 Thread	Order Code	#25 Thread	Order Code	#50 Thread
1/16	5844-42	31.43	5844-44	47.73	5844-46	53.21	5844-48	69.85	—	—
1/8	5844-58	31.43	5844-60	47.73	5844-62	53.21	5844-64	69.85	—	—
1/4	—	—	—	—	5844-74	53.21	5844-76	69.85	5844-78	135.21

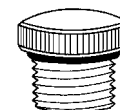
FRONT SEAL

**5844****5845 PLUG** Nylon or PTFE ♦

A solid plug for sealing column ends. Permits preparation and storage of column. Supplied with one FETFE O-Ring. For extra O-Rings, see 7855. *Size 80 is fabricated from HDPE.

For Thread Size, mm	Order Code	NYLON	Order Code	PTFE
11	5845-05	12.59	5845-45	25.35
15	5845-10	15.34	5845-47	29.95
25	5845-15	24.82	5845-49	45.61
50	5845-20	60.43	5845-51	112.82
80	5845-30*	74.02	5845-56	171.42

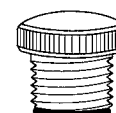
BACK SEAL

**5845****5846 PLUG** Nylon or PTFE ♦

A solid plug for sealing column ends. Permits preparation and storage of columns. Supplied with one FETFE O-Ring. For extra O-Rings, see page 403. *Size 80 is fabricated from HDPE.

For Thread Size, mm	Order Code	NYLON	Order Code	PTFE
7	5846-04	7.68	5846-44	17.56
11	5846-06	13.71	5846-46	25.48
15	5846-12	18.00	5846-48	30.46
25	5846-16	30.17	5846-50	47.23
50	5846-22	70.63	5846-52	129.31
80	5846-27*	84.40	5846-60	184.63

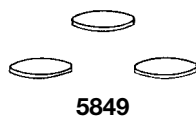
FRONT SEAL

**5846****5848 FILTER DISC** Packing Support ♦

Filter disc for use with 5837 or 5838 column adapters. Available in polyethylene (100 micron pore size), and glass* — Porosity A (145-174 microns), B (70-100 microns), C (25-50 microns) and D (10-20 microns). Sold in packages. **(Caution: These discs are intended to be removable. However, because of the tight fit, the glass disc may break when being removed.)**

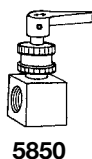
For Adapter Pkg. Size,mm Qty.	Polyethylene		Glass							
	Order Code	Per. Pkg.	Porosity A 145-174 microns		Porosity B 70-100 microns		Porosity C 25-50 microns		Porosity D 10-20 microns	
			Order Code	Per Pkg.	Order Code	Per Pkg.	Order Code	Per Pkg.	Order Code	Per Pkg.
11 6	5848-07	11.89	5848-43	50.92	5848-52	50.92	5848-21	50.92	5848-31	50.92
15 6	5848-10	11.89	5848-44	50.92	5848-54	50.92	5848-23	50.92	5848-33	50.92
25 6	5848-14	13.64	5848-47	57.52	5848-56	57.52	5848-25	57.52	5848-35	57.52
50 6	5848-17	28.78	5848-49	113.79	5848-58	113.79	5848-28	113.79	5848-38	113.79
80 1	5848-19	7.43	—	—	5848-120	112.71	5848-122	128.09	5848-124	140.90

**5848**

**5849 FLOAT** *Polyethylene* ♠

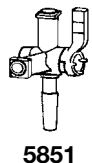
Used on top of column packing to prevent turbulence caused by drop-wise addition. Six per pkg.

For Size, mm	Order Code	Per Pkg.
11	5849-05	10.09
15	5849-10	10.44
25	5849-15	11.34
50	5849-20	17.60

**5850 VALVE** *Miniature, Inert* ★

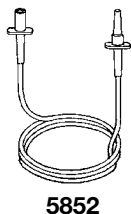
Miniature straight-through shut-off valve designed for small fluid volumes of ultrapure or corrosive fluids. Liquids touch only inert PTFE or inert CTFE. Housing has 1/4-inch-28 UNF female threaded ports with .059-inch I.D. holes that accept a variety of fittings.

Order Code	Each
5850-10	106.80

**5851 PLASTIC STOPCOCK** ♠

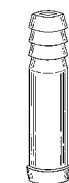
Three-way, with outer and inner luer taper opposite plus an outer luer off side. Body is fabricated of Nylon with Delrin plug. Bore is 1mm for use with 5837 Bottom Drip Adapters. Supplied six per package.

Style	Order Code	Per Pkg.
Three-way	5851-10	24.96

**5852 ADAPTER** *Luer* ♠

84 cm of thin wall biological grade vinyl tubing connects an outer luer taper and an inner luer taper. Tubing is approx. 2mm I.D. Connects to 5851 Stopcock, 5837 Bottom Drip Adapter. Six per package.

Order Code	Per Pkg.
5852-10	29.46

**5853-07****5853 CONNECTOR** *Tubing, PTFE* ♠

Used to connect flexible tubing to #15 Ace-Thred for easy, safe connect/disconnect. 7506-06 Nylon bushing slides over serrated end and secures connector in thread without O-Ring. With tubing attached at serrated end, unthread bushing and connector is removed from thread. Vacuum tight. Serrations are 14mm O.D. for 1/2-inch tubing. Order **7506** Bushing separately. Connector temperature range is -20°C to +200°C.

	Use Bushing No.	Order Code	Each
Connector, PTFE, .375-inch I.D. only	7506-06	5853-07	17.80

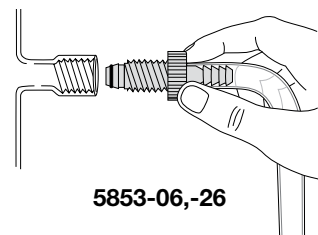
5853 "ACE-SAFE" CONNECTOR *Tubing, Polypropylene* ♠*

Tubing connector, used to connect flexible tubing to #7, #11 or #15 Ace-Thred for easy, safe connect/disconnect. 5029/7506 Nylon bushing slides over serrated end and secures PP connector in thread with silicone O-Ring in front groove to make compression seal. With tubing attached at serrated end, unthread bushing and connector is removed from thread. Vacuum tight. For replacement O-Rings, order 7855-207 for Code -03; 7855-206 for Codes -09 and -10; 7855-210 for Codes -18, -19 and -21.

	For #7 Ace-Thred to 1/4-inch I.D. Tubing		For #11 Ace-Thred to 1/4-inch I.D. Tubing		For #15 Ace-Thred to 1/4-inch I.D. Tubing	
	Order Code	Each	Order Code	Each	Order Code	Each
Connector, only, w/O-Ring	5853-03	9.04	5853-09	8.60	5853-18	9.34
Nylon Bushing, only	5029-05	2.06	7506-01	8.85	7506-05	9.97
Complete	5853-06	11.05	5853-12	18.00	5853-20	19.90

	For #11 Ace-Thred to 3/8-inch I.D. Tubing		For #15 Ace-Thred to 3/8-inch I.D. Tubing		For #15 Ace-Thred to 1/2-inch I.D. Tubing	
	Order Code	Each	Order Code	Each	Order Code	Each
Connector, only, w/O-Ring	5853-10	8.60	5853-19	9.34	5853-21	10.06
Nylon Bushing, only	7506-01	8.85	7506-05	9.97	7506-05	9.97
Complete	5853-15	18.00	5853-23	19.90	5853-26	20.63

**Available in
glass-filled PTFE.
Phone for
information!*



5853-06, -26

5853 Tubing Connector Reference Chart(Flow Rates @10 lbs. H₂O)

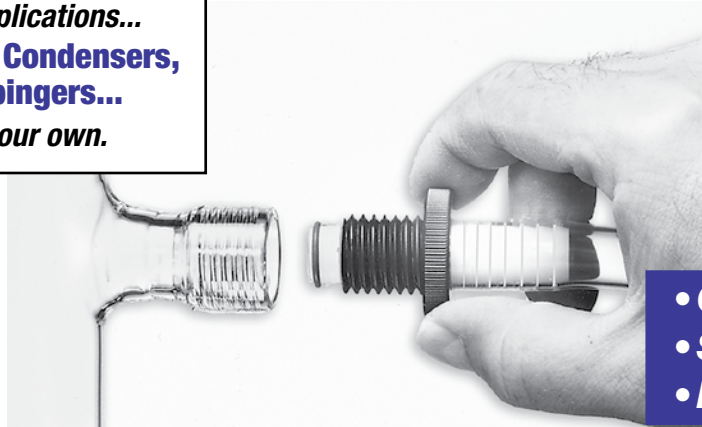
Tubing Connector Catalog No.	Fits Ace-Thred Size	Connector I.D., in. (mm)	Approx. Flow Rate, Gal./Min	Use Bushing Number	For Tubing I.D., in. (mm)
5853-03	7	.125 (3.18)	1.5	5029-05	1/4 (6.35)
5853-09	11	.125 (3.18)	1.5	7506-01	1/4 (6.35)
5853-10	11	.187 (4.74)	3.3	7506-01	3/8 (9.5)
5853-18	15	.125 (3.18)	1.5	7506-05	1/4 (6.35)
5853-19	15	.187 (4.74)	3.3	7506-05	3/8 (9.5)
5853-21	15	.375 (9.5)	13.3	7506-05	1/2 (12.7)

*For
larger sizes,
turn to
page 703.*

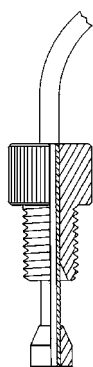
Be Safe!

With ACE 5853 Threaded Tubing Connectors

Numerous applications...
Vacuum Traps, Condensers,
Flasks, Impingers...
or create your own.



- **Convenient**
- **Secure**
- **Economical**

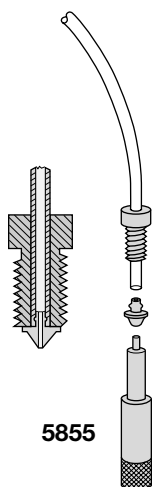
**5854****5854 CONNECTORS** *Tubing* ★

Chemically inert connectors with male 1/4-inch-28 UNF thread for connecting 1/16-inch or 1/8-inch O.D. PTFE or Tefzel tubing to ACE 5801, 5807 or 5838 Chromatography adapters. Easy-to-assemble, No-Flange, No-Tool system is rated at 1000 psi with PTFE tubing, higher with Tefzel.

Merely slip nut and ferrule over tubing and finger tighten in any 1/4-inch-28 UNF threaded fitting. Offers zero-dead volume, leak-free seal. Ferrules are made of pure, virgin Tefzel (ETFE); no coloring agents are added. Male nuts are made of white acetal and Nylon. Can be used with ACE 12684-05 or 12684-28 PTFE Tubing. **For complete item, order Nut and Ferrule.**

For Tubing Size, O.D., mm (In.)	Nut, only		Ferrule, only	
	Order Code	Each	Order Code	Each
1.5 (1/16)	5854-07	5.25	5854-24	5.25
3.3 (1/8)	5854-09	5.25	5854-26	5.25

OPTI-LOK LP is a trademark of Optimize Technologies Inc.

**5855****5855 CONNECTORS** *Tubing* ★

Virgin TFE tubing connectors with 1/4-inch-28 UNF 2B male thread for connecting small I.D. tubing to 5838 adapters. Suitable for vacuum or pressure applications since tubing won't slip off or blow out. Easily assembled with simple tool, code -80. The Kel-F® insert, code -71 or -73, mechanically wedges the tubing against the fitting. For tubing, see 12684, standard wall.

For Tubing I.D., mm	Nut, only		Insert, only		Insertion Tool, only	
	Order Code	Pkg./12	Order Code	Pkg./12	Order Code	Each
1.5	5855-08	61.40	5855-71	35.00	5855-80	28.55
2	5855-10	61.40	5855-73	35.00	5855-80	28.55

**13382****13382 RESERVOIR** *Pressure, 316 Stainless Steel* ★

Electropolished 316 Stainless Steel Reservoirs offer a safe method of introducing mobile phase of a chromatography column or other setups under air or nitrogen pressure. For safety, only pressurized liquid exits reservoir, compressed gas remains in reservoir. Offered in 1–7 gallon capacities, all with 9-inch inside diameter. Supplied with four 1/4-inch NPT female pipe fittings on top and rubber skirt on bottom. Pressure rated to 140 psi.

Capacity, Gallon	Order Code	Each	Capacity, Gallon	Order Code	Each
1	13382-05	801.14	5	13382-25	1,041.48
2	13382-10	937.13	6	13382-30	1,184.75
3	13382-15	937.13	7	13382-35	1,184.75

5414 RESERVOIR *Graduated Glass, Reagent ★*

Heavy-wall borosilicate glass bottle with three PTFE Valves with Tefzel Keys. Pressure-tight PTFE coated Fluoron forms a seal within cap; hence, fluid contact is restricted to glass, PTFE and Tefzel. The three individually controlled valves permit the application of gas under pressure to the bottle for venting, flushing, or delivery of the bottle contents to one or two points. Bottles may be pressurized in isolation or in series with the other bottles. One of the valves may be used to allow corrosive fumes to be vented safely. Rated to 14 psi at ambient; ***must be adequately shielded when under pressure.*** Each bottle is provided with a three-valve, 1/4-28UNF cap ideal for use with our 5859 and 5855 tubing connectors.

Codes -05 thru -20 are clear glass reagent bottles (also available ambered).

Codes -135 thru -143 are U.V. resisting plastic coated solvent delivery bottles.

Reagent Reservoir, Clear, with Netting & Cap

Cap., mL	Order Code	Each
250	5414-07	186.81
500	5414-10	186.81
1000	5414-15	186.81

Solvent Reservoir, Coated, with Cap

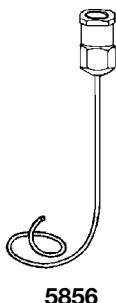
Cap., mL	Order Code	Each
250	5414-137	198.59
500	5414-139	198.59
1000	5414-141	206.40

Accessory Items

	Order Code	Each
Cap only, with valves	5414-502	127.22
Filter, Sparger, PTFE, 3 micron	5414-30	16.15
Filter, Sparger, PTFE/Stainless Steel, 10 micron	5414-31	26.40
Filter, Bottle Bottom, PTFE, 10 micron	5414-32	30.05
Filter, Bottle Bottom, Polypropylene, 20 micron	5414-33	6.50
Filtered Check Valve, PTFE, 10 micron	5414-34	35.30

**5414-05****5414-135**

For Cap only with valves,
order **5414-502**

**5856 ADAPTER Needle ★**

Designed to eliminate “dead space” between end of standard luer taper and bottom of standard hub when using 5837 adapters. Available with Kel-F hub and PTFE tubing extension approximately one meter long; longer extensions are available via special order. Also available with Kel-F hub at both ends on special order.

PTFE needle will slip into 12684-06 PTFE tubing making a sleeve fit satisfactory for discharging into an open container. All 5837 adapters now have a 0.051 opening for 10mm distance from end of luer tip. If you have previously purchased 5837, the luer tip can be enlarged to 0.051 with a No. 55 drill to accommodate these new needle adapters.

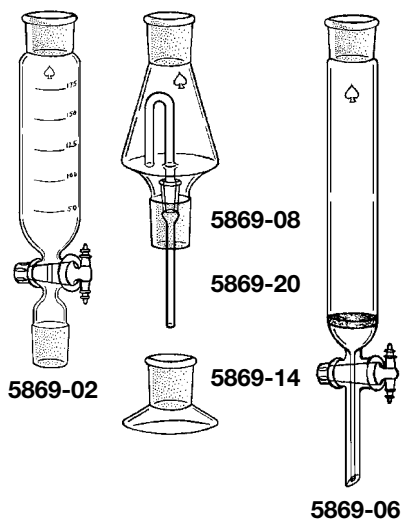
Kel-F Hub with PTFE tubing

Order Code	Each
5856-10	36.87

12684 TUBING TFE ★

Clear, standard and thin walled TFE tubing for use with 5854, 5855, OMNIFIT tubing connectors or for other chromatography needs. Supplied in three-meter (10 ft.) lengths.

Approx. I.D., mm	AWG Size	Wall, mm	Order Code	Per 3 meters
0.3	—	.6	12684-03	8.32
0.6	—	.5	12684-05	6.58
0.8 (1/32 inches)	20	.4	12684-23	10.69
1.0	18	.3	12684-06	12.16
1.0	18	.4	12684-08	49.00
1.5	15	.3	12684-17	12.16
1.5	15	.4	12684-19	12.16
1.58	—	.4	12684-20	12.16
2.0	12	.3	12684-27	38.00
2.0	12	.4	12684-28	13.49
4.8	5	.5	12684-11	12.16

**5869 CHROMATOGRAPHIC APPARATUS Neutral Oil ♠**

Newly designed flask increases the efficiency and standardization of neutral oil determination by: permitting *automatic transfer* of weighed crude oil samples onto alumina columns; converting column operation to a semiautomatic level, thereby reducing the cost of operation. Meets A.O.C.S. Ca9f-57 specifications.

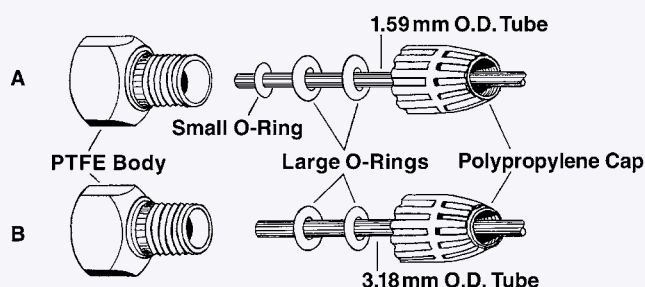
Complete apparatus consists of: Reservoir — 175 mL capacity with 4 mm PTFE stopcock, $\frac{19}{22}$ male joint at bottom and #27 stopper joint at top; Flask — 20 mL capacity with $\frac{19}{22}$ joints at top and bottom and $\frac{7}{15}$ joint on inner tube; Base — with $\frac{19}{22}$ joint; Extension Tube — with $\frac{7}{15}$ joint; and Column — with 19 mm I.D., 270mm long from top of $\frac{19}{22}$ joint to tip, with 2 mm PTFE stopcock and porosity C (25-50 micron) fritted disc.

	Order Code	Each
Reservoir	5869-02	105.30
Flask	5869-08	144.96
Base	5869-14	22.78
Extension Tube	5869-20	15.27
Column	5869-06	136.54
Complete	5869-40	424.85

Omnifit Variable-Bore Connectors and Valves

provide the utmost in flexibility and applicability. Leak-tight connection can be made to tubing of any diameter from 0.5 mm to 11 mm. Self-centering, zero dead volume connection can be made without flanging of tubing and without tools. Because flanging of the tubing is not required, OMNIFIT components can be used with rigid or flexible tubing of virtually any material. For example, connecting PTFE tubing to glassware is easy and quick with a Variable-Bore Connector. The tube is simply inserted into the fitting and the cap tightened.

How to Use OMNIFIT Variable-Bore Fittings

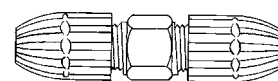


As supplied, OMNIFIT Variable-Bore Fittings make the following types of connection:

- TYPE 1: **Instant** TYPE 3: **Chemically Inert**
TYPE 2: **High Pressure** TYPE 4: **Fitting to Fitting**

12714 CONNECTOR *Tubing, Variable-Bore* ★

Provides instant connection of rigid or flexible tubing within a range of 0.5 to 4mm O.D. Dead volume is zero. Connections are made in seconds without flanging of tubing and are leak-tight to at least 50 psi. Body is virgin PTFE. Caps are polypropylene with Fluoron elastomer O-Ring seals. Caps have 1/4-inch-28 UNF thread for interfacing with 5854, 5855 and 12724 Adapters or other miniature plumbing systems. Supplied with PTFE cones for making O-Ring free connections. Packed three per package.



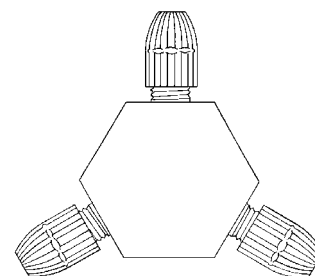
12714-20

STARTER KIT

Order Code	Per Kit
12714-20	54.16

12720 CONNECTOR *Tubing, Three-Way, Variable-Bore* ★

For instant connection of up to three rigid or flexible tubes within a range of 0.5 to 4mm O.D. Leak-tight to 50 psi without flaring; if tubing is flared, pressure rating is 800 psi. Suitable for in-line connection of 13385 Pressure Gauge when using the Michel-Miller Chromatography System. Body is virgin PTFE. Caps are polypropylene with Fluoron elastomer O-Ring seals. PTFE cones for all-PTFE connection of tubing are supplied. Caps have 1/4-inch-28 UNF thread for interfacing with 5854, 5855 and 12724 Adapters or with other miniature plumbing systems.



12720-25

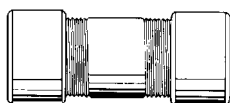
Order Code	Each
12720-25	58.55

OMNIFIT® TUBE FITTINGS & VALVES
From .5mm to 11mm O.D. / Up to 1000 psi

**12723-12****12723 UNIVERSAL CONNECTOR** *Tubing, Variable-Bore* ★

Designed for flangeless instant connection of large diameter to small diameter tubing. Larger end accepts tubing, flexible or rigid, of any material over O.D. range 4mm to 11mm. Smaller end accepts any tubing over O.D. range 0.5mm to 4mm. Body is virgin PTFE. Large cap is Delrin®. Small cap is polypropylene and has 1/4-inch-28 UNF thread at back. Polypropylene Caps available in ten colors. Standard Seals are Fluoron elastomer. PTFE cones for all-PTFE connections are included. PTFE/Tefzel Caps are available for use at temperatures to 220°C. Packed two per package.

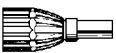
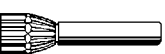
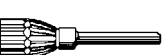
Order Code	Each
12723-12	74.69

**12723-18****12723 UNIVERSAL CONNECTOR** *Tubing, Variable-Bore* ★

Permits flangeless, variable diameter instant connection between rigid or flexible tubing of any materials and any diameters between 4mm and 11mm. Body is machined of virgin PTFE. End Caps are Delrin or (special order) PTFE. Seals are Fluoron; PTFE Seals are available. When used with PTFE Caps entire connection is PTFE and may be used at high temperatures or in corrosive environments. Packed two per package.

Order Code	Each
12723-18	87.81

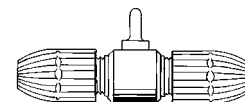
The adapters listed below are supplied with a PTFE space-filling Cone that replaces the rubber seal in Variable-Bore OMNIFIT Fittings. They are chemically inert and zero dead volume devices. To fit an OMNIFIT Adapter, the standard cap from any smaller size OMNIFIT Fitting is removed with the O-Rings and the Adapter screwed onto the Fitting in place of the Cap.

	Function	Order Code	Each
	OMNIFIT to male Luer fitting, with PTFE inner cone	12740-07	★ 18.13
	OMNIFIT to female Luer fitting, with PTFE inner cone	12740-08	★ 18.13
	OMNIFIT to 1/4-inch (6.35mm) O.D. pipe, of Tefzel, with PTFE cone. For connection of OMNIFIT to Stainless Steel, brass or piping of other material.	12740-14	★ 23.75
	OMNIFIT to 1/8-inch (3.18mm) O.D. pipe, of Tefzel, with PTFE cone. For connection of OMNIFIT to Stainless Steel, brass or piping of other material.	12740-18	★ 23.75
	OMNIFIT to 1/16-inch (1.59mm) O.D. tube, of Tefzel and 316 Stainless Steel, with PTFE cone. Provides facility for direct connection of OMNIFIT Fitting to other systems via Stainless Steel tube	12740-22	★ 20.91
	OMNIFIT to Luer lock	12740-30	★ 20.91

OMNIFIT Valves are supplied with Variable-Bore OMNIFIT Fittings for instant connection to tubing or to other fittings. The Valves are unique, having but one moving part for each channel, and dead volume within the valves is zero. Valve Keys are non-pyrogenic and biologically inert Tefzel. All Valve bodies are machined from a single piece of PTFE for strength and maximum chemical inertness. In normal laboratory use OMNIFIT Valves are virtually indestructible.

12728 VALVE *Tubing Connector, Two-Way* ★

Similar to 12714-20 Connector except with single Tefzel control valve, rated 500 psi. Valve has one moving part for long life and trouble free operation. Unique design prevents Valve from leaking to outside even at excessive pressures. Body is machined from single-piece PTFE. Caps are polypropylene with Fluoron elastomer seals for instant connection of rigid or flexible tubing within a range of 0.5 to 4mm O.D. With 1/4-inch-28 UNF thread at back of cap for direct connection to other adapters. Autoclavable. Sold complete in packages of two.

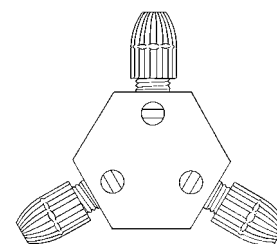


12728

Order Code	Each
12728-32	79.46

12730 VALVE *Tubing Connector, Three-Way* ★

Three-way tubing connector Valve for applications where stream switching, reagent switching, sample removal or sample injection is desirable. Body is machined of single-piece PTFE. The Tefzel valves are rated to 500 psi and have one moving part per channel for long life and trouble free operation. The 1.5mm I.D. channels meet at Valve center. Leak-tight to outside even at excessive pressures. Dead space within Valve is zero. Caps are polypropylene with Fluoron elastomer O-Ring seals for instant connection of rigid or flexible tubing within a range of 0.5 to 4mm O.D. With 1/4-inch-28 UNF thread at back of caps for direct connection with other adapters. Autoclavable.

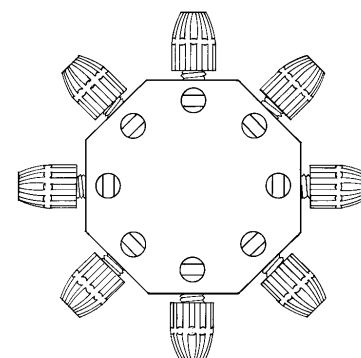


12730

Order Code	Each
12730-39	139.39

12732 VALVE *Tubing Connector, Eight-Way* ★

Eight-way tubing connector Valve for applications where multiple channels are necessary for distributing reagents, solvents or buffers to chromatography columns, etc. Body is machined of single-piece PTFE. Valves are Tefzel and are rated at 500 psi. The 1.5mm I.D. channels meet at valve center and have one moving part for long life and trouble free operation. Leak-tight to outside even at excessive pressures. Dead space within valve is zero. Caps are polypropylene with Fluoron elastomer O-Ring seals for instant connection of rigid or flexible tubing within a range of 0.5 to 4mm O.D. With 1/4-inch-28 UNF thread at back of cap for direct connection with other adapters. Autoclavable.

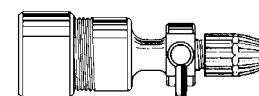


12732

Order Code	Each
12732-46	287.15

12735 UNIVERSAL VALVE *Tubing Connector, Variable-Bore* ★

Similar to the Universal Variable-Bore Connector, 12723-12, except body includes an integral linear valve designed to provide flow control while connecting large O.D. (4mm to 11mm) tubing to small (0.5mm to 4mm) O.D. tubing. The OMNIFIT flangeless principle applies to both large and small tubing connections. The Connector body is PTFE. The large end cap is Delrin. The smaller end cap is polypropylene and available in ten colors or Tefzel (special order) with 1/4-inch-28 UNF thread. Valve key is Tefzel. The unit may be cleaned with strong mineral acids and is autoclavable.



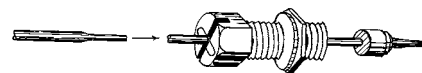
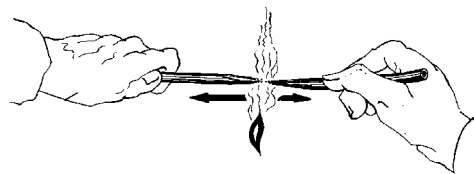
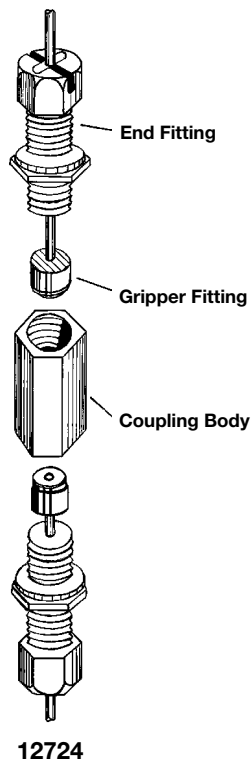
12735

Order Code	Each
12735-15	58.54

12724 CONNECTOR *Tubing, High Pressure* ★

High pressure tubing connector designed for use with PTFE or other plastic tubing having outer diameter of 1.6mm (1/16-inches). Rated at 1000 psi. The 1/4-inch-28 UNF thread on End Fitting makes it compatible with 5801, 5807 and 5838 adapters or 13265 Pump. Tubing is permanently connected in minutes without flaring for a leak-tight, zero dead volume connection.

TO ASSEMBLE:



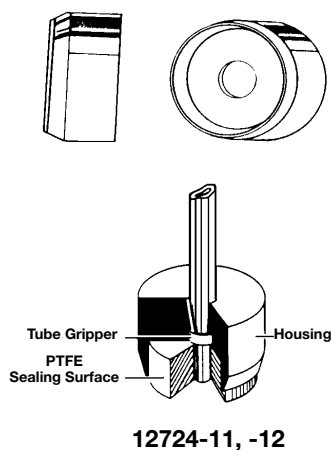
Tubing is heated near the end and a small taper is pulled. After cooling, the tubing is cut at the narrow portion and is inserted through the End Fitting and the stainless steel side of the Gripper Fitting. The Gripper Fitting is pulled evenly onto the full diameter of tubing, rotated to enable internal barb to cut outer surface of tubing and then pulled firmly backwards. When locked, excess tubing in front of Gripper Fitting is trimmed flush.

Gripper Fitting has a PTFE face encapsulated in stainless steel that offers a PTFE to PTFE seal and maintains its leak-tightness despite inevitable cold flow. Repeated connect-disconnect operations do not affect sealing integrity. The polypropylene End Fitting head is slotted to allow tubing to move aside for simple screwdriver tightening. Lock nut allows for panel mounting security.

Complete tube connectors consist of two End Fittings with lock nut, two Gripper Fittings and one polypropylene Coupling Body. Available as component or in kits.

COMPONENTS	Order Code	Per Package
End Fitting (10)	12724-04	28.41
Gripper Fitting (10)	12724-11	51.16
Coupling Body (10)	12724-15	14.22

	Order Code	Per Pkg.
Complete Pack:	12724-45	76.80
(10) code -04, (10) code -11, (5) code -15		



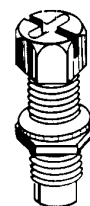
12724 REPLACEMENT GRIPPER FITTING *High Pressure* ★

At the heart of the OMNIFIT High pressure Flange-less Tube Connection System is the patented Gripper Fitting. The housing is machined on precision Swiss lathes to a high tolerance from 316 Stainless Steel. The facing washer of PTFE is press-fitted within the housing. When used with OMNIFIT Tube End Fittings, the Gripper Fitting connects tubing-to-tubing or tubing-to-apparatus with a minimum of disturbance to the fluid flow path. Leak-free connections can be made without dependence on the compression of the flanged Tube Ends. Repeated connect-disconnect operations do not tend to deteriorate the sealing face of the Gripper Fitting since it is contained within a rigid housing. Although intended primarily for use with PTFE tubing, the Gripper Fitting may be used with any plastic tubing having 1/6-inch or 1/8-inch O.D. Supplied in packages of 10.

For Tube O.D. (In.)	Order Code	Per Package
1/16	12724-11	51.16
1/8	12724-12	51.16

12724 SEALING PLUG ★

The Body and Lock Nut of the Sealing Plug are of clear Tefzel; the Sealing Face is PTFE PTFE. It is dimensionally identical to a High Pressure Tube End Fitting with 1/4-inch-28 UNF external threads and a cross-slotted head. Plug is used to seal any 1/4-inch-28 UNF female threaded fitting, and may be secured in place using the Lock Nut. For sealing a tube with a Tube End Fitting the Tube Fitting and the Plug are screwed together in a Coupling Body. The Plug may be used with any OMNIFIT Variable-Bore Fitting. The Lock Nut may also be used for panel mounting. Supplied two per package.



12724-25

Order Code	Per Package
12724-25	16.77

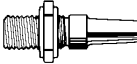
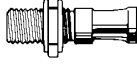
Need Something Special? Choose ACE.

Whether you're simply changing a joint size or designing an entire custom unit, our technical staff is at your service!

Give us a call at 1-800-223-4524.

OMNIFIT Connector Bodies are made exclusively of virgin PTFE for maximum chemical inertness. The internal passages are 0.8mm I.D. throughout and there are no dead spaces within.

The Connectors have 1/4-inch-28 UNF threaded couplings of Tefzel for instant connection to Tube End Fittings, Plugs or Adapters. The Connectors are rated at 1,000 psi and may be autoclaved.

	Description	Order Code	Each
	1/4-inch-28 UNF with lock nut opposite connection to 1/4-inch (6.35) O.D. pipe; made of Tefzel. Adapter has Tefzel Lock Nut for securing to Fitting or for panel mounting; overall length is 43mm (1-5/8-inch) 1.5mm I.D.	12741-14	★ 16.03
	1/4-inch-28 UNF with lock nut opposite connection to 1/8-inch (3.18) O.D. pipe; made of Tefzel. Adapter has Tefzel Lock Nut for securing to Fitting or for panel mounting; overall length is 43mm (1-5/8-inch), length of 1/8-inch portion is 25mm (1-inch); internal diameter is 1.5mm.	12741-17	★ 16.03
	1/4-inch-28 UNF with lock nut opposite connection to 1/16-inch (1.59) O.D. pipe. Base and Lock Nut are made of Tefzel; Tube is 316 Stainless Steel. Overall length is 55mm (3-1/8-inch); length of 1/6-inch O.D. portion is 37mm (1-1/2-inch); I.D. of tube is 0.9mm.	12741-20	★ 19.40
	Adapter to male Luer Fitting. Made of Tefzel with Tefzel Lock Nut for securing Fitting and for panel mounting.	12741-03	★ 14.64
	Adapter to female Luer Fitting to 1/4-inch-28 UNF with lock nut. Made of Tefzel with Tefzel Lock Nut for securing Fitting and for panel mounting.	12741-04	★ 14.64
	Permits instant connection of PTFE tube to an Omnifit Variable-Bore Fitting. Allows connections to be made to rigid or flexible tubing of any material (glass, plastic, stainless steel, etc.) over the O.D. range of 0.5mm to 4mm. Fitting Body is of PTFE; outer Cap and Lock Nut are polypropylene, Seals are Fluoron. PTFE Cones are available for all PTFE connections. I.D. of Fitting is 1.5mm.	12741-25	★ 27.88
	Provides instant connection of PTFE tube to an Omnifit Valve that has a Variable Bore Connector on one end and 1/4-inch-28 UNF threads with Lock Nut on the other. Valve Body is PTFE PTFE, outer Cap and Lock Nut are polypropylene, Valve Key is Tefzel. Rated to 400 psi. All internal passages are 1.5mm I.D. Zero dead volume within valve. This adapter may be securely connected to any 1/4-inch-28 UNF female threaded component to control flow rate or provide on-off fluid control. It is supplied with a PTFE Cone to replace the Fluoron Seals in the Variable-Bore Fitting thus making possible an all PTFE connection. The Adapter can be screwed directly into any Omnifit Variable-Bore Fitting to provide linear flow control. Unit may be autoclaved.	12741-26	★ 50.18

All threads 1/4-inch-28 UNF

BIG COLUMNS

5844 ADAPTER for Swagelok ♦

PTFE adapter for use at top of 5860 Column Head or at bottom of 5862 Column to connect tubing via Swagelok type connector to #50 Ace-Thred, other end has 1/4-inch NPT female thread. Supplied with one FETFE O-Ring. For extra O-Rings, see 7855-729.

Order Code	Each
5844-78	135.21

5860 COLUMN HEAD ♦

For use with 5862 Chromatography Column. With #50 Ace-Thred center neck and/or two #15 Ace-Thred side necks and 4-inch or 6-inch flange at bottom, ground flat. Use with 6517 Clamp.

Flange Size	Center Neck	Side Necks	Order Code	Each
4 inches	50	None	5860-24	198.59
6 inches	50	None	5860-28	241.72
6 inches	50	15	5860-32	337.94

5862 COLUMN (#50) Chromatography ♦

Large size chromatography columns with O-Ring grooved flat flange at top for easy access to column. Flange is *supplied with* silicone O-Ring to make seal when using 5860 Head with 6517 Clamp. 4-inch and 6-inch I.D. columns are tapered to #50 *Ace-Thred* at bottom that accepts 5844 Adapter, or 5848 and 5835 Adapters. For replacement O-Rings, see below.

Flange Size/ Col. I.D., in.	Length mm (in.)	Order Code	Each
4	300 (12)	5862-43	423.64
4	450 (18)	5862-45	443.29
4	600 (24)	5862-47	482.94
4	1200 (48)	5862-49	566.40
6	450 (18)	5862-58	716.37
6	600 (24)	5862-62	787.16
6	1200 (48)	5862-65	889.92
6	1800 (72)	5862-68	946.19

Replacement Silicone O-Rings

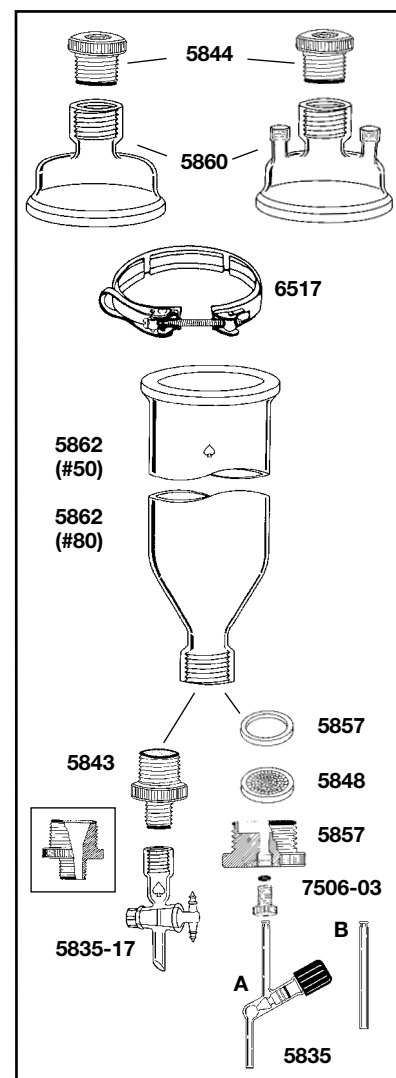
	Order Code	Each	Pkg./5
For 4-inch Flange	7855-254	15.00	85.00
For 6-inch Flange	7855-260	49.00	159.00

Replacement CAPFE O-Rings

	Order Code	Each
For 4-inch Flange	7855-880	25.07
For 6-inch Flange	7855-881	53.52

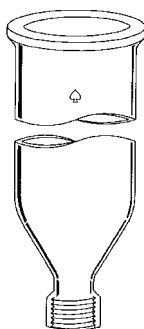
All types of special combinations made to order

- Heads can be supplied with additional threads or joints or combination of both
- Columns available in various lengths and diameters



BIG COLUMNS

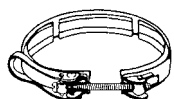
5862



5862 COLUMN (#80) *Chromatography* ♦

Large size columns with O-Ring grooved flat flange at top for easy access to column. Flange is supplied with silicone O-Ring to make seal when using 5860 Head with 6517 Clamp. Columns are tapered to #80 Ace-Thred at bottom that accepts 5857 Adapter. For replacement O-Rings, see above.

Length (In.)	Flange Size (In.)	Diameter (In.)	Order Code	Each
18	6	6	5862-10	810.60
18	6	8	5862-18	1,103.86
18	6	12	5862-26	1,458.69
24	6	6	5862-12	860.08
24	6	8	5862-20	1,168.56
24	6	12	5862-28	1,627.13
48	6	6	5862-14	972.40
48	6	8	5862-22	1,353.69
48	6	12	5862-30	1,812.83

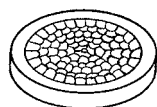


6517

6517 CLAMP ★

Stainless Steel quick release clamp with three retaining clips for connecting 5860 Head and 5862 Column.

For Flange Size	Order Code	Each
4 inches	6517-25	87.69
6 inches	6517-27	104.98



5848

5848 SUPPORT PLATE *Perforated* ♦

73mm diameter glass plate with 1x3mm rectangular slits for supporting column packing. Used with 5857.

Order Code	Per Package
5848-60	53.87



5843

5843 COUPLING *Reducing, with Support* ♦

For connecting 5835 Bottom Drip Stopcock Adapter to bottom of 5862 Chromatography Column with leak-tight O-Ring seals. One end is #50 Ace-Thred for connecting to column, the other #25 Ace-Thred is for connecting to 5835B Adapter. #50 end of coupling is supplied with Porosity A glass packing support, press fitted, with taper below disc to 25 I.D. For replacement supports, see below. Supplied with two FETFE O-Rings. For replacement O-Rings, see 7855-729 (for #50); or 7855-727 (for #25).

Order Code	Each
5843-74	190.75

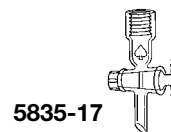
Replacement Glass Packing Supports

	Order Code	Per Pkg/6
Por. A (145-175 micron)	5848-49	113.79
Por. B (70-100 micron)	5848-58	113.79

BIG COLUMNS

5835 ADAPTER *Bottom Drip, with 1:5 PTFE Stopcock* ♦

Drip tip for bottom of 5862 Column using 5843 Coupling. One end has #25 Ace-Thred, other with drip tip and 4mm bore PTFE stopcock for controlling flow.



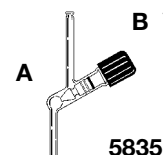
5835-17

Order Code	Per Package
5835-17	112.86

5835 BOTTOM OUTLET VALVE *with or without Stopcock* ♦

Type A — With 0-8mm threaded stopcock for controlling flow.

Type B — Straight stem without stopcock. Both stems to take 3/8-inch Swagelok fittings. Secured to 5857 Bottom Adapter with 7506-03 Bushing.



5835

Type	Order Code	Each
A	5835-32	110.27
B	5835-34	31.35

5857 BOTTOM ADAPTER *UHMWPE* or PTFE* ♦

Fits #80 Ace-Thred. Recessed for 5848 perforated support plate and 5857 retaining ring. Your choice of bottom threaded for #11 Ace-Thred Bushing 7506-03 to secure 5835 Outlet Valve, or threaded to accept 3/8-inch NPT fitting. For replacement O-Rings, order 7855-764.

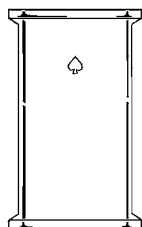


5857

	#11 Ace-Thred		3/8-inch NPT	
<i>UHMWPE*</i>	Order Code	Each	Order Code	Each
Adapter, #80 Thred	5857-30	77.09	5857-35	85.16
Support Plate	5848-60	49.00	5848-60	53.87
Retaining Ring	5857-50	9.00	5857-50	10.02
Bushing	7506-03	9.17	—	—
Connector, 3/8 inches	—	—	12770-27	27.64
COMPLETE	5857-44	144.26	5857-46	176.69

	#11 Ace-Thred		3/8-inch NPT	
<i>PTFE</i>	Order Code	Each	Order Code	Each
Adapter, #80 Thred	5857-60	185.37	5857-64	201.80
Support Plate	5848-60	49.00	5848-60	53.87
Retaining Ring	5857-52	10.60	5857-52	11.54
Bushing	7506-03	9.17	—	—
Connector, 3/8 inches	—	—	12770-27	27.64
COMPLETE	5857-67	254.14	5857-69	294.85

*UHMWPE — Ultra High Molecular Weight Polypropylene

**5862****5862 COLUMN EXTENDER** *Chromatography* ♠

Extenders that can be added to 5862 Columns to increase column height. Extenders have an O-Ring grooved flat flange on one end to attach 5860 Column Head and ground flat flange at other end to attach the 5862 Column. Supplied with one silicone O-Ring. Use 6517 Clamp to secure sections.

Flange Size/ Column I.D., in	Length mm (in)	Order Code	Each
4	300 (12)	5862-72	237.05
4	450 (18)	5862-73	237.05
4	600 (24)	5862-74	273.99
6	300	5862-77	493.99
6	450	5862-78	532.29
6	600	5862-79	569.46

**5867****5867 SUPPORT STAND** *for Large Chromatography Columns* ★

Newly designed four-post stands for large scale chromatography columns feature all stainless steel construction. Each stand is designed to accept either 24-inch, 48-inch or 72-inch length columns. Each stand is designed to accommodate the height of the column and has a PTFE collar at the bottom that accepts and supports the tapered bottom of the column. Each stand has an adjustable stainless upper collar assembly that supports the top of the column. All stands have locking casters for mobility.

Fits Column (Height)	Order Code	Dimensions, Inches (W x D x H)	Each
24 inches	5867-24	15 x 15 x 40	2,171.80
48 inches	5867-48	15 x 15 x 60	2,596.36
72 inches	5867-72	15 x 15 x 85	2,815.17

Custom Sizes are available!

**5868****5868 SUPPORT STAND** *for Bench-Scale Chromatography Columns* ★

Newly designed single-post stand for 12-inch and 18-inch height chromatography columns. "H" shaped base and a single 122cm high x 1-inch diameter stainless steel bar give great stability for the large-scale columns. Stand comes complete with base, rod, base plate, clamp holder and chain clamp.

Overall Height	Order Code	Each
125cm	5868-122	517.09

5871 COLUMN *Flash Chromatography, Standard Taper Joint, Epoxy Coated*

Simple absorption chromatography column for rapid preparative separations. Allows separations of samples from 0.01 to 10.0g³ in 10-15 minutes. **Column and reservoir, only, are Epoxy Coated for safety.** Reservoir connects between column and flow control adapter. Joints on column, reservoir and adapter are \$24/40 or \$45/50. Columns available with or without Por. B (70-100 micron) sealed-in fritted disc. Stopcock on column is 2mm bore PTFE on 13mm I.D. thru 50mm I.D.; 4mm bore on 64mm and 75mm I.D., on flow control adapter, 0-3mm PTFE (replacement plug is 8192-261). Joint clamps also available. **Order each item separately.**

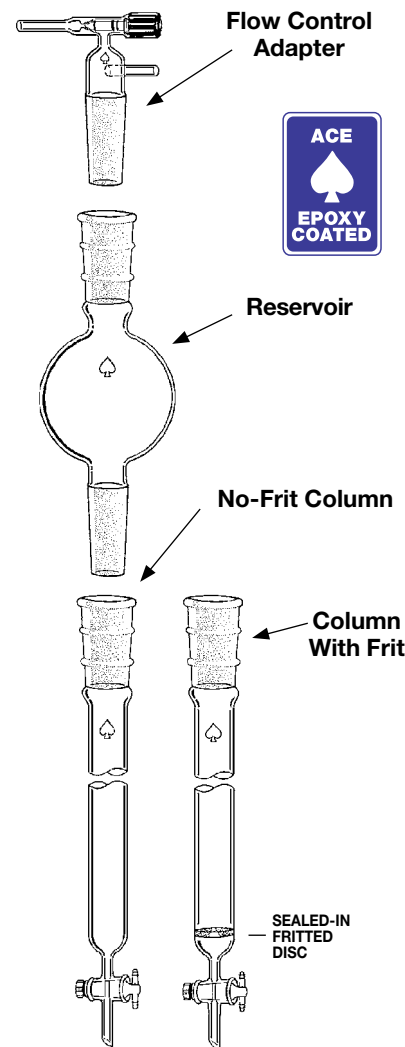
**Now with
Standard Taper
Joint**

COLUMN ONLY

Column I.D., mm (Inches)	Effective Length, cm (Inches)	Approx. Capacity, Liters	Joint Size	Without Disc		With Disc	
				Order Code	Each ▲	Order Code	Each ▲
10 (.50)	45.7 (18)	.036	\$24/40	5903-20	111.16	5904-22	122.72
13 (.50)	20.3 (8)	.03	\$24/40	5871-03	94.09	5871-51	111.46
13 (.50)	25.4 (10)	.034	\$24/40	5871-05	97.41	5871-53	113.10
13 (.50)	30.5 (12)	.04	\$24/40	5871-07	102.94	5871-55	118.82
13 (.50)	45.7 (18)	.06	\$24/40	5871-08	111.03	5871-56	125.86
19 (.75)	20.3 (8)	.06	\$24/40	5871-09	97.40	5871-58	112.48
19 (.75)	25.4 (10)	.07	\$24/40	5871-11	99.03	5871-59	117.40
19 (.75)	30.5 (12)	.086	\$24/40	5871-13	103.80	5871-61	120.09
19 (.75)	45.7 (18)	.13	\$24/40	5871-14	109.79	5871-62	126.59
19 (.75)	61.0 (24)	.173	\$24/40	5903-24	119.15	5904-26	134.10
25 (1.0)	20.3 (8)	.1	\$24/40	5871-15	117.43	5871-65	134.37
25 (1.0)	25.4 (10)	.125	\$24/40	5871-17	117.74	5871-67	135.54
25 (1.0)	30.5 (12)	.15	\$24/40	5871-18	122.32	5871-68	139.15
25 (1.0)	45.7 (18)	.22	\$24/40	5871-19	129.61	5871-69	146.68
25 (1.0)	51.0 (20)	.25	\$24/40	5903-26	136.03	5904-28	149.65
38 (1.5)	20.3 (8)	.23	\$24/40	5871-21	118.27	5871-73	134.93
38 (1.5)	25.4 (10)	.29	\$24/40	5871-22	121.03	5871-75	137.39
38 (1.5)	30.5 (12)	.35	\$24/40	5871-24	123.45	5871-76	142.08
38 (1.5)	45.7 (18)	.52	\$24/40	5871-25	136.01	5871-77	150.64
41 (1.6)	61.0 (24)	.805	\$24/40	5903-27	143.40	5904-37	158.62
50 (2.0)	20.3 (8)	.4	\$24/40	5871-29	141.64	5871-79	164.69
50 (2.0)	25.4 (10)	.5	\$24/40	5871-30	145.46	5871-81	170.21
50 (2.0)	30.5 (12)	.6	\$24/40	5871-32	149.40	5871-82	176.82
50 (2.0)	45.7 (18)	.90	\$24/40	5871-34	155.70	5871-84	185.58
50 (2.0)	61.0 (24)	1.2	\$24/40	5903-28	166.20	5904-40	193.26
64 (2.5)	20.3 (8)	.65	\$45/50	5871-37	157.97	5871-85	183.47
64 (2.5)	25.4 (10)	.82	\$45/50	5871-39	162.33	5871-86	188.82
64 (2.5)	30.5 (12)	.98	\$45/50	5871-40	168.20	5871-88	197.40
64 (2.5)	45.7 (18)	1.47	\$45/50	5871-41	183.44	5871-90	210.18
64 (2.5)	61.0 (24)	1.96	\$45/50	5871-42	189.62	5871-91	227.36
75 (3.0)	20.3 (8)	.9	\$45/50	5871-43	191.65	5871-92	240.17
75 (3.0)	25.4 (10)	1.12	\$45/50	5871-44	199.82	5871-94	245.38
75 (3.0)	30.5 (12)	1.35	\$45/50	5871-46	208.39	5871-96	249.64
75 (3.0)	45.7 (18)	2.02	\$45/50	5871-48	246.75	5871-97	272.32
75 (3.0)	61.0 (24)	2.69	\$45/50	5871-49	261.56	5871-98	284.59

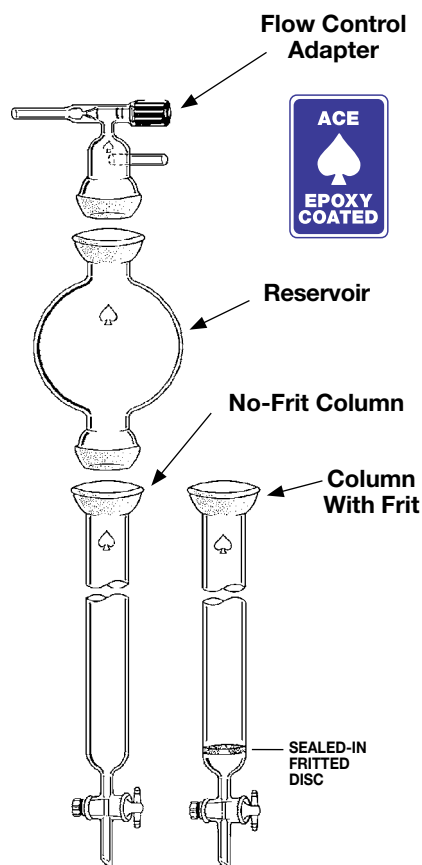
OTHER ITEMS

Reservoir	Upper Joint	Lower Joint	Order Code	Each
Reservoir, 250mL, only	\$24/40	\$24/40	5871-112	♠ 68.29
Reservoir, 500mL, only	\$24/40	\$24/40	5871-114	♠ 74.45
Reservoir, 1000mL, only	\$24/40	\$24/40	5871-120	♠ 80.21
Reservoir, 1000mL, only	\$24/40	\$45/50	5871-124	♠ 84.14
Reservoir, 2000mL, only	\$24/40	\$24/40	5871-130	♠ 120.11
Reservoir, 2000mL, only	\$24/40	\$45/50	5871-132	♠ 130.87
Reservoir, 3000mL, only	\$24/40	\$45/50	5871-143	♠ 164.53
Reservoir, 5000mL, only	\$24/40	\$45/50	5871-150	♠ 189.07
Flow Control Adapter, only	\$24/40		5871-165	♠ 73.10
Flow Control Adapter, only	\$45/50		5871-167	♠ 91.76
Clamp, Plastic, Pkg/10	For \$24/40		7598-24	★ 34.51
Clamp, Plastic, Pkg/10	For \$45/50		7598-45	★ 43.05



Column lengths and diameters can be made to order.

Expanded Listings



For one-piece columns, with reservoir, see 5906, 5907 & 5908, starting on page 131.

Column lengths and diameters can be made to order.

5872 COLUMN Flash Chromatography, Spherical Joint, Epoxy Coated

Simple absorption chromatography column for rapid preparative separations as described by W.C. STILL, M. Kahn and A. Mitra of Columbia University Dept. of Chemistry. Allows separations of samples from 0.01 to 10.0g3 in 10-15 minutes. **Column and reservoir, only, are Epoxy Coated for safety.** Reservoir connects between column and flow control adapter. Joints on column, reservoir and adapter are \$ 35/20, \$ 50/30 or \$ 75/50. Columns available with or without Por. B (70-100 micron) sealed-in fritted disc. Stopcock on column is 2mm bore PTFE on 10mm I.D. thru 50mm I.D.; 4mm bore on 64mm and 75mm I.D. on flow control adapter, 0-3mm PTFE (replacement plug is 8192-261). Joint clamp also available. **Order each item separately.**

COLUMN ONLY

Column I.D., mm (Inches)	Effective Length, cm (Inches)	Approx. Capacity, Liters	Joint Size	Without Disc		With Disc	
				Order Code	Each ▲	Order Code	Each ▲
10 (.39)	45.7 (18)	.04	\$35/20	5872-06	111.57	5872-50	122.34
13 (.50)	20.3 (8)	.03	\$35/20	5872-02	98.10	5872-55	111.44
13 (.50)	25.4 (10)	.034	\$35/20	5872-03	99.53	5872-57	117.04
13 (.50)	30.5 (12)	.04	\$35/20	5872-04	107.95	5872-58	122.44
13 (.50)	45.7 (18)	.06	\$35/20	5872-05	115.39	5872-60	138.81
19 (.75)	20.3 (8)	.06	\$35/20	5872-07	98.10	5872-61	134.65
19 (.75)	25.4 (10)	.07	\$35/20	5872-08	99.70	5872-62	139.86
19 (.75)	30.5 (12)	.086	\$35/20	5872-09	102.75	5872-63	142.66
19 (.75)	45.7 (18)	.13	\$35/20	5872-10	115.65	5872-54	149.12
25 (1.0)	20.3 (8)	.1	\$35/20	5872-12	123.24	5872-64	141.67
25 (1.0)	25.4 (10)	.125	\$35/20	5872-13	128.33	5872-65	144.03
25 (1.0)	30.5 (12)	.15	\$35/20	5872-15	139.30	5872-66	153.87
25 (1.0)	45.7 (18)	.22	\$35/20	5872-16	146.83	5872-67	160.98
38 (1.5)	20.3 (8)	.23	\$35/20	5872-17	119.70	5872-68	139.38
38 (1.5)	25.4 (10)	.29	\$35/20	5872-18	124.52	5872-69	146.52
38 (1.5)	30.5 (12)	.35	\$35/20	5872-19	126.70	5872-70	154.47
38 (1.5)	45.7 (18)	.52	\$35/20	5872-22	141.11	5872-71	161.33
41 (1.6)	45.7 (18)	.6	\$35/20	5872-14	124.98	5872-56	169.55
50 (2.0)	20.3 (8)	.4	\$50/30	5872-23	141.75	5872-72	162.37
50 (2.0)	25.4 (10)	.5	\$50/30	5872-24	149.58	5872-73	166.21
50 (2.0)	30.5 (12)	.6	\$50/30	5872-25	157.84	5872-74	182.34
50 (2.0)	45.7 (18)	.90	\$35/20	5872-20	136.51	5872-59	155.13
50 (2.0)	61.0 (24)	1.2	\$50/30	5872-27	211.24	5872-75	233.91
64 (2.5)	20.3 (8)	.65	\$50/30	5872-28	169.32	5872-76	211.60
64 (2.5)	25.4 (10)	.82	\$50/30	5872-29	177.32	5872-80	217.22
64 (2.5)	30.5 (12)	.98	\$50/30	5872-30	187.97	5872-81	228.21
64 (2.5)	45.7 (18)	1.47	\$50/30	5872-31	198.39	5872-82	249.25
64 (2.5)	61.0 (24)	1.96	\$50/30	5872-32	216.58	5872-86	272.88
75 (3.0)	20.3 (8)	.9	\$75/50	5872-33	223.06	5872-87	249.25
75 (3.0)	25.4 (10)	1.12	\$75/50	5872-34	225.28	5872-88	255.30
75 (3.0)	30.5 (12)	1.35	\$75/50	5872-51	242.13	5872-90	272.88
75 (3.0)	45.7 (18)	2.02	\$75/50	5872-52	258.00	5872-97	288.71
75 (3.0)	61.0 (24)	2.69	\$75/50	5872-26	275.52	5872-98	306.14

OTHER ITEMS

Reservoir	Upper Joint	Lower Joint	Order Code	Each
Reservoir, 250mL, only	\$35/20	\$35/20	5872-41	▲ 67.10
Reservoir, 500mL, only	\$35/20	\$35/20	5872-42	▲ 71.40
Reservoir, 1000mL, only	\$35/20	\$35/20	5872-43	▲ 78.51
Reservoir, 1000mL, only	\$35/20	\$50/30	5872-44	▲ 86.58
Reservoir, 2000mL, only	\$35/20	\$35/20	5872-45	▲ 123.58
Reservoir, 2000mL, only	\$35/20	\$50/30	5872-46	▲ 135.43
Reservoir, 2000mL, only	\$35/20	\$75/50	5872-47	▲ 145.08
Reservoir, 3000mL, only	\$35/20	\$75/50	5872-48	▲ 173.40
Reservoir, 5000mL, only	\$35/20	\$75/50	5872-49	▲ 195.41
Flow Control Adapter, only	\$35/20		5872-35	▲ 101.27
Flow Control Adapter, only		\$50/30	5872-36	▲ 111.31
Flow Control Adapter, only		\$75/50	5872-37	▲ 131.33
Clamp, Pinch Type		For \$35/20	7669-14	★ 16.50
Clamp, Pinch Type		For \$50/30	7669-18	★ 28.50
Clamp, Pinch Type		For \$75/50	7669-22	★ 65.00

5873 COLUMN *Flash Chromatography, Epoxy Coated, Modified ♠*

Modified version of 5872 simple absorption column for rapid preparative separations. This version incorporates a #25 Ace-Thred connector in place of the $\frac{3}{8}$ 35/20 joints, for grease-free connection. The internally threaded connector and 7506 Nylon bushing and flow adapter. Glass bead helps O-Ring form a more positive seal against bushing to help prevent backout. Bushing replaces joint clamp. **Column and reservoir, only, are Epoxy Coated for added protection against scratching.** Column available with or without Por. B (70–100 micron) fritted disc sealed in. **Order each item separately.**

**Easy assembly
and more stability
with Ace-Thred
connections**

COLUMN ONLY

Column I.D., mm	Effective Length, cm	Approx. Capacity, Liters	Without Disc		With Disc	
			Order Code	Each	Order Code	Each
10	45.7	.04	5873-05	109.22	5873-51	119.84
19	45.7	.13	5873-09	112.49	5873-54	123.44
41	45.7	.60	5873-13	122.48	5873-57	138.04
50	45.7	.95	5873-19	133.89	5873-60	154.90

OTHER ITEMS

Reservoir	Order Code	Each
Reservoir, 250mL, only	5873-44	67.04
Reservoir, 500mL, only	5873-45	74.42
Reservoir, 1000mL, only	5873-46	80.52
Flow Control Adapter, only	5873-32	97.80
Bushing, #25, Nylon, w/O-Ring, only	7506-10	17.29

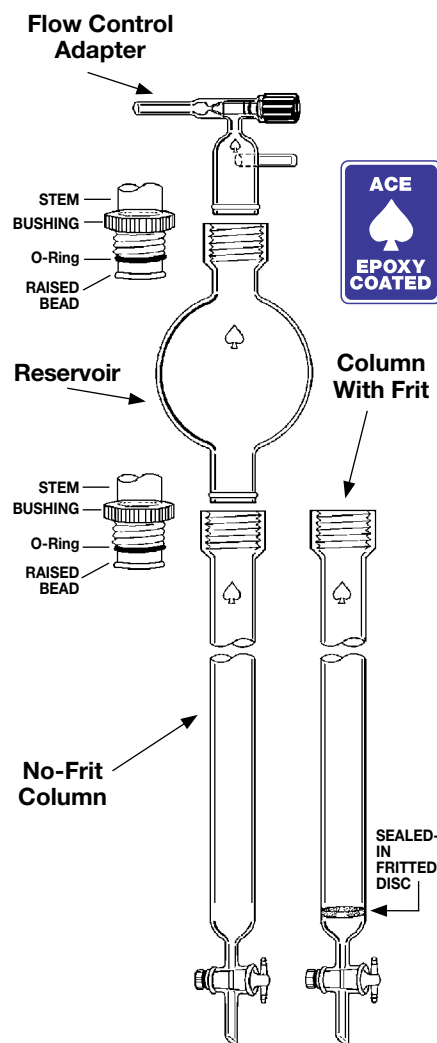
CAUTION

For Chromatography Use Only

Not intended for use with 40 micron or smaller packing which will cause operating pressures to exceed safe limits of glass.

ALWAYS USE A SAFETY SHIELD

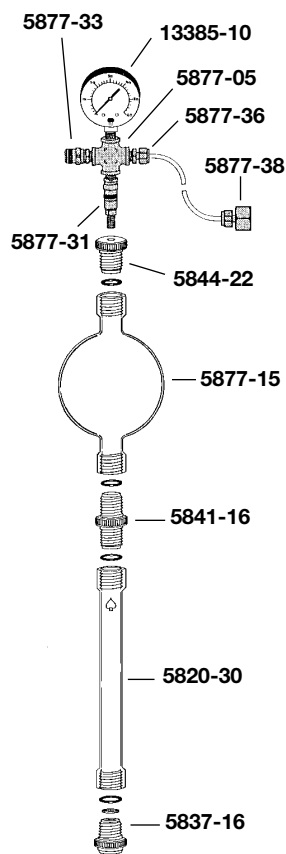
For a complete assembly of 5871, 5872 or 5873 systems, order flow control adapter, column with or without frit, reservoir and clamp or bushing.



Need Something Special? Choose ACE.

Whether you're simply changing a joint size or designing an entire custom unit, our technical staff is at your service!

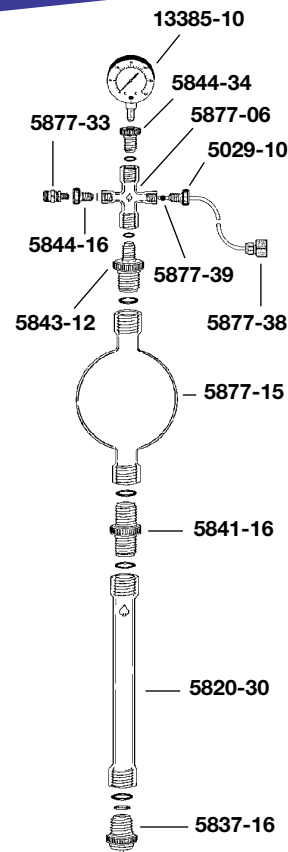
**Give us a call at 1-800-223-4524
or visit www.aceglass.com**

BRASS MANIFOLD**5877 RAPID PREPARATIVE CHROMATOGRAPHY SYSTEM**

Rapid preparative chromatography system suitable for use to pressures of 50psig. (**CAUTION! Care should be taken when using glass under pressure. Operation behind a shield is recommended.**) Available with 25mm or 50mm I.D. glass column, 300mm effective length, with corresponding Ace-Threds. Adapter at bottom of column is Nylon or PTFE with a “pop-in” polyethylene packing support, 100 micron porosity maximum, and a luer fitting takeoff. **Reservoir is 2000mL or 3000mL capacity, epoxy coated for safety, pressure tested,** with #25 Ace-Threds top and bottom. Connection to column is by Nylon or PTFE coupling. Fitting at top of reservoir is Nylon or PTFE with a 1/8-inch NPT female thread to accept a Swagelok quick connect-disconnect fitting that in turn connects to brass manifold; brass manifold attaches directly to reservoir using a Nylon or PTFE reducer coupling.

Brass manifold has three 1/8-inch NPT female threads for connection to reservoir, a brass pressure relief valve, and Swagelok tubing connector for connecting to pressure line. Fourth thread is 1/8-inch NPT adapted to 1/4-inch NPT for connecting to a 0-60psig, 2-1/2-inch diameter pressure gauge.

Glass manifold has two #7 Ace-Threds; one for connecting pressure line directly using Nylon bushing with PTFE ball for quick disconnect, the other has a Nylon to PTFE fitting for connecting brass pressure relief valve. Lower thread is #15 for direct connection to reservoir using a reducer coupling, #15-25 Ace-Thred. Top #15 Ace-Thred on glass manifold accepts threaded Nylon or PTFE fitting to connect pressure gauge.

GLASS MANIFOLD**Complete item includes:**

A) Brass manifold, pressure gauge, brass connector 1/8-inch NPT to 1/8-inch O.D. tubing, brass connector 1/8-inch O.D. tubing to 1/4-inch NPT female, quick connect-disconnect fitting, pressure relief valve, Nylon connector #25 to 1/8-inch NPT female, **epoxy coated reservoir**, Nylon coupling with FETFE O-Rings, column, end fitting with FETFE O-Ring and ten feet of 1/8-inch O.D. PTFE tubing; **B)** Glass manifold, pressure gauge, Nylon bushing #15 to 1/4-inch NPT female, Nylon bushing #7 with PTFE ball, brass connector 1/8-inch O.D. tubing to 1/4-inch NPT female, pressure relief valve, two Nylon couplings, with FETFE O-Rings, **epoxy coated reservoir**, column, Nylon end fitting and ten feet of 1/8-inch O.D. PTFE tubing.

Type Manifold	Reservoir Capacity, mL	Column Lgth. x Dia., mm	Order Code	Complete
Glass	2000	300 x 25	5877-50	♠ 577.31
Glass	3000	300 x 50	5877-55	♠ 800.01
Brass	2000	300 x 25	5877-60	★ 539.21
Brass	3000	300 x 50	5877-65	★ 708.75

5877 REPLACEMENT PARTS

REPLACEMENT PARTS					
Lgth. x Dia., mm	Column Only Order Code	Each	Cap., mL	Ace-Thred Size	Reservoir, only Order Code
300 x 25	5820-30	♣ 46.90	2000	25	5877-15
300 x 50	5820-50	♣ 88.77	3000	25	5877-16
					♣ 134.47
					♣ 214.03

Brass Manifold Parts			Glass Manifold Parts		
	Order Code	Each		Order Code	Each
Brass Manifold, only	5877-05	★ 60.64	Glass Manifold, only	5877-06	♣ 93.02
End Fitting, Nylon, #25	5837-16	♣ 39.27	End Fitting, Nylon, #25	5837-16	♣ 39.27
End Fitting, PTFE, #25	5837-56	♣ 57.49	End Fitting, PTFE, #25	5837-56	♣ 57.49
End Fitting, Nylon, #50	5837-21	♣ 90.95	End Fitting, Nylon, #50	5837-21	♣ 90.95
End Fitting, PTFE, #50	5837-61	♣ 144.26	End Fitting, PTFE, #50	5837-61	♣ 144.26
Coupling, Nylon, #25-25	5841-16	♣ 40.43	Coupling, Nylon, #25-25	5841-16	♣ 40.43
Coupling, PTFE, #25-25	5841-50	♣ 79.26	Coupling, PTFE, #25-25	5841-50	♣ 79.26
Coupling, Nylon, #25-50	5843-16	♣ 90.02	Coupling, Nylon, #25-50	5843-16	♣ 90.02
Coupling, PTFE, #25-50	5843-51	♣ 158.54	Coupling, PTFE, #25-50	5843-51	♣ 158.54
Nylon Connector, #25 to 1/8-inch NPT F	5844-22	♣ 47.82	Coupling, Nylon, #25-15	5843-12	♣ 42.49
PTFE Connector, #25 to 1/8-inch NPT F	5844-64	♣ 69.85	Coupling, PTFE #25-15	5843-49	♣ 58.27
Quick Connect-Disconnect	5877-31	★ 73.44	Brass Pressure Relief Valve, 1/8-inch	5877-33	★ 28.70
Brass Pressure Relief Valve 1/8-inch	5877-33	★ 28.70	Pressure Gauge, 0-60, 2-1/2-inch, 1/4-inch M	13385-10	★ 20.40
Brass Connector, 1/8-inch NPT M to 1/8-inch tube	5877-36	★ 8.82	Bushing, Nylon, #15 to 1/4-inch NPT F	5844-34	♣ 37.25
Brass Connector, 1/8-inch O.D. tube to 1/4-inch NPT F	5877-38	★ 12.13	Bushing, PTFE, #15 to 1/4-inch NPT F	5844-74	♣ 53.21
Pressure Gauge, 0-60, 2-1/2-inch, 1/4-inch M	13385-10	★ 20.40	Bushing, Nylon, #7	5029-10	♣ 2.27
Tubing, PTFE, 1/8-inch O.D., 10 Ft.	12687-04	♣ 26.19	Bushing, PTFE, #7	5029-35	♣ 10.98
			PTFE Ball	5877-39	♣ 23.28
			Bushing, Nylon #7 to 1/8-inch NPT F	5844-16	♣ 30.51
			Bushing, PTFE #7 to 1/8-inch NPT F	5844-58	♣ 31.43
			Tubing, PTFE 1/8-inch O.D., 10 Ft.	12687-04	♣ 26.19

**Designed and used by M. Haslanger, E. Petrillo and P. Sprague at The Squibb Institute For Medical Research, Princeton, NJ*



Custom Pilot Plant Reactor Designs

Selecting components and designing a Pilot Plant System requires you to consider specific site and application aspects, such as:

- Space limitations: what depth, width and height are available for the support stand, stirrer motor, condenser, etc.?
- Do you want a domed or flat head reactor?
- What will be the operating temperature?
- Vacuum or pressure?
- What type bottom outlet (standard, therad-ed, stopcock, "sink" type valve, etc.?)
- Do you want temperature monitoring/control?
- How much distance is needed below the bottom of the reactor outlet?
- What type of stirring motor (air, electronic, for hazardous or non-hazardous location)?
- What type of stirrer shaft (glass or PTFE)?
- Heat exchange coil needed? PTFE-covered copper or other type metal?
- What accessories are needed (condensers, take-offs, adapters, spargers, gas inlet/outlet, etc.?)

Custom Assemblies

In addition to the standard 10 through 200 L Cylindrical and Spherical Assemblies starting on page 496, ACE can assist you in designing a specific component reactor. Many of the dimensions and items listed can be modified to accommodate your needs.

Consult ACE by calling our Technical Design and Support Staff toll-free at **1-800-223-4524** or visiting us on the web at **www.aceglass.com**.

Fax to Ace Glass: 1-800-543-6752

Custom Chromatography Columns

A	Coated?	☐ Yes ☐ No
B	Frit Size	mm
	Porosity	
C	Stopcock Size	
	Stopcock Type	
D	Column I.D.	mm
E	Column Length	mm
F	Column Effective Length	mm
G	Top Joint Size	
	Top Joint Type	
H	Bottom Joint Size	
	Bottom Joint Type	
I	Jacketed?	☐ Yes ☐ No

Your contact information:

Name	
Company	
Address	
City, State, Zip	
Phone	
Email Address	

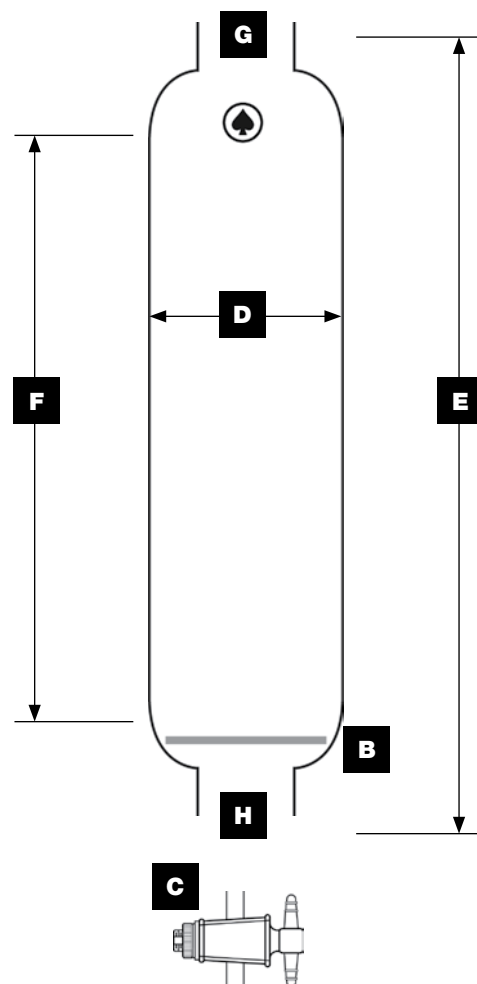
To Order:

Simply copy and complete the form above and fax it to the fax number above. We will be happy to promptly provide pricing and delivery information.

Phone: **1-800-223-4524**

Fax: **1-856-692-8919**

Toll-Free Fax: **1-800-543-6752**



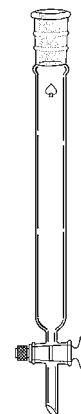
Additional Notes/Specification (please print):

You can also order custom chromatography columns on our website at www.aceglass.com

5865 CHROMATOGRAPHIC COLUMN ♠

With F 24/40 outer joint at top and a 2mm bore glass stopcock at the bottom.

Column I.D., mm	Effective Length, cm	Approx. Capacity, Liters	Order Code	Each
19	61	.17	5865-10	86.23

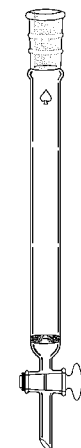


5865

5866 CHROMATOGRAPHIC COLUMN *with Fritted Disc* ♠

Column has F 24/40 outer joint at top and 2mm bore glass stopcock at the bottom with porosity B (70–100 micron) fritted disc sealed into the bottom of tube.

Column I.D., mm	Effective Length, cm	Approx. Capacity, Liters	Order Code	Each
10	46	.04	5866-05	94.46
19	61	.17	5866-10	99.97



5866

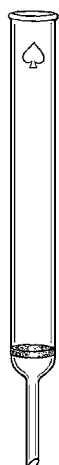
5884 CHROMATOGRAPHIC COLUMN *Plain* ♠

Plain, open top chromatographic column, universally suitable for many separations.

Column I.D., mm	Effective Length, cm	Approx. Capacity, Liters	Order Code	Each
22	25	.095	5884-05	18.06

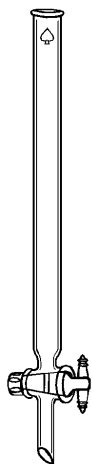


5884

**5885****5885 CHROMATOGRAPHIC COLUMN** *with Fritted Disc* ♠

Plain, open top, chromatographic column, with porosity B (70–100 micron) fritted disc sealed in.

Column I.D., mm	Effective Length, cm	Approx. Capacity, Liters	Order Code	Each
10	30	.024	5885-06	34.35
19	41	.116	5885-12	39.06
25	51	.25	5885-18	46.46
41	61	.805	5885-24	56.45

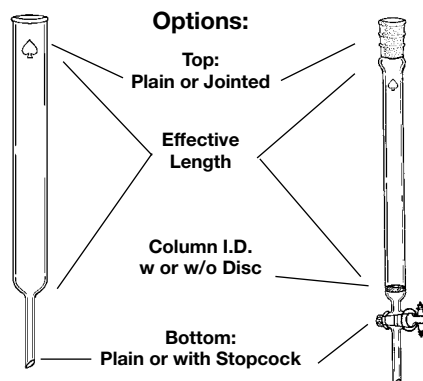
**5888****5888 CHROMATOGRAPHIC COLUMN** *1:5 PTFE Plug* ♠

Chromatographic column with 2mm bore 1:5 taper solid PTFE stopcock plug at bottom.

Column I.D., mm	Effective Length, cm	Approx. Capacity, Liters	Order Code	Each
10.5	25	.022	5888-10	65.43
14.5	25	.041	5888-15	73.84
14.5	51	.084	5888-20	84.33
19	25	.071	5888-25	78.57
19	30	.085	5888-30	80.50
19	51	.145	5888-35	95.11
22	30	.114	5888-37	86.97
22	41	.156	5888-39	89.25
22	51	.194	5888-41	90.16
25	30	.147	5888-42	92.61
25	51	.25	5888-45	98.15
41	51	.673	5888-50	118.37
41	61	.805	5888-55	138.81

Need a different column?

Furnish the following information. We'll make it for you.

**Furnish this Info:**

Top	Effective Length	Column I.D.*	Support	Bottom
Plain or Jointed (Size)			Without or With Disc**	Plain or With Stopcock***

* See Catalog No. 8802 for tubing sizes.

** Supplied with Por. B (70–100 micron) unless ordered otherwise.

*** Supplied with 2mm bore 1:5 solid PTFE plug unless ordered otherwise.

5889 CHROMATOGRAPHIC COLUMN *with Fritted Disc* ♠

Chromatographic column with 2mm bore, 1:5 taper solid PTFE stopcock plug and porosity B (70–100 micron) fritted disc sealed in.

Column I.D., mm	Effective Length, cm	Approx. Capacity, Liters	Order Code	Each
10	30	.024	5889-05	80.94
19	41	.116	5889-10	85.35
22	30	.114	5889-15	89.14
22	41	.156	5889-20	89.72
25	30	.147	5889-25	98.58
25	51	.25	5889-30	99.92
41	61	.805	5889-35	144.68
50	61	1.197	5889-40	152.20



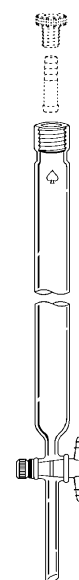
5889

5902 CHROMATOGRAPHIC COLUMN *1:5 PTFE Plug, with #15 Ace-Thred* ♠

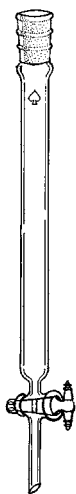
Chromatographic column with #15 Ace-Thred at top and 2mm bore 1:5 taper solid PTFE stopcock plug at bottom. Column supplied with 7506-06 Nylon bushing and FETFE O-Ring. Complete item consists of column with bushing and O-Ring, and 5853-07 Tubing Connector for connecting 12.5 to 14mm O.D. tubing to column.

Note: When using 5853 connector, O-Ring supplied with bushing is NOT necessary.

Column I.D., mm	Effective Length, cm	Approx. Cap., Liter	Order Code	Column w/Bushing	Order Code	Complete
10	46	.036	5902-19	132.54	5902-39	150.34
19	61	.173	5902-21	136.31	5902-41	154.11
25	51	.25	5902-23	146.96	5902-45	164.76
50	61	1.197	5902-25	176.12	5902-49	193.92
Tubing Connector, only			5853-07	17.80		



5902

**5903****5903 CHROMATOGRAPHIC COLUMN** 1:5 PTFE Plug, with $\text{\textcircled{24/40}}$ Joint ♠

Chromatographic column similar to 5902 except $\text{\textcircled{24/40}}$ joint replaces thread at top of column. Columns are epoxy coated. *These columns also appear in expanded listing under 5871.*

Column I.D., mm	Effective Length, cm	Approx. Cap., Liters	Order Code	Each
10	46	.036	5903-20	111.16
19	61	.173	5903-24	119.15
25	51	.25	5903-26	136.03
41	61	.805	5903-27	143.40
50	61	1.197	5903-28	166.20

**5904****5904 CHROMATOGRAPHIC COLUMN** with Filter Disc ♠

Chromatographic column with $\text{\textcircled{24/40}}$ joint at top, 2mm bore 1:5 taper solid PTFE stopcock plug at bottom and porosity B (70–100 micron) fritted disc sealed near bottom of tube. Columns are epoxy coated. *These columns also appear in expanded listing under 5871.*

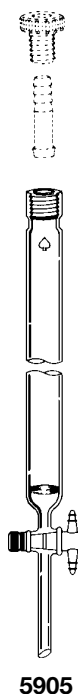
Column I.D., mm	Effective Length, cm	Approx. Cap., Liters	Order Code	Each
10	46	.036	5904-22	122.72
19	41	.116	5904-24	124.41
19	61	.173	5904-26	134.10
25	51	.25	5904-28	149.65
41	61	.805	5904-37	158.62
50	61	1.197	5904-40	193.26

5905 CHROMATOGRAPHIC COLUMN *with Filter Disc and #15 Ace-Thred* ♦

Chromatographic column with 2mm bore, 1:5 taper solid PTFE stopcock plug and porosity B (70–100 micron) fritted disc sealed in at bottom and #15 Ace-Thred at top of column. Column supplied with 7506-06 Nylon bushing and FETFE O-Ring. Complete item consists of column with bushing and O-Ring and 5853-07 Tubing Connector for connecting 12.5 to 14mm O.D. tubing to column.

Note: When using 5853 connector, O-Ring supplied with bushing is NOT necessary.

Column I.D., mm	Effective Length, cm	Approx. Cap., Liter	Order Code	Column w/Bushing	Order Code	Complete
10	46	.036	5905-15	148.40	5905-35	166.20
19	61	.173	5905-19	152.53	5905-39	170.33
25	51	.25	5905-23	162.21	5905-41	180.01
41	61	.805	5905-25	171.58	5905-46	189.38
50	61	1.197	5905-29	194.39	5905-49	212.19
Tubing Connector, only			5853-07	17.80		

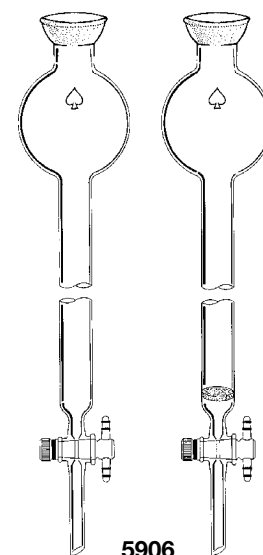


5905

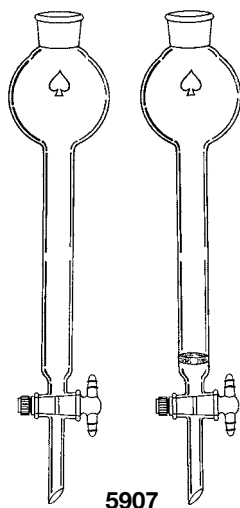
5906 CHROMATOGRAPHIC COLUMN *1:5 PTFE Plug, Flow Control Connection*

Chromatographic column with integral reservoir for connecting 5872 Flow Control Adapter. With 2mm bore, 1:5 taper solid PTFE stopcock plug at bottom. Available with or without porosity B (70–100 micron) fritted disc sealed in. **Order column, flow control adapter and clamp separately.**

Column I.D., mm	Joint	Effective Length, cm	Approx. Capacity, Liters	Reservoir Capacity, mL	Without Disc		With Disc	
					Order Code	Each	Order Code	Each
10.5	35/20	25	.022	200	5906-06	♦ 99.62	5906-33	♦ 109.79
14.5	35/20	25	.041	250	5906-09	♦ 105.09	5906-36	♦ 118.10
19.0	35/20	30	.085	250	5906-11	♦ 115.24	5906-39	♦ 132.85
25.0	35/20	30	.147	250	5906-14	♦ 119.99	5906-43	♦ 137.89
38.0	50/30	30	.340	250	5906-16	♦ 130.47	5906-45	♦ 151.33
50.0	50/30	30	.589	500	5906-18	♦ 150.64	5906-47	♦ 175.65
Flow Control Adapter, only, §35/20					5872-35	♦ 101.27		
Flow Control Adapter, only, §50/30					5872-36	♦ 111.31		
Clamp, Pinch Type					7669-14	★ 16.50		

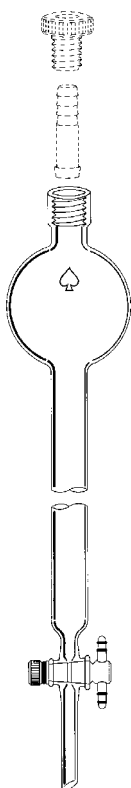


5906

**5907****5907 CHROMATOGRAPHIC COLUMN 1:5 PTFE Plug ♠**

Chromatographic column with integral reservoir at top, and 2mm bore 1:5 taper PTFE stopcock plug at bottom. Opening at top for #3 stopper or 24/40 outer joint. Available with or without porosity B (70–100 micron) fritted disc sealed in.

Column I.D., mm	Effective Length, cm	Approx. Capacity, Liters	Reservoir Capacity, mL	Without Disc		With Disc	
				Order Code	Each	Order Code	Each
#3 Stopper Top							
10.5	25	.022	200	5907-05	94.03	5907-32	102.00
14.5	25	.041	250	5907-10	99.26	5907-35	110.92
19.0	30	.085	250	5907-15	107.88	5907-37	127.62
25.0	30	.147	250	5907-20	111.70	5907-41	130.38
38.0	30	.340	250	5907-22	125.33	5907-43	145.55
50.0	30	.589	500	5907-24	145.76	5907-45	171.97
\$24/40 Outer Joint Top							
10.5	25	.022	200	5907-105	95.49	5907-132	103.21
14.5	25	.041	250	5907-110	100.48	5907-135	112.06
19.0	30	.085	250	5907-115	109.09	5907-137	128.83
25.0	30	.147	250	5907-120	112.73	5907-141	131.57
38.0	30	.340	250	5907-122	126.28	5907-143	146.39
50.0	30	.589	500	5907-124	146.07	5907-145	173.11

**5908****5908 CHROMATOGRAPHIC COLUMN 1:5 PTFE Plug, #15 Ace-Thred ♠**

Chromatographic column with integral reservoir and #15 Ace-Thred at top, and 2mm bore 1:5 taper PTFE plug at bottom. Column supplied with 7506-06 Nylon bushing and FETFE O-Ring. Complete item consists of column with bushing and O-Ring, and 5853-07 Tubing Connector for connecting 12.5 to 14mm O.D. tubing to column.

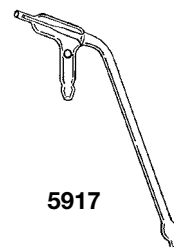
Note: When using 5853, O-Ring supplied with bushing is NOT necessary.

Column I.D., mm	Effective Length, cm	Approx. Capacity, Liters	Reservoir Capacity, mL	Order Code	Column w/Bushing	Order Code	Complete
10.5	25	.022	200	5908-06	114.43	5908-36	132.23
14.5	25	.041	250	5908-12	120.34	5908-42	138.14
19.0	30	.085	250	5908-18	129.53	5908-44	147.33
25.0	30	.147	250	5908-22	131.47	5908-46	149.27
				Order Code	Each		
Tubing Connector, only				5853-07	17.80		

5917 CHROMATOGRAPHIC SPRAY ♠

Delivers a true aerosol with no droplets. Enables thorough brushing for uniform development. Spray action begins at .028m³ per minute air flow. Atomization rate approximately 10cc per minute. Easily controlled with thumb pressure on vent hole. Suction stem is 125mm long.

Order Code	Each
5917-10	74.90



5917

5918 CHROMATOGRAPHIC INDICATOR SPRAY ★

A convenient, powerful spray unit for spraying indicators. Complete unit consists of spray head with dip tube, can of propellant and plastic jar. Refill sprays up to one liter.

	Order Code	Each
Complete	5918-10	26.49
Plastic Jar, only	5918-02	3.95
Can of propellant, only	5918-04	12.60



5918

ACE GLASS INCORPORATED

Safety Products

Committed to Laboratory Glassware Safety



Think Safety First!

Give us a call at **1-800-223-4524** and ask for a copy of our new Safety Products brochure.

Additionally, one of our glassware specialists is available to do on-site presentations on glassware safety. Give us a call to arrange a presentation at your firm today!



**5920****5920 ADSORPTION COLUMN ♠**

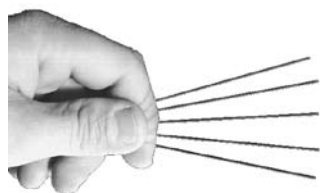
Used in ASTM D1319-65T, a “test for hydrocarbon types in liquid petroleum products.” Consists of a charger section with a capillary neck, a separator section, and an analyzer section. Upper joint $\frac{1}{8}$ 28/12.

Order Code	Each
5920-05	133.16

**5921****5921 ADSORPTION COLUMN ♠**

Used for same test as 5920. This unit is fabricated from ACE Trubore® tubing. Tip is attached to column by means of a $\frac{1}{8}$ 12/2 spherical joint. Upper joint $\frac{1}{8}$ 28/12.

Order Code	Each
5921-05	281.22

**5922****5922 PIPETS *Micro Capillary, TLC Spotting* ♠**

Uncalibrated, useful for spotting both aqueous and organic solutions. Sturdy construction helps hold breakage to a minimum. 5-inch length. Supplied 100 tubes per clear plastic vial.

Order Code	Per Vial
5922-10	9.60

5925 SYRINGE *Manual LC Injection* ★

With epoxy cemented 304 stainless steel needle permanently attached. All sizes have 22 gauge needle. Needles are 50mm long with 20° bevel tip.

Capacity, microliter	Order Code	Each
10	5925-03	30.50
25	5925-05	30.50
50	5925-07	34.00
100	5925-09	35.90
250	5925-11	47.00

5928 SYRINGE ★

With epoxy cemented 304 stainless steel needle permanently attached. The 10 microliter size has 26 gauge needles, all others have 25 gauge needles. Needles are 50mm long with 20° bevel tip.

Capacity, microliter	Order Code	Each
10	5928-02	20.00
25	5928-04	30.50
50	5928-06	40.50
100	5928-08	35.70
250	5928-10	47.00
500	5928-12	49.40



5925-03
5928-02

5928 SYRINGE *with Guide* ★

Same as 5928 except fitted with adapter guide for repetitive deliveries.

Capacity, microliter	Order Code	Each
10	5928-118	59.50



5928-118

5928 SYRINGE *Economy Six-Pack* ★

Basic 10 microliter syringe with epoxy cemented 304 stainless steel needle permanently attached or removable needle, supplied in convenient package of six. In addition to an approximate 7–12% savings in cost, you get a convenient storage container. Fixed needle is 26 gauge; removable is 26 gauge.

Needle Type	Order Code	Per Pack
Fixed	5928-302	114.00
Removable	5928-330	225.15



5928-302

**5929-02****5929 SYRINGE ★**

For delivering liquid samples to a gas chromatograph with the very highest reproducibility and accuracy. The needle holds the entire sample. A tungsten wire plunger is individually fitted to the .152mm bore of the stainless steel needle and bottoms at the tip of the needle to discharge the entire sample. A PTFE ferrule contained in the needle hub makes a final seal around the plunger at the base of the needle and is easily tightened to compensate for wear. Needle and plunger may be disassembled for cleaning or replacement.

Capacity, microliter	Needle Length	Needle Gauge	Order Code	Each
1.0	7 cm	25	5929-02	65.50
1.0	7 cm	23	5929-05	66.00
5.0	7 cm	23	5929-12	76.00

**5931****5931 SYRINGE Gas Tight ★**

Designed for highest performance in such applications as liquid or gas chromatography, handling of corrosive gases and liquids, radioactive materials and sterile solutions. PTFE coated plungers with precision PTFE tips for leak-tight seal. Accuracy and reproducibility of $\pm 1\%$. With fixed needle. *Several sizes of this model syringe are available with luer tip and luer lock — call or email for information.*

Capacity, microliter	Order Code	Each
10	5931-01	29.80
25	5931-03	42.00
50	5931-02	43.00
100	5931-04	47.00
250	5931-06	48.00

5933 SYRINGE *Gas Tight ★*

Gastight syringes with removable needle type (RN) and a 3/4-inch length, bevel point style #2 needle; needle gauge is given.

Capacity, microliter	Needle Gauge	Order Code	Each
10	26	5933-03	50.00
25	25	5933-05	49.50
50	25	5933-07	50.00
100	25	5933-09	56.00
250	25	5933-11	56.00
500	25	5933-13	56.00



5933-03

5934 SYRINGE *Removable Needle ★*

Basic microliter syringe with removable needle for precise liquid delivery. The 10 microliter size has a 26 gauge needle, all others have 25 gauge needles, Needle length, 50mm.

Capacity, microliter	Order Code	Each
10	5934-12	39.50
25	5934-14	46.20
50	5934-18	47.50
100	5934-24	49.10
250	5934-28	70.00
500	5934-32	73.00



5934

13675 SYRINGE *Sample Retrieval, All Plastic ♠*

1mL all-plastic syringe intended for use in Microscale sample retrieval applications. Features built-in dead space tip plug, safety stop, luer tip for needle connection, blue colored plunger and is smooth drawing. Supplied in case of 100 units. Needles NOT included. For needles, see 5936 or 13682.

Order Code	Case/100
13675-09	7.94



13675

**13678****13678 SYRINGE** *Interchangeable, Glass Tip* ♠

Interchangeable borosilicate glass syringe with permanently fused graduations. Colored plunger end facilitates dosage measurement. Reinforced flanges are flat on two sides to avoid rolling. Supplied with glass tip.

Capacity, mL	Order Code	Each	Capacity, mL	Order Code	Each
2	13678-03	15.60	20	13678-21	26.75
5	13678-06	17.23	30	13678-31	43.37
10	13678-11	22.49	50	13678-51	70.07

**13680****13680 SYRINGE** *Interchangeable* ♠

Interchangeable borosilicate glass syringe with permanently fused graduations. Colored plunger end facilitates dosage measurement. Reinforced flanges are flat on two sides to avoid rolling. Supplied with luer lock tip.

Capacity, mL	Order Code	Each	Capacity, mL	Order Code	Each
2	13680-02	15.56	50	13680-28	70.70
5	13680-05	17.03	100*	13680-30	306.00
10	13680-10	22.49	150*	13680-34	499.95
20	13680-20	26.70	250*	13680-36	630.00
30	13680-25	43.37			

**Jumbo
Size**

* Not interchangeable

**Never pressurize or evacuate a vessel,
flask, or any other glassware
without proper safety precautions.**

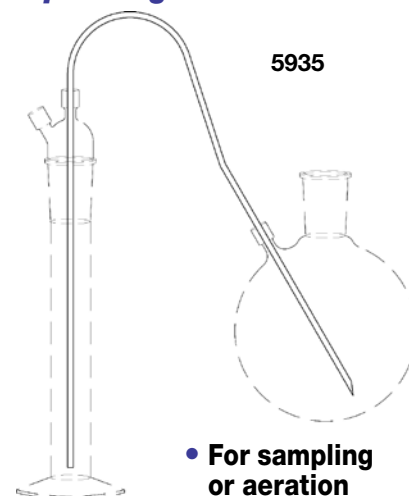
5935 CANNULA *Stainless Steel* ★

Available with deflected point at one end and other end blunt or with deflected point on both ends for septum penetration with a minimum of coring. These long cannula can be bent to avoid tipping reagent bottles which would cause liquid to come in contact with rubber septa.

Easy, convenient transfer of materials – liquid or gas

Gauge	Length, cm (in)	Package Qty.	Needle Ends Deflected-Blunt		Needle Ends Deflected-Deflected	
			Order Code	Per Pkg.	Order Code	Per Pkg.
22	46 (18)	5	5935-18	37.86	5935-19	47.17
22	76 (30)	5	5935-22	54.44	5935-23	63.47
22	122 (48)	3	5935-26	47.83	5935-27	53.81
18	46	5	5935-32	39.17	5935-33	46.90
18	76	5	5935-36	55.66	5935-37	67.35
18	122	3	5935-40	48.53	5935-41	54.20
15	46	5	5935-44	43.83	5935-45	52.78
15	76	5	5935-48	59.23	5935-49	70.56
15	122	3	5935-52	51.55	5935-53	57.74

Note: Deflected septum point is equivalent to B-D Huber or Hamilton Style 1 & 2.



5936 NEEDLES *Syringe* ★

Standard hypodermic type needles made from 304 full hard Stainless Steel tubing with chrome plated brass American standard luer taper short hubs. Supplied 50mm (2 inches) long with point style #2 (20° bevel) for septum penetration. Supplied five needles per package.

Gauge	O.D., mm	I.D., mm	Order Code	Per Pkg.
23	.63	.32	5936-32	31.42
19	1.07	.65	5936-39	41.72
18	1.27	.80	5936-40	41.72
14	2.1	1.6	5936-44	72.82



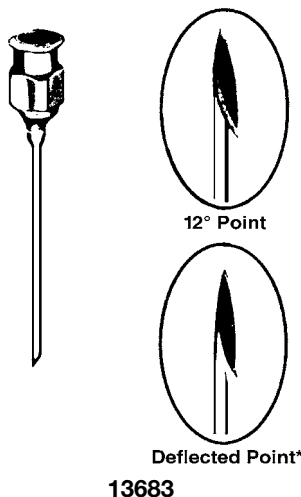
13682 NEEDLES *Stainless Steel* ★

Sterile, stainless steel syringe needles with inert plastic luer hub and regular 12° medical point. Can be sterilized. Supplied 25 needles per package.

Gauge	O.D., in.	I.D., in.	Length (In.)	Order Code	Per Pkg.
20	.035	.023	1-1/2	13682-12	12.90
22	.028	.016	1-1/2	13682-15	12.90

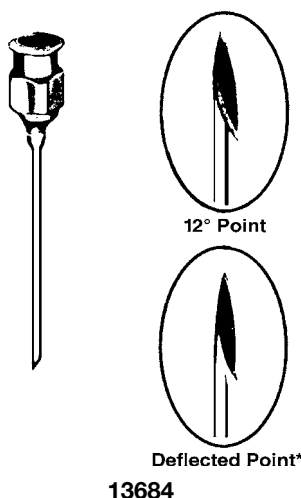
Note: 20 gauge needle fits ACE Cat. No. 12684-23, 0.8mm I.D. PTFE Tubing



**13683 NEEDLES** 304 Stainless Steel, Standard ★

Hypodermic stainless steel needles with 12° regular medical point tip and female luer hub. Packed 12 needles on card — cellophane wrapped. Each card individually boxed.

Gauge	Length, mm (In.)	Order Code	Per Dozen
20	51 (2)	13683-23	71.17
18	51 (2)	13683-29	71.17
15	89 (3-1/2)	13683-32	95.32

**13684 NEEDLES** 304 Stainless Steel, Special ★

Special length stainless steel needles with deflected septum point* and standard female hub. Packed six per package, two packages per case.

Gauge	Length, mm (In.)	Order Code	Per Package	Per Case
20	152 (6)	13684-07	55.70	111.22
20	305 (12)	13684-11	61.50	122.41
18	152 (6)	13684-15	66.50	131.66
18	305 (12)	13684-19	71.95	142.57
18	610 (24)	13684-23	187.50	375.00
15	305 (12)	13684-27	160.00	320.00
15	610 (24)	13684-31	187.50	375.00

*Deflected septum point is equivalent to B-D Huber or Hamilton Style 1 & 2.

**5939 SYRINGE CLEANER** ★

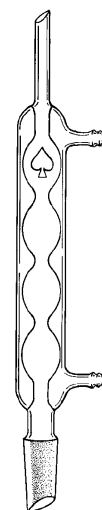
"Dry cleans" syringes listed under 5929 by vaporizing residues with a combination of high heat (approximately 250°C) and vacuum (10 Torr). Quick and simple: Insert needle through septum cap for thirty seconds, pump plunger, and vaporized contaminants are drawn out. No vapor condensation remains when needle cools. Cleaner accepts needles up to 20 gauge, 1.00mm O.D. and 100mm long. Can be left on continuously during working hours. Not recommended for removing proteinaceous residues or septa plugs from needles. Operates on 120 volts.

Order Code	Each
5939-12	234.12

5941 CONDENSER *Allihn* ♠

Bulb type, approximately one bulb per 50mm, with ₧ 24/40 inner joint at bottom. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

Jacket Length, mm	Order Code	Each
200	5941-12	90.66
300	5941-14	97.20

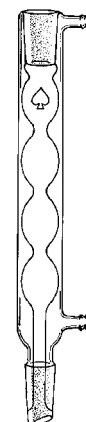


5941

5943 CONDENSER *Allihn, Fully Jacketed* ♠

Bulb type, approximately one bulb per 50mm, with water cooled ₧ 24/40 inner and outer joint at bottom and top. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

Jacket Length, mm	Order Code	Each
200	5943-12	147.30
400	5943-15	164.34

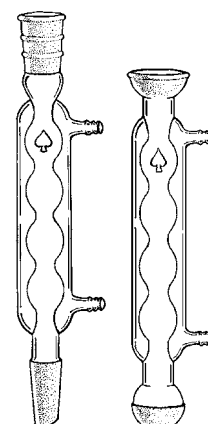


5943

5945 CONDENSER *Allihn* ♠

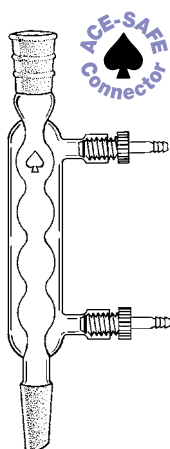
Bulb type, approximately one bulb per 50mm, with ₧ or § joint at bottom and top. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

Jacket Lgth., mm	Joint Size ₧ 19/38		Joint Size ₧ 24/40		Joint Size ₧ 29/42		Joint Size § 35/25	
	Order Code	Each	Order Code	Each	Order Code	Each	Order Code	Each
200	—	—	5945-12	95.14	—	—	—	—
250	5945-05	96.77	5945-13	99.35	—	—	—	—
300	—	—	5945-14	106.79	5945-24	119.65	—	—
400	—	—	5945-15	116.84	5945-25	122.74	5945-65	135.91
500	—	—	5945-16	123.61	5945-26	131.06	—	—
600	—	—	5945-17	126.06	5945-27	150.91	—	—



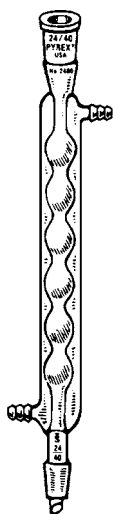
5945-05 5945-65

Custom condensers available upon special request

**5946****5946 CONDENSER** *Allihn, with Ace-Thred Connectors* ♠

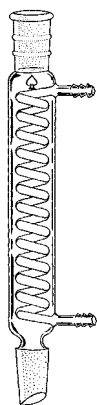
Bulb type, approximately one bulb per 50mm, with 24/40 inner and outer joint at bottom and top, #7 Ace-Thred and "Ace-Safe" hose connections on inlet and outlet with barb for 1/4-inch I.D. tubing. For replacement connectors, see 5853.

Jacket Length, mm	Joints	Complete	
		Order Code	Each
250	24/40	5946-116	123.44
300	24/40	5946-118	130.93

**4069****4069 CONDENSER** *Allihn* ★**Corning 2480**

PYREX® brand, with outer and inner 24/40 joint. A drip tip is provided at the end of the inner joint.

Corning Code	Jacket Lgth., mm	Joints	Approx OD. x Jacket Lgth., mm	Approx. Hght., mm	Quantity Per		Order Code	Shelf-Pack Price	Case Price
					Shelf-Pack	Case			
2480-300	300	24/40	41 x 300	450	1	6	4069-19	152.30	794.61

**5953****5953 CONDENSER** *Coiled* ♠

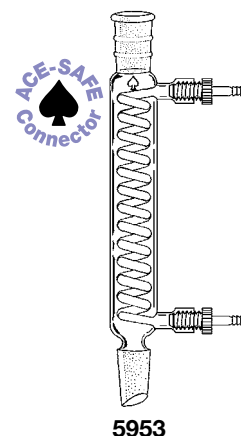
Coiled condensing tube, with 24/40 inner and outer joint at bottom and top. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

Jacket Length, mm	Order Code	Each
200	5953-12	150.06
250	5953-13	166.01
300	5953-14	173.41
400	5953-15	198.60

5953 CONDENSER *Coiled, with Ace-Thred Connectors ♠*

Coiled condensing tube, with 24/40 inner and outer joint at bottom and top. With #7 Ace-Thred and “Ace-Safe” hose connections on inlet and outlet with barb for 1/4-inch I.D. tubing. For replacement hose connections, see 5853.

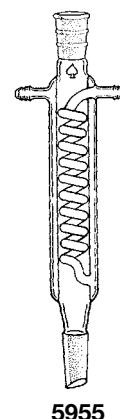
Jacket Length, mm	Order Code	Each
200	5953-101	168.83
250	5953-103	190.02
300	5953-106	197.16
400	5953-108	212.53



5955 CONDENSER *Coiled ♠*

Double jacketed with 24/40 inner and outer joint at bottom and top. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

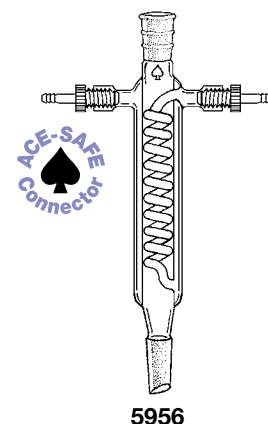
Jacket Length, mm	24/40 Joints		29/42 Joints	
	Order Code	Each	Order Code	Each
250	5955-13	268.39	—	—
300	5955-14	277.62	5955-34	280.70
400	5955-15	290.07	—	—

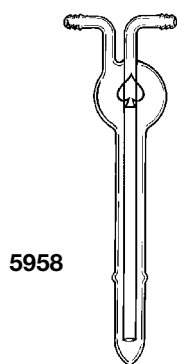


5956 CONDENSER *Coiled, with Ace-Thred Connectors ♠*

Double-jacketed, with 24/40 inner and outer joint at bottom and top. Extra cooling capacity for volatile materials. Compact design retards diffusion. With #7 Ace-Thred and “Ace-Safe” hose connections on inlet and outlet with barb for 1/4-inch I.D. tubing. For replacement hose connections, see 5853.

Jacket Length, mm	24/40 Joint	Order Code	Each
250	24/40	5956-143	298.96
400	24/40	5956-145	325.49



**5958****5958 CONDENSER** *Cold Finger* ★

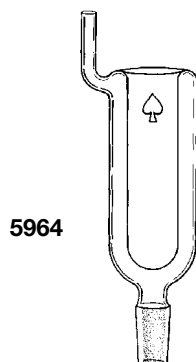
Jacket length is measured from the lower shoulder of the bulb to the bottom of the finger. Diameter of tube is 14mm. Used in 6472 Pilot Plant Reactor. Use with 5/16-inch or 3/8-inch I.D. Tubing, Size C. See page 5 for more detailed Hose Connection information.

Jacket Length, mm	Order Code	Each
625	5958-99	81.49

**5960
9250****5960/9250 CONDENSER** *Cold Finger* ♠

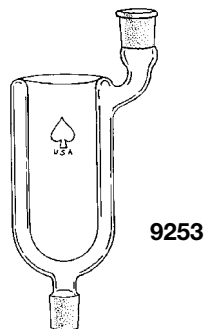
With § joint. The Code -12 condenser is used with our 6606, 6609, and 6613 Distilling Heads. See page 5 for more detailed Hose Connection information.

Length Below Joint, mm	§ Joint	Tubing Size (Inches)	Order Code	Each
80	14/10	5/16 (A)	9250-02	56.14
92	14/20	5/16 (A)	9250-04	57.82
92	19/22	5/16 (A)	9250-08	57.82
110	24/40	3/8 (D)	5960-08	81.05
215	24/40	3/8 (D)	5960-12	76.33

**5964****5964 CONDENSER** *Dewar Type* ♠

For use with dry ice and other solid cooling agents. Upper tube is 12mm O.D.

Jacket Length, mm	I.D., mm	Order Code	§ Inner Joint 24/40
200	40	5964-12	150.01
250	50	5964-13	190.59
300	75	5964-14	219.45

**9253****9253 CONDENSER** *Dewar* ♠

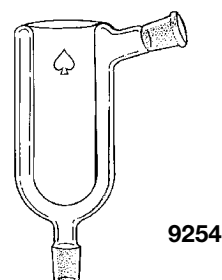
For use with dry ice and other solid cooling agents. Can also be adapted for use as a small constant temperature bath by using a constant boiling liquid. In this manner, can also be used as an oil bath. The larger size will hold 100mL flask, small size will hold 10mL flask.

Inside Depth, mm	I.D., mm	§ Joints	Order Code	Each
90	36	14/20	9253-08	115.37
90	70	14/20	9253-10	130.54

9254 CONDENSER *Dewar* ♠

Similar to 9253 except side joint is angled 105°.

Inside Depth, mm	I.D., mm	£ Joints	Order Code	Each
90	36	14/20	9254-05	116.95
90	70	14/20	9254-07	134.33
120	32	14/20	9254-10	137.03

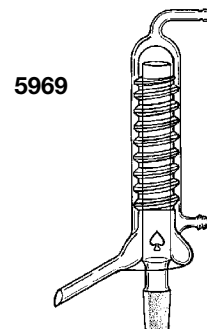


9254

5969 CONDENSER *Friedrichs* ♠

Reflux controlled by regulating jacket temperature. Provides compact spiral path for condensation. Jacket length 200mm. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

£ Inner Joint	Order Code	Each
24/40	5969-10	273.18

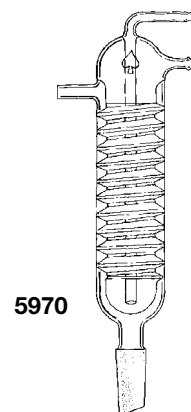


5969

5970 CONDENSER *Friedrichs* ♠

With molded spiral condensing surface and £ joint at bottom. Jacket length 250mm. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

£ Joint	Order Code	Each
24/40	5970-10	156.12

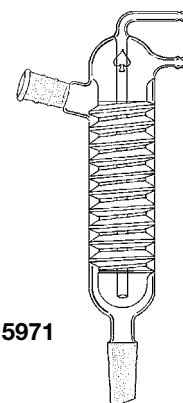


5970

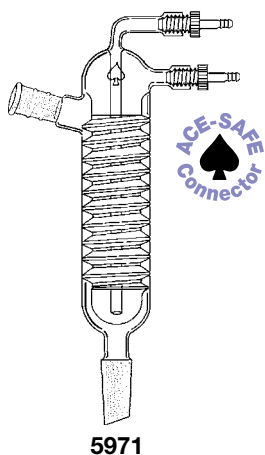
5971 CONDENSER *Friedrichs* ♠

With molded spiral condensing surface and £ joint at bottom and top. Jacket length 250mm. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

Top Outer £ Joint	Bottom Inner £ Joint	Order Code	Each
24/40	24/40	5971-10	169.90
29/42	29/42	5971-15	173.31
24/40	34/45	5971-20	181.03
24/40	45/50	5971-23	187.67
24/40	55/50	5971-27	198.04

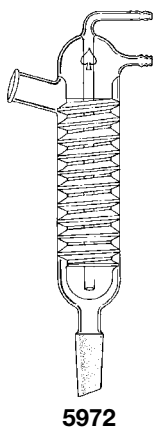


5971


5971 CONDENSER *Friedrichs, with Ace-Thred Connectors* ♠

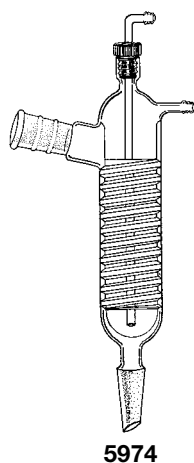
With molded spiral condensing surface and ⌘ joint at bottom and top. Jacket length 250mm. With #7 Ace-Thred and “Ace-Safe” hose connections on inlet and outlet with barb for 1/4-inch I.D. tubing. For replacement hose connections, see 5853.

Top Outer ⌘ Joint	Bottom Inner ⌘ Joint	Order Code	Each
24/40	24/40	5971-111	191.47
29/42	29/42	5971-116	194.84
24/40	45/50	5971-124	209.22
24/40	55/50	5971-128	219.58


5972 CONDENSER *Friedrichs* ♠

With molded spiral condensing surface and ⌘ inner joint at bottom. Top tubulation tooled to take No. 3 stopper. Jacket length 250mm. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

⌘ Joint	Order Code	Each
24/40	5972-10	161.92


5974 CONDENSER *Friedrichs, Modified* ♠

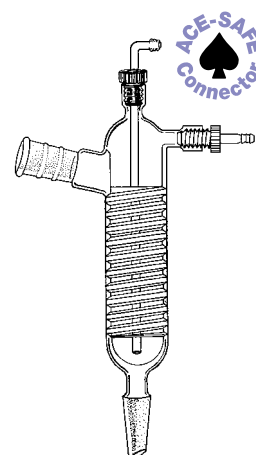
Top of condenser modified with #7 Ace-Thred so inlet tube is removable. This offers easier cleaning and greater economy if inlet tube breaks. With molded spiral condensing surface and ⌘ 24/40 joint at bottom and top. Jacket length 250mm. Complete unit consists of body, inlet tube and 5029-10 bushing. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

Order Code	Complete	Replacement Inlet Tubes	
		Order Code	Per 6
5974-10	177.84	5974-02	53.19

5974 CONDENSER *Friedrichs, Modified, with Ace-Thred Connectors ♠*

Top of condenser modified with #7 Ace-Thred so inlet tube is removable. This offers easier cleaning and greater economy if inlet tube breaks. With molded spiral condensing surface and § 24/40 inner joint at bottom and top. Jacket length 250mm. Complete unit consists of body, inlet tube and 5029-10 bushing. With #7 Ace-Thred and "Ace-Safe" hose connection on inlet with barb for 1/4-inch I.D. tubing. For replacement hose connection, see 5853.

Order Code	Complete	Replacement Inlet Tubes	
		Order Code	Per 6
5974-109	188.60	5974-02	53.19

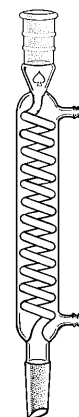


5974

5977 CONDENSER *Graham ♠*

With § 24/40 inner and outer joint at bottom and top. The 900mm size is part of Cat. No. 7470 Ketene Generator. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

Jacket Length, mm	Order Code	Each
200	5977-12	127.77
300	5977-14	134.42
400	5977-15	147.68
500	5977-16	167.88
600	5977-17	176.04
900	5977-19	219.23



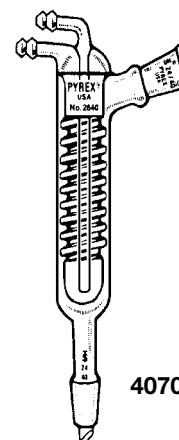
5977

4070 CONDENSER *Friedrichs ★*

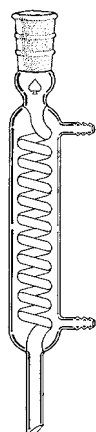
Corning 2640

PYREX® brand, with outer and inner § joint. A drip tip is provided at the end of the inner joint.

Corning Code	Jacket Length, mm	§ Length, Joint	Approx. O.D. x Jacket mm	Quantity Per		Order Code	Shelf-Pack Price	Case Price
				Shelf-Pack	Case			
2640-350	350	24/40	50 x 325	1	4	4070-06	229.77	799.20

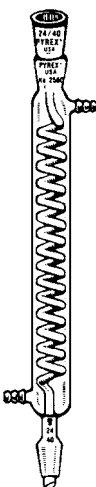


4070

**5979****5979 CONDENSER** *Graham* ♠

With 24/40 outer joint at top. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

Jacket Length, mm	Order Code	Each
200	5979-12	114.77
300	5979-14	129.08

**4071****4071 CONDENSER** *Graham, Coil* ★**Corning 2560**

PYREX® brand, with outer and inner 24/40 joint. A drip tip is provided at the end of the inner joint.

Jacket Length, mm	24/40 Joints	Approx. O.D. x Jacket Lgth., mm	Approx. Hght., mm	Quantity Per		Order Code	Shelf-Pack Price	Case Price
				Shelf-Pack	Case			
300	24/40	41 x 300	450	1	6	4071-12	180.03	939.28

**5994****5994 CONDENSER** *Liebig, "No Hold Up"* ♠

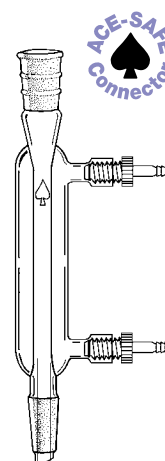
With outer 24/40 joint at top. Jacket length 300mm. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

24/40 Joint	Order Code	Each
24/40	5994-14	97.27

5997 CONDENSER *Liebig, with Ace-Thred Connectors* ♠

“No Hold Up” condenser with 24/40 inner and outer joint at bottom and top, #7 Ace-Thred inlet/outlet for connecting “Ace-Safe” hose connections with barb for 1/4-inch I.D. tubing. For replacement hose connections, see 5853. Complete item includes two hose connectors with O-Ring and two Nylon bushings.

Jacket Length, mm	Joints	Complete	
		Order Code	Each
200	24/40	5997-132	118.26
250	24/40	5997-133	124.31
300	24/40	5997-134	125.80

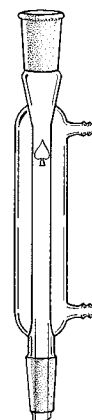


5997

5998 CONDENSER *Liebig, “No Hold Up”* ♠

With 24/40 inner and outer joints at bottom and top. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

Jacket Length, mm	Joint Size 19/38		Joint Size 24/40		Joint Size 29/42	
	Order Code	Each	Order Code	Each	Order Code	Each
200	5998-04	85.62	5998-12	91.57	5998-22	101.58
250	—	—	5998-13	97.74	5998-23	106.27
300	—	—	5998-14	104.24	5998-24	109.40
400	—	—	5998-15	105.52	5998-25	115.08
500	—	—	5998-16	110.28	—	—
600	—	—	5998-17	109.92	—	—

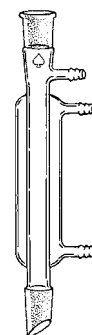


5998

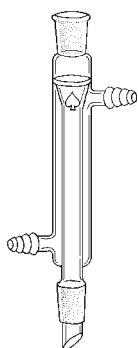
9258 CONDENSER *Liebig* ♠

With 110mm jacket length, also an additional vacuum takeoff between top outer joint and jacket. Use with 5/16-inch I.D. Tubing, Size A. See page 5 for more detailed Hose Connection information.

Joints	Order Code	Each
14/20	9258-02	72.44



9258

**9261****9261 CONDENSER** *Liebig* ♠

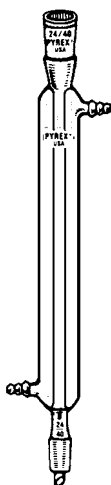
With straight inner tube sealed through the jacket. This condenser is acceptable for use with Abderhalden or Mini-Lab moisture test apparatus. See page 5 for more detailed Hose Connection information.

Jacket Length, mm	Order Code	♠14/20 Tubing Size (In.)	Each	Order Code	♠19/22 Tubing Size (In.)	Each
110	9261-02	5/16 (A)	68.70	9261-04	5/16 or 3/8 (B)	69.81
250	9261-12	5/16 (A)	69.81	9261-15	5/16 or 3/8 (B)	72.23

**5999****5999 CONDENSER** *Liebig, "No Hold Up", Fully Jacketed* ♠

With water cooled ♠ inner and outer joint at bottom and top. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

Jacket Length, mm	Order Code	♠ Joints 24/40
200	5999-12	141.20
300	5999-14	143.17

**4072****4072 CONDENSER** *Liebig* ★**Corning 2400**

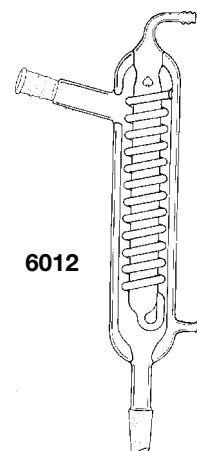
PYREX® brand, with outer and inner ♠ joint. A drip tip is provided at the end of the inner joint.

Corning Code	Jacket Lgth., mm	♠ Joints	Approx OD. x Jacket Lgth., mm	Approx. Hght., mm	Quantity Per		Order Code	Shelf-Pack Price	Case Price
					Shelf-Pack	Case			
2400-300	300	24/40	41 x 300	450	1	4	4072-23	122.55	426.27

6012 CONDENSER *Long Path* ★

Turbulent flow created makes this condenser very desirable for use under reduced pressure. Internal and external cooling surfaces result in high efficiency per unit length. Use with 7/16-inch or 1/2-inch I.D. Tubing, Size F. See page 5 for more detailed Hose Connection information.

Jacket Length, mm	Order Code	§ Joints
500	6012-16	24/40
600	6012-17	714.40
		731.58



6012

6015 CONDENSER *High Capacity, Double Coil, Pilot Plant* ★

High through-put double coil condensers are made for larger systems and reactors, especially Pilot Plants to handle larger scale reactions. These are also similar to Rotary Evaporator type condensers where a lot of material is being condensed at a higher temperature and where large amounts of cooling water are needed to generate higher efficiency. The unit can be ordered with standard taper joints or beaded pipe end connections. The overall length is approximately 390mm and O.D. is approximately 85-90 mm. Both units have #15 Ace-Thred connections for Ace-Safe hose connections. Supplied with full Ace Safe connections.

Jacket Length, mm	Condensing Area, cm ²	End Finish	Order Code	Each
315	1480	10-inch bead pipe	6015-12	554.58
290	1400	§45/50	6015-17	610.04



6015-12

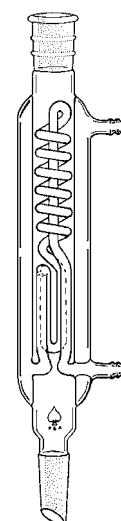


6015-17

6016 CONDENSER *Pilot Plant* ★

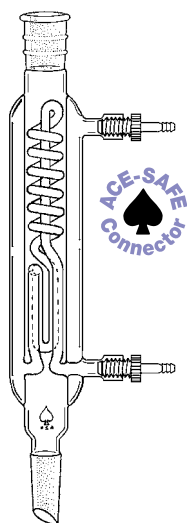
Highly efficient. May be used either for through condensation or refluxing. Internal baffling acts as impinging surface for entrained particles and discourages diffusion loss. Use with 7/16-inch or 1/2-inch I.D. Tubing, Size F. See page 5 for more detailed Hose Connection information.

Jacket Length, mm	Joint Size §45/50		Joint Size §71/60		Joint Size §35/25		Joint Size §65/40	
	Order Code	Each	Order Code	Each	Order Code	Each	Order Code	Each
500	6016-36	809.90	—	—	6016-66	806.49	6016-75	853.31
750	6016-39	929.47	6016-52	1,032.27	—	—	6016-77	919.56
1000	6016-41	1,101.99	—	—	6016-69	1,085.56	6016-79	1,165.90



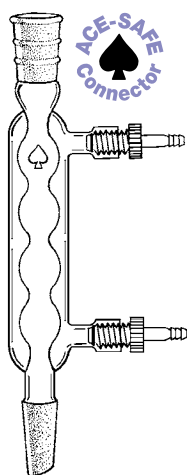
6016

Custom condensers with various joint or length sizes are available upon special request.

**6016****6016 CONDENSER** *Pilot Plant, with Ace-Thred Connectors* ★

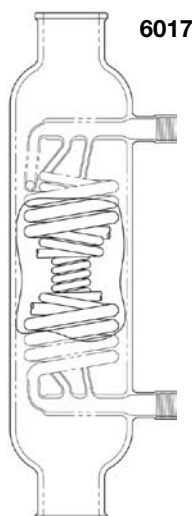
Highly efficient. May be used either for through condensation or refluxing. Internal baffling acts as impinging surface for entrained particles and discourages diffusion loss. With #11 Ace-Thred and "Ace-Safe" PP hose connections on inlet and outlet with barb for 1/4-inch I.D. tubing. For replacement hose connections, see 5853.

Jacket Length, mm	Joint Size ₣45/50		Joint Size ₣35/25		Joint Size ₣65/40	
	Order Code	Each	Order Code	Each	Order Code	Each
500	6016-137	831.21	6016-167	816.10	6016-176	862.25
750	6016-139	950.79	—	—	6016-178	927.56
1000	6016-141	1,123.30	6016-170	1,091.13	6016-180	1,170.32

**5945****5945 CONDENSER** *Allihn, with Ace-Thred Connectors, Pilot Plant* ★

Bulb type, approximately one bulb per 50mm, with ₣ 45/50 inner and outer joint at bottom and top #11 Ace-Thred and "Ace-Safe" hose connections on inlet and outlet with barb for 3/8-inch I.D. tubing. For replacement connectors, see 5853. This condenser is used with 6472 Pilot Plant Reactor.

Jacket Length, mm	Order Code	Each
500	5945-76	332.81

**6017****6017 CONDENSER** *High Capacity, Triple Coil* ★

This new design gives even higher through-put than the double coil or any rotary evaporator condenser with three internal cooling coils. Designed also for pilot plants and larger reactors where a lot of cooling area is needed for condensing or for higher temperature reactions where more through-put is needed. Comes with #15 Ace-Thred ports with or without Ace-Safe Connections. Top and bottom connections are 2-inch beaded pipe. Overall length is approximately 460 mm and O.D. is approximately 110 mm.

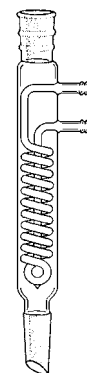
Coil Length, mm	Condensing Area, cm ²	Glass only		Complete	
		Order Code	Each	Order Code	Each
220	1600	6017-210	707.60	6017-212	747.40

6020/9270 CONDENSER *Spiral ♠*

With spiral condensing tube having both inlet and outlet connections at top, on same side. With inner and outer joints at bottom and top. Length between joints is approximately 80-90 mm longer than coil length. See page 5 for more detailed Hose Connection information.

Coil Length, mm	§ Joints	Tubing Size (Inches)	Order Code	Each
100	14/20	5/16 or 3/8 (B)	9270-04	131.70
200	24/40	3/8 (D)	6020-02	183.65
250	24/40	3/8 (D)	6020-04	197.12
300	24/40	3/8 (D)	6020-06	203.24
400	24/40	3/8 (D)	6020-08	224.06

➤ §14/10 SIZE LISTED IN MICRO/MINI-LAB SECTION, STARTING ON PAGE 363.

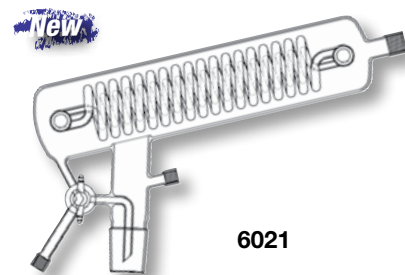


**6020
9270**

6021 CONDENSER *Modified Keenan, Dual Coil, Horizontal*

Highly efficient, double coil, condenser with 30 degree horizontal angle vs. typical vertical style. Great for under hoods or on pilot plant reactors where height maybe an issue and a high level of distillation is required. Condenser has a 45/50 ST bottom joint to fit on reactor heads, all other connections are either #7 or #15 Ace-Safe, (supplied). Comes with either a PTFE or glass stopcock. Overall length is approximately 470mm. Height from top of bottom join to highest point at top is 90 mm.

§ Joints	Stopcock Type	Order Code	Each
45/50	PTFE	6021-20	Priced Upon Request
45/50	Glass	6021-30	Priced Upon Request

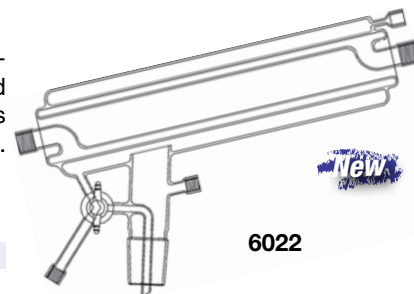


6021

6022 CONDENSER, KEENAN *Single Tube, Horizontal*

Highly efficient, newly designed condenser. Features a horizontal angle for low clearance but extremely good capacity and throughput. Especially useful when assembling large reactor in limited height clearance situations. Surface area is 710 cm². Cooling fluid volume: 600 mL. Condenser has a § 45/50 bottom joint. All other connections are #7 or #15 Ace-Thred that accepts a 7mm O.D. tube or 5853 "Ace-Safe" Connectors (supplied) to attach tubing. Overall length: 475mm.

§ Joints	Stopcock Type	Order Code	Each
45/50	Glass	6022-22	Priced Upon Request
45/50	PTFE	6022-30	Priced Upon Request

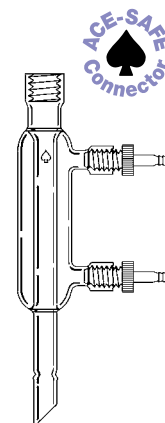


6022

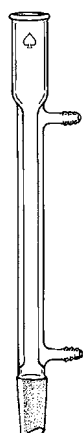
6024 CONDENSER *West, with Ace-Thred Connectors ♠*

Used with Pressure Reactors, listed in Reaction Section. Heavy wall condenser has a #15 Ace-Thred at top that can be stoppered using 5846 Plug (not supplied). Bottom drip tip is long enough to be secured in the #15 Ace-Thred on 6533 Reactor Head, One-Piece Pressure Reactor or any vessel with a #15 Ace-Thred. Drip tip has a groove that restricts blowout when secured with 7506-06 Bushing and O-Ring (not supplied). Inlet/outlet have #7 Ace-Threds for use with "Ace-Safe" 5853 easy connect/disconnect tubing connectors.

Jacket Length, mm	Order Code	Each
2000	6024-20	114.40

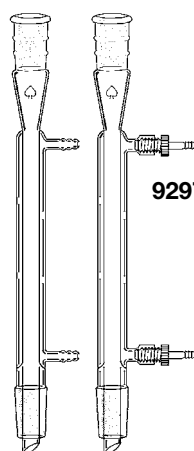


6024

**6025****6025 CONDENSER** *West* ♠

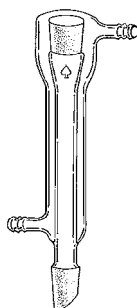
With ⚙ inner joint at bottom. Jacket length 300mm. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

⚙ Joint	Order Code	Each
24/40	6025-14	70.66

**6029**
9292-09**9297-106****6029/9297 CONDENSER** *West, "No Hold Up"* ♠

With ⚙ inner and outer joints at bottom and top. See page 5 for more detailed Hose Connection information.

Jacket Length, mm	⚙ Joints	Tubing Size (In.)	Order Code	Each
200	14/20	5/16 (A)	9297-05	69.65
200	19/22	5/16 or 3/8 (B)	9297-09	69.65
200	14/20	#7 Ace-Thred	9297-106	89.64
200	19/22	#7 Ace-Thred	9297-110	89.64
250	24/40	3/8 (D)	6029-13	92.02
300	24/40	3/8 (D)	6029-14	95.22
400	24/40	3/8 (D)	6029-15	99.93
500	24/40	3/8 (D)	6029-16	104.88
600	24/40	3/8 (D)	6029-17	106.71

**9299****9299 CONDENSER** *West* ★

With top joint jacketed for water cooling. Jacket length measured from bottom of top joint. Use with 5/16-inch I.D. Tubing, Size A. See page 5 for more detailed Hose Connection information.

⚙ Joints	Jacket Length, mm	Order Code	Each
14/20	120	9299-08	84.94

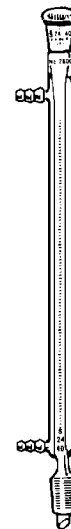
6034 CONDENSER *West* ★

Corning 2800

PRYEX® brand, with outer and inner $\frac{1}{4}$ joints. A drip tip is provided at the end of the inner joint. Jacket is 18mm O.D.

Corning Code	Jacket Length, mm	$\frac{1}{4}$ Joints	Quantity Per		Order Code	Shelf-Pack Price	Case Price
			Shelf-Pack	Case			
2800-300	300	24/40	1	4	6034-13	104.03	361.84

6034



6040 CONDENSER *Reflux, Spiral* ★

This compact spiral coil style condenser has a tightly wrapped coil for maximum cooling. Excellent for use with high vapor pressure solvents. Jacket length approximately 100mm, overall height approximately 210mm with size C hose barbs. 75 degree angle top $\frac{1}{4}$ 14/20 outer joint, $\frac{1}{4}$ 14/20 inner bottom joint. Size C hose barbs. Other joint sizes available.

Angled Top Joint	Inner Bottom Joint	Order Code	Each
$\frac{1}{4}$ 14/20	$\frac{1}{4}$ 14/20	6040-02	128.36



6040

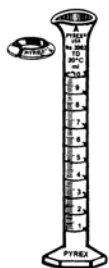
6042 CONDENSER *Reflux, Bulb* ★

New style, compact, high-output reflux condenser, has an inner double wall, thimble-shape internal bulb. Overall height is approximately 210mm, but has the output equal to Condensers with twice the length. Unit has $\frac{1}{4}$ 24/40 outer top joint and $\frac{1}{4}$ 24/40 drip-tip inner joint bottom. Top and bottom hose barbs size D, for 3/8-inch tubing. Other joint sizes available.

Angled Top Joint	Inner Drip-Tip Bottom Joint	Order Code	Each
$\frac{1}{4}$ 24/40	$\frac{1}{4}$ 24/40	6042-04	178.54



6042

**6156****6156 CYLINDER** *Graduated, Single Metric Scale (Class A)* ★**Corning 3062**

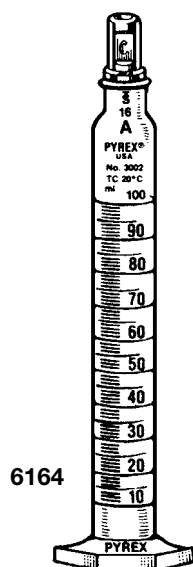
PYREX® brand, calibrated "to deliver." Bumper guards are supplied with sizes 25mL to 2000mL inclusive. The 10mL size has enlarged funnel-shaped top for ease of filling. All cylinders are marked A to certify that they meet the requirements for accuracy of ASTM E 1272 and E 542. With durable white scale.

Corning Code	Capacity, mL	Grad. Interval, mL	Tol., ±mL	Approx. O.D. x Height, mm	Quantity in Case	Order Code	Case Price
3062-10	10	1/10	0.10	13 x 178	1	6156-07	82.80
3062-25	25	2/10	0.17	18 x 192	1	6156-10	88.87
3062-50	50	1	0.25	24 x 225	1	6156-13	90.33
3062-100	100	1	0.50	29 x 254	1	6156-16	96.18
3062-250	250	2	1.0	39 x 340	1	6156-22	108.71
3062-500	500	5	2.0	50 x 390	1	6156-25	127.24
3062-1L	1000	10	3.0	64 x 465	1	6156-28	156.66

**12530****12530 CYLINDERS** *Graduated, Polypropylene* ♠

Polypropylene cylinders with octagonal base. Ideal for rugged industrial and school lab use. With single scale graduations for easier, quicker reading. No meniscus means easy to read liquid level. Large octagonal base provides good stability. 10mL size has conical top for easy filling. Autoclavable, however autoclaving may affect accuracy. May be sterilized by standard chemical methods.

Cap., mL	Subdiv., mL	No. in Case	Order Code	Each	Case Price
10	0.1	24	12530-03	4.00	86.40
25	0.5	24	12530-05	5.00	105.60
50	1.0	12	12530-07	6.00	67.80
100	1.0	12	12530-09	7.00	84.00
250	2.0	12	12530-11	8.00	84.20
1000	10	6	12530-15	16.00	90.60
2000	10	4	12530-17	26.00	110.00

**6164****6164 CYLINDER** *Graduated, Mixing, Single Metric Scale (Class A)* ★**Corning 3002**

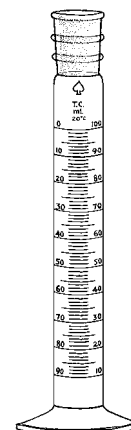
PYREX® brand, calibrated "to contain." All cylinders are marked A to certify that they meet the requirements for accuracy of ASTM E 1272 and E 542. With durable white enamel scale. For stoppers, see 8280.

Corning Code	Cap., mL	Grad. Interval, mL	Tol., ±mL	Stopper No.	Approx. O.D. x Hght., mm	Quantity in Case	Order Code	Case Price
3002-10	10	1/10	0.10	9	13 x 195	1	6164-07	88.29
3002-25	25	2/10	0.17	13	18 x 225	1	6164-10	94.87
3002-50	50	1	0.25	16	24 x 255	1	6164-13	103.23
3002-100	100	1	0.50	16	29 x 295	1	6164-16	108.71
3002-250	250	2	1.0	22	39 x 385	1	6164-22	127.57
3002-500	500	5	2.0	27	50 x 445	1	6164-25	168.75
3002-1L	1000	10	3.0	32	64 x 520	1	6164-28	208.12

6195 CYLINDER *Graduated* ♠

With full length $\frac{1}{4}$ 24/40 joint, single scale metric graduations. Can be used for distilling receiver. For stoppers (*not* included), order 8250-12 on page 680.

Capacity, mL	Subdiv., mL	Order Code	Each	Capacity, mL	Subdiv., mL	Order Code	Each
50	1	6195-13	67.88	250	2	6195-21	84.07
100	1	6195-16	67.88	500	5	6195-24	118.26
				1000	10	6195-27	150.87

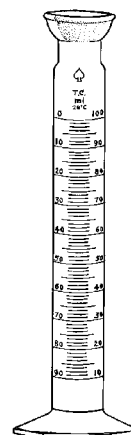


6195

6196 CYLINDER *Graduated* ♠

With $\frac{1}{2}$ 35/25 joint, single scale metric graduations. Can be used for distilling receiver.

Cap., mL	Subdiv., mL	Order Code	Each
250	2	6196-21	87.93
500	5	6196-24	104.80
1000	10	6196-27	162.34



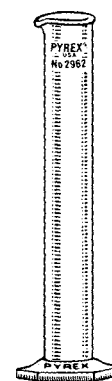
6196

6201 CYLINDER *Hydrometer* ★

Corning 2962

PYREX® brand, with pourout. Meets ASTM Specifications

Corning Code	Approx. Cap., mL	Approx. O.D. x Hght., mm	Quantity Per		Order Code	Shelf-Pack Price	Case Price
			Shelf-Pack	Case			
2962-100	100	29 x 254	1	18	6201-07	19.24	301.12
2962-250	250	39 x 340	1	18	6201-13	25.55	399.89
2962-300	300	39 x 381	1	12	6201-15	28.91	301.65
2962-500	500	50 x 390	1	12	6201-19	29.98	312.83
2962-1L	1000	64 x 465	—	1	6201-25	—	42.34

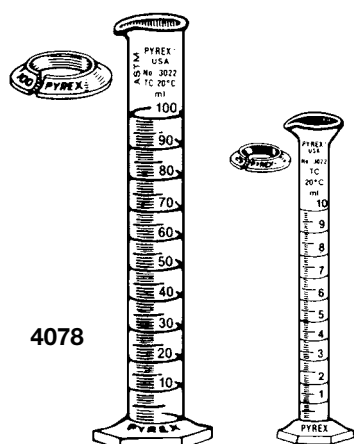


6201

**6210 CYLINDER** *Graduated, Single Metric Scale* ★**Corning 3024**

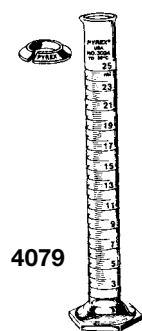
PYREX® brand, calibrated "to deliver." Bumper guards are supplied with sizes 25mL to 2000mL inclusive. The 5 and 10mL sizes have enlarged funnel-shaped tops for ease in filling. With durable white enamel scale.

Corning Code	Cap., mL	Grad. Interval, mL	Tol., ±mL	Approx. O.D. x Hght., mm	Quantity Per		Order Code	Shelf-pack Price	Case Price
					Shelf-Pack	Case			
3024-5	5	1/10	0.1	12 x 117	1	12	6210-03	24.67	257.43
3024-10	10	1/10	0.2	13 x 177	1	24	6210-07	16.29	340.04
3024-25	25	2/10	0.3	18 x 192	1	18	6210-10	23.01	360.18
3024-50	50	1	0.5	24 x 225	1	18	6210-13	23.92	374.36
3024-100	100	1	1.0	29 x 254	1	12	6210-16	28.53	297.73
3024-250	250	2	2.0	39 x 340	1	12	6210-22	39.45	411.60
3024-500	500	5	4.0	50 x 390	1	8	6210-24	55.17	383.77
3024-1L	1000	10	6.0	64 x 465	—	1	6210-27	—	72.66
3024-2L	2000	20	12.0	83 x 520	—	1	6210-30	—	118.33

**4078 CYLINDER** *Graduated, Single Metric Scale* ★**Corning 3022**

PYREX® brand, calibrated "to contain." Bumper guards are supplied with sizes 25mL to 500mL inclusive. The 10mL size has enlarged funnel-shaped top for ease in filling. The 100mL size is in accordance with ASTM E 133 and E 1272, and is used in ASTM tests D 86, D 216 and D 447. With durable white enamel scale.

Corning Code	Cap., mL	Grad. Interval, mL	Tol., ±mL	Approx. O.D. x Hght., mm	Quantity Per		Order Code	Shelf-pack Price	Case Price
					Shelf-Pack	Case			
3022-10	10	1/10	0.2	13 x 178	1	24	4078-05	16.35	341.20
3022-25	25	2/10	0.3	18 x 192	1	18	4078-08	23.14	362.16
3022-50	50	1	0.5	24 x 225	1	18	4078-11	23.92	374.36
3022-100	100	1	1.0	29 x 254	1	12	4078-14	28.53	297.73
3022-250	250	2	2.0	39 x 340	1	12	4078-20	39.45	411.60
3022-500	500	5	4.0	50 x 390	1	8	4078-22	55.17	383.77

**4079 CYLINDER** *Graduated, Single Metric Scale* ★**Corning 63024**

PYREXPLUS® brand*, calibrated "to deliver." Features a protective polymer coating for longer product life and safety. Bumper guards are not supplied.

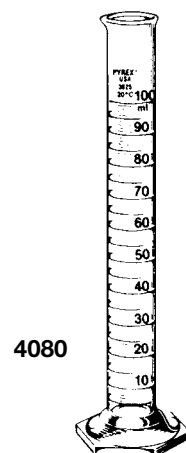
Corning Code	Cap., mL	Grad. Interval, mL	Tol., ±mL	Approx. O.D. x Hght., mm	Quantity Per		Order Code	Shelf-pack Price	Case Price
					Shelf-Pack	Case			
63024-100	100	1	1.0	29 x 254	1	4	4079-05	38.00	132.19
63024-250	250	2	2.0	39 x 340	1	4	4079-09	52.60	182.97
63024-500	500	5	4.0	50 x 390	1	4	4079-12	74.24	258.23
63024-1L	1000	10	6.0	64 x 460	1	4	4079-15	102.24	355.62
63024-2L	2000	20	12.0	83 x 520	1	2	4079-17	175.96	306.01

4080 CYLINDER *Graduated, Double Metric Scale, Economy ★*

Corning 3025

PYREX® brand, less costly cylinder. Calibrated “to contain.”

Corning Code	Cap., mL	Grad. Interval, mL	Approx. O.D. x Hght., mm	Quantity Per		Order Code	Shelf-pack Price	Case Price
				Shelf-Pack	Case			
3025-10	10	1/10	17 x 140	1	24	4080-06	14.13	294.96
3025-25	25	2/10	20 x 144	1	18	4080-09	15.58	243.90
3025-50	50	1	28 x 166	1	18	4080-12	16.35	255.90
3025-100	100	1	29 x 254	1	12	4080-15	19.24	200.72
3025-250	250	2	39 x 340	1	12	4080-21	34.09	355.75
3025-500	500	5	50 x 390	1	8	4080-23	43.54	302.90



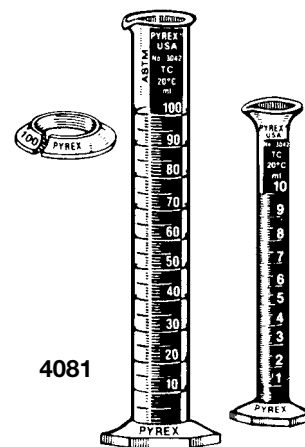
4080

4081 CYLINDER *Graduated, Single Metric Scale ★*

Corning 3042

PYREX® brand. Lifetime Red™ band with durable white enamel single metric scale. Calibrated “to contain.” Bumper guards are supplied with sizes 100mL and 500mL. The 10mL size has enlarged funnel-shaped top for ease in filling. The 100mL size is in accordance with ASTM E 133 and E 1272, and is used in ASTM tests D 86 and D 216.

Corning Code	Cap., mL	Grad. Interval, mL	Tol., ±mL	Approx. O.D. x Hght., mm	Quantity Per		Order Code	Shelf-pack Price	Case Price
					Shelf-Pack	Case			
3042-10	10	1/10	0.2	13 x 178	1	24	4081-12	24.02	501.35
3042-100	100	1	1.0	29 x 254	1	12	4081-15	36.20	377.72
3042-500	500	5	4.0	50 x 390	1	8	4081-19	66.39	461.83



4081

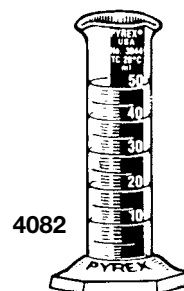
4082 CYLINDER *Graduated, Single Metric Scale,*

Double Pourout ★

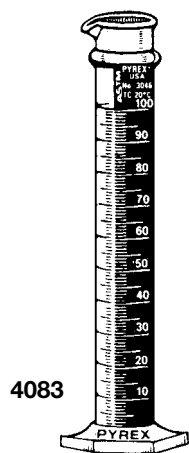
Corning 3044

PYREX® brand. Lifetime Red™ band with durable white enamel single metric scale. Calibrated “to contain.” This cylinder is a Tuttle type of low form for stability.

Corning Code	Cap., mL	Grad. Interval, mL	Tol., ±mL	Approx. O.D. x Hght., mm	Quantity Per		Order Code	Shelf-pack Price	Case Price
					Shelf-Pack	Case			
3044-50	50	1	0.5	29 x 148	1	12	4082-10	39.03	407.23
3044-100	100	2	1.0	39 x 157	1	12	4082-12	45.06	470.23



4082

**4083****4083 CYLINDER** *Graduated, Single Metric Scale* ★**Corning 3046**

PYREX® brand. Lifetime Red™ band with durable white enamel single metric scale. Calibrated “to contain.” With reinforced bead of glass near top to help reduce breakage if cylinder is upset. The 100mL size is in accordance with ASTM E 133 and E 1272 and is used in ASTM D 86, D 216 and D 447.

Corning Code	Cap., mL	Grad. Interval, mL	Tol., ±mL	Approx. O.D. x Hght., mm	Quantity Per		Order Code	Shelf-pack Price	Case Price
					Shelf-Pack	Case			
3046-10	10	0.1	0.2	13 x 179	1	24	4083-04	25.16	525.04
3046-25	25	0.2	0.3	18 x 205	1	18	4083-07	33.52	524.67
3046-50	50	1.0	0.5	24 x 238	1	18	4083-10	36.87	577.04
3046-100	100	1.0	1.0	29 x 267	1	12	4083-13	42.89	447.51
3046-250	250	2.0	2.0	39 x 353	1	12	4083-16	57.62	601.25

**6228/6231****6228/6231 CYLINDER** *Pilot Plant*

Large sizes for batch operations and mixing large volumes of measured liquids.

Capacity, mL	Subdiv., mL	Approx. Height, mm	O.D., mm	Order Code	Each
5,000	100	457	152	6228-05	♠ 297.96
10,000	100	457	223	6228-10	♠ 471.64
15,000	500	390	260	6231-21	★ 444.79
20,000	500	430	285	6231-27	★ 489.39

6248 DESICCATOR Plastic ★

Transparent polycarbonate top, white polypropylene bottom. Space-saving design gives an average of 13% greater interior volume. Extra heavy walls aid in avoiding danger of implosion. This shatterproof desiccator will hold a vacuum of 740mm of Hg (29 inches) for a period of 24 hours. Three-way polypropylene stopcock barrel with PTFE plug has a vacuum draw that accepts 1/4-inch I.D. tubing. Third port allows turbulence-free vacuum release. Neoprene O-Ring seals lid to bottom and does not need grease. Supplied with perforated polypropylene plate, 3/8-inch (3.2mm) thick with 1/8-inch diameter perforations for air transfer. Packed 4 per case.

Size	Flange O.D., mm (in.)	Inside Dia., mm (in.)	Plate Size, mm	Overall Height, mm (in.)	Max. Dist. Above Plate, mm (in.)	Order Code	Each	Order Code	Per Case of Four
A	171 (6-3/4)	149 (5-7/8)	140	206 (8-1/8)	121 (4-3/4)	6248-12	65.75	6248-31	243.00
B	230 (9-1/16)	197 (7-3/4)	190	260 (10-1/4)	157 (6-3/16)	6248-15	81.00	6248-35	324.00
C	273 (10-3/34)	240 (9-7/16)	230	311 (12-1/8)	197 (7-3/4)	6248-21	110.50	6248-39	442.00



6248

6252 DESICCATOR CABINET Horizontal Profile, Clear ★

Stackable, clear plastic Secador™ desiccator cabinet, perfect for cramped locations. Can be safely stacked up to three high. Cabinet is completely transparent from any side and with built-in Hygrometer. Patented sealed construction — for air-tight, dust- and moisture-free storage. One latch: provision for lock or tamper evident seal. Use any desiccant. Internal volume: 0.75 cu. ft. Door opening is 12.3 H x 8.9 W Inches (31cm x 22.5cm). Overall dimensions: 8.4 H x 13.4 W x 16.3 D Inches (21.3 x 34.1 x 41cm). Shipping weight: 15.9 lb (7.2 Kg).

Order Code	Each
6252-25	196.60



6252

6253 DESICCATOR CABINET Horizontal Profile, Blue ★

Stackable, blue plastic Secador™ desiccator cabinet, perfect for cramped locations. Can be safely stacked up to three high. Cabinet is blue with clear door and with built-in Hygrometer. Patented sealed construction — for air-tight, dust- and moisture-free storage. One latch: provision for lock or tamper evident seal. Use any desiccant. Internal volume: 0.75 cu. ft. Door opening is 12.3 H x 8.9 W Inches (31cm x 22.5cm). Overall dimensions: 8.4 H x 13.4 W x 16.3 D Inches (21.3 x 34.1 x 41cm). Shipping weight: 15.9 lb (7.2 Kg).

Order Code	Each
6253-35	196.60



6253

6256 DESICCATOR CABINET Vertical Profile, Non-Electric ★

Stackable, plastic desiccator cabinet, perfect for cramped locations. Can be safely stacked up to two high. Cabinet offered clear or blue with clear door and with built-in Hygrometer. Non-electric unit has three shelves, four shelf positions. Patented sealed construction — for air-tight, dust- and moisture-free storage. Two latches: provision for lock or tamper evident seal. Use any desiccant. Internal volume: 1.9 cu. ft. Door opening is 16.4 H x 8.9 W Inches (41.7cm x 22.5cm). Overall dimensions: 20.4 H x 13.4 W x 16.3 D Inches (51.8 x 34.1 x 41.4cm). Shipping weight: 23.9 lb (10.9 Kg).

Type	Order Code	Each
Clear	6256-43	695.80
Blue	6256-47	695.80

6256-47

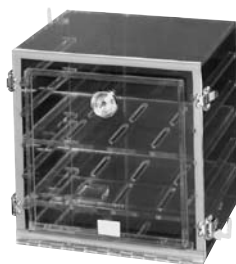


6256-43

**6257-50****6257 AUTO-DESICCATOR CABINET** *Vertical Profile, Electric* ★

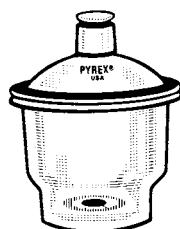
Stackable, plastic Secador™ desiccator cabinet, perfect for cramped locations. Can be safely stacked up to two high. Cabinet offered clear or blue with clear door. With patented dehumidifying module — automatic desiccant regeneration and built-in Hygrometer. Unit has three shelves, four shelf positions. Patented sealed construction — for air-tight, dust- and moisture-free storage. Two latches: provision for lock or tamper evident seal. Internal volume: 1.9 cu. ft. Door opening is 16.4 H x 8.9 W Inches (41.7cm x 22.5cm). Overall dimensions: 20.4 H x 13.4 W x 16.3 D Inches (51.8 x 34.1 x 41.4cm). Shipping weight: 26.4 lb (12 Kg). Operates on 120v.

Type	Order Code	Each
Clear	6257-50	933.10
Blue	6257-64	933.10

**6259****6259 DESICCATOR CABINET** *Amber* ★

Stackable, Acrylic desiccator cabinet, *ambered* to protect contents from harmful U.V. rays. Perfect for cramped locations. Cabinet is completely transparent from any side. Unique “Gasket Guard” system prevents gaskets from taking a set and thus destroying their effectiveness. Shelves are perforated for optimum gas saturation. Single cubicle has two shelves with five possible positions. Supplied with built in hygrometer-(RH). Overall dimensions: 12 x 12 x 12 inches high (30.5 x 30.5 x 30.5cm).

Order Code	Each
6259-30	410.00

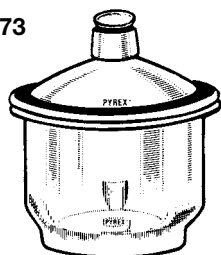
**6272****6272 DESICCATOR** *Small, Knob Top* ★**Corning 3078**

Pyrex® brand. See 13254, page 163, for plate.

Corning Code	Approx. I.D. of Flange, mm	Approx. Height, mm	Approx. Chamber Depth, mm	Recom. Plate Dia., mm	Quantity in Case	Order Code	Case Price
3078-160	160	255	100	140	1	6272-11	194.71

6272 COVER ONLY ★**Corning 3078**

Corning Code	Approx. Hght., mm	Quantity in Case	Order Code	Case Price
3078-160CO	95	1	6272-12	101.65

6273**6273 DESICCATOR** *Large Sizes, Knob Top* ★**Corning 3080**

Pyrex® brand. See 13254, page 163, for plate.

Corning Code	Approx. I.D. of Flange, mm	Approx. Height, mm	Approx. Chamber Depth, mm	Recom. Plate Dia., mm	Quantity in Case	Order Code	Case Price
3080-200	200	315	125	190	1	6273-06	370.74
3080-250	250	325	130	230	1	6273-11	476.63

6273 COVER ONLY ★**Corning 3080**

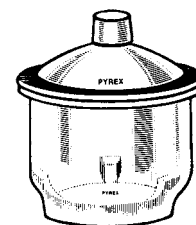
Corning Code	Approx. I.D. of Flange, mm	Approx. Height, mm	Quantity in Case	Order Code	Case Price
3080-200CO	200	112	1	6273-12	196.36
3080-250CO	250	117	1	6273-15	220.75

4088 DESICCATOR *Large, Knob Top* ★

Corning 3100

Pyrex® brand, knob top with opening for #8 rubber stopper. See 13254, page 163, for plate.

Corning Code	Approx. I.D. of Flange, mm	Approx. Height, mm	Approx. Chamber Depth, mm	Recom. Plate Dia., mm	Quantity in Case	Order Code	Case Price
3100-250	250	310	130	230	1	4088-16	465.31



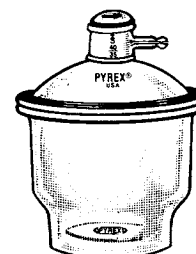
4088

4089 DESICCATOR *Small, with Sleeve* ★

Corning 3118

Pyrex® brand, with rugged 3/4 40/35 external sleeve with tooled hose connection, approximately 10mm O.D., that serves as the stopcock and is designed so that manipulation is not affected by the vacuum. See 13254, page 163, for plate.

	Corning Code	Approx. I.D. of Flange, mm	Approx. Height, mm	Approx. Chamber Depth, mm	Recom. Plate Dia., mm	Quantity in Case	Order Code	Case Price
Complete	3118-160	160	255	100	140	1	4089-12	313.37
Cover only	3118-160CO	160	95	—	—	1	4089-35	160.20



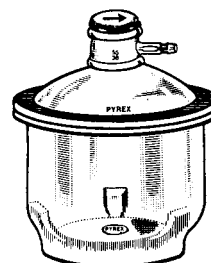
4089

4090 DESICCATOR *Large, with Sleeve* ★

Corning 3120

Pyrex® brand, with rugged 3/4 55/38 external sleeve with tooled hose connection, approximately 10mm O.D., that serves as the stopcock and is designed so that manipulation is not affected by the vacuum. See 13254, page 163, for plate.

	Corning Code	Approx. I.D. of Flange, mm	Approx. Height, mm	Approx. Chamber Depth, mm	Recom. Plate Dia., mm	Quantity in Case	Order Code	Case Price
Complete	3120-200	200	315	125	190	1	4090-08	662.69
Complete	3120-250	250	325	130	230	1	4090-10	639.73
Cover only	3120-250CO	250	117	—	—	1	4090-39	295.98



4090

13254 DESICCATOR PLATE *Porcelain* ★

Desiccator platform plate, glazed on one side, without feet. With numerous 5mm holes with large hole in center (not illustrated).

Size	Diameter, mm	Quantity in Case	Order Code	Each	Case Price
3	140	6	13254-02	55.39	289.00
5	190	3	13254-04	52.30	156.89

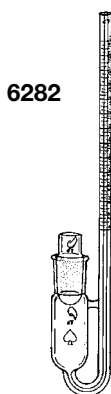


9625

9625 INSTATHERM DESICCATOR *Vacuum Oven*

250mm diameter with bottom Instatherm heated, (low voltage: 40 volts, 10 amps max.) Top is not heated, but has insulation cover. May be used as a vacuum oven at temperatures up to 180°C continuously. The top has an observation stripe for visibility and is supplied with vacuum take-off valve. Insulation is resilient silicone rubber impregnated glass cloth, and electrical connections are covered. Temperatures can be regulated by means of ACE Temperature Controllers or 12081 Powerstat. Also available with uncoated top. Supplied complete with detachable cord, 0-250°C. 102mm immersion ground joint thermometer, and thermometer adapter.

	Order Code	Each		Order Code	Each
Desiccator	9625-04	★ 1,280.29	Thermometer	8314-31	♠ 56.44
Bottom Cord	9698-16	★ 49.99	Complete	9625-10	★ 1,363.75
Adapter	9061-10	♠ 27.02			

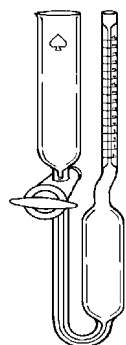


6282

6282 DILATOMETER *A.O.C.S.* ♠

For determination of fat and oil constants. Described in A.O.C.S., Method Cd 10-57. Total volume of precision bore capillary is 1.400mL ± 0.015mL. The smallest graduation is 0.005mL. Complete with stopper and hooks. Both stopper and tube are numbered.

	Order Code	Each
	6282-10	217.53



6284

6284 DILATOMETER *Volumetric* ♠

For use in any reaction where there is a change in volume. Described in *Experiments in Physical Chemistry*, Shoemaker & Garland, 1962, by McGraw-Hill Book Company, Inc. Experiment 27. Capacity of bath is 75mL, bulb 50mL, with capillary tube graduated from 0.0cm at bottom to 15.0cm at top. I.D. of capillary is 0.6mm. Stopcock is 2mm bore.

	Order Code	Each
	6284-10	351.23

4098 DISH *Culture, Petri* ★

Corning 3160

PYREX® brand, flat sided petri dish with cover.

Corning Code	Size, mm	Approx. O.D. x Hght., mm	Quantity Per		Order Code	Shelf-Pack Price	Case Price
			Shelf-Pack	Case			
3160-60	60 x 15	58 x 15	12	72	4098-15	105.97	552.90
3160-100	100 x 10	98 x 10	12	72	4098-18	86.23	449.92
3160-101	100 x 15	98 x 15	12	72	4098-22	87.73	457.71
3160-102	100 x 20	98 x 20	12	72	4098-25	83.15	433.81
3160-150	150 x 15	148 x 15	12	24	4098-27	225.11	391.50
3160-152	150 x 20	148 x 20	12	24	4098-30	210.84	366.67



8465 DISH *Crystallization* ★

Corning 3140

PYREX® brand. The rims are reinforced and fire polished to reduce chipping.

Corning Code	Capacity, mL	Capacity, oz.	Approx. O.D. x Hght., mm	Quantity Per		Order Code	Shelf-Pack Price	Case Price
				Shelf-Pack	Case			
3140-70	180	6	70 x 50	6	24	8465-08	88.07	306.32
3140-80	180	6	80 x 40	6	24	8465-10	86.20	299.81
3140-90	270	9	90 x 50	6	18	8465-12	94.09	245.46
3140-100	325	11	100 x 50	6	18	8465-14	115.55	301.44
3140-125	740	25	125 x 65	4	12	8465-16	144.80	377.73
3140-150	1200	30	150 x 75	4	8	8465-18	192.26	334.36
3140-170	1770	60	170 x 90	2	8	8465-20	116.15	404.00
3140-190	2500	85	190 x 100	2	6	8465-22	137.33	358.25



4093 DISH *Evaporating* ★

Corning 3180

PYREX® brand, evaporating dish with flat bottom.

Corning Code	Approx. Size L x W x H, mm	Approx. Cap., mL	Quantity in Case	Order Code	Case Price
3180-80	80 x 45	140	6	4093-12	71.34
3180-90	90 x 50	170	6	4093-15	81.01



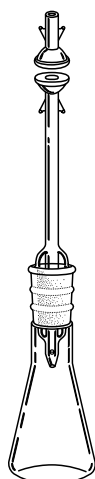
4096 DISH *Evaporating* ★

Corning 13180

VYCOR® brand, evaporating dish with flat bottom.

Corning Code	Approx. Size L x W x H, mm	Approx. Cap., mL	Quantity in Case	Order Code	Case Price
13180-100	90 x 42	100	8	4096-12	1,023.81



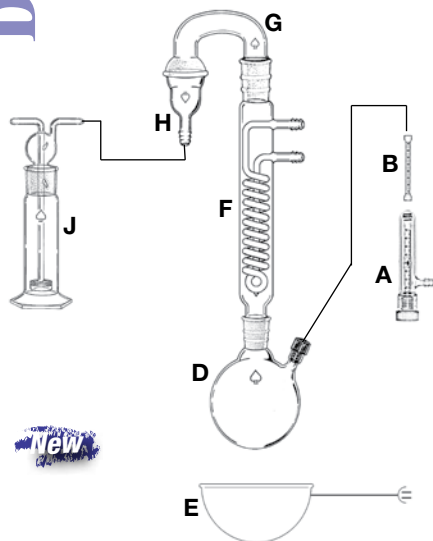
**6544**
6544 DISTILLATION APPARATUS *Arsenic Limit Test*

Used for limit test for arsenic as described in *European Pharmacopeia*, 1997, page 51. Complete consists of 125mL conical flask with $\text{\text{S}}24/40$ joint, a capillary chimney with a pulled tip below $\text{\text{S}}24/40$ joint at bottom, #5 O-Ring joint at top with hooks for 3/4-inch springs, and an adapter tube with #5 O-Ring joint with hooks.

	Order Code	Each
Conical Flask, 125mL, $\text{\text{S}}24/40$	6965-22	♠ 23.96
Chimney, $\text{\text{S}}24/40$ – #5 Joint	6544-14	★ 208.04
Adapter Tube, #5 joint	6544-19	★ 56.85
Springs, S-S, 3/4-inch, pkg./12	8030-04	★ 21.84
Complete	6544-46	★ 310.69

6546 DISTILLATION APPARATUS *Alginates Assay* ★

Alginates assay apparatus similar to system described in *US Pharmacopeia*, 2006, chapter 311. The complete system contains all the parts necessary to carry out the assay with the exception of the vinyl tubing, glass wool and the 20-mesh Zinc bands. The components are listed and described below. Order the complete apparatus or the individual components.

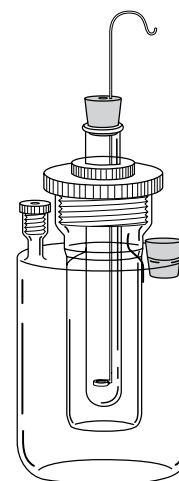
**6546-155**

	Order Code	Each
A, B. Metering valve and flow meter tube set with size C hose connection for 5/16-inch tubing	7481-40	432.68
D. 250 mL round bottom reaction flask with $\text{\text{S}}24/40$ outer top joint and #11 Ace-Safe side neck for 5/16-inch tubing connection	6936-56	67.47
5/16-inch hose barb connector for above flask	5853-10	8.60
E. Glas Col heating mantle for above flask	12035-13	155.00
F. 250 mm spiral coil reflux condenser with $\text{\text{S}}24/40$ top and bottom joints	6020-04	197.12
G. U-shaped connecting tube with $\text{\text{S}}24/40$ Inner JT one end and $\text{\text{S}}35/25$ outer outlet end	5125-50	49.75
H. Adapter 35/25 ball to 5/16-inch hose barb	5216-35	24.21
J. 250 mL gas washing bottle with coarse porosity fritted disc, 5/16-inch outlet to tubing	7163-16	202.70
Complete	6546-155	1,079.77
Optional Equipment:	Order Code	Per 50' Box
5/16-inch vinyl tubing for the above set-up	12679-20	27.22

6547 DISTILLATION APPARATUS *Congealing Temperature* ★

Similar to Congealing Temperature apparatus described in *U.S. Pharmacopeia*, 1995, page 1780, except this apparatus is supplied with Ace-Threds in place of rubber stoppers, where practical. #50 thread at center holds a test tube with a #25 bushing, open-top test tube utilizes a rubber stopper to securing a thermometer and wire stirrer, one side port has a #7 Ace-Thred for a thermometer, other side port is a 22mm I.D. opening for access to the 125mm O.D. x 150mm high cylinder. Applicable to substances that melt between -20° and 150°C.

	Order Code	Each
Main Chamber, #50 to #25 Center Neck, #7 and 22mm Side Necks, 12.5cm O.D. x 15cm high	6547-10	509.51
Test Tube, 25mm x 200mm, w/stopper	6547-14	79.97
Bushing, Nylon, #7	5029-10	2.27
Bushing, Nylon, #25	7506-10	17.29
Connector, Nylon, #50-#25	6547-22	75.90
Wire Stirrer, 30cm long	6547-25	34.50
Complete	6547-45	719.44

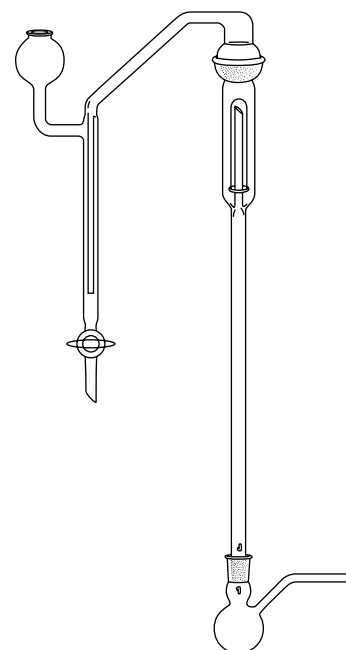


6547

6549 DISTILLATION APPARATUS *Methoxy Determination* ★

Used for methoxy determination as described in *U.S. Pharmacopeia*, 1995, page 1742. Complete consists of 20mL boiling flask with $\text{J } 14/20$ joint and a capillary side arm, scrubber trap column with $\text{J } 14/20$ inner and $\text{J } 35/20$ socket, and an absorption tube with $\text{J } 35/20$ ball joint and a 2mm bore glass stopcock. Flask and column supplied with hooks for spring connection.

	Order Code	Each
Boiling Flask, 20mL, $\text{J } 14/20$	6549-04	87.65
Scrubber Column-Trap, $\text{J } 14/20$ - $\text{J } 35/20$	6549-11	231.86
Absorption Tube, $\text{J } 35/20$, 2mm Bore	6549-23	274.53
Springs, Stainless Steel, 1-1/4-inch	8030-12	21.84
Complete	6549-45	615.88

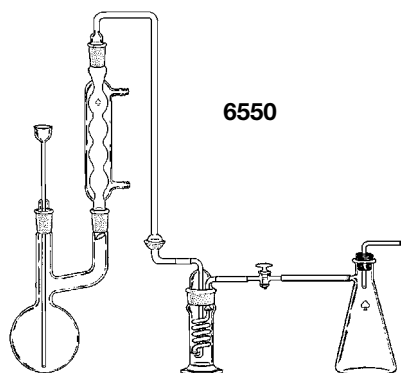


6549

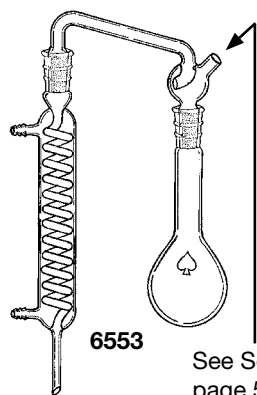
6550 DISTILLATION APPARATUS *Cyanide* ♠

Distillation apparatus for converting simple and most complex cyanides into HCN and for isolating cyanide from most interferences before measuring by titration or colorimetric analysis in the examination of industrial wastes and other water. Method is described in *Standard Methods for the Examination of Water and Wastewater*, Fourteenth Edition, 1975.

Apparatus consists of a 500mL Claisen flask with 24/40 joints, thistle tube, Allihn condenser, connecting tube 24/40 – 18/7 , elbow connector 18/7 , 270mL spiral gas washer, stopcock and suction flask.

**6550**

	Order Code	Each
Claisen Flask	6550-02	100.45
Thistle Tube	6550-06	50.05
Condenser	5945-12	95.14
Connecting Tube	6550-14	51.01
Elbow Connector	6550-18	20.98
Gas Washer	7167-30	381.70
Stopcock	8137-04	35.82
Suction Flask	6550-27	28.71
Complete	6550-50	763.86

**6553**

See Septa listing,
page 588, for
ball outlet

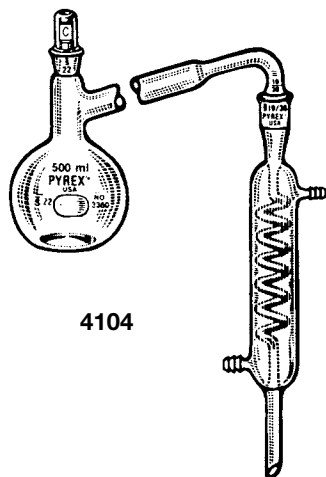
6553 DISTILLATION APPARATUS *Ammonia* ♠

Generally used for the determination of ammonia in water. Joints are 24/40 .

Flask Capacity, mL	300		500		800	
Condenser Lgth., mm	200		300		300	
	Order Code	Each	Order Code	Each	Order Code	Each
Flask	6967-25	36.13	6967-26	38.80	6967-27	44.10
Condenser	5979-12	114.77	5979-14	129.08	5979-14	129.08
Conn. Tube	6553-02	123.46	6553-02	123.46	6553-02	123.46
Complete	6553-05	274.36	6553-10	291.34	6553-15	296.64

4104 DISTILLING APPARATUS ★**Corning 3360**

Pyrex® brand general purpose batch distilling assembly.

**4104**

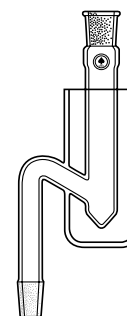
	Corning Code	Cap., mL	Cond. Jacket Lgth., mm	Stopper No.	Joint	Quantity in Case	Order Code	Case Price
Complete	3360-1L	1000	200	27	19/38	1	4104-12	305.45
Flask only	3360-1LFO	1000	—	27	19/38	1	4104-35	167.96

9311 STILL HEAD *Short Path** ♦

Jacketed distillation head for distilling samples up to 3mL. Jacket allows positioning of a coolant such as dry ice/acetone at site of desired condensation, thus reducing loss of valuable sample. Distillate can be removed with a Pasteur pipet. With outer $\frac{1}{4}$ " 14/20 joint at top and $\frac{1}{4}$ " 14/20 inner at bottom. Measures approximately 8cm wide, 11cm high.

	Order Code	Each
Still Head, only	9311-15	163.49
Optional Items:		
Condenser, Jacketed, $\frac{1}{4}$ " 14/20 joints	9261-02	68.70
Thermometer Adapter, #7 Thread- $\frac{1}{4}$ " 14/20	5028-25	23.29
Flask, Pear shaped, 5mL, $\frac{1}{4}$ " 14/20	9477-02	20.07

**Designed by Richard J. Petroski, USDA-ARS, Peoria, IL 61604 and Hugh Bowe, Ace Glass Inc.*



9311

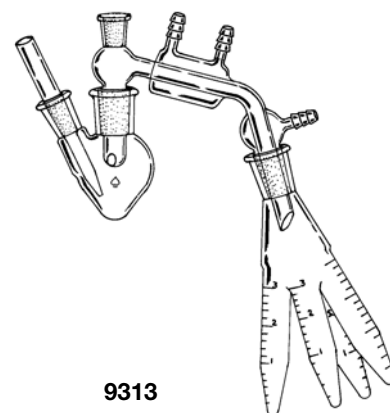
9313 STILL II *Short Path, Firestone*, with Jacket* ♦

Zero holdup, no-splash short path still for small quantity distillations with the accuracy of larger setups. Improved design eliminates even the minimal holdup experienced with original short path stills by further reducing wetted surfaces and travel paths. Added feature is the "Splash Guard" at bottom of flask joint that gives best protection against pot splash up. With cooling jacket.

Sensitivity is improved by a low mass immersion stem and joint combined with an optimized bulb volume. Joints on head and cow receiver are $\frac{1}{4}$ " 14/20. Flask is 10mL, with $\frac{1}{4}$ " 14/20 center, $\frac{1}{4}$ " 10/18 side neck. Use with 5/16-inch I.D. Tubing, Size A. See page 5 for more detailed Hose Connection information.

	Order Code	Each
Still Body	9313-12	161.28
Cow Receiver, $\frac{1}{4}$ " 14/20	9317-11	134.26
Flask, 10mL, $\frac{1}{4}$ " 14/20-10/18	9481-04	39.17
Bleed Tube, $\frac{1}{4}$ " 10/18	9317-17	12.49
Complete	9313-30	347.20

**Designed by Dr. Raymond Firestone (U.S. Patent No. 4,267,150)*



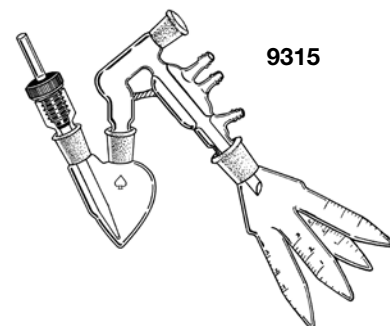
9313

9315 STILL *Short Path, Minimum Hold-Up, $\frac{1}{4}$ " 10/18 Pot Joint* ♦

Supplied as shown with one-piece receiver. 9316-04 cow receiver with 9477-02, 5mL flasks may be used in place of one-piece receiver.

Gas inlet tube is positioned in distillation flask with a 5028-24 threaded adapter. Use with 5/16-inch I.D. Tubing, Size A. See page 5 for more detailed Hose Connection information.

	Order Code	Each
Still Body	9315-05	159.46
Cow Receiver, $\frac{1}{4}$ " 14/20	9317-11	134.26
Distilling Flasks, 10mL, $\frac{1}{4}$ " 10/18	9481-30	39.34
Gas Inlet Tube	9315-08	7.74
Threaded Adapter, $\frac{1}{4}$ " 10/18	5028-24	24.15
Complete	9315-10	364.95



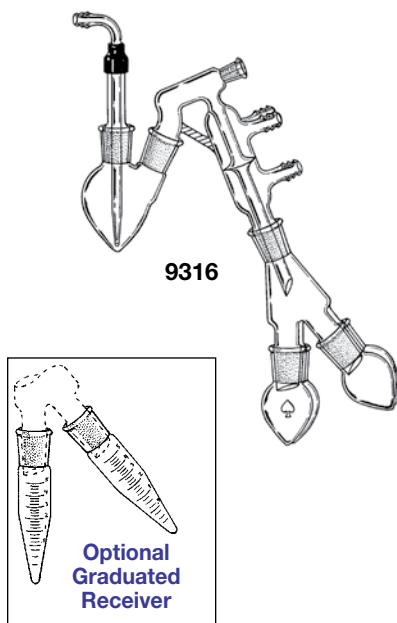
9315

9316 DISTILLATION APPARATUS *Short Path*

A still designed for small quantities where holdup between flask and receiver must be minimized but where it is also desired to measure vapor temperature with an accuracy compared to large setups.

- Physical carry-over is practically eliminated by impingement.
- Condenser delivery tube is straight through.
- Condensate drops directly into one of the four receivers attached to cow and held in place with Delron clips (supplied). Cow is held in place in the same way. Graduated receiver may be substituted for pear shaped flasks.

Upper hose connections are for water lines, lower connection is for vacuum or vent. The center joint of the two-neck pear-shape flask is equipped with an adjustable gas inlet tube. All joints are $\$14/20$. Use with 5/16-inch I.D. Tubing, Size A. See page 5 for more detailed Hose Connection information.



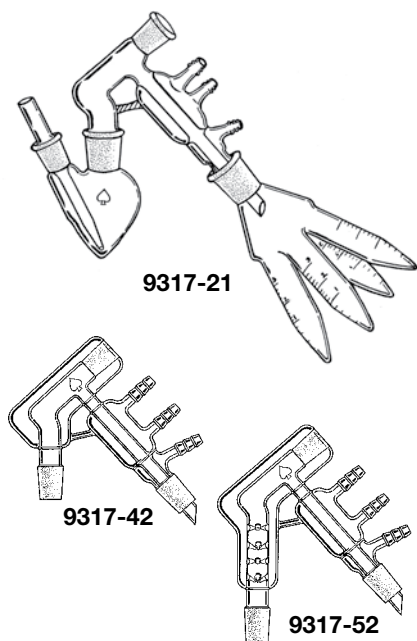
	Order Code	Each		Order Code	Each
Still Body	9316-02	♠ 166.35	Complete	9316-20	♠ 443.44
Cow Receiver, $\$14/20$	9316-04	♠ 98.45			
Gas Inlet Tube, $\$14/20$	9316-06	♠ 25.19			
Receiver Flask, 5mL (4), $\$14/20$	9477-02	♠ 20.07			
Distillation $\$$ Flask, 10mL, 14/20	9479-05	♠ 41.10			

OPTIONAL PARTS FOR 9316

Graduated receivers, cap. 5 mL, 0-2 mL x .01, 2-5 mL x 0.2	9316-08	♠ 32.05
Glas-Col Mantle, 10 mL	9516-04	★ 132.00

9317 DISTILLATION APPARATUS *Short Path* ♠

Designed for small quantities where holdup between flask and receiver must be minimized, but where it is also desired to measure vapor temperature with the accuracy of larger setups. Still body is available with or without vacuum jacket and with vigreux indents for greater efficiency. Upper hose connections are for water lines, lower connection for vacuum or vent. Thermometer joint is $\$10/18$. One-piece receiver. Use with 5/16-inch I.D. Tubing, Size A. See page 5 for more detailed Hose Connection information.

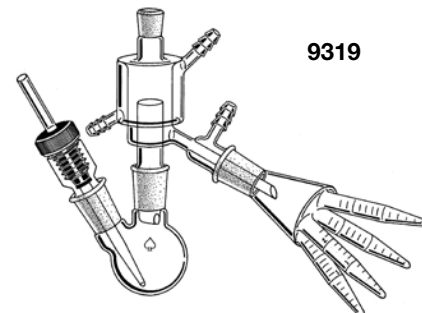


	Order Code	Each
Still Body (plain)	9317-03	164.20
Still Body (jacketed)	9317-42	342.51
Still Body (jacketed with indents)	9317-52	358.68
Cow Receiver, $\$14/20$	9317-11	134.26
Bleed Tube, $\$10/18$	9317-17	12.49
Flask, 10mL, $\$14/20-10/18$	9481-04	39.17
Complete (plain)	9317-21	350.12
Complete (jacketed)	9317-50	528.43
Complete (jacketed with indents)	9317-60	544.60

See page 693 for thermometer adapter listing.

9319 STILL (60MM) *Short Path, Low Hold-Up* ♦

A short path still designed to be effective with high boiling materials at low pressures. Moderate foaming can be tolerated as well as slight bumping. A fine tip adjustable gas inlet tube can be used for stirring or as a foam breaker. One-piece cow receiver with 2.5mL measuring tube supplied with complete unit. 9316 Cow Receiver with 9477-02, 5 mL Flasks or 9316-08 Graduated Receiver can be substituted for one-piece receiver. Use with 5/16-inch I.D. Tubing, Size A. See page 5 for more detailed Hose Connection information.



9319

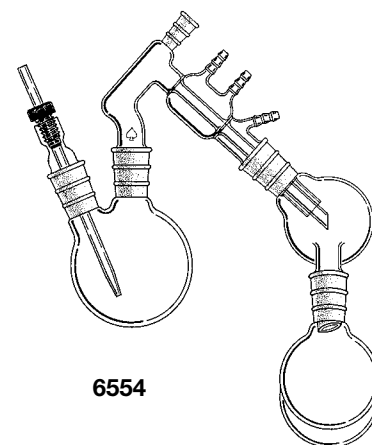
	Order Code	Each
Still Body	9319-02	♦ 235.25
Cow Receiver, §14/20	9317-11	♦ 134.26
Distillation Flask, 10mL, §14/20–10/18	9464-24	♦ 41.01
Gas Inlet Tube	9315-08	♦ 7.74
Threaded Adapter, §10/18	5028-24	♦ 24.15
COMPLETE	9319-15	♦ 442.41

OPTIONAL PARTS FOR 9319

Cow Receiver-jointed, §14/20	9316-04	♦ 98.45
Receiver Flasks (5mL)	9477-02	♦ 20.07
Grad. Receivers (5mL)	9316-08	♦ 32.05
Mantle, Glas-Col (10mL)	12035-02	★ 121.00

6554 STILL *Short Path, with §24/40 Joints* ♦

Full size §24/40 jointed, low holdup, short path still, original plain version or jacketed with indents. Extension tube from still body allows positioning of drop directly over receiver flask. Gas inlet tube is positioned in distillation flask with 5028 Adapter and secured with a #7 Ace-Thred. Thermometer joint is §10/30, all other joints are §24/40. Complete item consists of 500mL Distillation Flask, Still Body, Cow Receiver, Gas Inlet Tube, Threaded Adapter, (3) 250mL Receiver Flasks. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.



6554

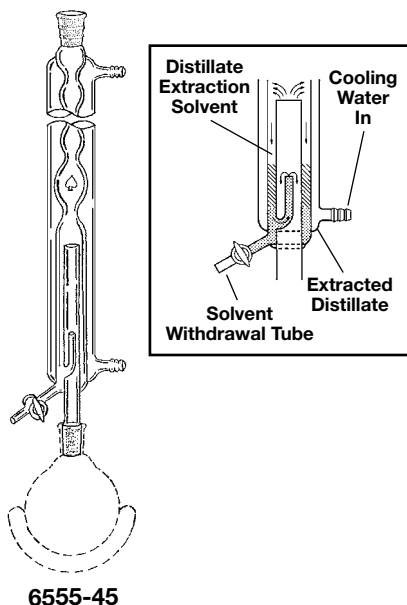
	Order Code	Each
Still Body (plain)	6554-06	187.16
Still Body (jacketed with indents)	6554-08	364.60
Cow Receiver	6554-10	153.09
Gas Inlet Tube	6554-14	8.31
Threaded Adapter	5028-30	24.19
Dist. Flask, 2 Neck, §24/40, 500mL	6927-22	67.53
Receiver Flasks, Single Neck, §24/40, 250mL (3)	6887-24	27.18
Complete (plain)	6554-48	521.82
Complete (jacketed with indents)	6554-50	699.26

ACE does *custom work*.

For an economical solution...**made-to-order** glassware!

Whether you need one piece or a thousand.

Phone, Fax or email for consultation and/or quotation.



6555 DISTILLATION APPARATUS *Steam, Nielsen-Kryger, Improved Version*

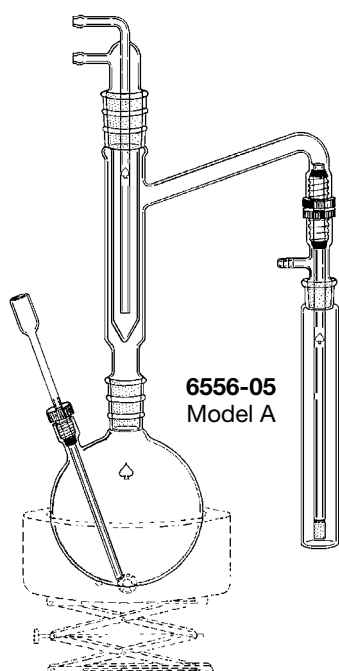
A steam distillation apparatus for the exhaustive distillation of pesticides and industrial chemicals from water, sediments and tissue, and the simultaneous extraction of the distillate by a small volume of organic solvent.

The original modified version was submitted for publication in the *Bulletin of Environmental Contamination and Toxicology*, G.D Veith and L.M. Kiwus, U.S.E.P.A., Environmental Research Lab. – Duluth.

The addition of a bulb condenser in place of the straight tube condenser results in more efficient condensing and reduces blowout. Also, the first bulb above the chimney is larger to avoid choking.

Dimensions of condenser are 60mm x 500mm with $\frac{1}{4}$ 24/40 joints and a solvent capacity of 15mL. Stopcock is 2mm bore 1:5 PTFE. Complete unit consists of condenser, 2 liter flask and heating mantle. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

	Order Code	Each
Condenser, only	6555-40	★ 503.70
Flask, 2000mL, only	6887-28	♠ 41.46
Mantle, only	12035-21	★ 212.00
Complete	6555-45	★ 757.16



6556 DISTILLATION APPARATUS *Cyanide, Model A ♠*

Cyanide distillation apparatus used in testing for soluble and insoluble cyanides in water. Apparatus basically conforms to ASTM D-2036 except for modifications involving Ace-Threds and larger $\frac{1}{4}$ joints.

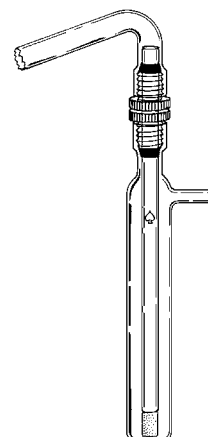
Flask is 1000mL with $\frac{1}{4}$ 24/40 joint and #7 Ace-Thred that permits variable depth positioning of fill tube. Fill tube has been reduced in diameter to retard “boil back” or splattering that occurs with conventional tubes. Still head and cold finger have a $\frac{1}{4}$ 29/42 joint and a #11 Ace-Thred on the medium wall side arm. Two #11 bushings, back to back, hold the threaded adapter to still head by compressing PTFE ferrules against the glass dispersion tube. Because of this feature, the dispersion tube depth is adjustable inside the trap and the fritted end need not be in contact with caustic solutions when not necessary. This will extend the life of the frit and assure consistent dispersion for a longer time. Joint on trap is $\frac{1}{4}$ 19/22. PTFE ferrules are supplied in place of FETFE O-Rings for threaded compression fittings.

	Order Code	Each
Flask, 1000mL, $\frac{1}{4}$ 24/40, #7 Thred with Bushing	6936-44	76.97
Fill Tube	6556-07	16.95
Distilling Head only, $\frac{1}{4}$ 24/40, $\frac{1}{4}$ 29/42, #11 Thred	6556-12	139.31
Condenser, Finger, $\frac{1}{4}$ 29/42	6556-13	101.91
Bushing, #11 (2)	7506-02	9.31
Adapter, Threaded, #11, $\frac{1}{4}$ 19/22	5261-35	39.93
Dispersion Tube, Por. D (10-20 micron)	6556-23	47.85
Trap, $\frac{1}{4}$ 19/22	6556-26	39.66
Ferrules, one #7, two #11, Per Pkg.	6556-33	4.95
Complete	6556-05	486.15

6556 DISTILLATION APPARATUS *Cyanide, Model B* ♠

Similar to Model A, except threaded adapter used to connect still head and trap has been eliminated. Trap is supplied with #11 Ace-Thred for direct connection. As in Model A, dispersion tube depth is still adjustable. Side arm on trap is 8mm O.D. PTFE ferrules are supplied in place of FETFE O-Rings for threaded compression fittings.

	Order Code	Each
Flask, 1000mL, 24/40, #7 Thred, with Bushing	6936-44	76.97
Fill Tube	6556-07	16.95
Distilling Head only, 24/40, 29/42, #11 Thred	6556-12	139.31
Condenser, Finger, 29/42	6556-13	101.91
Bushing, #11	7506-02	9.31
Dispersion Tube, Por. D (10-20 micron)	6556-23	47.85
Trap, #11 Thred	6556-27	60.95
Ferrules, one #7, two #11, Per Pkg.	6556-33	4.95
Complete	6556-10	467.51



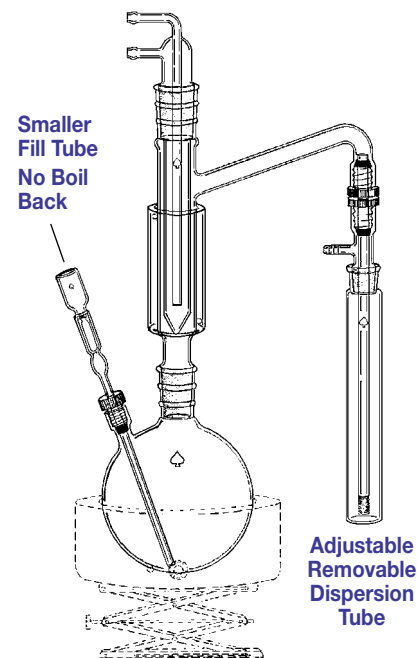
6556-10
Model B

6557 DISTILLATION APPARATUS *Cyanide* ♠

Cyanide distillation apparatus used in testing for soluble and insoluble cyanides in water. Apparatus basically conforms to ASTM D 2036 except for modifications including Ace-Threds and larger 29 joints.

Flask is 1000mL with 24/40 joint and #7 Ace-Thred that permits variable depth positioning of fill tube. Fill tube has been designed with a float valve for added protection against "boil back" or splattering that occurs with conventional tubes. Still head is jacketed and lengthened for more efficient condensing. Head and cold finger have a 29/42 joint and a #11 Ace-Thred on side arm. Two #11 bushings, back to back, hold the threaded adapter to still head by compressing PTFE ferrules against the adjustable depth glass dispersion tube. Frit on dispersion tube is 10-20 micron. Joint on trap is 19/22. Side arm on threaded adapter is 8mm.

	Order Code	Each
Flask, 1 L, 24/40, #7 Thred, with Bushing	6936-44	76.97
Fill Tube	6557-08	107.69
Distilling Head, only, 29/42, #11 Ace-Thred	6557-14	234.52
Condenser, Finger, 29/42, Size D H/C	6557-15	117.27
Bushing, #11 (2)	7506-02	9.31
Adapter, Threaded, #11, 19/22	5261-35	39.93
Dispersion Tube, Por. D (10-20 micron)	6557-24	52.57
Trap, 19/22	6556-26	39.66
Ferrules, PTFE, one #7, two #11, Per Pkg.	6556-33	4.95
Complete	6557-50	692.18

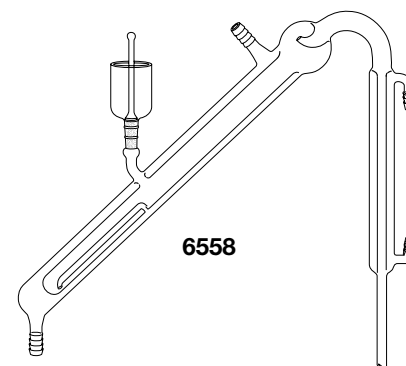


6557

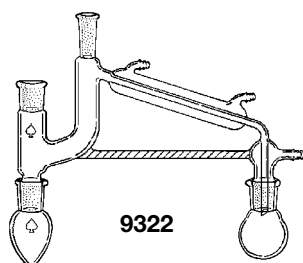
6558 DISTILLATION APPARATUS *Markham Still* ★

Used for volatile fatty acid test; ASTM D-1076. Fabricated from standard wall tubing throughout. Hose connections on still are 3/8-inch I.D. Tubing, Size D; on condenser, 5/16-inch or 3/8-inch, size C. See page 5 for more detailed Hose Connection information.

Order Code	Complete
6558-40	674.08

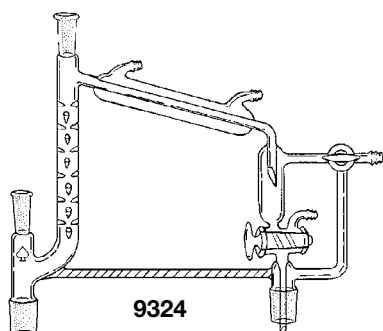


6558

**9322****9322 DISTILLATION APPARATUS ♦**

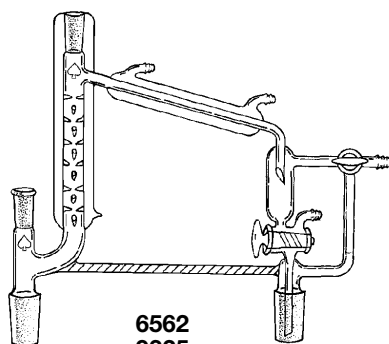
With $\text{§ } 10/30$ joint for a 25mm immersion thermometer. All other joints are $\text{§ } 14/20$. Hose connections project to rear. Round-bottom and pear-shape flasks supplied with complete unit are 25mL capacity. Use with 5/16-inch I.D. Tubing, Size A. See page 5 for more detailed Hose Connection information.

	Order Code	Each
Head, Distilling	9322-05	253.56
Flask, Round Bottom	9458-06	19.58
Flask, Pear Shaped	9477-06	20.36
Complete	9322-10	293.50

**9324****9324 DISTILLATION APPARATUS ♦**

A compact fractionation unit for distilling small quantities in a vacuum, and for ordinary separation. The indents are positioned to cause the vapor to follow a spiral path, adding to the efficiency of the unit. By use of the three-way stopcock, a manifold arrangement is achieved, making it possible to remove receivers without disturbing the equilibrium of the system. $\text{§ } 10/30$ joint at top is for 25mm immersion thermometer. All other joints are $\text{§ } 14/20$. Stopcocks are 2mm bore. For replacement stopcock plugs, order 8226-99 for double oblique; 8228-09 for T-bore. Use with 5/16-inch I.D. Tubing, Size A. See page 5 for more detailed Hose Connection information.

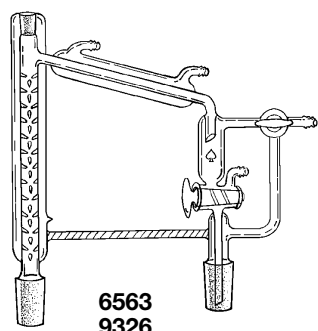
Order Code	Each
9324-04	463.65

**6562
9325****6562/9325 DISTILLATION APPARATUS ★**

A compact fractionation unit for distilling small quantities in a vacuum, and for ordinary separation. Column, including top joint, is vacuum jacketed. The indents are positioned to cause the vapor to follow a spiral path, adding to the efficiency of the unit. Approximately three theoretical plates at 60mL/hr. Hold up to 1.2mL operating, 0.5mL static. Receiver capacity is 15mL.

By use of the three-way stopcocks, a manifold arrangement is achieved, making it possible to remove receivers without disturbing the equilibrium of the system. $\text{§ } 10/30$ thermometer joints are for 25mm immersion thermometers. See page 5 for more detailed Hose Connection information.

Pot & Receiver Joints	Approx. Column Length, mm	Tubing Size (Inches)	Order Code	Each
$\text{§ } 14/20$	114	5/16 (A)	9325-06	600.49
$\text{§ } 24/40$	152	5/16 or 3/8 (C)	6562-05	744.05

**6563
9326****6563/9326 DISTILLATION APPARATUS High Boiling ★**

Useful for separating higher boiling liquids that require a short pot-to-column distance to prevent excessive condensation.

If pot bleed is desired a two-neck flask can be used. Thermometer joint is $\text{§ } 10/18$ for 9551, 25mm immersion. See page 5 for more detailed Hose Connection information.

Pot & Receiver Joints	Approx. Column Length, mm	Tubing Size (Inches)	Order Code	Each
$\text{§ } 14/20$	177	5/16 (A)	9326-10	652.17
$\text{§ } 24/40$	202	5/16 or 3/8 (C)	6563-10	728.28

9333 CONCENTRIC TUBE COLUMN ★

A high efficiency, low holdup, low pressure drop fractionating column, vacuum jacketed with observation stripe. Same as column supplied with 9331, suitable for samples as small as 2mL. Center tube is removable for cleaning. Double expansion spiral eliminates choking. Joints are $\frac{1}{4}$ 14/20. Approximately 40 theoretical plates at 80cc/hr. boil-up. Operating pressure drop less than 1mm Hg. Column holdup (approx.): Operating — with 9362 head, 0.6mL at 80cc/hr. Static — with 9362 head, 0.25mL Xylene. Static: Column alone, 0.1mL Xylene. Replacement inner tube, only, 9333-08.

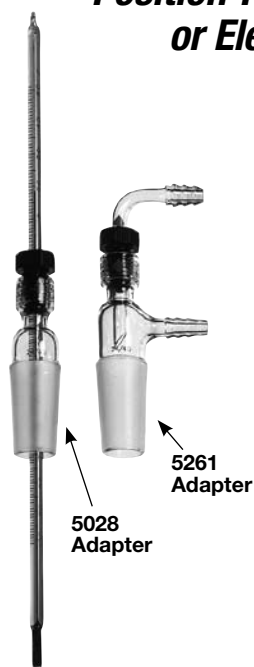
Order Code	Complete
9333-10	1,710.79

9333



Ace Threaded Adapters Give You A Versatile, Grease-Free, No-Clamp Connection!

Position Thermocouples, Thermometers, Gas Dispersion Tubes, Thermowells, or Electrodes, etc., easily with these Adjustable-Depth Connectors.

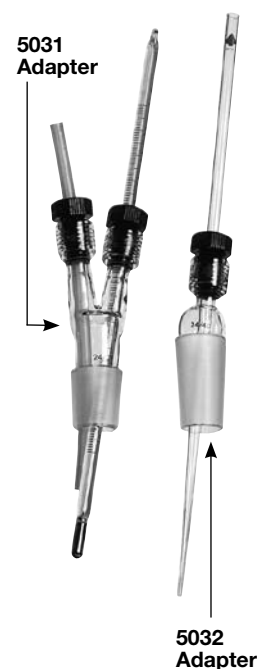


The Original Ace-Thred Connectors

Reference Guide to Ace-Threds

Size		Accepts Tube O.D., mm	Use Bushing Number	Use with O-Ring No.	Optional Ferrule	Suggested Uses
Mini	#7	6.5-7	5029-10	7855-704	11710-07	A,B,I
Midi	#11	9-10.5	7506-02	7855-708	11710-11	D,E,F,G
Maxi	#15	12.5-14	7506-06	7855-716	11710-15	C,H
	#18	16-17	7506-08	7855-720	11710-18	H,L
Giant	#25	24-25	7506-10	7855-734	11710-25	K
	#36	34-35	7506-12	7855-740	—	K,L
Jumbo	#50	47-48	7506-14	7855-744	11710-50	K,L
	#80	75	7506-20	7855-782	—	—

A—Thermometers, **B**—Bleed Tubes, **C**—Electrodes, **D**—Sensing Probes, **E**—Thermowells, **F**—Gas Dispersion Tubes, **G**—Vacuum Take-Offs, **H**—Inlet and Outlet Tubes, **I**—Miniature Electrodes, **J**—Wire Electrodes, **K**—Manifolds, **L**—Immersion Wells.



**6565****6565 DISTILLATION COLUMN** *Perforated Plate*

Perforated plate column, without jacket. Holes are .032-inch diameter

No. of Plates	Plate Dia., mm	§ Joint	Order Code	Each	No. of Plates	Plate Dia., mm	§ Joint	Order Code	Each
5	28	29/42	6565-02	665.54	5	50	55/50	6565-32	1,211.53
10	28	29/42	6565-04	1,099.26	10	50	55/50	6565-34	2,018.16
15	28	29/42	6565-06	1,533.76	15	50	55/50	6565-36	2,719.81
20	28	29/42	6565-08	1,973.94	20	50	55/50	6565-38	3,473.29
30	28	29/42	6565-10	3,158.81	30	50	55/50	6565-40	5,292.31
5	33	34/45	6565-12	810.97	5	75	71/60	6565-42	2,557.23
10	33	34/45	6565-14	1,586.63	10	75	71/60	6565-44	5,013.44
15	33	34/45	6565-16	2,253.71	15	75	71/60	6565-46	6,285.41
20	33	34/45	6565-18	3,122.71	20	75	71/60	6565-48	7,887.26
30	33	34/45	6565-20	4,861.16					
5	40	45/50	6565-22	1,061.56	5	100	103/60	6565-52	4,556.44
10	40	45/50	6565-24	2,026.41	10	100	103/60	6565-54	7,156.67
15	40	45/50	6565-26	2,780.03	15	100	103/60	6565-56	10,000.57
20	40	45/50	6565-28	3,711.80	20	100	103/60	6565-58	12,032.41
30	40	45/50	6565-30	4,912.29					

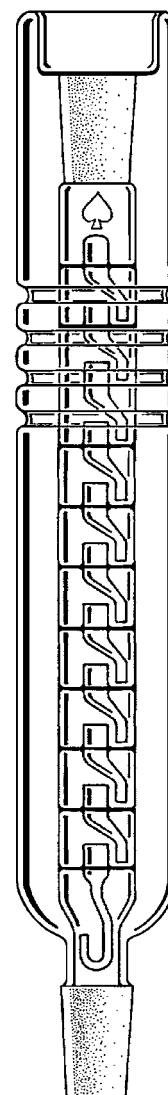
Column Lengths

Catalog No.	Effective Lgth, mm	Overall Lgth, mm
6565-02/6566-03	275	359
6565-04/6566-05	415	499
6565-06/6566-07	555	639
6565-08/6566-09	695	779
6565-10/6566-11	975	1059
6565-12/6566-13	275	365
6565-14/6566-15	415	505
6565-16/6566-17	555	645
6565-18/6566-19	695	785
6565-20/6566-21	975	1065
6565-22/6566-23	275	375
6565-24/6566-25	415	515
6565-26/6566-27	555	655
6565-28/6566-29	695	795
6565-30/6566-31	975	1075
6565-32/6566-33	275	375
6565-34/6566-35	415	515
6565-36/6566-37	555	655
6565-38/6566-39	695	795
6565-40/6566-41	975	1075
6565-42/6566-43	275	395
6565-44/6566-45	415	535
6565-46/6566-47	555	675
6565-48/6566-49	695	815
6565-52/6566-53	275	395
6565-54/6566-55	415	535
6565-56/6566-57	555	675
6565-58/6566-59	695	815

6566 DISTILLATION COLUMN *Perforated Plate, Internal Bellows, Silvered*

Similar to 6565 except with vacuum-jacketed internal bellows and silvered.

No. of Plates	Plate Dia., mm	Joint	Order Code	Each	No. of Plates	Plate Dia., mm	Joint	Order Code	Each
5	28	29/42	6566-03	925.60	5	50	55/50	6566-33	1,710.91
10	28	29/42	6566-05	1,488.83	10	50	55/50	6566-35	3,252.86
15	28	29/42	6566-07	2,061.43	15	50	55/50	6566-37	3,855.31
20	28	29/42	6566-09	2,807.03	20	50	55/50	6566-39	4,577.46
30	28	29/42	6566-11	3,684.87	30	50	55/50	6566-41	6,337.89
5	33	34/45	6566-13	1,443.26	5	75	71/60	6566-43	3,171.99
10	33	34/45	6566-15	1,905.09	10	75	71/60	6566-45	5,328.17
15	33	34/45	6566-17	2,980.37	15	75	71/60	6566-47	7,283.73
20	33	34/45	6566-19	3,664.10	20	75	71/60	6566-49	9,113.26
30	33	34/45	6566-21	4,932.00					
5	40	45/50	6566-23	1,771.77	5	100	103/60	6566-53	5,258.50
10	40	45/50	6566-25	2,731.03	10	100	103/60	6566-55	7,625.91
15	40	45/50	6566-27	3,517.13	15	100	103/60	6566-57	11,150.00
20	40	45/50	6566-29	4,531.61	20	100	103/60	6566-59	12,706.19
30	40	45/50	6566-31	5,082.09					



6566

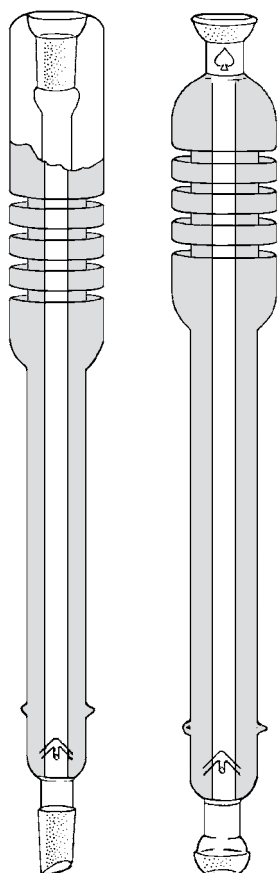
9335 DISTILLATION COLUMN ♠

Vacuum jacketed and silvered with observation stripe. Also available unsilvered. With an enlarged bulb knockdown section that removes high boiling ends without choking. Length of packing section is 100 or 200mm, I.D. approximately 10mm. With indents to hold packing.

Joint	Length, mm	Order Code	Each
14/20	100	9335-02	385.61
14/20	200	9335-08	459.05



9335



6569

6569 DISTILLATION COLUMN *Vacuum Jacketed*

With internal expansion bellows. Baked out and evacuated to 10⁻⁶ Torr. All top joints are jacketed. Spherical joints are not jacketed in order to allow for clamping. All vacuum jacketed distilling columns are furnished with internal-type expansion bellows to compensate for the unequal expansion between the inside tube and the outer jacket and will withstand a temperature differential of 180°C. All columns, regardless of length, are supplied with the proper number of bellows to withstand the above temperature differential at all times. Standard silvered columns are supplied with an observation stripe running down the entire length of the jacket.

The packing support is a conical tripod in which the free area is at least 90% of the diametrical area. *In addition to the columns listed, we also have facilities for fabricating a complete line of special vacuum jacketed units to your specifications.* This includes additional bellows to enable you to maintain temperature differentials greater than 180°C. When ordering a special column, please specify the highest temperatures which may be reached in the column, so that we can supply the unit with sufficient bellows to take care of the expansion which may take place during distillation.

Length, cm	I.D.,mm	Joints	Order Code	Each
61	12.7	24/40	6569-40	Priced Upon Request
61	25.4	29/42	6569-50	
61	38.1	35/25	6569-60	
91	12.7	24/40	6569-42	
91	25.4	29/42	6569-52	
91	38.1	35/25	6569-62	
122	12.7	24/40	6569-44	
122	25.4	29/42	6569-54	
122	38.1	35/25	6569-64	

Columns can be custom designed and quoted to meet your specifications. Non-silvered columns are available on special order.

6572 DISTILLATION COLUMN *Hempel* ♠

With ₪ joints and indentations to support packing. Length in centimeters refers to the length from the packing support to the bottom of the outer ground joint.

Length, cm (In.)	I.D., mm	₪ Joint	Order Code	Each	Length, cm (In.)	I.D., mm	₪ Joint	Order Code	Each
20.3 (8)	24	24/40	6572-02	53.79	45.7 (18)	24	24/40	6572-10	63.24
25.4 (10)	24	24/40	6572-04	56.35	50.8 (20)	24	24/40	6572-12	63.35
30.5 (12)	24	24/40	6572-06	52.39	61.0 (24)	25	29/42	6572-14	79.67
38.1 (15)	24	24/40	6572-08	61.94					

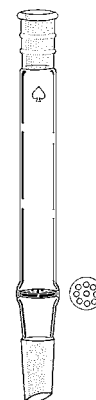


6572

6573 DISTILLATION COLUMN *Hempel* ♠

With ₪ joints and perforated glass disc for packing support. Length in centimeters refers to the length from the packing support to the bottom of the outer ground joint.

Length, cm	I.D., mm	₪ Joint	Order Code	Each
20.3	24	24/40	6573-04	126.59
25.4	24	24/40	6573-06	129.69
30.5	24	24/40	6573-08	139.42
38.1	24	24/40	6573-10	147.79



6573

9343 DISTILLATION COLUMN *Plain* ♠

Plain type, 10mm I.D. with indents for supporting glass beads or other packing.

₪ Joint	Length, mm	Order Code	Each
14/20	130	9343-06	42.51
14/20	250	9343-09	43.21

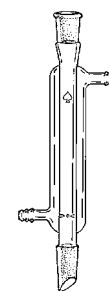


9343

9342 DISTILLATION COLUMN *Jacketed* ♠

Jacket length 250mm, with indents for supporting glass beads or other packing. Use with 5/16-inch or 3/8-inch I.D. Tubing, Size B. See page 5 for more detailed Hose Connection information.

₪ Joint	Order Code	Each
14/20	9342-01	88.62

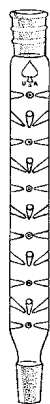


9342

**6575****6575 DISTILLATION COLUMN** *Snyder* ♠

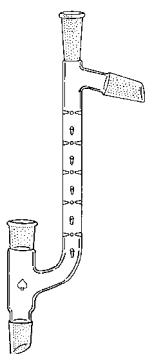
Floating ball type, with ⌘ joints. Each section is approximately 51mm long.

No. of Sections	I.D., mm	⌘ Joint	Order Code	Each
3	24	24/40	6575-02	90.25
6	24	24/40	6575-04	124.20
12	24	24/40	6575-06	179.57

**6578
9345****6578/9345 DISTILLATION COLUMN** *Vigreux* ♠

Length in centimeters refers to the effective length of the column as measured from the lowest to the highest indent of the column.

Length, cm (In.)	I.D., mm	⌘ Joint	Order Code	Each
10.0 (4)	16	14/20	9345-08	58.31
13.0 (5.2)	16	14/10	9345-09	59.06
10.0 (4)	19	19/22	9345-10	61.45
13.0 (5.2)	19	19/22	9345-11	63.06
17.0 (6.8)	19	19/22	9345-13	69.11
20.3 (8)	24	24/40	6578-04	63.05
25.4 (10)	24	24/40	6578-06	75.20
30.5 (12)	24	24/40	6578-08	78.19
38.1 (15)	24	24/40	6578-10	106.09
45.7 (18)	24	24/40	6578-12	113.49
50.8 (20)	24	24/40	6578-14	134.27
61.0 (24)	24	24/40	6578-16	157.63

**9347****9347 DISTILLATION COLUMN** *Vigreux* ♠

With male drip tip on joint of Claisen side arm and ⌘ 10/30 joint for 25mm immersion thermometer. Other joints are ⌘ 14/20.

⌘ Joint	Length of Indents, mm	Order Code	Each
14/20	100	9347-02	108.85
14/20	200	9347-04	126.08

6584 DISTILLATION COLUMN ♦

With honeycomb packing support sealed into column above the bottom joint. Packing cone has hole at bottom for complete drainage. Holes in cone are 3.2mm.

Length, cm (In.)	I.D., mm	Joint	Order Code	Each
40.6 (16)	19	24/40	6584-06	186.74
61.0 (24)	19	24/40	6584-08	200.14



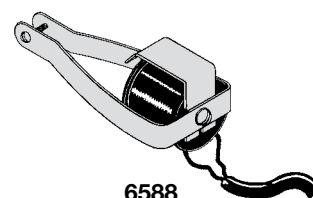
6584

6588 ELECTROMAGNETIC COIL ★

With high permeability core to operate takeoff device on standard automatic distilling heads. Fastened to head with special clamp. Furnished complete with clamp and wires to connect to automatic time switch. For operation at 120 volts, 50/60 Hz AC max. or 24 volts DC max. *For intermittent service only*; 30 sec. maximum ON, 50% max. duty cycle.

Diameter of Core 12.5mm, Diameter of Coil 38mm, Height 32mm.

Order Code	Each
6588-10	174.87



6588

6590 ELECTROMAGNETIC COIL ★

This coil is designed to operate automatic distilling heads which operate on the plunger principle whereby the glass rod is pulled up through the center of the magnet. Supplied complete with necessary wiring to connect into the system. For operation at 120 volts, 50/60 Hz AC max. or 24 volts DC max. *For intermittent service only*; 30 sec. maximum ON, 25% max. duty cycle.

Diameter of Hole 12.7mm, Diameter of Coil 38mm, Height 32mm.

Order Code	Each
6590-10	126.45

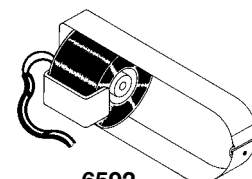


6590

6592 ELECTROMAGNETIC COIL ★

Similar to 6588, for use with large distilling heads. 76mm O.D. by 44mm high, diameter of metal slug 28.6mm. *For intermittent service only.*

Order Code	Each
6592-10	224.17



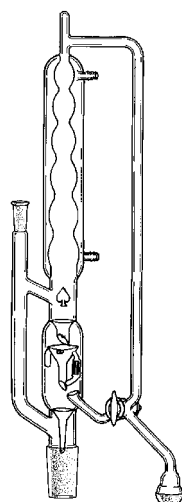
6592

**6593****6593 ELECTROMAGNETIC COIL**

This coil is a potted type “horseshoe” core design to operate large automatic distilling heads, up to 3-1/4-inch (83mm) O.D. with adjustable clamp. Operates at 120 volts, 50/60 Hz AC max. delivering 24 watts pulling power. For 100% duty cycle operation. Supplied with 6-foot, 3-prong cord and a grounded aluminum cover. Weight: 1¾ lbs. Warranty: one-time 90-day unconditional.

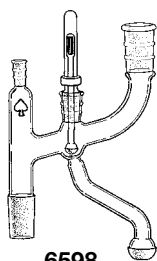
Dimensions: 2-3/8 L x 2 W x 1-3/8 D (Inches).

Order Code	Each
6593-40	313.97

**6594****6594 DISTILLATION HEAD** *Magnetic* ★

Magnetically operated swinging funnel type, with iron slug totally enclosed. This head maintains reflux ratio constant with changing throughput. The vapor bypass is designed to give accurate thermometer readings. Tapered bulb condenser increases capacity without choking. Side arm joint is ₪ 28/12. Thermometer joint is ₪ 10/30 for 76mm immersion. Stopcock bore is 4mm. Supplied with ₪ 29/42 column joint. Uses ACE 6588 coil, not included. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information. Thermometer not supplied.

₪ Joint	Order Code	Each
29/42	6594-10	1,086.85

**6598****6598 DISTILLATION HEAD** *Automatic Reflux Control* ♠

A small, low holdup automatic head which can be completely disassembled for easy cleaning or replacement of parts. Lower column joint and side arm for condenser are ₪ 24/40. Joint on takeoff arm is ₪ 28/11. The plunger guide is ₪ 19/38 and the ₪ 10/30 thermometer joint is for a 76 or 102mm immersion thermometer. Supplied with Nylon coil stop for use with 6590 coil. Coil and thermometer not included.

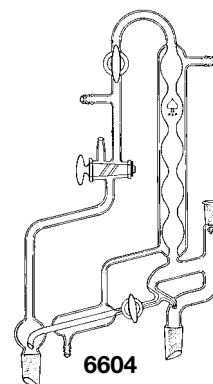
₪ Joint	Order Code	Complete
24/40	6598-10	445.86

	Order Code	Each
Plunger, only	6598-04	75.27
Plunger Holder, only	6598-06	28.96
Nylon Stop, only	6598-08	13.52

6604 DISTILLATION HEAD *Variable Reflux Ratio* ★

Constructed so that satisfactory operation can be maintained under any pressure condition. F 10/30 thermometer joint takes 76mm immersion thermometer listed under 8314. Side arm joint is F 24/40. Use with 5/16-inch or 3/8-inch I.D. Tubing, Size C. See page 5 for more detailed Hose Connection information.

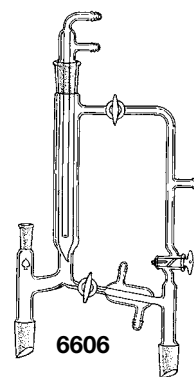
F Joint	Order Code	Each
24/40	6604-10	799.96



6606 DISTILLATION HEAD *Hennion Design* ♠

For variable reflux ratio, can be used for operation under vacuum and receiver can be removed without disturbing the system's vacuum. F 10/30 thermometer joint takes 76mm immersion thermometer listed under 8314. Side arm joint is F 24/40. Stopcock bores are 2mm. For cold finger only, see 5960, page 144. Use with 5/16-inch or 3/8-inch I.D. Tubing, Size C. See page 5 for more detailed Hose Connection information.

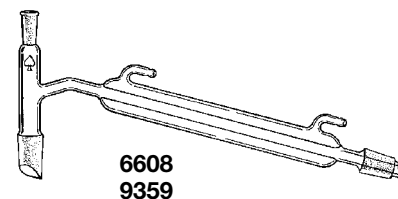
F Joint	Order Code	Each
24/40	6606-10	600.16



6608/9359 DISTILLATION HEAD ♠

With condenser jacket on side arm. Thermometer joint is F 10/30 (see 8314 for thermometer listing). Side arm is at a 75° angle. See page 5 for more detailed Hose Connection information.

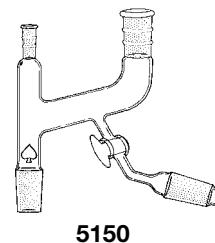
Condenser Jacket Length, mm	F Joints	Thermometer Imm., mm	Tubing Size (Inches)	Order Code	Each
100	14/20	50	5/16 (A)	9359-04	103.89
200	14/20	50	5/16 (A)	9359-06	109.39
250	24/40	76	3/8 or 5/16 (C)	6608-06	156.09
400	24/40	76	3/8 or 5/16 (C)	6608-20	173.82

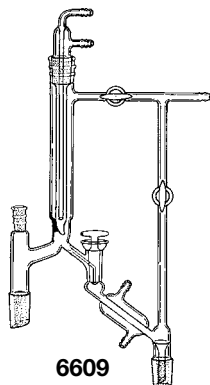


5150 DISTILLATION HEAD ♠

With glass or 1:5 solid PTFE stopcock plug on lower side arm. Top joint on center tube is F 10/30 for 76mm immersion thermometer. All other joints are F 24/40. Takeoff arm is at 75° angle to the vertical. Both plugs are 2mm bore.

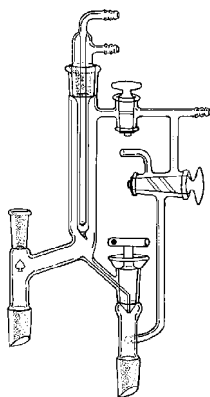
Plug Style	Order Code	Each
Glass	5150-10	171.20
PTFE	5150-29	190.46



**6609****6609 DISTILLATION HEAD** *Vacuum Type* ★

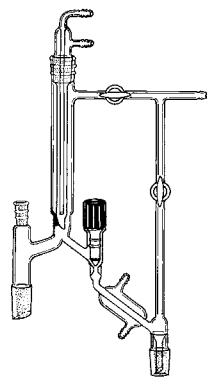
With finger type condenser and Newman type stopcock for reflux control. Stopcock was designed by Dr. Newman of Ohio State University. Stopcock manifold and reflux stopcock can be used to isolate head from receiver so that receiver contents can be removed without disturbing the vacuum in the system. Both column joint and receiver joints are ₡ 24/40. Thermometer joint is ₡ 10/30 for 76mm immersion thermometer. Finger condenser is approximately 20.3cm long with ₡ 24/40 joint. Newman type stopcock is 2mm bore; all others are 3mm. For cold finger only, see 5960, page 144. Use with 5/16-inch or 3/8-inch I.D. Tubing, Size C or Size D. See page 5 for more detailed Hose Connection information. Thermometer not supplied.

₡ Joint	Order Code	Complete
24/40	6609-10	717.13

**9357****9357 DISTILLATION HEAD** ♠

Newman stopcock facilitates reflux ratio adjustment and reduces hold-up on walls; product drops directly into receiver. Stopcocks are arranged for convenient manipulation and are placed so that the head may be used in either right- or left-hand setup. The condenser drip is adjustable for directing reflux into takeoff. Condenser hose connections point to rear. Condenser length is 100mm. Thermometer joint ₡ 10/30, all others are ₡ 14/20. Use with 5/16-inch I.D. Tubing, Size A. See page 5 for more detailed Hose Connection information. Thermometer not supplied.

₡ Joints	Order Code	Head Only	Order Code	Condenser Only	Order Code	Complete
14/20	9357-01	388.99	9250-04	57.82	9357-02	446.89

**6613****6613 DISTILLATION HEAD** *Vacuum Type* ★

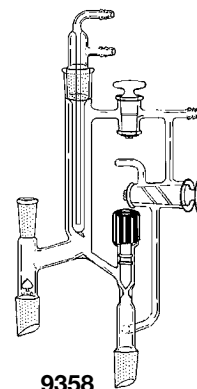
With cold finger type condenser and 0-3mm PTFE stopcock for reflux control. Glass stopcocks on manifold and reflux arms can be used to isolate head from receiver so that receiver contents can be removed without disturbing the vacuum in the system. With condenser on takeoff arm and ₡ 10/30 thermometer joint for 76mm immersion thermometer. Both column joint and receiver joint are ₡ 24/40. Finger condenser is approximately 20.3cm long with a ₡ 24/40 joint. Glass stopcocks are 3mm bore. For cold finger only, see 5960, page 144. Use with 5/16-inch or 3/8-inch I.D. Tubing, Size C or Size D. See page 5 for more detailed Hose Connection information. Thermometer not supplied.

₡ Joint	Order Code	Complete
24/40	6613-12	670.65

9358 DISTILLATION HEAD ★

With cold finger type condenser and 0-3 mm PTFE stopcock plug with PTFE ring seals for reflux control. The seals prevent O-Ring exposure to corrosive liquids and are backed up by a FETFE O-Ring. Thermometer joint is $\frac{1}{8}$ 10/30, all others are $\frac{1}{8}$ 14/20. Use with 5/16-inch I.D. Tubing, Size A. See page 5 for more detailed Hose Connection information.

	Order Code	Each
Head only	9358-02	378.67
Condenser only	9250-04	57.82
Complete	9358-03	436.49



9358

9362 DISTILLATION HEAD ★

Automatic reflux control via solenoid valve arrangement. Reflux control is effected by an adjustable time switch and solenoid takeoff valve. Reflux ratio is thus a time function and is independent of throughput except when a single drop is a significant part of the condensate. Even then, however, drops can be split by shortening takeoff time and adjusting plunger travel by means of the brass washers provided. Vapors pass for the most part around the outside of the plunger housing to reach the condenser. The condensate is directed to the interior of the housing and returns to the column via holes in the housing at the valve seat. A drip below the plunger seat directs the reflux to the center of the packing. The design is such that viscous liquids like glycerin cause no difficulty. Temperature measurement is by means of a thermocouple or thermometer, 40mm immersion located in the vapor stream. Vapor velocity prevents reflux from running down the well. Joints are $\frac{1}{8}$ 14/20. Thermometer not supplied.

Hold-up: Static — 0.2mL for liquids such as toluene and ethanol.

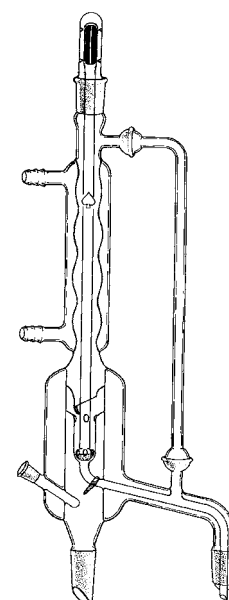
Dynamic — 0.4mL toluene at 4.5mL/min.

Dimensions — Overall height approximately 350mm;

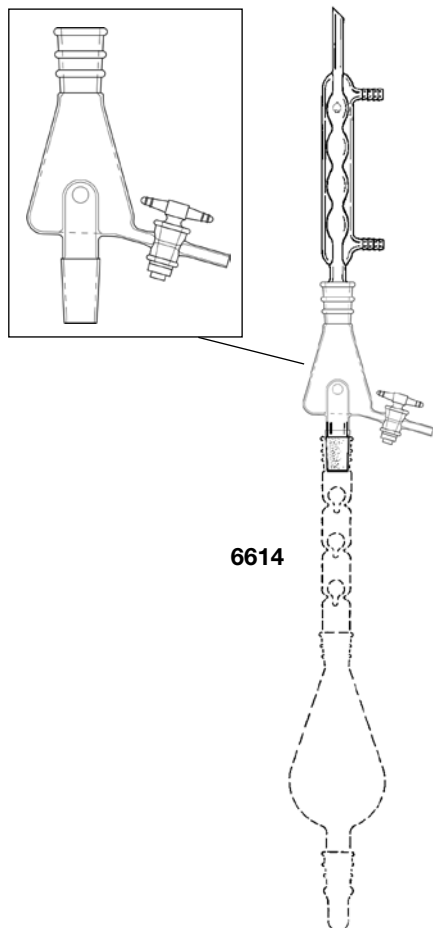
Distance from column to takeoff arm approximately 75mm.

For magnetic coil, see 6590.

	Order Code	Each
	9362-08	1,505.74



9362

**6614 STILL** *Solvent Recovery*

When attached to the top of Snyder Column, unit is designed to recover solvent normally lost during Kuderna-Danish Evaporative Concentrations. PTFE stopcock (1:5, 2mm bore) provides option for total reflux or takeoff. #7 Ace-Thred on side arm accepts tubing 6-7mm O.D. 5029-10 Nylon bushing and FETFE O-Ring supplied with adapter.

	Order Code	Each
Adapter, Solvent Recovery, \$24/40	5245-04	♠ 168.58
Condenser, Allihn, 200mm, \$24/40	5941-12	♠ 90.66
Complete	6614-30	♠ 259.24

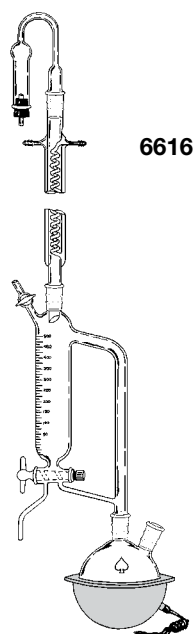
Optional Item:

PTFE Sleeve, \$24/40, pkg/3	7643-08	★ 4.10
-----------------------------	----------------	--------

6614**6616 DISTILLATION HEAD** *Solvent Recovery*

Versatile unit for use as a solvent recovery still for azeotropic separations of solvents, either heavier or lighter than water.

As a solvent recovery unit, the lower 4mm PTFE double oblique stopcock permits total return to flask, total takeoff, and total storage in the 500mL graduated receiver. Bottom exit extends away from the distilling flask for easier takeoff. The 2mm bore PTFE stopcock at top has tubing that will accept our 9096 septum to permit use of a syringe for extracting smaller samples as needed while avoiding air contact. Joints are \$24/40. For replacement stopcock plugs, see 8224-04 and 8226-10. **Complete item consists of Head, Flask, Mantle, Condenser, Drying Tube and 12 Septa.**

**6616**

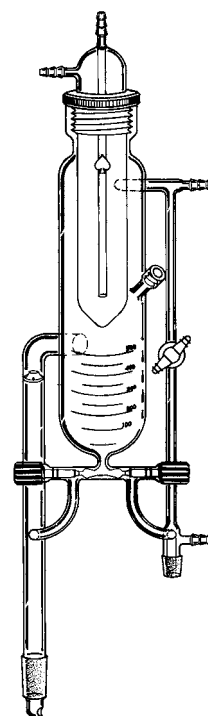
	Order Code	Each
Distilling Head, only	6616-10	♠ 394.71
Flask, 2 Neck, \$24/40, 2 liter	6927-44	♠ 96.72
Mantle	12043-21	★ 278.00
Condenser, Reflux, \$24/40, 300mm	5955-14	♠ 277.62
Drying Tube, \$24/40	5170-10	♠ 40.02
Septa/12	9096-32	★ 13.44
Complete	6616-40	♠ 1,100.51

6617 SOLVENT STILL Repurifier

Solvent repurifier still that distills, refluxes, stores and delivers. When used with PTFE sleeves on joints, unit is totally grease free. #50 Ace-Thred holds cold finger condenser enabling easy removal for cleaning. Inlet on body, below thread, is for nitrogen flushing thru entire apparatus with outlets on boiling flask as well as above receiver flask. Septum access located on side of still reservoir, supplied with septum. Two PTFE stopcocks, below reservoir, allow recycling solvent to boiling flask, take-off to receiver flask, or if both are closed, storage in graduated 500mL reservoir. Lower joint on distillation path is $\text{F} 24/40$ with a "Splash Guard" to aid in distillation. Joint on receiver is $\text{F} 14/20$. Distillation flask is a round bottom, two-neck boiling flask for use with Glas-Col mantles. Use with 5/16-inch or 3/8-inch I.D. Tubing, Size C. See page 5 for more detailed Hose Connection information.

Receiver flask is a recovery style with $\text{F} 14/20$ joint. Distillation flask and receiver flask are NOT supplied with still head. **Complete item includes still head, finger condenser and bushing with O-Ring.**

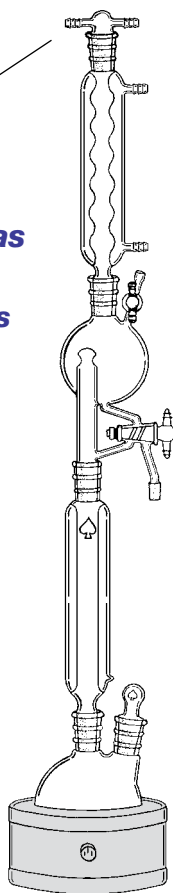
	Order Code	Each
Still Head, Complete	6617-35	★ 1,151.62
Still Head, only	6617-06	★ 1,006.28
Finger Condenser, only	6617-11	★ 85.50
Bushing, only, #50 Nylon with O-Ring	7506-14	♠ 59.84
Distillation Flask		
R.B. Two-neck, 500mL, $\text{F} 24/40$	6927-22	♠ 67.53
R.B. Two-neck, 1000mL, $\text{F} 24/40$	6927-32	♠ 82.85
R.B. Two-neck, 2000mL, $\text{F} 24/40$	6927-44	♠ 96.72
Receiver Flask, Recovery Style		
Single neck, 50mL, $\text{F} 14/20$	9470-06	♠ 22.68
Single neck, 100mL, $\text{F} 14/20$	9470-08	♠ 23.56
Single neck, 200mL, $\text{F} 14/20$	9470-10	♠ 30.54
Joint Clamps, Delrin, $\text{F} 14/20$, Pk/12	7598-14	★ 32.07
Joint Clamps, Delrin, $\text{F} 24/40$, Pk/12	7598-24	★ 34.51
Septa/12	12901-48	★ 15.81



6617-35

**Allows
multiple unit
hookup to
same inert gas
source**

**Keeps solvents
pure and free
of oxygen**



6620

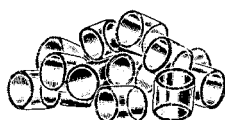
6620 REFLUX APPARATUS *Continuous, Fuchs*

Continuous reflux apparatus to keep solvents pure and free of oxygen. Compact, upright design allows multiple units to be assembled in small areas, i.e. 1000mL — 9-inch diameter x 39 inches high, 2000mL — 10-3/8-inch diameter x 41 inches high (shorter versions have been fabricated, inquire for details). Storage head has overflow high enough to allow storage of solvent for retrieval by syringe through upper part or through lower double oblique stopcock. Lower drain is centered for complete drainage of head. Distillation column is 250mm long, vacuum jacketed, unsilvered. Allihn condenser is 250mm. Adapter at top has two hose connections for maintaining inert atmosphere. Stopcocks are 2mm bore PTFE. Joint on lower drain arm is $\frac{1}{4}$ 14/20, all others $\frac{1}{4}$ 24/40. Complete unit consists of adapter, condenser, storage head, column, flask and mantle. Septum are optional. For replacement stopcock plugs, see 8224-04 and 8226-08.

1000mL SIZE			2000mL SIZE		
	Order Code	Each		Order Code	Each
Adapter, $\frac{1}{4}$ 24/40	5206-10	♠ 24.58	Adapter, $\frac{1}{4}$ 24/40	5206-10	♠ 24.58
Column, Vac. Jac.	7793-04	♠ 193.71	Column, Vac. Jac.	7793-04	♠ 193.71
Condenser, Allihn	5945-13	♠ 99.35	Condenser, Allihn	5945-13	♠ 99.35
Head, Storage, 500mL	6620-12	♠ 378.31	Head Storage, 1000mL	6620-14	♠ 392.17
Flask, 1000mL	6927-32	♠ 82.85	Flask, 2000mL	6927-44	♠ 96.72
Stopper, $\frac{1}{4}$ 24/40	8250-12	♠ 17.38	Stopper, $\frac{1}{4}$ 24/40	8250-12	♠ 17.38
Mantle, 1 Liter	12053-19	★ 241.00	Mantle, 2 Liter	12053-21	★ 251.00
Complete	6620-40	★ 957.56	Complete	6620-45	★ 992.52

Optional	Order Code	Complete
Septum, pkg/12	9096-32	★ 13.44

Designed by Dr. Philip Fuchs, Purdue University Chemistry Dept., West Lafayette, IN.

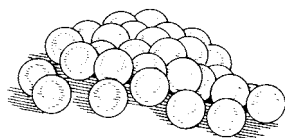


8033

8033 RINGS *Raschig* ♠

Borosilicate glass. Wall weight on 5mm size is approximately 0.8, other sizes have wall weight of approximately 1.0mm.

Size, mm	Approx. mL/lb	Order Code	Per Lb.
5 x 5	580	8033-04	135.61
6 x 6	590	8033-06	135.61
7 x 7	600	8033-08	135.61
8 x 8	770	8033-10	135.61



8035

8035 BEADS *Solid Borosilicate Glass* ★

Corning 7268

PYREX® brand solid glass beads. Useful as packing for distillation columns, mixing beads and boiling stones. Packaged in 0.45kg. (1 lb) boxes, with a packing volume of approx. 360cm³.

Corning Code	Approx. Diameter, mm	Avg. Count Per Pound	Pounds Per		Order Code	Shelf-Pack Price	Case Price
			Shelf-Pack	Case			
7268-3	3 ± 3/4	13,600	1	4	8035-03	280.49	975.60
7268-4	4 ± 3/4	5700	1	4	8035-05	237.30	825.40
7268-5	5 ± 3/4	3000	1	4	8035-07	183.48	638.20
7268-6	6 ± 3/4	1700	1	4	8035-09	197.80	688.00

6624 PRO-PAK *Distillation Packing*

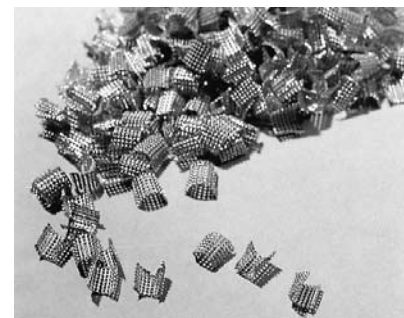
An efficient protruded-metal dump-packing for distillation columns of 1-inch to 12-inch diameter.* Available in 0.16 x 0.16 inch and 0.24 x 0.24 inch sizes.

Features:

- a) Self-wetting reduces equilibrium time; distillation can be stopped and re-started without lengthy delay.
- b) The “dump” feature eliminates interlocking, and makes filling and emptying as easy as pouring water.
- c) Suitable for both atmospheric and reduced pressures down to 10mm Hg condenser pressure. (Efficiency increases as operating pressure decreases).
- d) Packed heights up to 20 feet are possible without distorting packing. Glass columns, however, are limited to seven feet overall due to manufacturing facilities.

H.E.T.P. varies from 0.5 inches to 1.4 inches in a 1-inch diameter column depending on operating pressure and reflux rate. Maximum reflux rate approximately 3.4L/hour (data are available). Metal packing offered in 316 Stainless Steel and Monel 400.

Diameters over 3 inches require additional distributors. Minimum column diameter for 0.16-inch packing is 0.75 inches.



6624

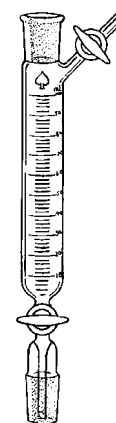
SIZE: 0.16 inches			Size: 0.24 inches		
Metal	Order Code	Each	Metal	Order Code	Each
316 S-S	6624-04	Priced Upon Request	316 S-S	6624-23	Price Upon Request
Monel	6624-09		Monel	6624-28	

Call for current price quote.

6628 DISTILLATION RECEIVER *Vacuum Type* ♠

With ½ inner joint at bottom and outer joint at top. Graduated to 125mL in 1mL subdivisions. Double scale with glass stopcock.

½ Joint	Order Code	Each
24/40	6628-10	224.44

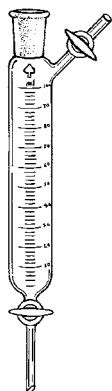


6628

Need Something Special? Choose ACE.

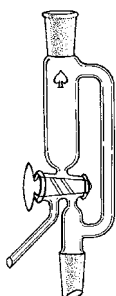
Whether you're simply changing a joint size or designing an entire custom unit, our technical staff is at your service!

Give us a call at 1-800-223-4524.

**6629****6629 DISTILLATION RECEIVER** *Vacuum Type* ♠

With 24/40 joint at top. Capacity 125mL, in 1mL subdivisions. Double scale. With glass stopcock.

24/40	Order Code	Each
	6629-10	188.66

**6635-10
6635-20****6635 DISTILLATION RECEIVER** ♠

Especially designed receiver to draw samples during distillation or to return the condensed vapor to the flask. Capacity 125mL. With glass stopcock.

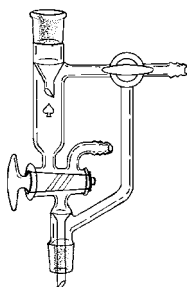
24/40	Order Code	Each
	6635-10	221.86

**Other receivers
are listed in
the Moisture
Test Section —
see 7705
on page 387.**

6635 DISTILLATION RECEIVER *1:5 PTFE Plug* ♠

Similar to 6635 above, except with solid 1:5 PTFE stopcock plug.

24/40	Order Code	Each
	6635-20	259.27

**9375****9375 DISTILLATION RECEIVER** ♠

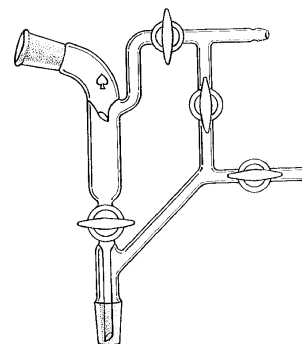
For operation other than at atmospheric pressure. Vacuum is applied to the side arm with the T-bore stopcock. The secondary receiver is vented by means of the lower stopcock. The capacity from the bottom of the drip to the stopcock is 2.5mL. Use with 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information. Both stopcocks are glass.

14/20	Order Code	Each
	9375-08	297.89

6637 DISTILLATION RECEIVER ★

An excellent all-purpose receiver for general distillation work. Equipped with a complete stopcock manifold to allow contents of the receiver to be removed to a single receiving flask without disturbing the vacuum of the system. Stopcocks are 4mm bore. Tubing connections are 10mm O.D. olive type.

Cap., mL	Joint	Order Code	Each
50	24/40	6637-04	417.40
100	24/40	6637-06	457.27
250	24/40	6637-08	558.94

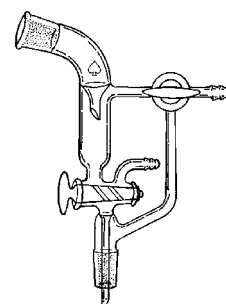


6637

9389 DISTILLATION RECEIVER ♠

With upper joint at 105° angle. For operation other than at atmospheric pressure. Vacuum is applied to the side arm with the T-bore stopcock. The secondary receiver is vented by means of the lower stopcock. The capacity from the bottom of the drip to the stopcock is 2.5mL. Tubing connections are 8mm O.D. olive type.

Joint	Order Code	Each
14/20	9389-02	301.27

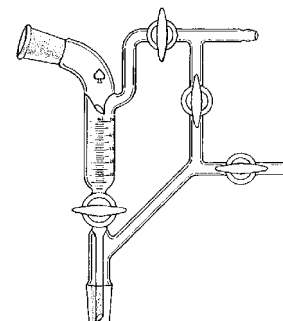


9389

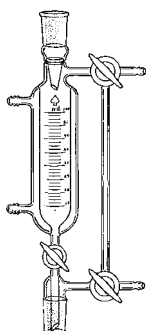
6638 DISTILLATION RECEIVER *Graduated* ★

All-purpose receiver for general distillation work. With graduated body. Stopcocks are 4mm bore. Tubing connections are 10mm O.D. olive type.

Cap., mL	Subdiv., mL	Joints	Order Code	Each
50	1	24/40	6638-04	462.47
100	1	24/40	6638-06	496.90
250	5	24/40	6638-08	609.08

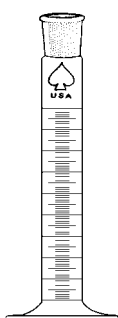


6638

**6642****6642 DISTILLATION RECEIVER** *Jacketed* ★

Jacketed receiver with vacuum manifold for removal of sample during operation without disturbing the system. Stopcocks on manifold are 4mm bore, receiver stopcock is 3mm. Use with 3/8-inch or 7/16-inch I.D. Tubing, Size E, on condenser; 10mm O.D. olive on manifold. See page 5 for more detailed Hose Connection information.

Cap., mL	Subdiv., mL	⌘ Joints	Order Code	Each
250	5	24/40	6642-08	937.45

**9396****9396 DISTILLATION RECEIVER** ♠

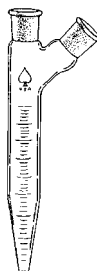
Calibrated to contain. Supplied in 10mL capacity with 0.2mL subdivisions.

⌘ Joint	Order Code	Each
14/20	9396-02	42.36

**9397****9397 DISTILLATION RECEIVER** ♠

Centrifugal type, calibrated to contain. Graduated in 0.1mL subdivisions. Total capacity 15mL.

⌘ Joint	Order Code	Each
14/20	9397-06	40.51

**9373****9373 DISTILLATION RECEIVER** *with Side Arm* ♠

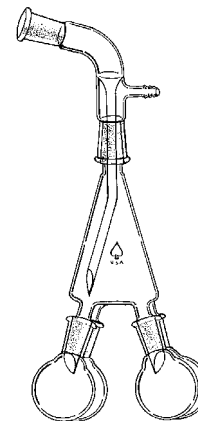
Graduated to 15mL in 1/10mL subdivisions with lower 0.5mL contained in a precision tip for better accuracy with extremely small samples.

⌘ Joint	Order Code	Each
14/20	9373-06	66.52

6647/9400 DISTILLATION RECEIVER

For use where separate fractions are desired without disturbing distillation pressure. Joints are ₣ 14/20 or ₣ 24/40. Receiver flasks on ₣ 14/20 size are 5mL; on ₣ 24/40 size 50mL. On ₣ 14/20 joints, use 3/8-inch or 5/16-inch I.D. Tubing, Size B; on ₣ 24/40 joints, use 3/8-inch I.D. Tubing, Size D. See page 5 for more detailed Hose Connection information.

	₣14/20		₣24/40	
	Order Code	Each	Order Code	Each
Vacuum Adapter	9400-03	♠ 45.50	6647-04	♠ 68.68
Distributor	9400-04	♠ 115.22	6647-06	♠ 196.85
Flasks, (4) ea.	9458-02	♠ 19.58	6887-20	♠ 23.83
Joint Clips/10	7598-14	★ 32.07	7598-24	★ 34.51
Complete	9400-10	♠ 242.25	6647-10	♠ 395.36



**6647
9400-10
9400-25**

9400 DISTILLATION RECEIVER *PTFE-Clad*

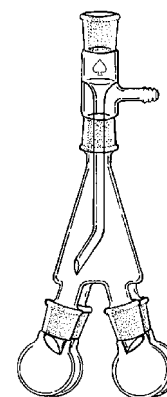
Similar to 9400-10 except all inner joints are PTFE-Clad, outer joints are polished. Use with 5/16-inch or 3/8-inch I.D. Tubing, Size B. See page 5 for more detailed Hose Connection information.

	Order Code	Each
Adapter	9400-20	♠ 59.79
Distributor	9400-22	♠ 294.58
Flask/4	9458-35	♠ 22.00
Joint Clips/10	7598-14	★ 32.07
Complete	9400-25	♠ 435.90

9401 DISTILLATION RECEIVER

Similar to 9400-10 except with ₣ 14/20 vertical top joint. Use with 5/16-inch or 3/8-inch I.D. Tubing, Size B. See page 5 for more detailed Hose Connection information.

	Order Code	Each
Adapter	9401-05	♠ 46.59
Distributor	9400-04	♠ 115.22
Flask (4)	9458-02	♠ 19.58
Joint Clips/10	7598-14	★ 32.07
Complete	9401-30	♠ 243.34

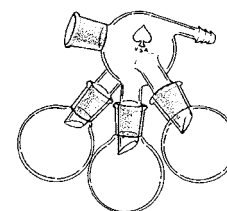


9401

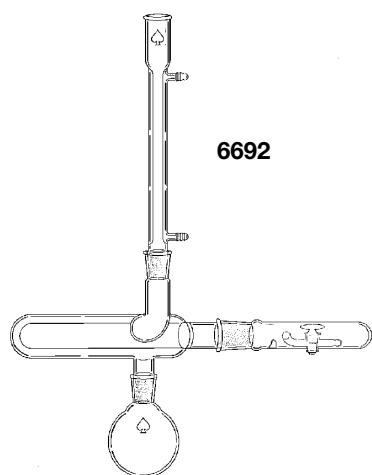
9403 DISTILLATION RECEIVER

The three 25mL flasks are in the same plane, rotated about the condenser axis. Hose connection is parallel to and above condenser axis. Three clips are supplied for holding flasks to condenser. All joints are ₣ 14/20. Use with 5/16-inch I.D. Tubing, Size A. See page 5 for more detailed Hose Connection information.

	Order Code	Each
Distributor	9403-08	♠ 98.41
Flask (3)	9458-06	♠ 19.58
Joint Clips (10)	7598-14	★ 32.07
Complete	9403-10	♠ 160.36

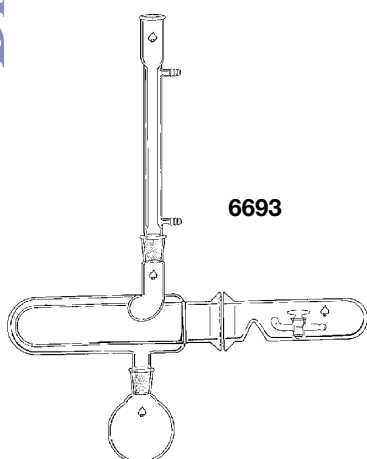


9403


6692 DRYING APPARATUS *Modified Abderhalden* ♦

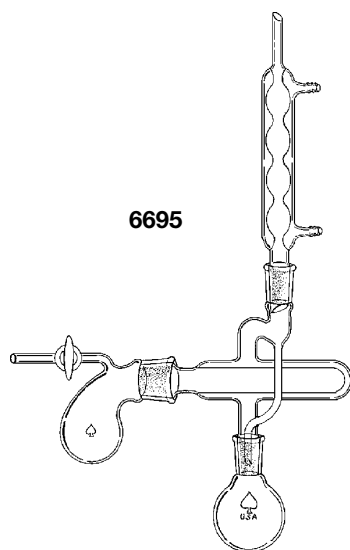
Vacuum. Desiccant tube has two-way action that permits the use of a smaller desiccant volume and better air contact with desiccant. During the final stage of drying, the T-bore stopcock is turned so that the evacuation path is directly over the desiccant, while in the early stages the desiccant is bypassed. The condenser is placed above the boiling flask but off to the side of the heating tube. The upper 24/40 joint is offset so that the condensed liquid does not drop over the inner tube. Opening to the inside chamber is 40/35 . **Complete item consists of condenser, drying chamber, desiccant tube with stopcock and round bottom boiling flask.**

	Order Code	Each
Drying Chamber	6692-02	177.27
Desiccant Tube	6692-04	116.56
Condenser	6025-14	70.66
Flask	6887-25	28.51
Complete	6692-10	393.00


6693 DRYING APPARATUS *Modified Abderhalden* ♦

Modified design replaces the 24/40 joint connection normally found between the chambers, with a 60mm I.D. flat flange and a quick release stainless steel clamp. Flange on drying chamber has a groove for a silicone O-Ring to make a leak-tight seal with flat flange on desiccant tube. Joints on condenser and flask are 24/40 . **Complete item consists of condenser, drying chamber, desiccant tube, flask, clamp and O-Ring.**

	Order Code	Each
Drying Chamber	6693-04	197.97
Desiccant Tube	6693-07	112.45
Condenser	6025-14	70.66
Flask, 300mL	6887-25	28.51
O-Ring, Silicone	7855-251	12.50
Clamp, #60	6517-22	77.67
Complete	6693-40	499.76


6695 DRYING APPARATUS *Abderhalden* ♦

Vacuum, improved form. Material to be dried is placed in the inner tube, 15.2cm long by 25.4mm I.D. When the liquid in the distilling flask boils, the vapors pass through the drying chamber and heat the inner tube at a constant temperature. The vapors then ascend to the reflux condenser, condense and flow back through the return tube into the boiling flask. Boiling flask is of 250mL capacity and has a 24/40 joint. Flask with 24/40 interchangeable stopcock has a 40/35 joint. **Complete apparatus consists of condenser, drying chamber, desiccant flask and boiling flask.**

	Order Code	Each
Drying Chamber	6695-02	188.05
Desiccant Flask	6695-04	102.57
Condenser	5941-14	97.20
Boiling Flask	6887-24	27.18
Complete	6695-10	415.00

9632 DRYING APPARATUS *Instatherm®*, Abderhalden

Instantly variable jacket temperature, to 200°C, enables programmed drying. The jacket is coated with Instatherm® with a viewing strip. Temperatures are monitored by means of an adjustable depth thermometer inserted into end, or the thermometer may be removed and a thermowell, 6-7mm O.D., may be substituted for the purpose of employing a thermistor, etc., controlled probe. The 40/35 joint is PTFE-Clad, the outer member polished, thus avoiding the use of grease. The desiccant tube is improved with joint reversed. The heater operates on AC or DC up to 40v, 3 amps. For controllers, see 12103, 12106 or 12110. Thermometer not supplied.

9632



	Order Code	Each
Desiccant Tube	9632-02	♠ 198.34
Drying Chamber	9632-04	★ 442.05
Cord	9698-16	★ 49.99
Nylon Bushing	5029-10	♠ 2.27
Complete	9632-10	★ 642.66

An unbeatable combination... for safety and efficiency!

- **Instatherm® Oil Baths**

Rapid, even heat, no super heating.

Page 329

- **Temperature Controllers**

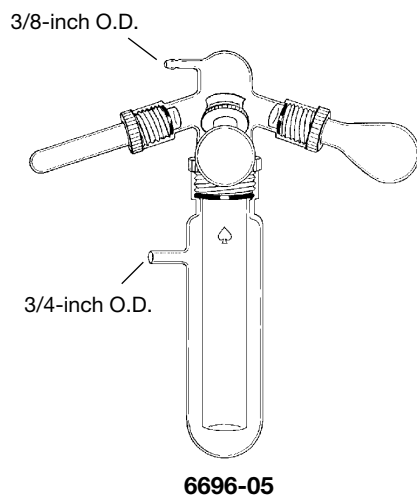
Dependable, accurate,
wide choice of models.

Page 746



Ace-Thred Design Freeze Drying Apparatus

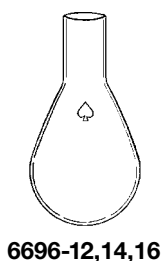
- Vessels are less expensive: They can also be readily adapted to mechanical units. (*Virtis, Labconco, etc.*)
- Screw-cap vessels can be used for quick, easy storage.
- Less freeze-up of vapor path.
- No hooks, springs, or rubber bands are needed; no vessel “drop-off.”
- Disassembles easily for cleaning.
- Rugged, heavy-wall vessels are safer, less likely to implode.



6696 FREEZE DRYING APPARATUS *Greaseless* ♦

Economical “umbrella”-design freeze drying apparatus utilizing Ace-Threds for positive, grease-free connections that are easy to manipulate. Compression fitting of Nylon bushing on FETFE O-Ring against the shoulder of the Ace-Thred holds the vessel in place with or without vacuum and thus prevents vessel “drop-off” at start-up or shut-down. Umbrella has three #25 threads at 90° angles of each other, leaving the rear of the umbrella without a port for easier mounting. Vacuum gauge connection is near top of the umbrella. Vertical tube extending down from the umbrella is secured in the collection trap by a #50 Ace-Thred. Cooling is done in Dewar in usual manner. Should main tube of umbrella or cooling trap clog, it may be disassembled, cleaned and reassembled in minutes without fear of vessel “drop-off.” Capacity of trap is approximately two liters. **Complete unit would consist of umbrella manifold, collection trap, three #25 bushings, one #50 bushing and three vessels of your choice. Order each item separately.**

	Order Code	Each
Umbrella Manifold	6696-05	358.81
Collection Trap, 3-1/2-inch O.D.	6696-10	202.04
Bushing, Nylon, #25 (3 needed)	7506-10	17.29
Bushing, Nylon, #50	7506-14	59.84



6696 VESSEL *Freeze Dry, Heavy Wall, Sloped Shoulder* ♦

These heavy wall vessels are rugged, less likely to implode. Vessels have 25mm O.D. neck to fit #25 Ace-Thred on umbrella. Sloped shoulders for easy removal of contents. For bushings see 7506-10 (page 204). Working capacity of flasks is about one-half volume listed.

Capacity, mL	Order Code	Each
100	6696-12	38.16
200	6696-14	45.05
300	6696-16	52.72

6696 VESSEL *Freeze Dry and Storage, Sloped Shoulder, Screw Cap* ♠

Vessel has GCM1-24-410 bottle thread and PTFE lined cap. Neck fits a #25 Ace-Thred. After drying material, vessel can be capped and stored. For bushing, see 7506-10 (page 204). Working capacity of flasks is about one-half volume listed.

Capacity, mL	Order Code	Each
100	6696-20	45.41
200	6696-22	53.00
300	6696-24	54.40

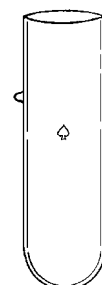


6696-20, 22, 24

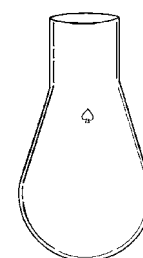
6696 VESSEL *Freeze Dry* ♠

Vessels have 48 mm O.D. neck to fit #50 Ace-Thred on 6696-50 connecting adapter for connection to the umbrella manifold. The 300 mL size has straight sides and has stops on side to prevent “suck in” under vacuum; other sizes have sloped sides. Working capacity of flasks is about one-half volume listed.

Capacity, mL	Order Code	Each
300	6696-38	32.36
600	6696-40	56.98
1000	6696-42	65.73



6696-38

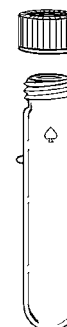


6696-40, 42

6696 TUBE *Freeze Dry and Storage, Screw Cap* ♠

Modified culture tubes with PTFE lined screw-cap and stops on side to prevent “suck in” under vacuum. Both sizes fit a #25 Ace-Thred. Working capacity of tubes is about one-half of the capacity listed.

O.D., mm	Length, mm	Capacity, mL	G.P.I. Thread	Order Code	Each
25	100	30	24-410	6696-31	17.11
25	150	50	24-410	6696-32	17.14

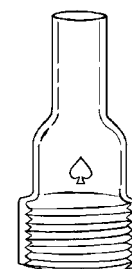


6696-31, 32

6696 ADAPTER *Connecting* ♠

Glass adapter used for connecting ACE freeze drying vessels to the rubber valves on the Virtis, Labconco, and most other commercially available freeze drying units. All use Ace Bushing 7506-10 (page 204), ordered separately.

Fits Valve Size, O.D., mm	Ace-Thred Size	Glass Only Order Code	Each
10.0 (no flange)	25	6696-74	34.01
12.7 (w/19.1 mm flange)	25	6696-76	40.29
19.1 (no flange)	25	6696-77	37.40

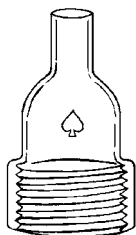


6696-74, 77



6696-76

Other Freeze Dry Flasks can be found on page 268.



6696-50

6696 ADAPTER *Connecting* ♠

Used for connecting freeze drying vessels with 48mm O.D. necks to #25 Ace-Threds on umbrella manifold. O.D. of straight side is 25mm. Use 7506-14 (page 204) bushing in the #50 thread.

Order Code	Each
6696-50	77.20

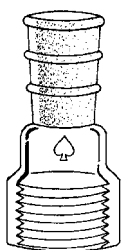


6696-84,86

6696 ADAPTER *Screen* ♠

Used with ACE freeze drying vessel with either 25mm O.D. or 48mm O.D. necks for assuring that the contents of the vessel do not accidentally get sucked out during the freeze drying process. Adapter is PTFE with a stainless steel screen and press fits in the end of the vessel before attaching it to the Ace-Thred.

Size	Order Code	Each
25 mm	6696-84	36.79
50 mm	6696-86	64.61

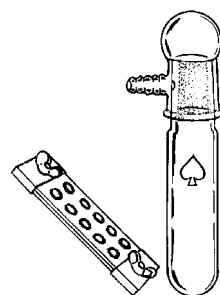


6696-70

6696 ADAPTER *Rotary Evaporator to Freeze Dry Vessel* ♠

By using this adapter, preliminary evaporation may be done on a rotary evaporator, then vessels can be transferred directly to freeze drying manifold. No need to transfer contents of flask. Joint is F 24/40 with 2mm hole mid length for relieving vacuum gently. Ace-Thred is #25. See 7506-10 (page 204) for bushings.

F Joint	Ace-Thred Size	Use Bushing	Glass Only Order Code	Each
24/40	25	7506-10	6696-70	69.26



6699

6699 DRYING ASSEMBLY *with Aluminum Holder* ♠

Originally used for lyophilizing and storing frozen slices of tissue for quantitative histochemistry. Can also be used as a vacuum tube with aluminum holders by Nelson & Wakefield, *Journal of Neuropathology & Exper. Neurology*, Vol. XXVII, No. 2, April 1968.

Joint is F 40/50. Aluminum holder measures 25mm x 90mm x 3mm, with two rows of eight, 8mm diameter holes. Furnished with two microscope slides. Use with 5/18-inch I.D. Tubing, Size G. See page 5 for more detailed Hose Connection information.

	Order Code	Each
Cap	6699-02	66.63
Bottle	6699-04	46.99
Complete (without Holder)	6699-10	113.62
Aluminum Holder (only)	6699-15	67.58
Complete (with Holder)	6699-20	181.20

Rotary Evaporators are listed on pages 574-583.

7030 FLASK Rotary Evaporator/Freeze Drying ♠

Dual purpose flask features the "TWISTLOR" ACE-Seal: simply push adapter head and flask together, turn 90°.

Flange on flask has two ground-flats opposite each other that allow Nylon retainers on adapter head to pass over. O-Ring positioned in head and flask grooves makes a vacuum- tight seal when head is turned 90° in either direction.

To remove, turn 90° in either direction or until Nylon retainers line up with flats on flange, flask and adapter head separate.

One adapter head fits all capacity flasks. Each adapter head is supplied with one FETFE O-Ring. Complete item would consist of adapter head and flask. Order each separately.

FLASK, Only

Cap., mL	Order Code	Each
125	7030-03	136.12
250	7030-04	136.12
500	7030-06	138.45
1000	7030-08	150.92
2000	7030-10	186.17
3000	7030-12	201.94
5000	7030-14	231.26

Not for use at elevated temperatures.

ADAPTER HEAD, Only

Joint	Order Code	Each
24/40	7030-21	143.46
29/42	7030-23	147.13
40/35	7030-27	159.32
FETFE O-Rings Pk/3	7855-775	26.39

Not for use at elevated temperatures

7030



Note: You can correct tension between Head and Flask by adjusting screws on both clips.

7035 FLASK Freeze Dry

Complete Fast-Freeze Flask with Snap-on Rubber Cap and 1/2-inch or 3/4-inch O.D. Plain or Valve Adapter, compatible with all major brand Freeze Drying manifold valves.

Borosilicate flasks are designed for ease of handling, faster loading. Uniform wall weight maximizes heat transfer while maintaining structural strength. Wide (53mm ID) mouth provides easy access to inner walls.

Snap-on black rubber cap is grease free; one size fits all capacity flasks. Plain straight adapter for connecting flask cap to lyophilizer manifold is removable and fabricated from PTFE. PTFE adapter also available with shut-off valve. Complete item consists of Flask, Cap and PTFE Adapter.

Flask, Dimensions mL H x ID, mm	Adapter Size (In.) / Style	Order Code	♠ Complete
300 156 x 55	1/2 / Plain	7035-03	94.65
300 156 x 55	3/4 / Plain	7035-05	94.91
300 156 x 55	1/2 / Valve	7035-34	132.09
300 156 x 55	3/4 / Valve	7035-36	129.96
600 282 x 55	1/2 / Plain	7035-09	101.08
600 282 x 55	3/4 / Plain	7035-11	101.34
600 282 x 55	1/2 / Valve	7035-40	138.52
600 125 x 95	1/2 / Plain	7035-15	126.90
600 125 x 95	3/4 / Plain	7035-17	127.16
600 282 x 55	3/4 / Valve	7035-42	136.39
600 125 x 95	1/2 / Valve	7035-46	164.34
600 125 x 95	3/4 / Valve	7035-48	162.21
900 180 x 95	1/2 / Plain	7035-21	133.34
900 180 x 95	3/4 / Plain	7035-23	133.60
900 180 x 95	1/2 / Valve	7035-52	170.78
900 180 x 95	3/4 / Valve	7035-54	168.65
1200 230 x 95	1/2 / Plain	7035-27	139.79
1200 230 x 95	3/4 / Plain	7035-29	140.05
1200 230 x 95	1/2 / Valve	7035-56	177.23
1200 230 x 95	3/4 / Valve	7035-58	175.10

Replacement Items

Flask, only	Dimensions H x ID, mm	Order Code	♠ Each
300 mL	156 x 55	7035-104	64.52
600 mL	282 x 55	7035-110	70.95
600 mL	125 x 95	7035-116	96.77
900 mL	180 x 95	7035-122	103.21
1200 mL	230 x 95	7035-128	109.66
Adapter, only	Type	Order Code	★ Each
1/2-inch	Plain-PTFE	7035-150	5.99
3/4-inch	Plain-PTFE	7035-152	6.25
1/2-inch	Valve-PTFE	7035-160	43.43
3/4-inch	Valve-PTFE	7035-162	41.30
Cap, only		7035-170	24.14

7035

