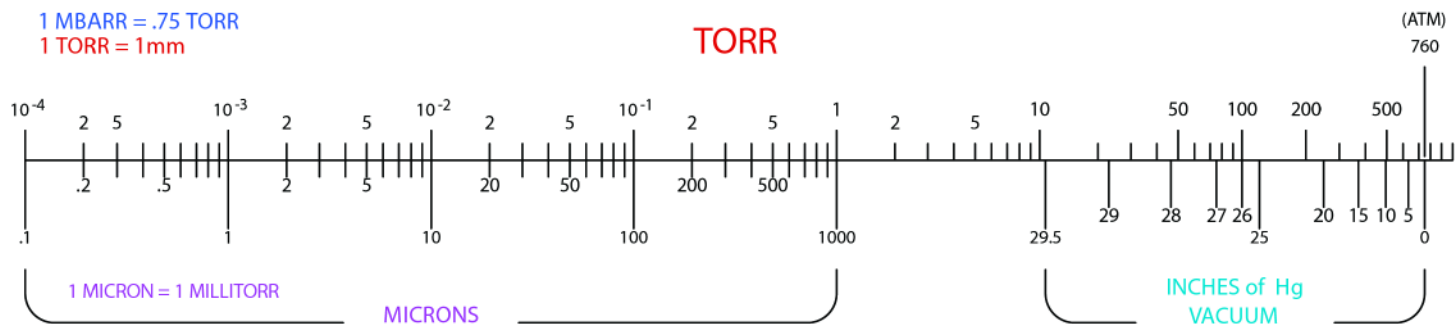




Vacuum Conversion Chart



AF-0301 VACUUM GAUGE, ANALOG, 1000-1 MICRON

Economical thermocouple gauge has fast response and high stability. Gauge is supplied either in a bench top case with handle or panel mount style. Gauge utilizes a Hastings-Raydist DV-6M thermocouple gauge tube having a 10ft cord. Gauge tube is threaded with 1/8" male NPT for use with AF-0306 adapter.

Part Number	Description
AF-0301-01	Analog Gauge, Panel Mount, Complete
AF-0301-02	Analog Gauge, Benchtop, Complete

Replacement Components:

Part Number	Description
AF-0302-02	DV-6M Thermocouple Only



AF-0301

AF-0301-B VACUUM GAUGE, DIGITAL

Digital vacuum gauge also has an analog style screen for easy viewing. The transducer is made of corrosion-resistant ceramic for durability measures absolute pressures from atmosphere to 1mbar/torr/hectopascal with user selected units of measure. Powered by a 9 Volt lithium battery (supplied) with adjustable sleep timer for long battery life.

Specifications:

Dimensions (in): 2.6 x 4.5 x 4.5
Vacuum Connection: 6-10mm ID Hose or KF 16 Fitting

Measuring Range

Measuring Range	Accuracy
Torr 1-812	±0.75
Mbar 1-1080	± 1.0
HPa 1-1080	± 1

Part Number
AF-0301-B-01



AF-0301-B

VACUUM GAUGE



AF-0302

AF-0302 VACUUM GAUGE, BARGRAPH, 1000-1 MICRON

Compact, low cost unit boxed in a rugged metal cabinet with solid state circuitry, and has survived drop tests from 8ft. Gauge utilizes a Hastings-Raydist DV-6M thermocouple gauge tube having a 10ft cord. The display is an easy to read, single point LED bar graph with a single process set-point (set through a hole in the front panel). Gauge has a relay capacity of 2 AMP @ 115VAC. Gauge tube is threaded with 1/8" male NPT for use with AF-0306 adapter.

Part Number	Description
AF-0302-01	Bargraph Gauge, Complete

Replacement Components:

Part Number	Description
AF-0302-02	DV-6M Thermocouple Only



AF-0303

AF-0303 VACUUM GAUGE, DIGITAL, 1000-1 MICRON

Compact, low cost unit boxed in a rugged metal cabinet with solid state circuitry, and has survived drop tests from 8ft. Gauge utilizes a Hastings-Raydist DV-6M thermocouple gauge tube having a 10ft cord. The display is an easy to read, DIGITAL LED with two process set-points (set through holes in the front panel). Gauge has a relay capacity of 5 AMP @ 115VAC. Gauge tube is threaded with 1/8" male NPT for use with AF-0306 adapter.

Part Number	Description
AF-0303-01	Digital Gauge, Complete

Replacement Components:

Part Number	Description
AF-0302-02	DV-6M Thermocouple Only



AF-0304

AF-0304 VACUUM GAUGE, DIGITAL, PIRANI, 100-0.01 MICRON

Compact Pirani vacuum gauge offers the precision and resolution of digital electronics at affordable prices using unique circuits, they maintain calibration over long periods. Rugged platinum alloy sensor wires are compatible with mercury and hydrocarbon vapors, unlike gold sensors found in other Pirani gauges. Easy to read digital display reads from 100 to 0.01 microns (0.01 to 10⁻⁵ Torr) with 2 set points. Gauge has a relay capacity of 3 AMP @ 115VAC and comes complete with a 10ft cord. Offered as a panel mount or portable unit with convenient carrying handle. Gauge tube has a plain 3/4" OD end and can be connected to Chemglass Airfree® manifolds using any of the following listed adapters along with a 3/4" Cajon® Union.

Part Number	Description
AF-0304-01	Pirani Gauge, Panel Mount, Complete
AF-0304-02	Pirani Gauge, Portable Mount, Complete

Replacement Components:

Part Number	Description
AF-0304-03	Sensor Tube, 3/4" Fitting Only
AF-0070-03	Adapter, 3/4" To # 15 O-Ring Joint
AF-0304-10	Adapter, 3/4" To #15 O-Ring Joint with 0-12mm Shut Off Valve
AF-0304-20	3/4" Cajon® Union

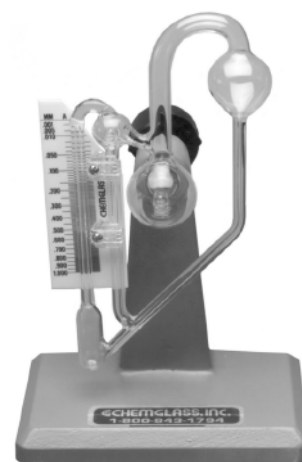
CG-4400 VACUUM GAUGE, McLEOD, AUTOMATIC ZEROING

Tilting style McLeod gauge with a mercury self-leveling device that permits automatic zeroing. When the gauge is in the vertical reading position, the reference and the closed capillary are in precise horizontal alignment. After rising to the top of the reference capillary, mercury overflows at the zero point and into the build-up trap. When the gauge is tilted, the mercury returns to the reservoir on the right hand side of the gauge. The gauge can be mounted on the lattice, used on the bench or connected directly to a glass vacuum system via the 19/38 inner joint on the rotating shaft. Supplied complete with an engraved scale, automatic stop, cast aluminum base and 1/2" support rod. Gauge is marked with the corresponding identification number on the center bulb. Gauge is approx. 270mm H x 170mm W. **PLEASE NOTE: GAUGE IS NOT SUPPLIED WITH MERCURY.**

Part Number	Identification Scale	Range (mm)	Lowest Reading (mm Hg)
CG-4400-01	A	0-1	0.001
CG-4400-02	C	0-10	0.01

Replacement Components:

Part Number	Description
CG-4400-03	Glass Gauge Only, "A"
CG-4400-04	Glass Gauge Only, "C"
CG-4400-05	Scale Only, "A"
CG-4400-06	Scale Only, "C"
CG-4400-07	Stand Only



CG-4400

CG-4402 VACUUM GAUGE, MANOMETER, CLOSED END

A sturdy, closed end manometer that is easy to read and ideal for routine vacuum measurements. Mounted on a formica covered wooden stand with the scale graduated to 120mm in 1mm subdivisions. The scale is movable for adjustment of the "0" position. The double "U" Tube has a constriction to prevent breakage of the manometer after a sudden surge of pressure. The "T" Tube has a 2mm spring loaded stopcock and is connected to the manometer by a 10/30 joint to simplify refilling and replacement. **PLEASE NOTE: GAUGE IS NOT SUPPLIED WITH MERCURY.**

Part Number	Description
CG-4402-01	Vacuum Manometer, Complete

Replacement Components:

Part Number	Description
CG-4402-02	"U" Tube, 10/30 Inner Joint
CG-4402-03	"T" Tube, 10/30 Outer Joint With 2mm Stopcock



CG-4402

VACUUM GAUGE



CG-4406

CG-4406 VACUUM GAUGE, MANOMETER, CLOSED END

A sturdy, closed end single piece manometer that is easy to read and ideal for routine vacuum measurements. Manometer is mounted on a formica covered wooden stand with the scale graduated to 120mm in 1mm subdivisions. The scale is movable for adjustment of the "0" position. The "U" Tube has a constriction to prevent breakage of the manometer after a sudden surge of pressure. **PLEASE NOTE: GAUGE IS NOT SUPPLIED WITH MERCURY.**

Part Number	Description
CG-4406-01	Vacuum Manometer, Complete

Replacement Components:

Part Number	Description
CG-4406-02	Glass "U" Tube Only

CG-4408 VACUUM GAUGE TRAP

Trap provides protection of vacuum gauges from particulates which contaminate the mercury when the gauge is vented to the atmosphere. Supplied packed with glass wool. Hose connections have a 9mm OD at the middle serration.

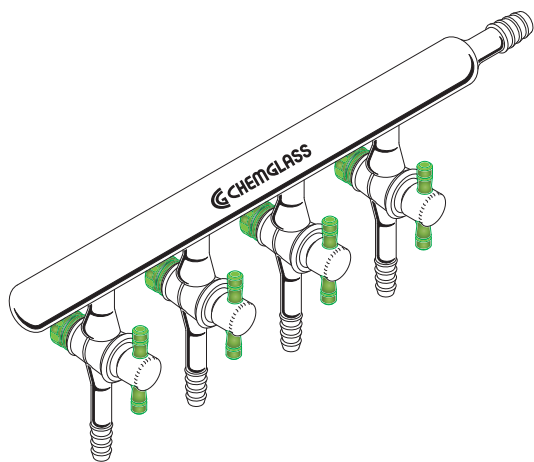


CG-4408

Part Number	Description
CG-4408-01	Vacuum Gauge Trap

CG-4430 VACUUM MANIFOLD, TEFLON STOPCOCK

General purpose single bank vacuum manifold with 4 or 6 ports. Main tube is 1" OD with a serrated hose connection, having the smallest serration 13.5mm and the largest serration 15.5mm, located at either the left or right side for vacuum connection. Ports are 4mm Teflon stopcocks with serrated hose connections having the smallest serration 10mm and the largest serration 11mm. Ports are spaced 65mm center to center.



CG-4430

Manifold with Right Hand Vacuum Connection:

Part Number	Number of Ports	Stopcock Size
CG-4430-01	4	4mm
CG-4430-02	6	4mm

Manifold with Left Hand Vacuum Connection:

Part Number	Number of Ports	Stopcock Size
CG-4430-03	4	4mm
CG-4430-04	6	4mm

Replacement Components:

Part Number	Description
CG-424-75	4mm Teflon Plug

VACUUM MANIFOLDS

CG-4434 VACUUM MANIFOLD, CHEM-VAC™ VALVE

General purpose single bank vacuum manifold with 3, 4, or 5 ports. Main tube is 38mm OD with a serrated hose connection, having the smallest serration 13.5mm and the largest serration 15.5mm, located at either the left or right side for vacuum connection. Ports are either 0-4mm or 0-8mm Chem-Vac™ Chem-Cap® valves with serrated hose connections. The 0-4mm has the smallest serration 10mm and the largest serration 11mm, while the 0-8mm has the smallest serration 13.5mm and the largest serration 15.5mm. Ports are spaced 60mm center to center for the 0-4mm and 75mm center to center for the 0-8mm size.

Manifold with Right Hand Vacuum Connection:

Part Number	Number Of Ports	Valve Size	Approx Overall Width (mm)
CG-4434-01	3	0-4mm	240
CG-4434-02	3	0-8mm	350
CG-4434-03	4	0-4mm	300
CG-4434-04	4	0-8mm	425
CG-4434-05	5	0-4mm	360
CG-4434-06	5	0-8mm	500

Manifold with Left Hand Vacuum Connection:

Part Number	Number Of Ports	Valve Size	Approx Overall Width (mm)
CG-4434-07	3	0-4mm	240
CG-4434-08	3	0-8mm	350
CG-4434-09	4	0-4mm	300
CG-4434-10	4	0-8mm	425
CG-4434-11	5	0-4mm	360
CG-4434-12	5	0-8mm	500

Replacement Components:

Part Number	Description
CG-961-01	0-4mm Chem-Vac™ Chem-Cap® Plug and Control Knob
CG-961-02	0-8mm Chem-Vac™ Chem-Cap® Plug and Control Knob

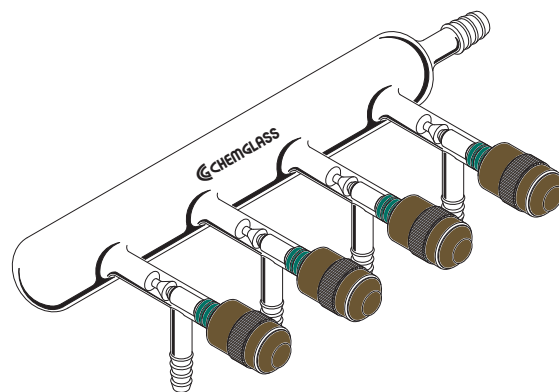
CG-4436 VACUUM MANIFOLD, INERT GAS, CHEM-VAC™ VALVE

General purpose double bank vacuum manifold with 3, 4, or 5 ports for use with vacuum and inert gas. Both tubes are 1/2" OD and have the upper left and lower right banks open. Ports are 0-4mm Chem-Vac™ Chem-Cap® valves and are spaced 100mm center to center with 9mm OD tubulation.

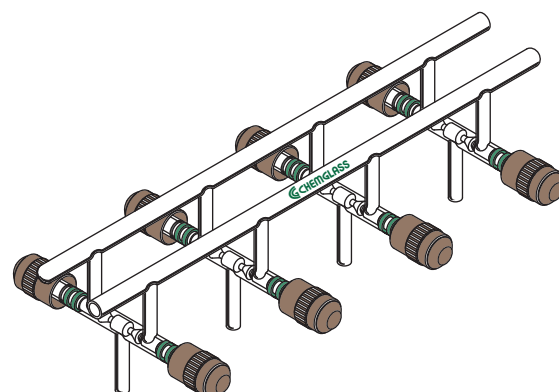
Part Number	Number Of Ports	Overall Width (mm)
CG-4436-01	3	400
CG-4436-02	4	500
CG-4436-03	5	600

Replacement Components:

Part Number	Description
CG-961-01	0-4mm Chem-Cap® Plug and Control Knob

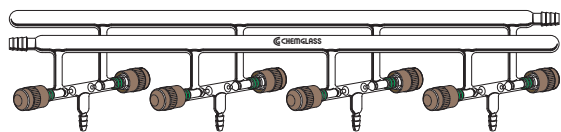
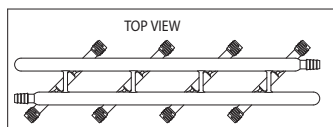


CG-4434



CG-4436

VACUUM MANIFOLDS



CG-4438

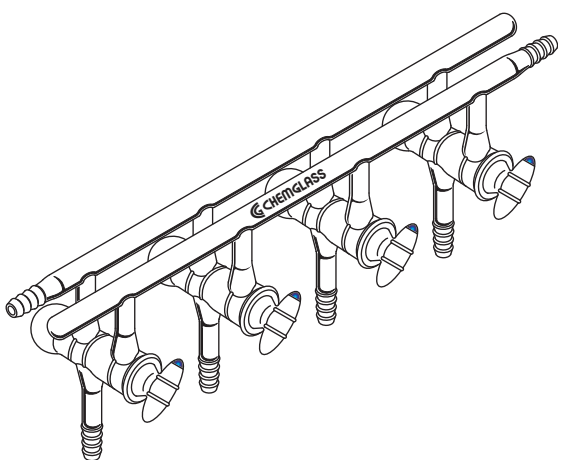
CG-4438 VACUUM MANIFOLD, INERT GAS, CHEM-VAC™ VALVE

General purpose double bank vacuum manifold with 3, 4, or 5 ports. Both tubes are 3/4" OD with serrated hose connection, having the smallest serration 13.5mm and the largest serration 15.5mm, located on the upper right and lower left banks. Ports are 0-4mm Chem-Vac™ Chem-Cap® valves with serrated hose connection having the smallest serration 9mm and the largest serration 10mm. Ports are spaced 100mm center to center. Manifold has rod braces sealed between each bank located in-line with the valves which are sealed at a 45° angle to allow for easier access.

Part Number	Number Of Ports	Overall Width (mm)
CG-4438-01	3	400
CG-4438-02	4	500
CG-4438-03	5	600

Replacement Components:

Part Number	Description
CG-961-01	0-4mm Chem-Cap® Plug and Control Knob



CG-4440

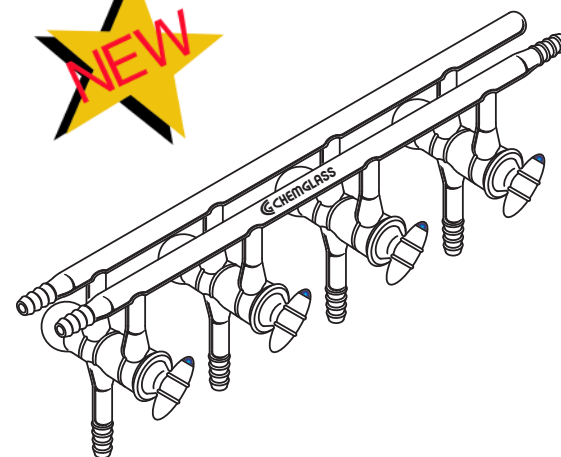
CG-4440 VACUUM MANIFOLD, INERT GAS, GLASS STOPCOCK

General purpose double bank vacuum manifold with 3, 4, or 5 ports for use with vacuum and inert gas. Both tubes are 1/2" OD with serrated hose connections located on the upper left and lower right banks. Ports are 4mm high vacuum stopcocks with serrated hose connections. Ports are spaced 85mm center to center. All hose connections have a 10mm small serration and a 11mm large serration.

Part Number	Number Of Ports	Approx Overall Width (mm)
CG-4440-01	3	280
CG-4440-02	4	365
CG-4440-03	5	450

Replacement Components:

Part Number	Description
CG-474-02PO	4mm Double Oblique, Hollow Glass Plug Only



CG-4441

CG-4441 VACUUM MANIFOLD, INERT GAS, GLASS STOPCOCK

Similar to the CG-4440 vacuum manifold, but with both ends of the inert gas line open to permit connection to the gas source and an oil bubbler. Hose connections have a 10mm small serration and a 11mm large serration.

Part Number	Number Of Ports	Approx Overall Width (mm)
CG-4441-01	3	280
CG-4441-02	4	365
CG-4441-03	5	450

Replacement Components:

Part Number	Description
CG-474-02PO	4mm Double Oblique, Hollow Glass Plug Only

KRYTOX® FLUORINATED GREASE

Highly inert, non-flammable grease for use with standard taper joints and glass stopcocks. Insoluble in almost all solvents except Freon 113®. Krytox® greases have demonstrated an exceptionally high degree of chemical inertness to many highly reactive chemicals. For example Krytox® has shown no evidence of reactivity when exposed to:

- Boiling Sulfuric Acid
- Chlorine Trifluoride
- Ammonia Gas
- Hydrazine
- Sulfuric Acid
- Fluorine Gas
- Hydrogen Gas
- Ethyl Alcohol
- Diethylenetriamine
- Chlorine
- Nitrogen Tetroxide
- Methanol
- Hydrochloric Acid
- Phosphoric Acid
- Hydrogen Peroxide

Krytox® is available in either general purpose or LVP (low vapor pressure) grades.

General Purpose Grade:

Krytox® GPL general purpose grease for use with standard taper joints, stopcocks and stirrer bearings. Useful at temperatures up to 400° F continuously and 550° F intermittently. Minimum useful temperature is -35° F. Supplied in convenient 2oz tubes.

Part Number	Description
CG-GPL-205-1	2oz Krytox GPL

LVP Grade:

Krytox® LVP grease is made with low vapor pressure fluorinated oils and is designed for use in high vacuum applications down to -1.0×10^{-13} Torr at 20° C, and -1.0×10^{-5} Torr at 200° C. The useful temperature range of Krytox® LVP is -20 to 260° C. Supplied in convenient 2oz tubes.

Part Number	Description
CG-LVP-01	2oz Krytox LVP



CG-GPL-205-1
CG-LVP-01

VACUUM REGULATORS / PUMPS



CG-4600

CG-4600 CHEMGLASS DIGITAL VACUUM REGULATOR

Our digital vacuum regulator is designed to control vacuum to within ± 2 mm Hg. The controller works by opening and closing a valve between the vacuum source and the reaction.

Controller features digital pressure entry and display, no mercury, is 100% solid state, and has all stainless steel wetted parts to resist organic solvents, acids, bases, and water.

The optional stainless steel needle valve is required for more accurate control of smaller scale distillations (<250mL). This valve will regulate the rate of evacuation and permit much finer vacuum control.

Digital Vacuum Regulator:

Part Number	Description
CG-4600-01	Digital Vacuum Regulator, 120 VAC

Optional Accessories:

Part Number	Description
CG-4600-02	Stainless Steel Needle Valve



AF-0349

AF-0349 VACUUM PUMP, WELCH, DIRECT DRIVE

Welch 2 stage direct drive pumps with free air displacement from 73 to 320 L/min and reach a ultimate vacuum of 1×10^{-4} Torr. Pumps are equipped with a anti-suckback mechanism that keeps the pump isolated when turned off. A gas ballast prohibits vapors from condensing in the pump chamber and each pump is equipped with a thermal overload protection. Pumps operate on 115V, 60Hz and can be ordered for 230V operation.

Lightweight, Compact, High Performance Pumps Suited For:

- General Vacuum Work
- Laboratory Applications
- OEM Instrumentation
- Replacement Pumps For Instruments And Equipment

Specifications:

Free Air Displacement (L/min):	73	173	320
Ultimate Vacuum (microns):	0.1	0.1	0.4
Motor RPM:	1,725	1,725	1,725
Motor Horsepower:	1/2	1/2	3/4
Oil Capacity (L):	0.95	0.76	1.1
ID Of Tubing Required (in):	7/16 or 13/16	7/16 or 13/16	9/16 or 13/16
Weight (lbs):	40	48	69
Dimensions L x W x H (in):	18.5 x 6.5 x 9.6	18.5 x 6.5 x 9.6	21.2 x 7.1 x 10.7
Part Number	AF-0349-01	AF-0349-02	AF-0349-03

AF-0350 VACUUM PUMP, WELCH, BELT DRIVEN

Welch general purpose 2 stage belt driven pumps designed to operate at lower RPM allowing them to run cooler and reach an ultimate vacuum of 1 x 10⁻⁴ Torr. Lower speed operation also reduces the wear on the pump components ensuring a longer life. All pumps are equipped with a gas ballast. Pumps operate on 115V, 60Hz and can be ordered for 230V operation.

Long Service Life Due To Low Pump RPM Suited For:

- Freeze Drying
- Concentrating
- Schlenk Line
- Degassing
- Vacuum Distillations
- Vacuum Drying

Specifications:

Free Air Displacement (L/min):	90	160	300
Ultimate Vacuum (microns)	0.1	0.1	0.1
Gas Ballast:	Yes	Yes	Yes
Motor RPM:	525	525	525
Motor Horsepower:	1/2	1/2	1
Oil Capacity (L):	2.1	2.1	2.4
ID Of Tubing Required (in):	7/16	13/16	13/16
Weight (lbs):	112	112	156
<u>Dimensions L x W x H (In):</u>	<u>20 x 12 x 15</u>	<u>20 x 12 x 15</u>	<u>20 x 14.1 x 15.4</u>
Part Number	AF-0350-01	AF-0350-02	AF-0350-03



AF-0350

AF-0360 VACUUM PUMP OIL, WELCH

Oil is specially formulated for use in either belt driven or direct drive vacuum pumps (AF-0349 or AF-0350). Oil is available in three types, Duo-Seal®, Premium and Gold. The Duo-Seal oil is for use with belt driven (low RPM) AF-0350 pumps. The Premium oil is a triple distilled hydrocarbon oil resistant to breakdown at the high RPM of direct drive pumps. The Gold oil is a double distilled synthetic hydrocarbon oil that has no aromatic compounds or sulfur. Gold oil will offer longer life and superior protection for the internal components in corrosive pumping applications.

<u>Part Number</u>	<u>Description</u>	<u>Container Size</u>
AF-0360-10	Duo-Seal® Oil	1 Quart
AF-0360-11	Duo-Seal® Oil	1 Gallon
AF-0360-12	Duo-Seal® Oil	5 Gallon
AF-0360-13	Premium Oil	1 Liter
AF-0360-14	Premium Oil	1 Gallon
AF-0360-15	Premium Oil	5 Gallon
AF-0360-16	Gold Oil	1 Liter
AF-0360-17	Gold Oil	1 Gallon
AF-0360-18	Gold Oil	5 Gallon



AF-0360

VACUUM PUMPS



CG-4803 VACUUM PUMP BRANDTECH, HYBRID

The BrandTech Hybrid pump combines a two stage rotary vane direct drive pump backed with a diaphragm pump. This design reduces the outlet pressure, reducing internal condensation in the oil section, and continuously cleans the oil. This also enhances pump lifetime.

Features:

- Greatly Reduced Amount Of Oil Changes And Waste Oil
- Performance Of A Two Stage Oil Sealed Pump
- Anticorrosion Design / Gas Ballast

Specifications:

Pumping Speed (L/min):	113
Oil Capacity (L):	0.53
Ultimate Vacuum:	3×10^{-3}
Inlet Connection:	KF 1.5
Hose Barb Outlet Connection (in):	3/8
Dimensions L x W x H (in):	20 x 12 x 9
Weight (lbs):	53

Ordering Information:

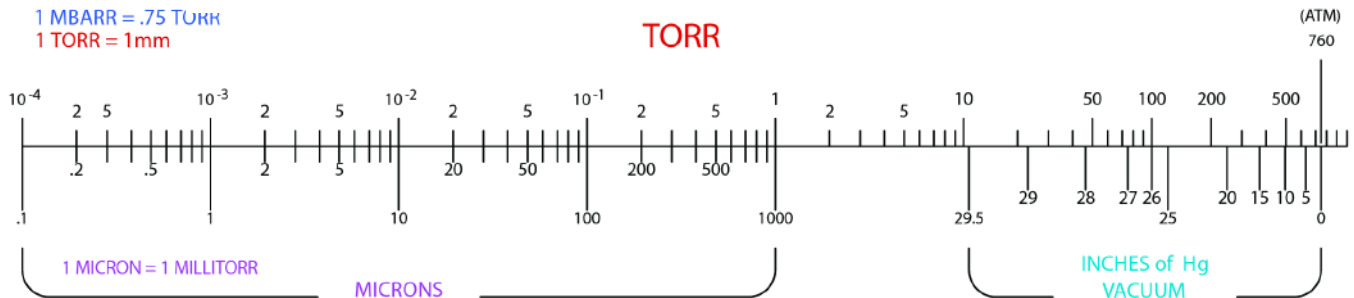
Part
Number
CG-4803-01



CG-4803

CHEMGLASS

Vacuum Conversion Chart



CG-4806 VACUUM PUMP, PTFE DIAPHRAGM, BRANDTECH

BrandTech PTFE vacuum pumps are an excellent, quiet source of vacuum in the laboratory. They eliminate the concern about chemical attack in many applications, to the pump or contamination of your pumped medium. Solid, reinforced PTFE heads do not blister or peel, and advanced fluoropolymer valves along with our unique PTFE-layered planar coated, diaphragm provides the longest possible lifetime when pumping corrosive gases. They are perfect for use in rotary evaporation, vacuum distillation, vacuum filtration, gel drying or the transfer of corrosive gases. Using no house air or water for its operation, it conserves valuable resources and helps protect the environment by eliminating the disposal of solvent contaminated waste-water or oil. All pumps are 115V, 60Hz and have hose connections of 10mm.

Applications Include:

- Rotary Evaporation
- Solvent Recovery Systems
- Vacuum Distillation
- High Vacuum Roughing Pump
- Stack Sampling
- Vacuum Drying
- Desiccators
- Transfer of Corrosive Gases
- Vacuum Filtration
- Degassing of Liquids

PTFE Diaphragm Vacuum Pumps Feature:

- **Oil Free Operation.** Pumps eliminate the need for oil and the disposal problems associated with contaminated oil.
- **Consistent Performance.** Unlike water aspirators which depend on water temperature and pressure, these pumps always deliver consistent, dependable performance without using precious water resources or polluting waste drains.
- **Contamination-Free Transfer.** Due to the fact that these pumps do not use oil, your pumped medium never comes in contact with oil or grease and always stays analytically pure.

Specifications:

Maximum Flow (L/min):	33	67	33
Maximum Vacuum (Torr):	<60	<60	6.8
Head Configuration:	Single	Dual Parallel	Dual Series
Weight (lbs):	16	23	23
Dimensions L x W x H (in):	10 x 6.5 x 7.5	10.5 x 9.5 x 7	10.5 x 9.5 x 7
Part Number	CG-4806-01	CG-4806-02	CG-4806-03

Maximum Flow (L/min):	23
Maximum Vacuum (Torr):	1.5
Head Configuration:	4 Head, 3-Stage
Weight (lbs):	15
Dimensions L x W x H (in):	12.4 x 5.6 x 8.8
Part Number	CG-4806-04



CG-4806

VACUUM PUMPS



CG-4802

CG-4802 VACUUM PUMP, BRANDTECH, VARIO™

VARIO™ vacuum systems offers users unsurpassed control of critical vacuum applications. A PTFE head, low maintenance pump is intergrated with a variable speed motor and a digital controller. The system can automatically finds and follows boiling curves, continuously optimizing the vacuum level without program presets.

Features:

- **Faster.** Because The Vacuum Level Is Continuously Optimized, Evaporation Times Are Up To 30% Faster.
- **Easier.** Just Press "Start" And The Pump Begins Pumping Down, And Finds The First Boiling Point. It Maintains And Continually Optimizes Vacuum Levels To Vapor Flow - Even For Azeotropic Mixtures.
- **Automatic.** The VARIO™ Controller Automatically Adjusts Vacuum Levels, Reducing The Need For Any Manual Adjustments Or Complex Programming. The Pump Will Even Shut Itself Off When Evaporation Is Complete.
- **No Bumping.** The VARIO™ Controller Automaicaly Reduces The Pumping Speed As Each Boiling Point Is Approached To Avoid "Overpumping"
- **Less Maintenance.** Because The Pump Only Operates Enough To Maintain The Optimum Vacuum, The Pump Life Is Greatly Extended, As Are Service Intervals. Noise Is Also Greatly Reduced.
- **GMP Validation.** A Integrated Bidirectional RS232 Port Allows For Control And Monitoring Of Every Parameter For Process Validation Or Execution Of Complex Pumping Programs For Reaction Vessels. (Software Required, Please Contact Our Technical Service Department For Details)

All pumps listed are 120V, 60Hz and are supplied with a one year factory warranty. Other voltages are available upon request. Vacuum connections are 3/8" (10mm). Systems all include a solvent recovery system consisting of inlet and outlet receivers and an outlet condenser.

Specifications:

Free Air Displacement (L/min):	27	42	42
Ultimate Vacuum (Torr):	1.5	6.8	0.45
Weight (lbs):	22	41	53
<u>Dimensions L x W x H (in):</u>	<u>12 x 12 x 19</u>	<u>15 x 10 x 21</u>	<u>15 x 10 x 21</u>
Part Number	CG-4802-01	CG-4802-02	CG-4802-03

Free Air Displacement (L/min):	63
Ultimate Vacuum (Torr):	1.5
Weight (lbs):	53
<u>Dimensions L x W x H (in):</u>	<u>15 x 10 x 21</u>
Part Number	CG-4802-04

CG-4515 VACUUM TRAP, SERRATED CONNECTIONS

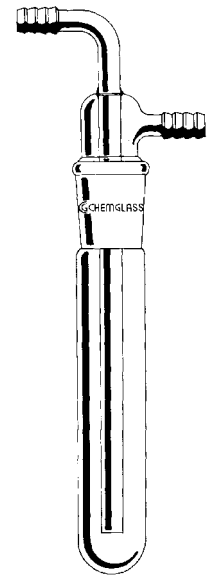
Two piece construction for easy removal of condensate. Inlet and outlet are 180° apart for installation into a variety of vacuum systems. Stopper has a standard taper inner joint and body has an outer joint. Body length is measured below the joint. Serrated hose connections are 13.5mm at the smallest serration and 15.5mm at the largest serration.

Vacuum Trap Complete:

Part Number	Body OD x Length (mm)	Joint Size	OD Of Inner Tube (mm)
CG-4515-01	32 x 200	29/42	10
CG-4515-02	38 x 225	34/45	13
CG-4515-03	45 x 250	40/50	16
CG-4515-04	54 x 275	50/50	25
CG-4515-20	60 x 300	55/50	30
CG-4515-21	75 x 300	71/60	30

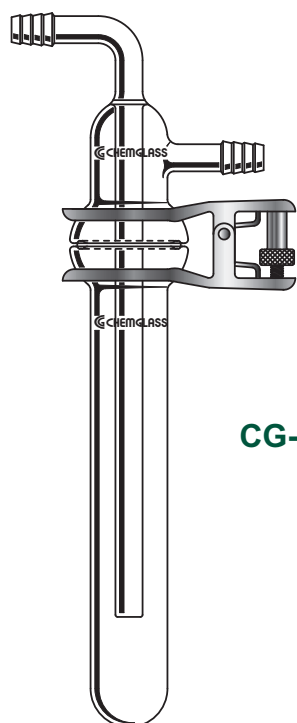
Replacement Components:

Part Number	Description	Joint Size
CG-4515-05	Stopper for CG-4515-01	29/42
CG-4514-03	Body for CG-4515-01	29/42
CG-4515-06	Stopper for CG-4515-02	34/45
CG-4514-06	Body for CG-4515-02	34/45
CG-4515-07	Stopper for CG-4515-03	40/50
CG-4514-09	Body for CG-4515-03	40/50
CG-4515-08	Stopper for CG-4515-04	50/50
CG-4514-13	Body for CG-4515-04	50/50
CG-4515-13	Stopper for CG-4515-20	55/50
CG-4515-14	Body for CG-4515-20	55/50
CG-4515-15	Stopper for CG-4515-21	71/60
CG-4515-16	Body for CG-4515-21	71/60

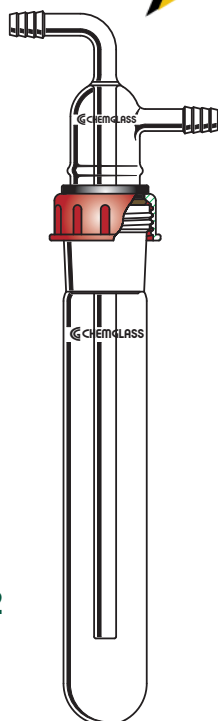


CG-4515

VACUUM TRAPS



CG-4513



CG-4532

CG-4513 VACUUM TRAP, O-RING STYLE

Similar to CG-4515 traps but having an o-ring joint to connect the trap body to the stopper. O-ring joint provides for a vacuum tight, grease free seal and permits the trap body to be easily disconnected from the stopper for cleaning. Serrated hose connections are 13.5mm at the smallest serration and 15.5mm at the largest serration. Complete trap is supplied with a stopper, lower body, Viton o-ring, and S.S. pinch clamp.

Complete Vacuum Trap:

Part Number	Body OD x Length (mm)	O-Ring Joint Size	OD of Inner Tube (mm)
CG-4513-10	36 x 225	30	12
CG-4513-11	46 x 250	40	16
CG-4513-12	56 x 275	50	25

Replacement Components:

Part Number	Description
CG-4513-20	Lower Body Only, #30 O-Ring
CG-4513-21	Lower Body Only, #40 O-Ring
CG-4513-22	Lower Body Only, #50 O-Ring
CG-4513-30	Stopper Only, #30 O-Ring
CG-4513-31	Stopper Only, #40 O-Ring
CG-4513-32	Stopper Only, #50 O-Ring
CG-150-08	S.S. Pinch Clamp For #30 O-Ring Joint
CG-150-09	S.S. Pinch Clamp For #40 O-Ring Joint
CG-150-21	S.S. Pinch Clamp For #50 O-Ring Joint
CG-305-223	#223 Viton O-Rings, 3/Pkg
CG-305-226	#226 Viton O-Rings, 3/Pkg
CG-305-229	#229 Viton O-Rings, 3/Pkg

CG-4532 VACUUM TRAP, THREADED JOINT

Vacuum trap with a 45/50 Rodaviss joint. Threaded joint provides a vacuum tight seal without grease and if frozen, can be taken apart using the optional loosening ring. Serrated hose connections are 13.5mm at the smallest serration and 15.5mm at the largest serration. Complete traps is supplied with stopper, lower body, Viton o-ring, loosening ring, and Rodaviss cap.

Vacuum Trap Complete:

Part Number	Body OD x Length (mm)
CG-4532-01	48 x 300

Replacement Components:

Part Number	Description
CG-4532-10	Vacuum Trap, Lower Body Only
CG-4532-11	Vacuum Trap, Stopper Only
CG-182-06	Rodaviss Cap, 45/50
CG-184-06	Loosening Ring, 45/50
CG-305-223	#223 Viton O-Rings, 3/Pkg

CG-4510 VACUUM TRAP

One piece trap used in the removal of undesired vapors in the vacuum system by condensation.

Part Number	Body OD x Length (mm)	OD of Side & Inner Tube (mm)
CG-4510-01	25 x 200	10
CG-4510-02	32 x 250	13
CG-4510-03	35 x 250	16
CG-4510-04	38 x 250	18
CG-4510-05	45 x 350	25

CG-4512 VACUUM TRAP

Similar to CG-4510 but with top inlet tube bent at a 90° angle.

Part Number	Body OD x Length (mm)	OD of Side & Inner Tube (mm)
CG-4512-01	25 x 200	10
CG-4512-02	32 x 250	13
CG-4512-03	35 x 250	16
CG-4512-04	38 x 250	18
CG-4512-05	45 x 350	25

CG-4514 VACUUM TRAP, JOINT

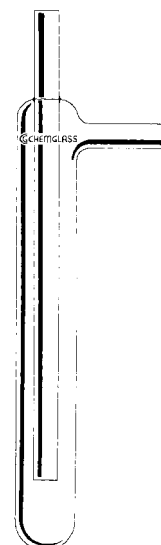
Two piece vacuum trap connected with an inner and outer joint to facilitate cleaning.

Vacuum Trap Complete:

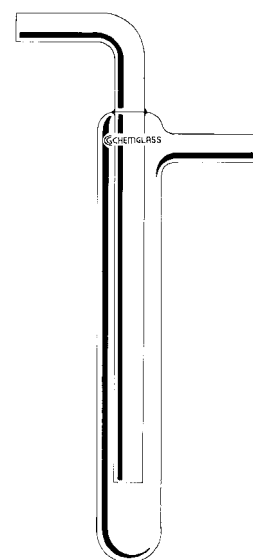
Part Number	Body OD x Length (mm)	Joint Size	OD Of Side & Inner Tube (mm)
CG-4514-01	32 x 200	29/42	10
CG-4514-04	38 x 225	34/45	13
CG-4514-07	45 x 250	40/50	16
CG-4514-10	54 x 275	50/50	25
CG-4514-14	60 x 300	55/50	30

Replacement Components:

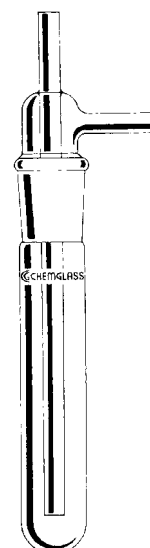
Part Number	Description	Joint Size
CG-4514-02	Stopper for CG-4514-01	29/42
CG-4514-03	Body for CG-4514-01	29/42
CG-4514-05	Stopper for CG-4514-04	34/45
CG-4514-06	Body for CG-4514-04	34/45
CG-4514-08	Stopper for CG-4514-07	40/50
CG-4514-09	Body for CG-4514-07	40/50
CG-4514-12	Stopper for CG-4514-10	50/50
CG-4514-13	Body for CG-4514-10	50/50
CG-4514-15	Stopper for CG-4514-14	55/50
CG-4514-16	Body for CG-4514-14	55/50



CG-4510

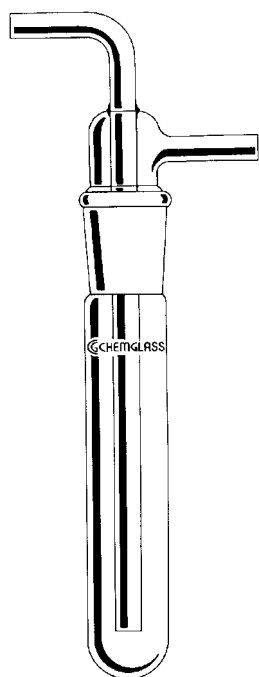


CG-4512



CG-4514

VACUUM TRAPS



CG-4516

CG-4516 VACUUM TRAP, JOINT

Similar to CG-4514, but with the top inlet tube bent at a 90° angle.

Vacuum Trap Complete:

Part Number	Body OD x Length (mm)	Joint Size	OD Of Side & Inner Tube (mm)
CG-4516-01	32 x 200	29/42	10
CG-4516-04	38 X 225	34/45	13
CG-4516-07	45 X 250	40/50	16
CG-4516-10	54 X 275	50/50	25
CG-4516-14	60 X 300	55/50	30

Replacement Components:

Part Number	Description	Joint Size
CG-4516-02	Stopper for CG-4514-01	29/42
CG-4514-03	Body for CG-4514-01	29/42
CG-4516-05	Stopper for CG-4514-04	34/45
CG-4514-06	Body for CG-4514-04	34/45
CG-4516-08	Stopper for CG-4514-07	40/50
CG-4514-09	Body for CG-4514-07	40/50
CG-4516-12	Stopper for CG-4514-10	50/50
CG-4514-13	Body for CG-4514-10	50/50
CG-4516-15	Stopper for CG-4514-14	55/50
CG-4514-16	Body for CG-4514-14	55/50



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CG-4517 VACUUM TRAP, DEWAR TYPE

Dry ice, dewar style trap condenser designed for large volume solvent removal. Lower reservoir has a capacity of either 500 or 1000mL with a choice of either Teflon or glass 4mm bore stopcock. Serrated hose connections are 12mm at the smallest serration and 14mm at the largest serration. Optional UHMW Lid prevents evaporation of dry ice/acetone in trap. **PLEASE NOTE: CG-4517 TRAPS ARE AVAILABLE PLASTIC COATED. PLEASE CONTACT US FOR DETAILS.**

Glass Stopcock:

Part Number	Lower Reservoir (mL)	Inner Chamber ID x Depth (mm)	Approx Overall Height x Width (mm)
CG-4517-10	500	75 x 275	610 x 180
CG-4517-01	1000	85 x 300	650 x 120

Teflon Stopcock:

Part Number	Lower Reservoir (mL)	Inner Chamber ID x Depth (mm)	Approx Overall Height x Width (mm)
CG-4517-11	500	75 x 275	610 x 180
CG-4517-02	1000	85 x 300	650 x 120

Optional UHMW Lids:

Part Number	Description
CG-4517-20	UHMW Lid For 75mm ID Trap
CG-4517-21	UHMW Lid For 85mm ID Trap

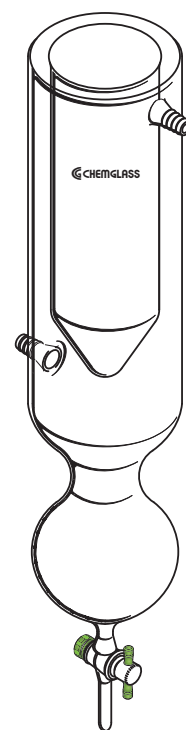
Replacement Stopcock Plugs:

Part Number	Description
CG-400-96	4mm Glass Plug Only
CG-424-75	4mm Teflon Plug Only

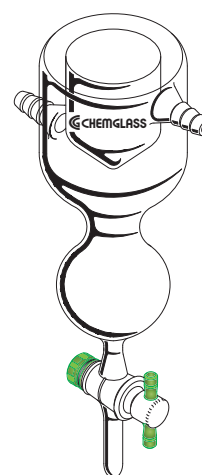
CG-4518 VACUUM TRAP, MICRO, DEWAR

Small scale dry ice, dewar style vacuum trap. The upper dry ice chamber is 40mm ID x 60mm deep. The lower reservoir has a capacity of 100mL with a choice of a 2mm glass or Teflon stopcock. Serrated hose connections are 9mm at the smallest serration and 11mm at the largest serration.

Part Number	Description
CG-4518-10	Vacuum Trap, Glass Stopcock
CG-4518-11	Vacuum Trap, Teflon Stopcock

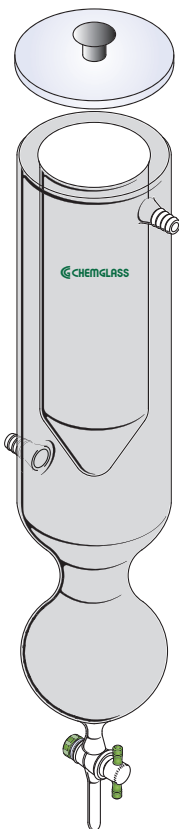


CG-4517

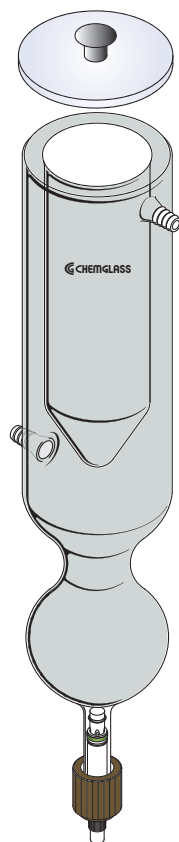


CG-4518

VACUUM TRAPS



CG-4519



CG-4523

CG-4519 VACUUM TRAP, SOLVENT VAPOR, PLASTIC COATED, TEFLON STOPCOCK

Trap is designed for large volume solvent vapor removal during rotary evaporation. Trap is placed between the vacuum source and the rotary evaporator to prevent solvent vapors from entering the vacuum pump. Serrated hose connections are 10mm at the smallest serration and 11mm at the largest serration. Plastic coated to contain solvent in case of breakage and supplied complete with a UHMW lid with handle.

Specifications:

Inner Chamber ID x Depth (mm):	95 x 300
Radial Clearance Between Cold Finger And Chamber Body (mm):	12.7
Approx Overall Height x Width (mm):	610 x 130
Lower Reservoir Capacity (mL):	1000
Serrated Hose Connection:	CG-300-02
Teflon Stopcock:	6mm

<u>Part Number</u>	<u>Description</u>
CG-4519-01	Vacuum Trap, Complete

Replacement Components:

<u>Part Number</u>	<u>Description</u>
CG-4519-02	UHMW Lid
CG-424-73	6mm Teflon Plug Only

CG-4523 VACUUM TRAP, SOLVENT VAPOR, PLASTIC COATED, CHEM-DRAIN VALVE

Similar to CG-4519, but modified with a 6mm Chem-Drain valve for use under high vacuum applications. Waste solvent drains directly through the Teflon plug, eliminating fragile drain tubes. Serrated hose connections are 10mm at the smallest serration and 11mm at the largest serration. Dimensions are the same as CG-4519-01.

<u>Part Number</u>	<u>Description</u>
CG-4523-01	Vacuum Trap, Complete

Replacement Components:

<u>Part Number</u>	<u>Description</u>
CG-4519-02	UHMW Lid
CG-510-13	6mm Teflon Stem and Control Knob

VACUUM TRAPS

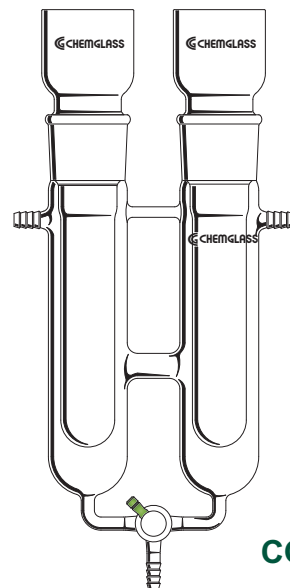
CG-4525 VACUUM TRAP, DUAL CHAMBER

Dual chamber vacuum trap affords increased condensing capacity in a much shorter length. The dry ice cold fingers have 55/50 inner joints that fit into the outer joints on the main trap body and have a capacity of approx. 300mL each. Lower stopcock is a 4mm Teflon T-Bore stopcock which permits draining condensate chambers one at a time. Serrated hose connections at the top of the condensate chambers have a 10mm OD. Complete trap assembly is approx. 220mm W x 545mm H.

Part Number	Description
CG-4525-01	Dual Chamber Trap, Complete

Replacement Components:

Part Number	Description
CG-4525-02	55/50 Cold Finger Only
CG-4525-03	Dual Chamber Only
CG-436-66	4mm Teflon T-Bore Plug Only



CG-4525

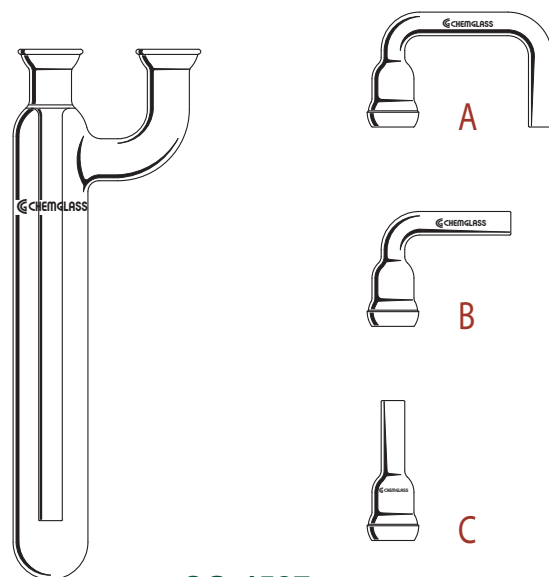
CG-4527 VACUUM TRAP, REMOVABLE ARMS

Vacuum trap features removable arms to permit the trap to be easily disconnected for cleaning. The arms are made to permit clamping directly to the lattice and accept 5/8" ID vacuum hose. Trap and arms have 35/25 spherical joints for added flexibility while providing a leak-free seal. Supplied complete with one each of arm style "A" (180°), one each of arm style "B" (90°), one each of arm style "C" (straight), and two CG-150-06 #35 S.S. pinchclamps. The trap body is 2" (50mm) OD x 360mm long.

Part Number	Description
CG-4527-01	Vacuum Trap, Complete

Replacement Components:

Part Number	Description
CG-4527-02	Vacuum Trap, Body Only
CG-4527-03	Trap Arm, Style "A"
CG-4527-04	Trap Arm, Style "B"
CG-4527-05	Trap Arm, Style "C"
CG-150-06	#35 S.S. Pinchclamp



CG-4527

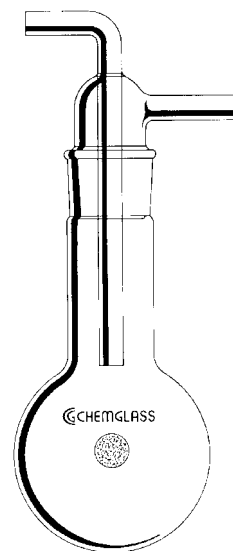
CG-4529 VACUUM TRAP

Trap is designed for large volume solvent removal by vacuum. The 40/35 standard taper joint connects trap body with stopper. Trap stopper arms are 1/2" OD. Trap is designed to fit into standard CG-1593 through CG-1595 dewar flasks.

Part Number	Flask Capacity (mL)	Fits Dewar Flask Size	Approx Overall Height x Width (mm)
CG-4529-01	500	1,900mL	310 x 130
CG-4529-02	1000	4,300mL	340 x 130

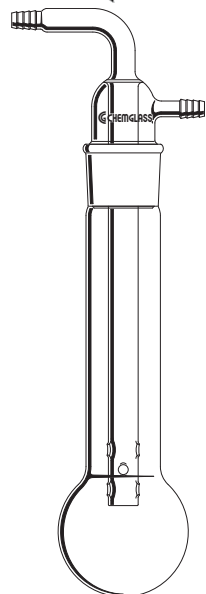
Replacement Components:

Part Number	Description
CG-4529-03	500mL Trap Body Only
CG-4529-04	1000mL Trap Body Only
CG-4529-05	Stopper Only (Fits Both Trap Bodies)

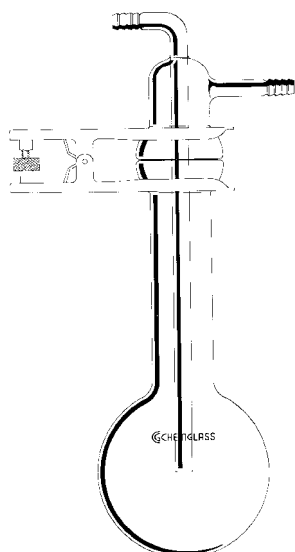


CG-4529

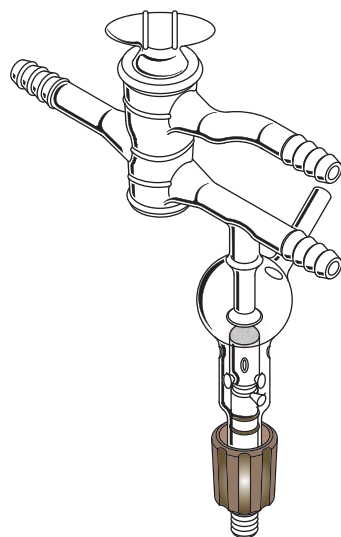
VACUUM TRAPS



CG-4530



CG-4531



CG-4509-A

CG-4530 VACUUM TRAP

Trap is designed for high volume solvent removal. The unique design of the stopper decreases the chance of freezing by allowing the vapor to pass through the holes in the sides of the inner tube. Joint size is 55/50 and the hose connections are 15mm at the largest serration. Overall height is 475mm x 160mm Wide.

Part Number	Description
CG-4530-01	Vacuum Trap, Complete

Replacement Parts

Part Number	Description
CG-4530-02	Lower Trap Body Only, 55/50
CG-4530-03	Stopper Only, 55/50

CG-4531 VACUUM TRAP

Similar to CG-4529, but having an o-ring joint to connect the trap body to the stopper. O-ring joint provides for a vacuum-tight grease-free seal and permits the trap body to be easily disconnected from the stopper for cleaning. Serrated hose connections are 10mm at the smallest serration and 11mm at the largest serration. Complete trap is supplied with a stopper, trap body, Viton o-ring, and S.S. pinch clamp.

Part Number	Flask Capacity (mL)	Fits Dewar Flask Size	Approx Overall Height x Width (mm)
CG-4531-01	500	1900mL	360 x 130
CG-4531-02	1000	4300mL	400 x 130

Replacement Components:

Part Number	Description
CG-4531-03	500mL Trap Body Only
CG-4531-04	1000mL Trap Body Only
CG-4531-05	500mL Stopper Only
CG-4531-06	1000mL Stopper Only
CG-150-09	#65 S.S. Pinchclamp
CG-305-226	#226 Viton O-Ring, 3/Pkg

CG-4509-A RAPID PURGE VALVE

A efficient purge valve that allows rapid 100% replacement of air in a manifold or reaction vessel with an inert gas such as nitrogen. No need to watch manometers, hand control gas flow or install warning systems to prevent accidents. Expensive gases are conserved because once purging is complete, the flow can be cut to almost zero. Overall dimensions are 150mm high x 165mm wide. Hose connections have an O.D. of 11mm at the largest serration. Supplied complete with instructions, but not oil.

Part Number	Description
CG-4509-A-10	Rapid Purge Valve, Complete

Replacement Parts

Part Number	Description
CG-4509-A-20	Teflon Plug Assembly, Float Control
CG-414-82	Glass Stopcock Plug, 4mm

VACUUM PURGE / CHECK VALVES

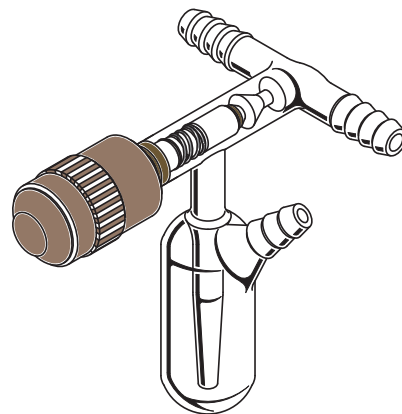
CG-4535 RAPID PURGE VALVE, ADJUSTABLE

Valve is designed for applications that require evacuated apparatus to be purged with an inert gas such as nitrogen, argon, etc. Allows use of higher pressures of inert gas without damage to system while achieving rapid and efficient purging. Design allows for mounting anywhere in vacuum system. Plug is two piece Teflon with Viton o-rings thereby eliminating the ground glass check valve normally found on similar pressure release valves which can allow oil to be pulled into the system. Valve can be adjusted from approximately 5 to 50 PSI.

Part Number	Description
CG-4535-01	Rapid Purge Valve, Complete

Replacement Parts

Part Number	Description
CG-999-02	Spring Loaded TFE Plug



CG-4535

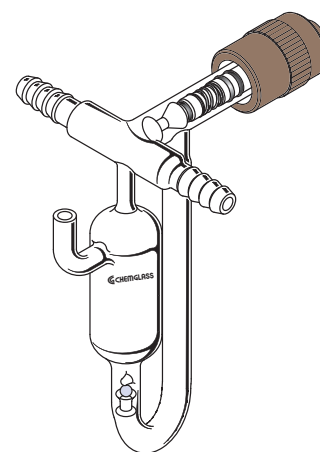
CG-4536 BUBBLER, PRESSURE RELEASE

Used for the purging of AIRFREE® or vacuum apparatus with an inert gas. The pressure release valve is connected on one side to the low pressure gas source and the other side to a manifold or reaction vessel. The check valve prevents oil and air from being pulled into the apparatus. Hose connections are 10mm at the largest serration.

Part Number	Height x Width x Depth (mm)
CG-4536-01	130 x 100 x 100

Replacement Component:

Part Number	Description
CG-999-02	Spring Loaded TFE Plug



CG-4536

CG-4539 VACUUM CHECK VALVE

Valve has an 1/4" OD precision ground ceramic ball which fits into the ground seat to effect a liquid seal. Tubing OD is 10mm while the overall length is approx 125mm.

Part Number
CG-4539-01



CG-4539

CG-4540 VALVE, CHECK

Similar to CG-4518, but having serrated hose connections on either end to accept flexible tubing. Tubing OD is 10mm while the overall length is approx 100mm. Hose connection OD is 9mm at the middle ring.

Part Number
CG-4540-01



CG-4540