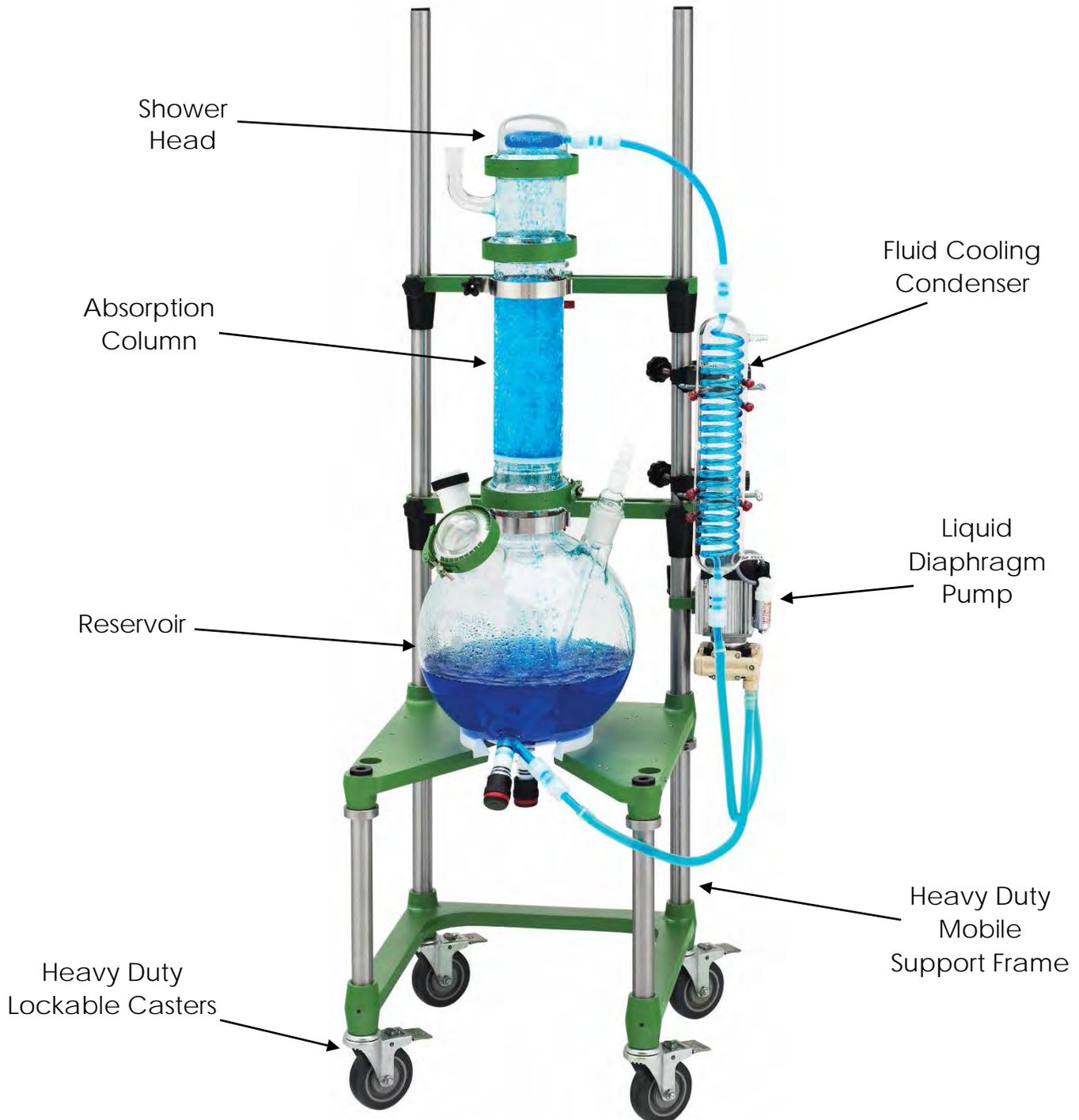


ASSEMBLY INSTRUCTIONS FOR 20L GAS SCRUBBERS



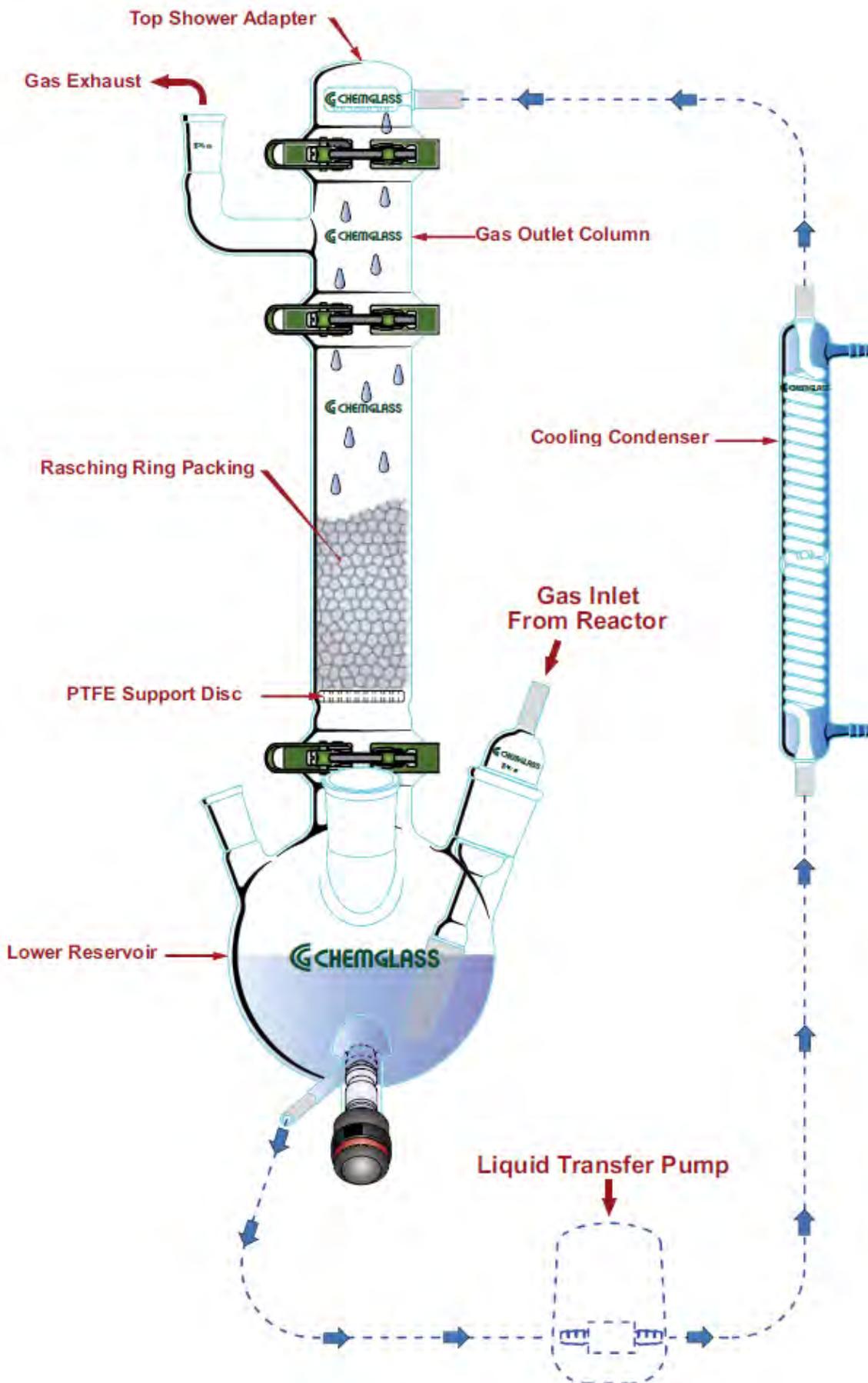
Read entire assembly instructions before you begin. Familiarize yourself with all of the parts, and pay close attention to all notes and highlights. If you have any questions, please contact our technical service department at (800) 843-1794 or technical-service@cglifesciences.com

Support frames are shipped via common carrier and require loading dock access with a fork lift or jack. If you do not have a loading dock, then a lift gate-equipped truck must be requested at the time of order.

Complete Assembly Instructions

1. Position stand in desired location and lock casters so the unit remains stationary while setting up.
2. Position the PTFE flask ring so the open groove lines up with the front of the scrubber stand.
3. Place lower reservoir on the PTFE ring, and secure flask to stand under the flange with support clamp CG-1947-A100 or CG-1947-A60 depending on what size scrubber purchased. Bottom drain should be facing toward the front of the scrubber stand.
4. Once lower reservoir is secured, place PTFE envelope gasket (CG-147-G-01 or CG-147-G-03) on the top of the flange of lower reservoir.
5. Next, place the absorption column on top of the PTFE envelope gasket and secure with the quick release clamp (CG-141-T-11 or CG-141-T-12).
6. Place the PTFE support disc inside of the absorption column so it lays flat at the bottom.
7. Secure absorption column to stand just below the top flange with support clamp.
8. Carefully pour packing rashing rings into the absorption column until filled to desired level in column.
9. Place PTFE envelope gasket on top of the absorption column.
10. Next, place gas outlet column on top of the PTFE envelope gasket, secure the gas outlet column to the absorption column with the supplied quick release clamp.
11. Place PTFE envelope gasket on top of the gas outlet column and place top shower adapter on top securing with quick release clamp. (Port should be facing right when looking at column).
12. Attach the graham condenser to the right side of the reactor stand using the supplied 3-prong extension clamps. (Clamps should be secured between the 2 main supporting rings).
13. Secure liquid diaphragm pump to the right side of the stand below the condenser.
14. Attach compression fittings to all ground joint connections on shower head, bottom drain of lower reservoir, top and bottom of condenser.
15. Cut tubing to length so it does not kink or bend at a very sharp angle (sharp angles will create stress on the glass connections).
16. Attach tubing to compression fittings on glassware and diaphragm pump (see diagram). Tubing should be cut so that the ends are as square as possible and compression fittings should only be hand tightened.

Flow Diagram



GAS SCRUBBER

CG-1830-10 GAS SCRUBBER, COMPLETE

Laboratory scale gas scrubber for use in many air and exhaust cleanup tasks. Scrubber is available in two sizes 3 Liter and 20 Liter which is the capacity of the fluid reservoir. The 3 liter is a compact design and will fit into any laboratory hood, or can be used in walk in hoods when assembled on our CG-1951-100 mobile or CG-1950-100 bench-top reactor stands.

Gas scrubbing takes place when the exhaust enters the inlet in the round bottom flask and travels upward through the absorption column. The scrubbing fluid is pumped from the round bottom flask upwards into the shower head adapter and then flows counter-current to the exhaust gas through the packed column thereby causing intensive contact between the two. Scrubber can be used by creating either a positive flow through the reaction vessel using a carrier such as nitrogen, or by connection of a vacuum source to the column adapter.

NOTE: The 3 Liter Scrubber can handle 3 Liters per minute of gas flow when pump is set at maximum. The 20 Liter Scrubber can handle 8 Liters per minute with the CG-1171-50 supplied pump.

Complete scrubber consists of: lower reservoir, absorption column with glass-filled TFE packing support disc, glass rasching rings column packing material, exhaust gas outlet column, top shower head adapter, PTFE diaphragm liquid transfer pump, 3ea quick release column clamps, 3ea envelope style gaskets, fluid cooling condenser, gas inlet adapter, PTFE tubing and 5ea PFA compression fittings.

PLEASE NOTE: STAND ALONG WITH SUPPORT CLAMPS MUST BE ORDERED SEPARATELY.

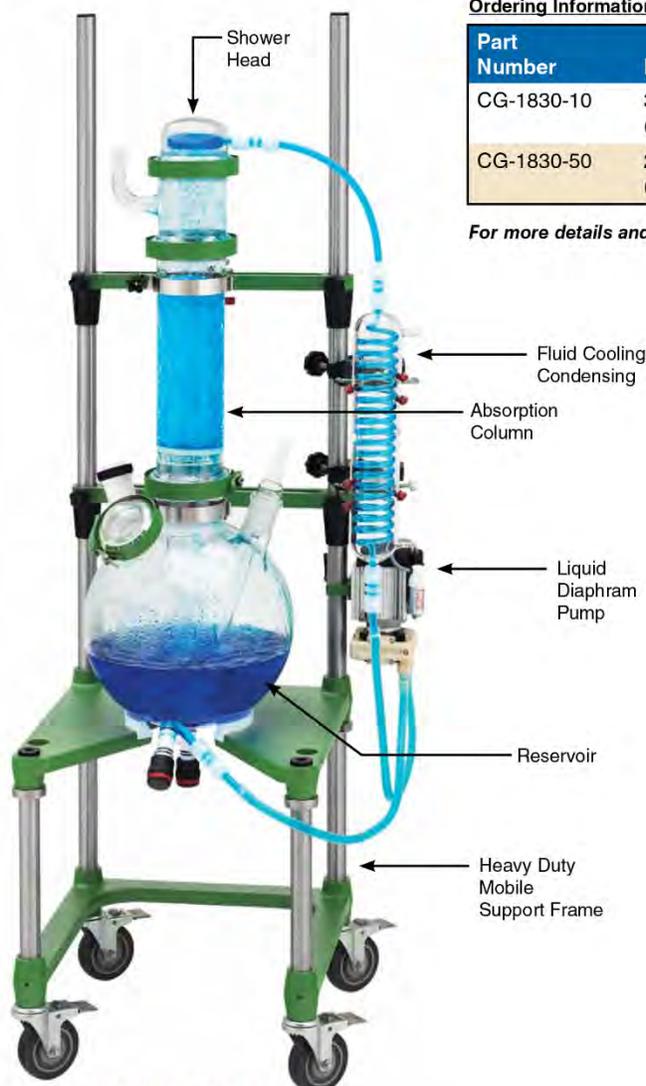


CG-1830-10

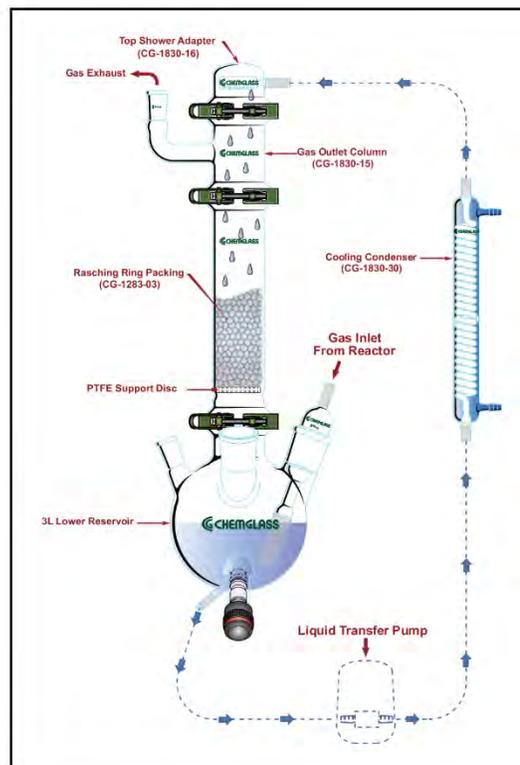
Ordering Information:

Part Number	Description
CG-1830-10	3 Liter Gas Scrubber, Complete As Shown (Support Stand Sold Separately)
CG-1830-50	20 Liter Gas Scrubber, Complete As Shown (Support Stand Sold Separately)

For more details and other gas scrubber accessories please see pages 474 - 477.



CG-1830-50



GAS SCRUBBER FLOW DIAGRAM

GAS SCRUBBER



CG-1830-12

CG-1830-13



CG-1830-15

CG-1830-16



CG-1830-30

COMPONENTS:

LOWER RESERVOIR

Heavy wall, round bottom flask lower reservoir for gas scrubber. Flask has either a 60 or 100mm flanged center neck and a 0-14mm Drain valve with Perfluoro o-rings. Valve is offset from the bottom of the flask to permit solids to settle and not clog the valve or damage the fluid pump head. Connection to the outlet of the valve is 1/2" Swagelok® glass tubing for use with CG-1975 compression fitting. The 3 Liter flask has two 24/40 and two 45/50 side necks while the 20 Liter has two 45/50 side necks.

Part Number	Description
CG-1830-12	3 Liter Lower Reservoir
CG-1830-51	20 Liter Lower Reservoir

COLUMN, ABSORPTION, GAS SCRUBBER

Heavy wall column having either 60mm or 100mm flanges on both ends. Column has an indent to hold the glass filled PTFE packing support near the bottom of the column. Packing support sold separately.

Part Number	Description
CG-1830-13	Absorption Column, 3 Liter 60mm, 12" OAL
CG-1830-52	Absorption Column, 20 Liter 100mm, 15" OAL
CG-1830-44	Glass Filled PTFE Packing Support, 60mm
CG-1830-53	Glass Filled PTFE Packing Support, 100mm

EXHAUST GAS OUTLET

Outlet adapter attaches to top of the absorption column and has a sidearm with a 24/40 outer joint. The 24/40 outer joint can be used with an adapter for connection to tubing for venting if necessary.

Part Number	Description
CG-1830-15	Exhaust Gas Outlet, 60mm
CG-1830-54	Exhaust Gas Outlet, 100mm

SHOWER HEAD ADAPTER

Adapter attaches to the top of the exhaust gas outlet adapter and has an all glass shower head to dispense the scrubbing fluid down into the absorption column. Inlet connection is 1/2" Swagelok® tubing for use with CG-1975 compression fitting.

Part Number	Description
CG-1830-16	Shower Head Adapter, 60mm
CG-1830-55	Shower Head Adapter, 100mm

CONDENSER, GRAHAM, GAS SCRUBBER

Graham style condenser for use in cooling of the scrubbing fluid. With 1/2" Swagelok® tubing for use with CG-1975 compression fitting. Hose connections have 10mm OD at the largest serration.

Part Number	Description
CG-1830-30	Condenser, Graham, for 3 Liter Scrubber, 350mm
CG-1830-57	Condenser, Graham, for 20 Liter Scrubber, 460mm

COMPONENTS CONTINUED:

ADAPTER, GAS INLET

Gas inlet adapter with 45/50 inner joint for connection of the gas source to the lower reservoir. Inlet connection is 1/2" Swagelok® tubing for use with CG-1975 compression fitting. Adapter is available in three styles.

Style "A": Adapter has a large 25mm x 70mm extra coarse fritted section that will dispense the gas sub-surface into the scrubbing fluid. This adapter is the best for hard to scrub gases.

Style "B": Adapter has an extension tube without the fritted section to insert the gas into the scrubbing fluid sub-surface. **PLEASE NOTE: THIS STYLE ADAPTER IS SUPPLIED WITH THE COMPLETE SCRUBBER.**

Style "C": Adapter permits the gas to enter the flask above the sub-surface of the scrubbing fluid. When using this adapter, all of the gas to liquid interaction takes place in the column.

Part Number	Description
CG-1830-18	Style "A" Gas Inlet, 45/50 for 3 Liter Scrubber
CG-1830-56	Style "A" Gas Inlet, 45/50 for 20 Liter Scrubber
CG-1830-19	Style "B" Gas Inlet, 45/50 for 3 Liter Scrubber
CG-1830-20	Style "C" Gas Inlet, 45/50 for 3 Liter Scrubber

STANDS FOR GAS SCRUBBER

Stands for support of gas scrubber. The 3 Liter scrubber can be supported in a standard hood with a CG-1949 stand and can be used in a walk in hood using the CG-1951 Support stand. The 20 Liter support stand is for use in a walk in hood only.

Part Number	Description
CG-1949-100	Support Stand for 3 Liter Scrubber, Benchtop
CG-1951-100	Support Stand for 3 Liter Scrubber, Walk in Hood
CG-1830-60	Support Stand for 20 Liter Scrubber, Walk in Hood

MISCELLANEOUS COMPONENTS FOR GAS SCRUBBER:

For more detailed listings see reactor section pages 474 - 477.

Part Number	Description
CG-141-T-11	Quick Release Clamp, 60mm, PTFE Coated
CG-141-T-12	Quick Release Clamp, 100mm, PTFE Coated
CG-147-G-01	PTFE Envelope Gasket, 60mm
CG-147-G-03	PTFE Envelope Gasket, 60mm
CG-1283-03	Rasching Rings, 8mm x 8mm, 1lb
CG-1975-20	1/4" to 1/2" PFA Compression Fitting
CG-1975-21	1/2" to 1/2" PFA Compression Fitting
CG-1975-01	1/4"OD X 1/8" ID PFA tubing
CG-1975-03	1/2" OD X 3/8" ID PFA tubing
CG-1171-20	PTFE Diaphragm Pump
CG-1171-50	PTFE Diaphragm Pump



Style "A" Style "B" Style "C"



CG-1949-100

CG-1951-100

CG-1830-60

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