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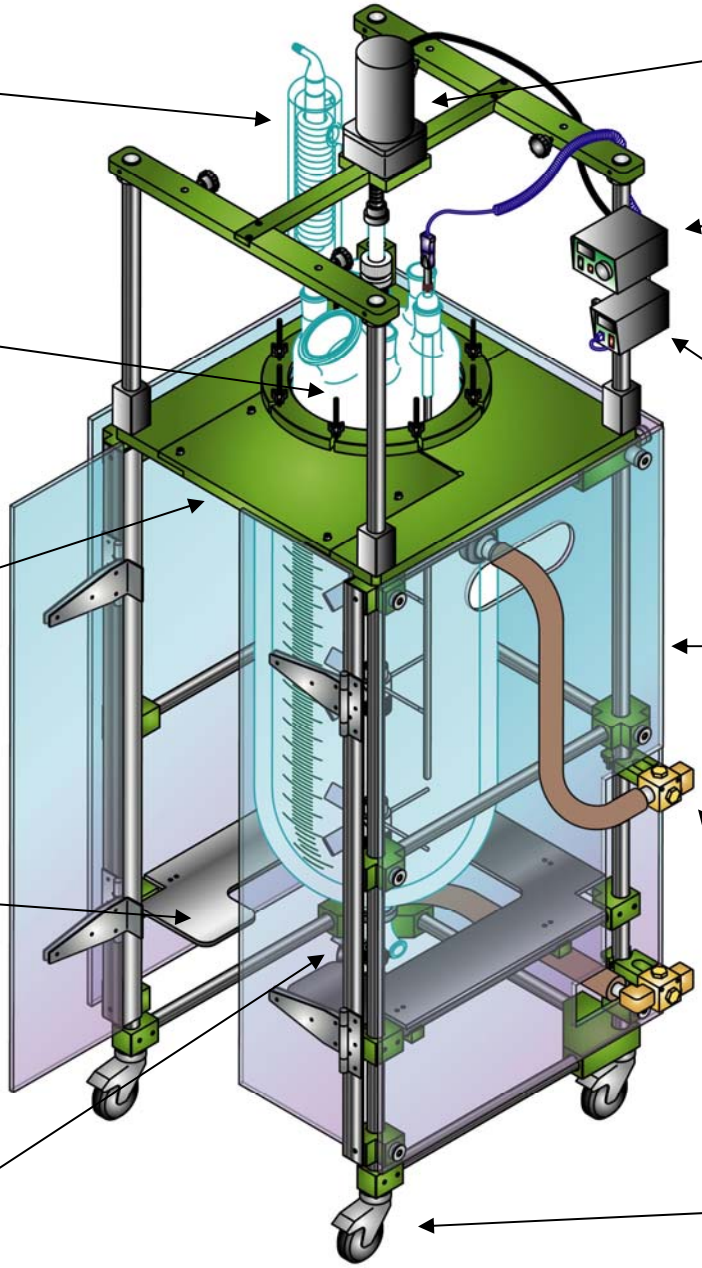
75L & 100L
JACKETED PROCESS REACTOR
ASSEMBLY INSTRUCTIONS



High Efficiency Condenser

1/4 Hp Electric Stirrer Motor

Electric Stirrer Motor Controller

7-Neck Lid With Large Powder Addition Port

Digital Temperature Monitor

Reactor Support Plate Holds Reactor Securely And Allows Easy Installation/Removal Of Reactor By One Person

Lexan Safety Shielding On All Four Sides

Lower Suppor Plate Allows An Unobstructed View Of Bottom Valve

High Flow Manifold System with Triple Insulated Flexible Hose For Quick Connection To Circulator

Zero Dead Space Detachable Drain Valve Has Knob With Laser Etched Directional Arrows For Open & Close

Heavy Duty Lockable Casters

Assembly Instructions

Read entire assembly instructions before you begin. Familiarize yourself with all the parts, and pay close attention to all notes and highlights.

***** FOR YOUR CONVENIENCE, THE JACKETED PROCESS REACTOR, THE FULLY ASSEMBLED REACTOR HEAD, STIRRER SHAFT & AGITATORS, TEFLON STIRRER BEARING, TEMPERATURE PROBE & ADAPTER, HIGH FLOW MANIFOLD BLOCKS, AND SAFETY SHIELDS ARE SHIPPED ASSEMBLED ON SUPPORT FRAME. TEFLON SLEEVES AND KECK CLIPS ARE AVAILABLE SEPARATELY *****

Unpack all the parts and check against the packing slip to make sure you have received all necessary components. If possible, keep some of the packing materials from the wood crates in case you need to return items for repair or replacement.

Crate #1:

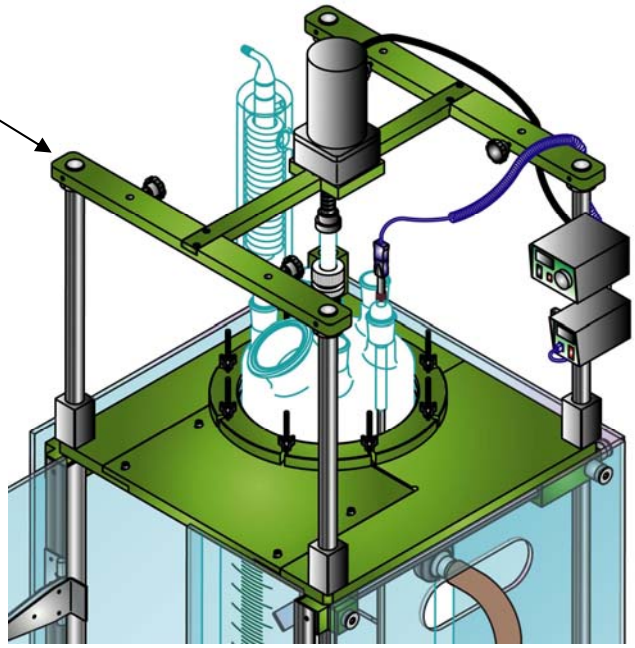
- Unpack lower half of Support Frame with reactor and components by removing the packing material from around the reactor. Re-tighten all allen screws with supplied wrenches. **CHECK ALL ALLEN SCREWS BEFORE PROCEEDING. SCREWS CAN LOOSEN DURING SHIPMENT.**

Crate #2:

- Contains the upper Universal Motor Mount, 1/4 Hp Electric Stirrer Motor, Condenser, Zero Dead Space Drain Valve, Temperature Monitor, Motor Controller, and other miscellaneous parts.

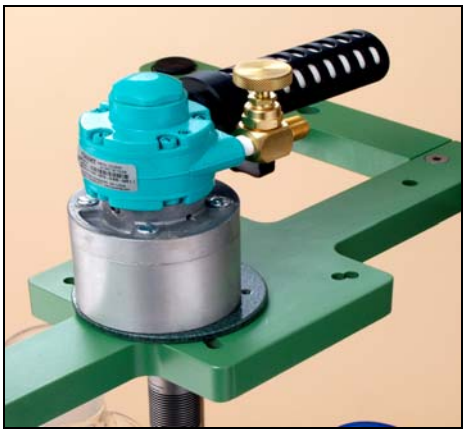
Move the reactor assembly and parts near the hood or area where the reactor will be used, but allow enough space to move freely around the Support Frame. During setup, preparation, and process, it is best to keep the wheels in their locked position by stepping down on the tab. Begin by attaching the upper Universal Motor Mount to the lower half of Support Frame that houses reactor. Tighten all allen screws with supplied wrenches.

***** 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 THE ORDER *****



Upper Universal Motor Mount
The mount is shipped assembled, but must be attached to lower support frame. Tighten all allen screws with supplied wrenches.

Overhead Stirrer Motor



Air Motor

1/4 Hp Motor

Explosion Proof (XP) Motor

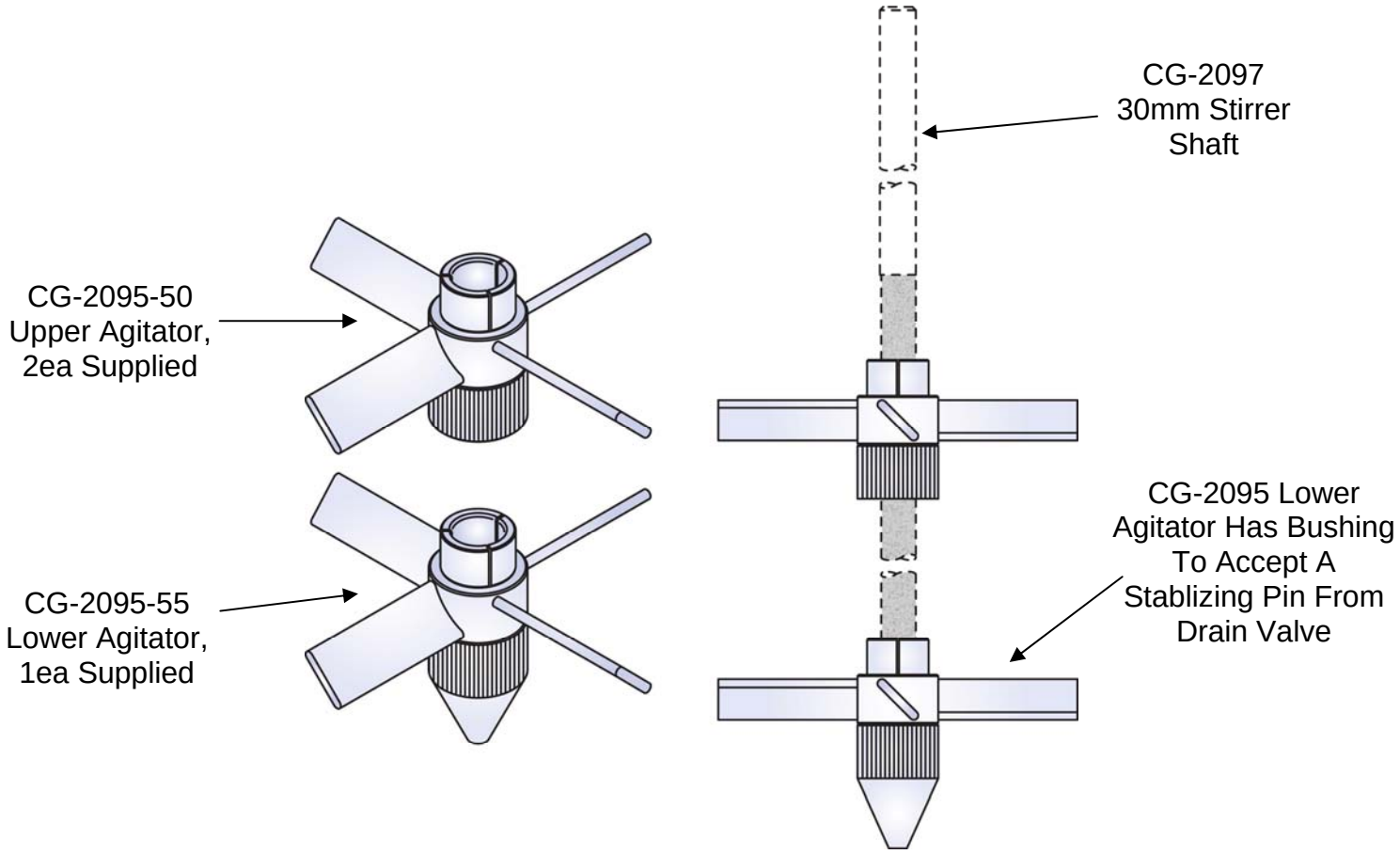
Components Needed For Overhead Stirrer Motor:

1ea	CG-2033-11	1/4 Hp Electric Stirrer Motor
1ea	CG-2025-20	Air Motor (Optional)
1ea	CG-2033-31	Digital Electric Stirrer Motor Controller (Only supplied with 1/4 Hp Electric Stirrer Motor)
1ea	CG-2046-95	30mm Universal Stirrer Shaft Coupling
1ea	CG-9253-10	Small Kwik Klamp II
1ea	CG-3498-03	S.S. Support Rod, Bent 90°

1. The support frame has a universal motor mount. It can be used with an Electric, Air, or optional Explosion Proof (XP) motor. The mount automatically centers the motor directly above the reactor. **PLEASE NOTE: IT MAY BE EASIER TO FIRST ATTACH THE MOTOR TO THE UPPER UNIVERSAL MOTOR MOUNT, AND THEN PLACING THE MOUNT INTO PLACE ABOVE REACTOR.**
2. Attach the 1/4 Hp Electric Motor to the upper Universal Motor Mount via four socket head cap screws. Screws are shipped installed on the motor.
3. Lower the motor mount (with motor securely attached) into place and tighten all allen screws.
4. Attach the CG-2046-95 Universal Stirrer Shaft Coupling to the motor shaft.
5. When using the 1/4 Hp Electric Motor, the CG-2033-31 Digital Controller, with mounting bracket on back panel, needs to be mounted on a S.S. upright. Use the Small Kwik Klamp II (CG-9253-10) and S.S. Support Rod bent 90° (CG-3498-03) to mount the controller to support frame. Tighten all knobs securely.

***** THE CG-2025-20 AIR MOTOR REQUIRES THE AIR SUPPLY BE FILTERED AND A LUBRICATOR BE INSTALLED BETWEEN THE AIR SOURCE AND MOTOR. FILTER-REGULATOR-LUBRICATOR IS AVAILABLE SEPARATELY, SEE CG-2025-10 *****

Stirrer Shaft and Agitator Assembly



***** THE STIRRER SHAFT AND AGITATORS ARE ASSEMBLED AND INSTALLED WHEN SHIPPED. USE THE FOLLOWING INSTRUCTIONS SHOULD YOU NEED TO REMOVE/ADJUST THESE COMPONENTS *****

Components Needed For Stirrer Shaft and Agitator Assembly:

1ea	CG-2097	30mm Stirrer Shaft
2ea	CG-2095-50	10” OD Upper Teflon Agitator
1ea	CG-2095-55	10” OD Lower Teflon Agitator with Stabilizing Bushing

1. The Lower Agitator Assembly (CG-2095-55) is placed on the end of the stirrer shaft. The sand blasted portion is the lower end of the stirrer shaft.
2. The Upper Agitator Assemblies (CG-2095-50) slide over the top end of the shaft. The stirrer shaft has indents, that are spaced every 10” from bottom of CG-2095-55 agitator, for agitator positioning. Set screws on agitator must be aligned with the indents on stirrer shaft.

Zero Dead Space Drain Valve

Components Needed For Zero Dead Space Drain Valve:

1ea	CG-1968-Q-02	Zero Dead Space Drain Valve with Stabilizing Pin
1ea	CG-1968-67	2” Beaded Pipe Coupling

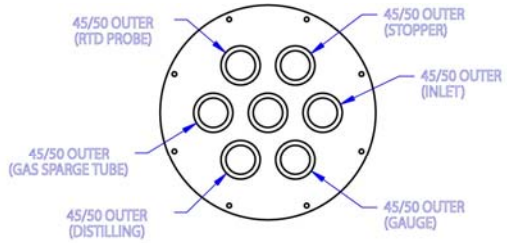
1. Loosen the nut on the 2” Beaded Pipe Coupling. Wet the Teflon/Viton liner inside the coupling and attach one side to the 2” beaded pipe drain valve seat on reactor.
2. Attach the drain valve assembly into the other side of the coupling. The stabilizing pin should slide into the alignment bushing on the lower Teflon agitator when valve is in the closed position. It may be necessary to align the stirrer shaft and reaction head if the pin will not go into bushing. **PLEASE NOTE: PLUG MUST BE IN THE OPEN POSITION WHEN ATTACHING TO COUPLING. AFTER ASSEMBLY BE SURE PLUG IS IN THE CLOSED POSITION PRIOR TO FILLING REACTOR.**
3. Tighten the 2” Beaded Pipe Coupling to 60 in-lbs using a torque wrench.

Before You Start...

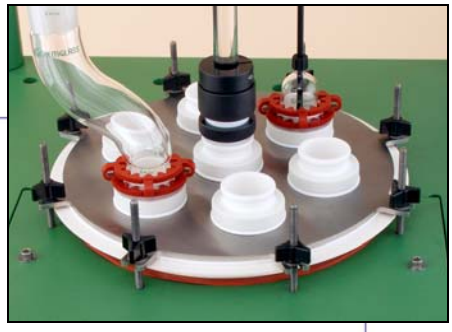
The reactor is now ready for use. Before filling the reactor, make sure the Zero Dead Space Drain Valve is in the closed position. Once setup is complete, the reactor can be moved into position and connected to the circulator. Keep the wheels locked for added safety.

Chemglass presumes some knowledge of this type of equipment on the part of the enduser. Properties such as mechanical strength of glass, thermal stress introduced to the reactor from exothermic reactions, allowable temperature differentials, pressure and vacuum must all be considered with extreme caution. If you have any questions, please contact our technical service department at 800.843.1794 or e-mail technical-service@chemglass.com.

Custom Setup and Optional Components



CG-1968-B S.S. Lid



CG-16000 Data Logger

CG-1978-U Huber
910W Unistat Circulator

Complete Assembly Instructions

***** THE JACKETED PROCESS REACTOR, THE FULLY ASSEMBLED REACTOR HEAD, STIRRER SHAFT & AGITATORS, TEFLON STIRRER BEARING, TEMPERATURE PROBE & ADAPTER, HIGH FLOW MANIFOLD BLOCKS, AND SAFETY SHIELDS ARE SHIPPED ASSEMBLED ON SUPPORT FRAME. ALL JOINTS MUST BE PROPERLY GREASED TO AVOID "FREEZING" AND IMPROVE VACUUM. TEFLON SLEEVES AND KECK CLIPS ARE AVAILABLE SEPARATELY *****

1. Carefully lower reaction vessel in Support Frame (CG-1968-F) and rest bottom of flange on red silicone tubing. Slide front reaction vessel plate tight against reactor and tighten plate via the four allen screws (Figure A).
2. Attach the Zero Dead Space Drain Valve (CG-1968-Q) to reaction vessel via the 2" Beaded Pipe Coupling (CG-1968). Tighten coupling to specified torque setting.
3. Attach the High Flow Manifold System (CG-1969-M) to support frame, as described above, and then attach the S.S. Beaded Pipe end of hose to the inlet/outlet of reaction vessel.
4. Place the Gylon gasket on the flange of the reaction vessel.
5. Assemble the Stirrer Shaft (CG-2097), Agitators (CG-2095), and lower into reaction vessel.
6. While lowering the Reaction Vessel Lid (CG-1968-A) onto the vessel, carefully insert the end of the stirrer shaft through the 45/50 center neck of the lid. **PLEASE NOTE: THE TEFLON STIRRER BEARING IS NOT INSERTED IN HEAD AT THIS TIME.**
7. Slide the Teflon Stirrer Bearing (CG-2077-H) over the end of the stirrer shaft and "press" into the 45/50 center neck sealing the o-ring. Position the powder fill port towards the front of the reactor.
8. Secure the vessel and lid together with the 300mm clamp ring making sure the entire Gylon gasket is seated evenly on the flange. Tighten the wing nuts in a star-like pattern (Figure B). Work your way around the entire clamp until you have repeated this 3-4 times and all the wing nuts are tight. **DO NOT OVERTIGHTEN!**
9. Attach the 1/4 Hp Electric Motor to the upper Universal Motor Mount via four socket head cap screws. Screws are shipped installed on the motor.
10. Lower the motor mount (with motor securely attached) into place and tighten all allen screws.
11. Attach the Universal Stirrer Shaft Coupling (CG-2046) to 1/4 Hp Electric Stirrer Motor (CG-2033) motor shaft.
12. Insert the end of the stirrer shaft into the CG-2046 coupling and tighten the collar with an allen wrench. Check the vertical alignment of the reactor and adjust if necessary.
13. Tighten the black compression nut on Teflon Stirrer Bearing (CG-2077-H), which compresses the bearing onto the stirrer shaft.
14. Attach the Electric Stirrer Motor Controller (CG-2033) and the Digital Temperature Monitor (CG-3498) to the support frame via the Small Kwik Klamp II (CG-9253-10) and 1/2" OD S.S. Support Rod bent 90° (CG-3498-03).
15. Attach the control cord from the electric stirrer motor to the rear panel of the controller. Make sure the speed control knob on the controller is turned completely off **BEFORE** turning controller on. If using the Air Motor (CG-2025-20), attach air source to motor. Brass needle valve on the back of the air motor should be **CLOSED!**
16. Insert thermocouple thru the Thermocouple Adapter (CG-1042-E) and then insert the adapter into the desired 45/50 side neck. Adjust depth of thermocouple by tightening the #7 Chem-Thread at top of the adapter. **PLEASE NOTE: CHECK SO SEE THAT THE THERMOCOUPLE DOES NOT CONTACT THE UPPER OR LOWER AGITATORS BY MANUALLY TURNING THE STIRRER SHAFT.** Attach the thermocouple cord to the probe and then to the temperature monitor.
17. Attach Condenser (CG-1215-C) and any other peripheral glassware.

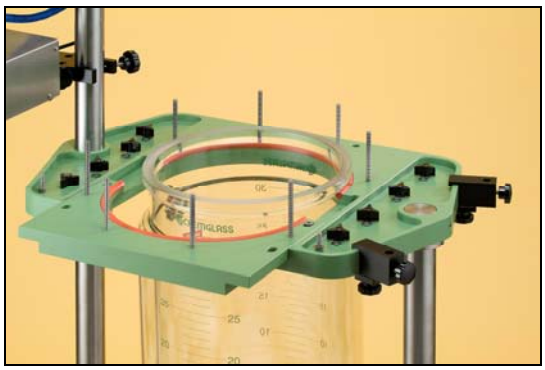


Figure A

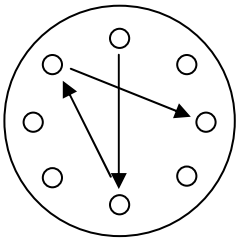


Figure B: Shows proper tightening pattern for wing nuts. **DO NOT OVERTIGHTEN!**