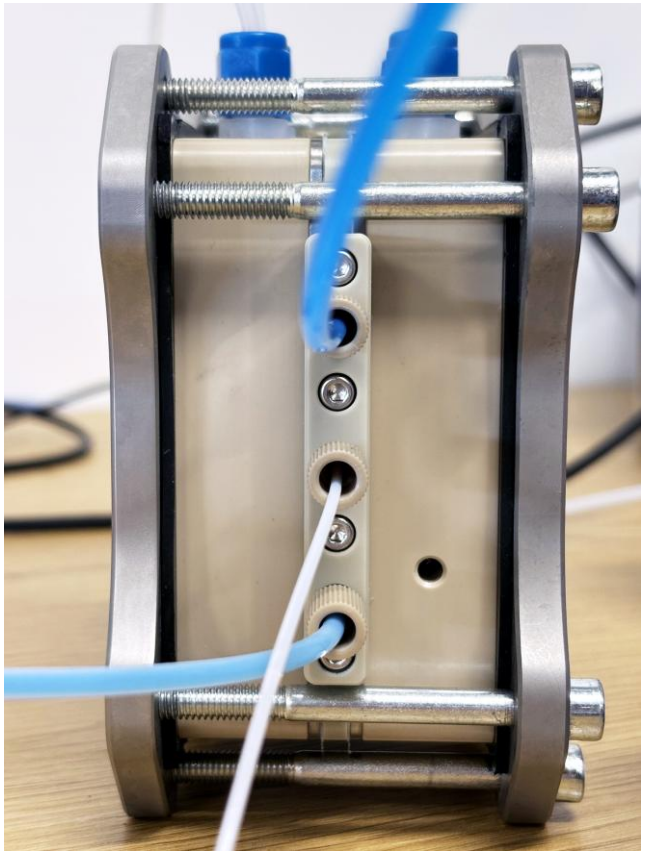


Insert for Reference Electrode

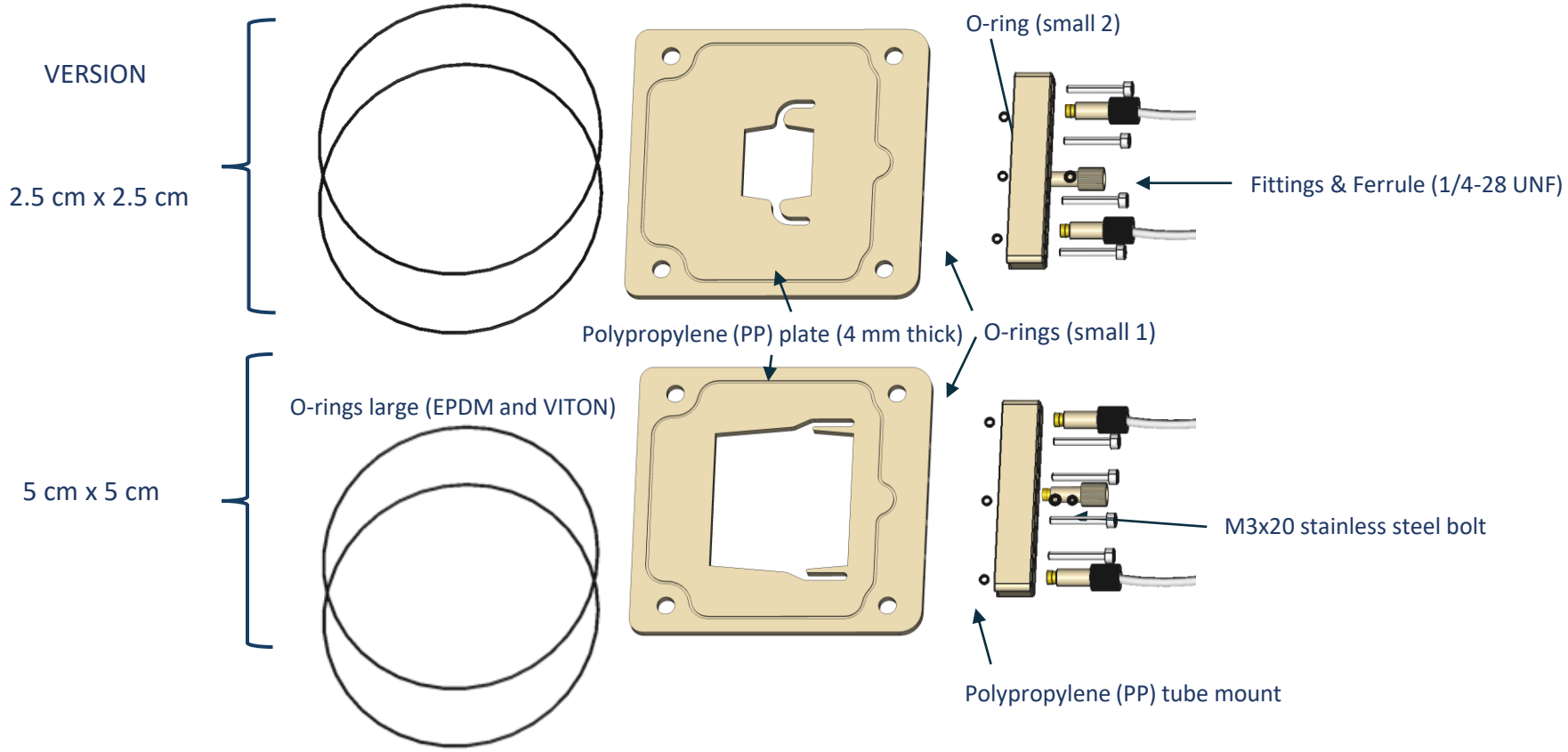
Overview & Assembly Manual

Version date	December 12 – 2025
Manual version	2.0 - visit www.redox-flow.com for updated versions and spare parts
Notes	This equipment is intended for research purposes only and can be applied for different purposes. There is no guarantee on performance, corrosion or lifetime of the equipment. See https://redox-flow.com/termsandconditions/ for more information.

Overview of Variants & Components Included in the Package

General notes

- All wetted parts are either polypropylene, EPDM (O-rings) or VITON (O-rings)



Working Principles

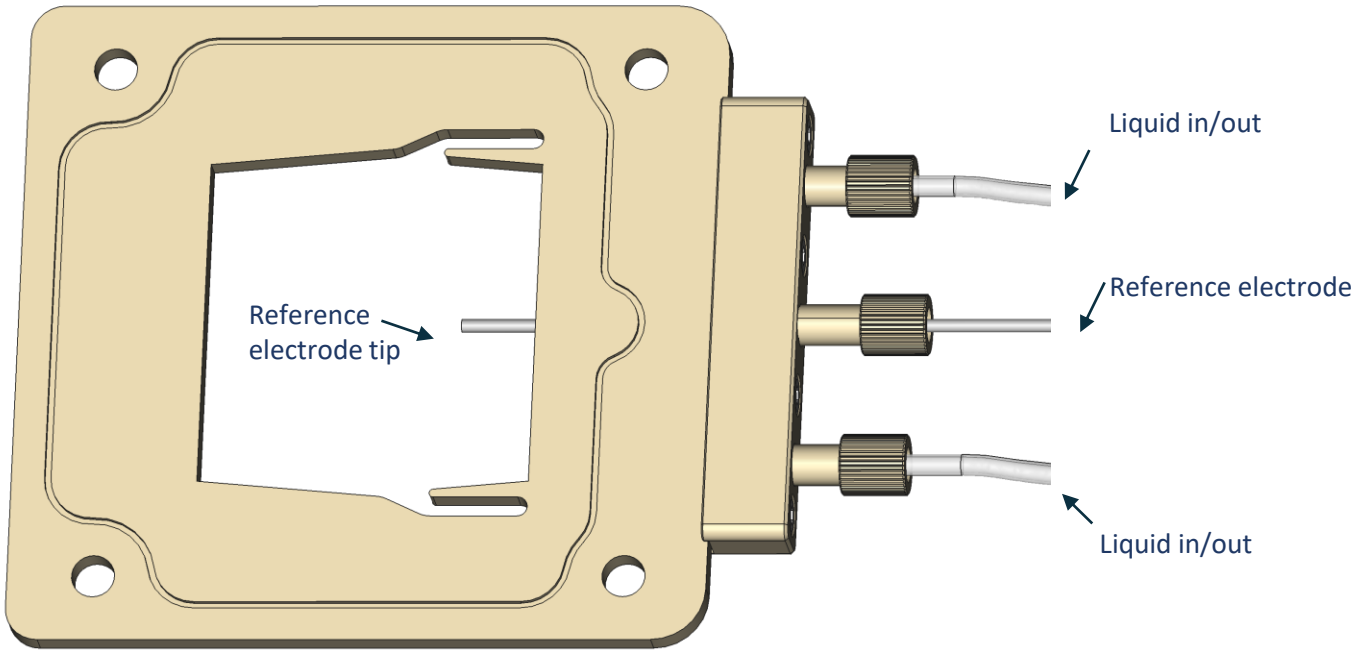
This unit is an insert that can be used in any of the Redox-Flow.com 2.5cm x 2.5cm or 5 cm x 5 cm A,S or X cells. It has two uses

1. Insertion of reference or any other electrodes directly inside the cell

and/or

2. Expand number of chambers in a normal A, S or X the cell to 3,4 or more chambers.

Picture below shows the insert. The reference electrode (ø0.8 mm to ø1.6mm) is pushed directly into the flow chamber with variable depth. Two additional ports allows for circulation of liquid in the chamber.



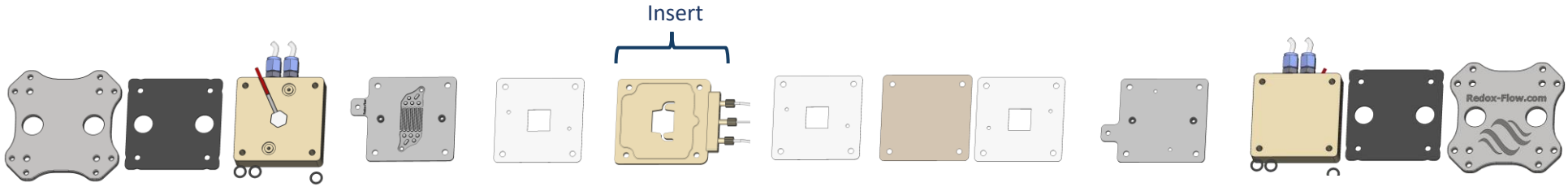
Assembly in Standard Two-Compartment Cells

General.

Assembly follows in general the assembly manual for the cell

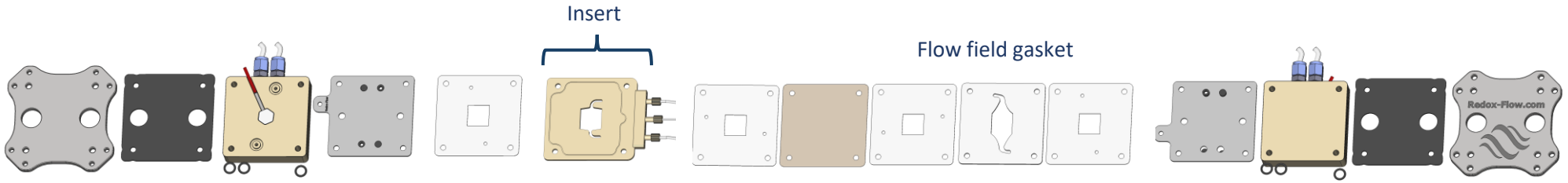
Cell with Flow Field current collectors.

- Here cover gaskets can (optionally) be placed between the insert and current collector and membranes
- Liquid in/out-let can be connected at either the PEEK flow body or the insert



Cell with Flat Surface current collectors.

- Here the insert replaces the flow field
- Liquid in/out-let can only be connected at the insert



Assembly in Three or More Compartment Cells

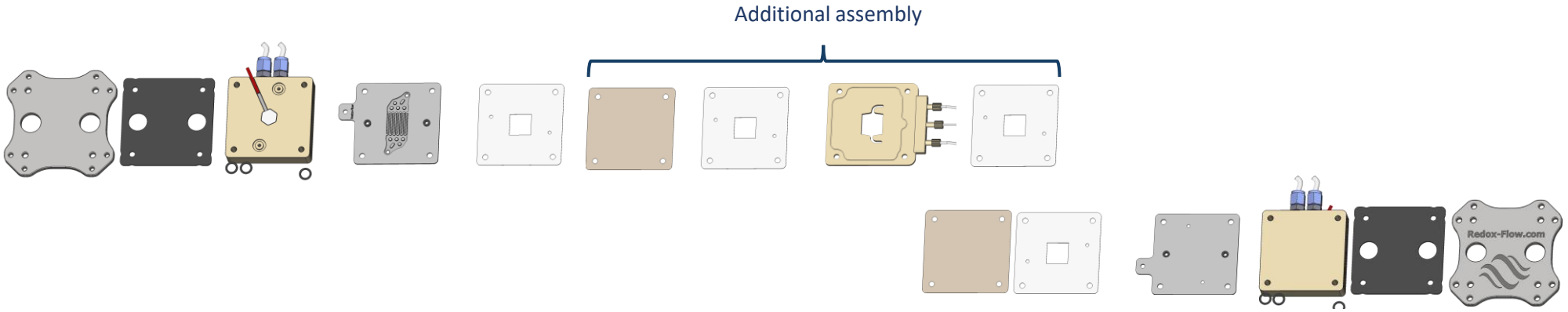
General.

Assembly follows in general the assembly manual for the cell

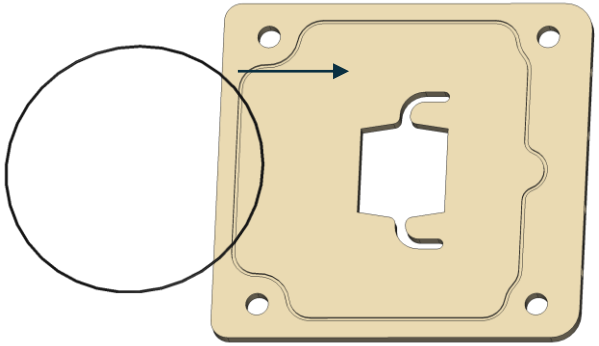
Cell with Flow Field current collectors and Flat Surface current collectors.

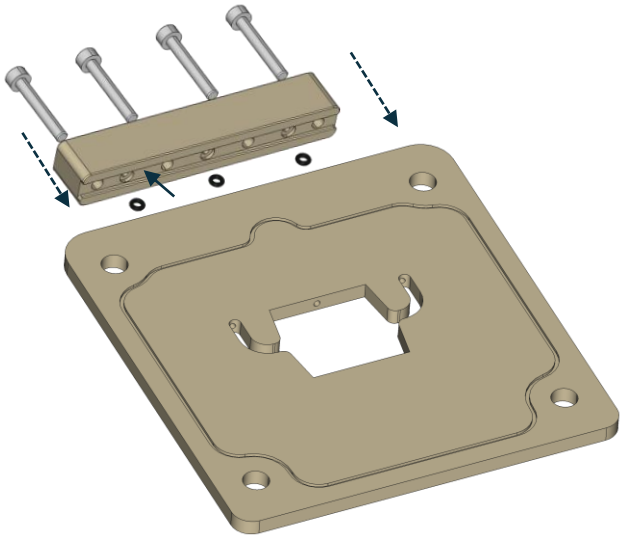
Example below is shown with Flow Field current collectors but is equivalent for Flat Surface current collectors.

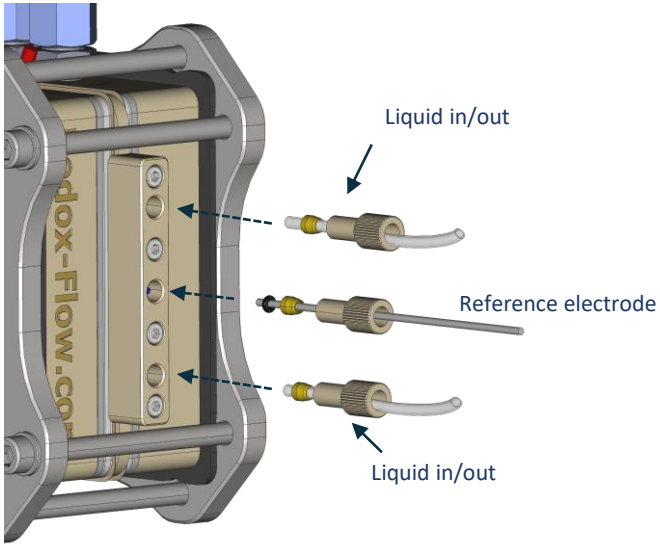
- To create an additional chamber, an assembly of cover gaskets (optional), membrane and insert is placed in the cell



Assembly - Shown for 2.5 cm x 2.5 cm Insert







1. Apply tiny amounts of silicon-based grease to the large O-rings (wipe off excess grease) and mount O-rings on each side of the PP plate

2a. Apply tiny amounts of silicon-based grease to the small (1) O-rings (wipe off excess grease). Mount the O-rings in the PP tube mount.
2b. Mount M3 bolts and tighten them gently by hand until torque increases.
IMPORTANT: Do not overtighten, this will destroy thread.

2c. Insert is now ready to be mounted inside cell.

3a. The in/out tubes (1/8'' OD) are connected with yellow ferrule with flat head towards thread (as shown in picture)
NOTE: If the ports for liquid flow are not needed these can be blocked with blind plugs.
3b. Reference electrodes (OD 0.8mm to 1.6mm) are mounted with both an O-ring (small 2) and yellow ferrule as shown in picture

IMPORTANT: For the fittings, only use gentle hand tightening.
NOTE: The above instructions for connecting tubes and reference electrode are typically performed while the insert is already mounted inside the cell.