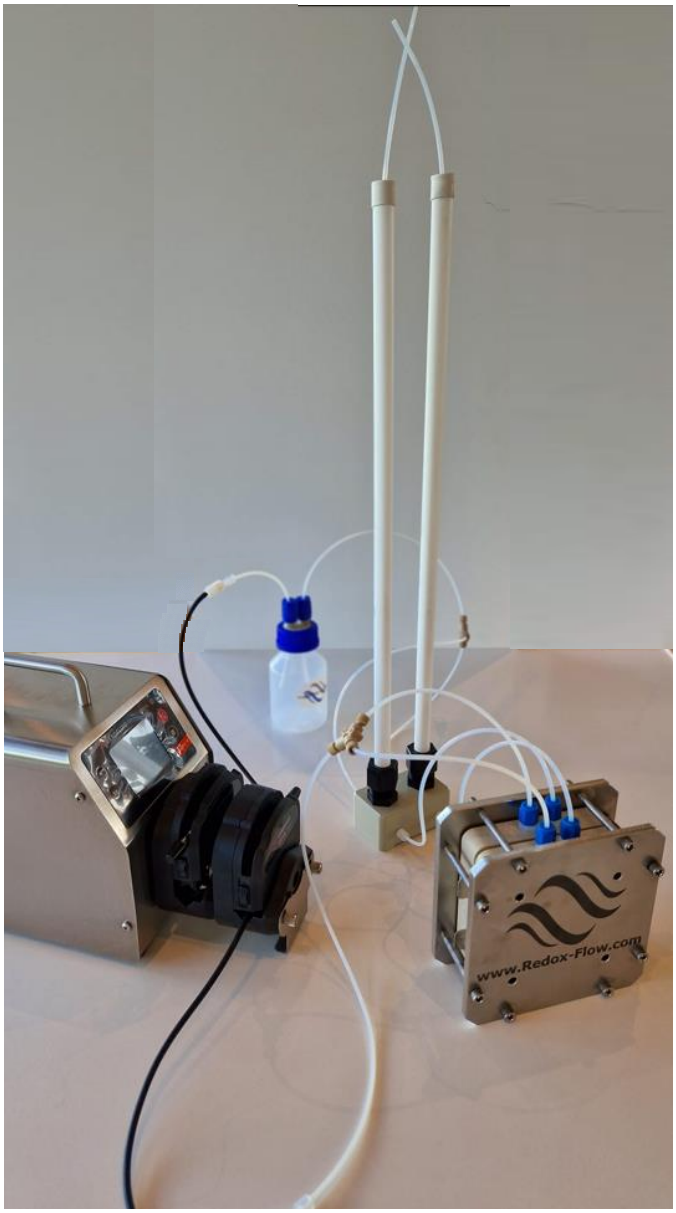
Gas seperation unit

Overview & assembly manual

Redox Flow
www.redox-flow.com



Notes

This electrolyser gas separation unit is intended for research purposes only and can be used for many different purporses.

There is no warranty on performance, corrosion or lifetime on the items. It is purely for research purposes.

The black compression fitting that seals the 16 mm PP pipe contains a metal piece (to keep the pipe in place). It does not get in contact with the liquid and can be left in without concerns about corrosion.

Please note that both O2 and H2 have low, but not negligible, solubility in water, the gas separation does therefore not work with 100 % efficiency. **For this reason, a mixture of H2 and O2 can be built up inside the PP bottle. To mitigate this, keep the head space in the bottle as low as possible.**

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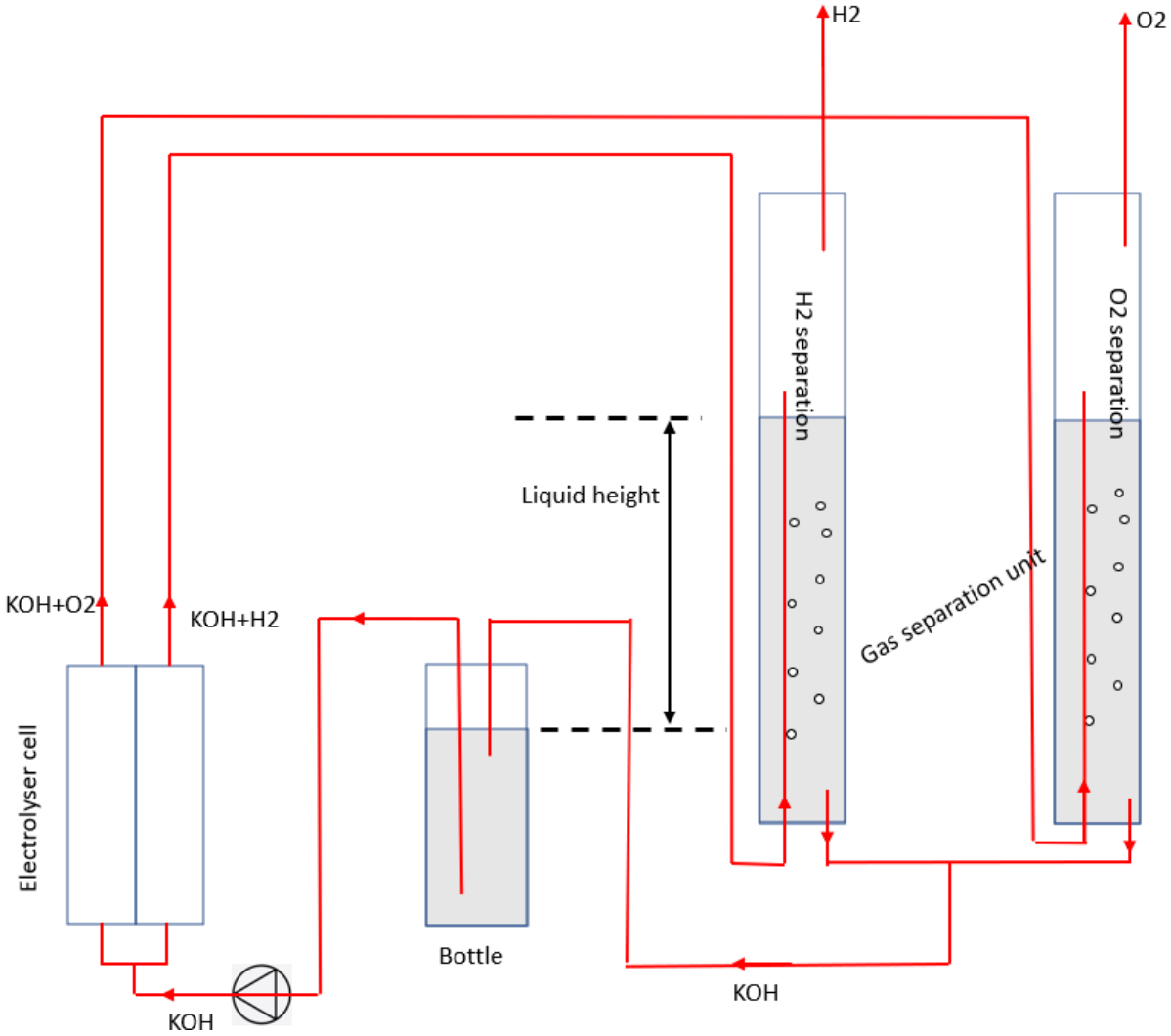
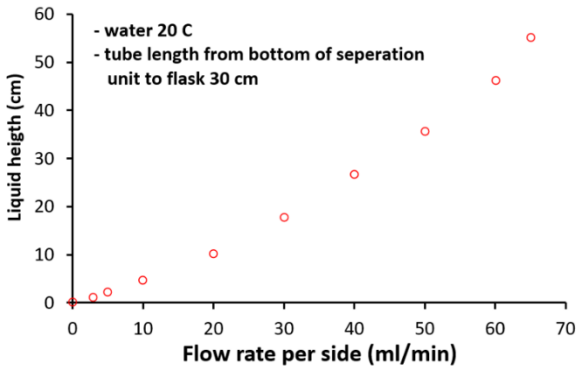
Flow rates & operation principle



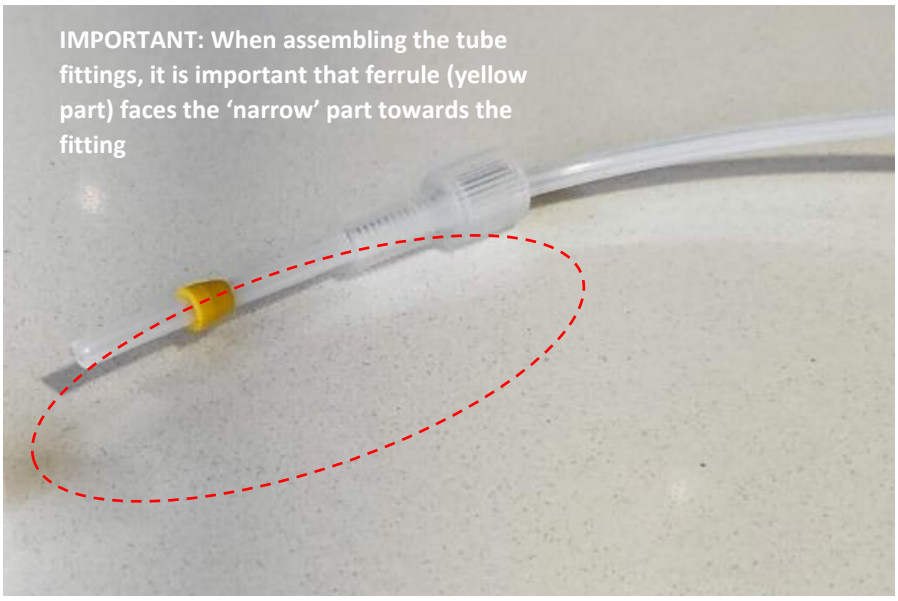


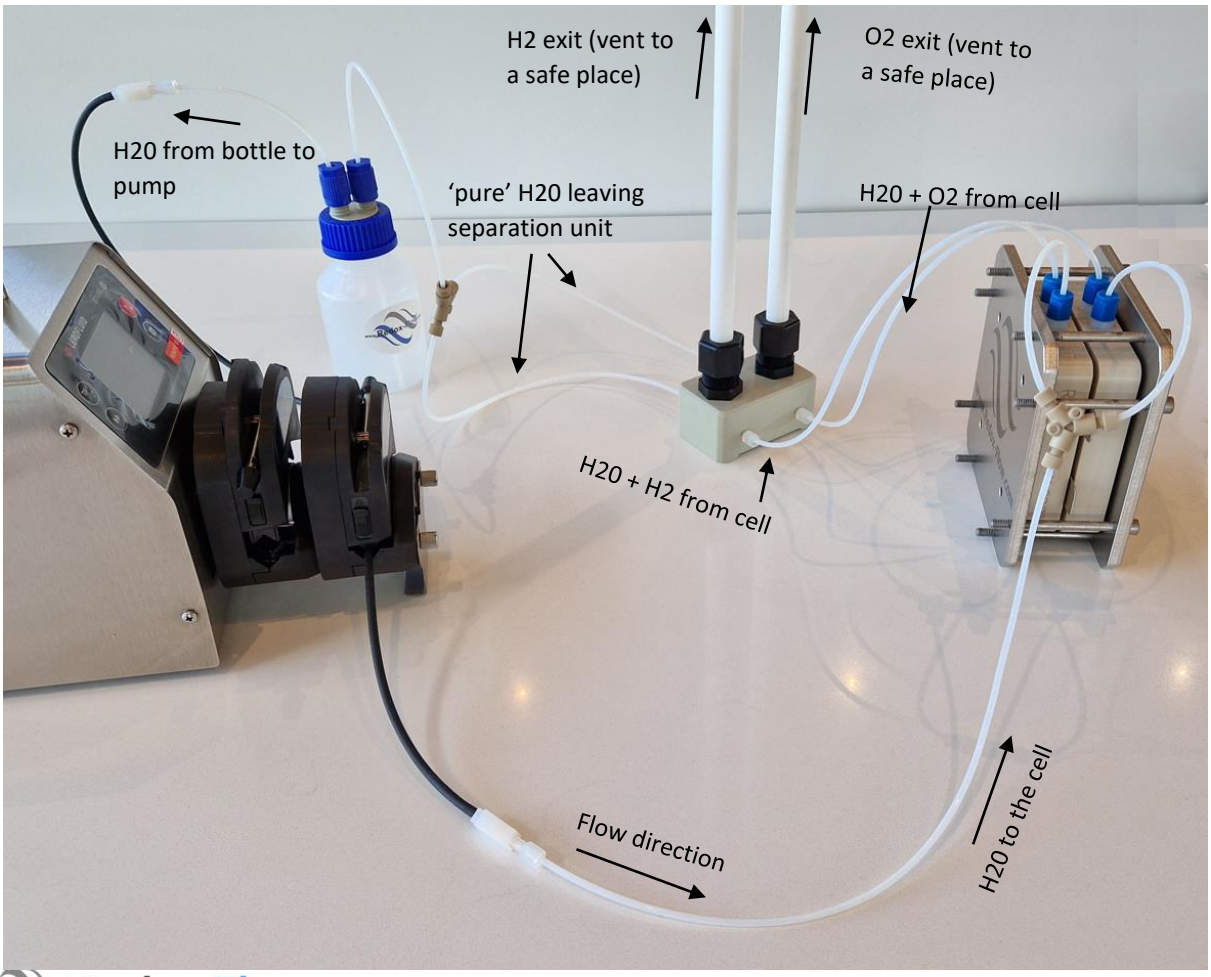
Picture shows a schematic drawing of the working principle of the gas separation unit. The liquid from each of the H2 and O2 separation compartments are gravimetrically transferred to the bottle. In this case the liquid height in the separation unit is determined by the flow rate and hydraulic resistance of tube from separation unit to the bottle (i.e length of tube).
Top graph shows the liquid height in the separation unit as function of the flow rate on each side of the cell.
NOTE: Liquid height is determined by viscosity and thereby temperature and concentration of KOH for this reason above graph is indicative only.

Overview of included components

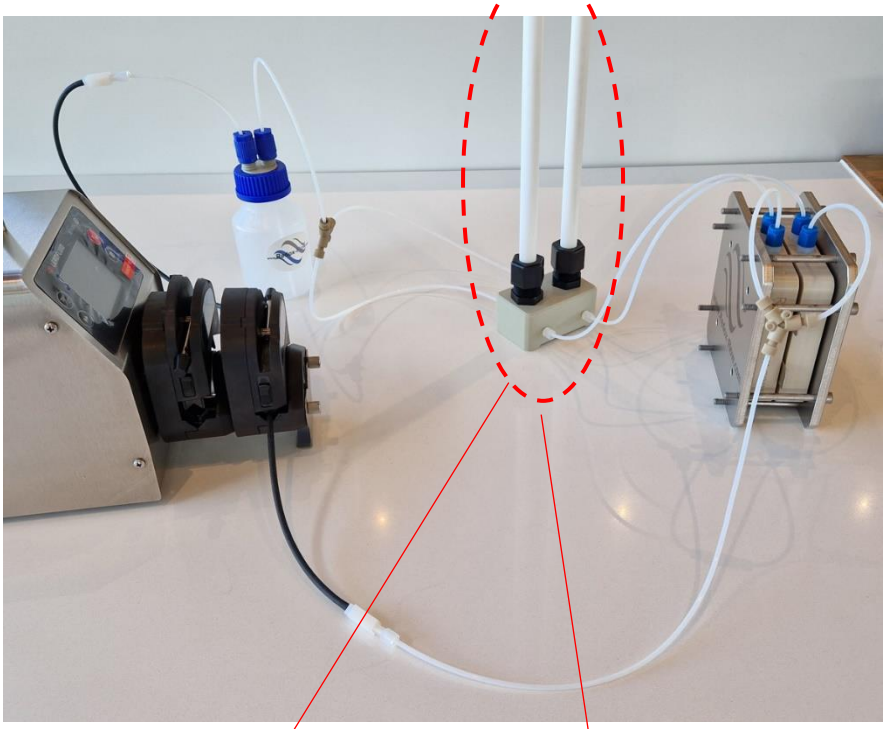
The whole setup comes unassembled and the 1/8'' tubing in one piece, thereby giving larger flexibility.

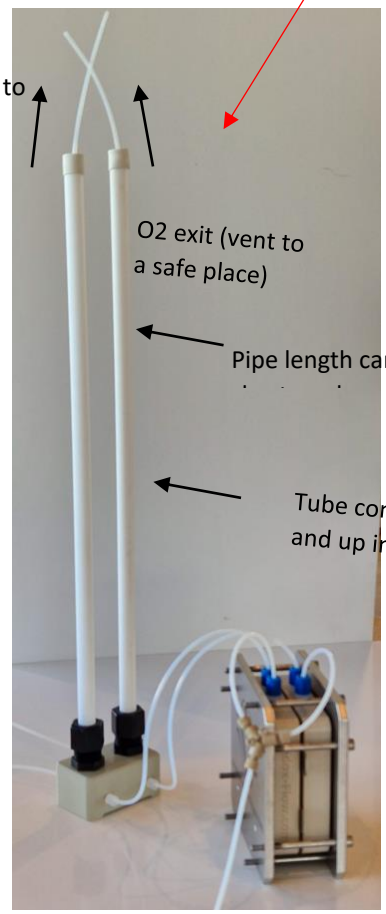
Assembly


IMPORTANT: When assembling the tube fittings, it is important that ferrule (yellow part) faces the 'narrow' part towards the fitting


H2 exit (vent to a safe place)
O2 exit (vent to a safe place)
H20 from bottle to pump
'pure' H20 leaving separation unit
H20 + O2 from cell
H20 + H2 from cell
Flow direction
H20 to the cell

Details on separation unit





Mounting of tube inside pipe