

# Setting up Dean-Stark apparatus

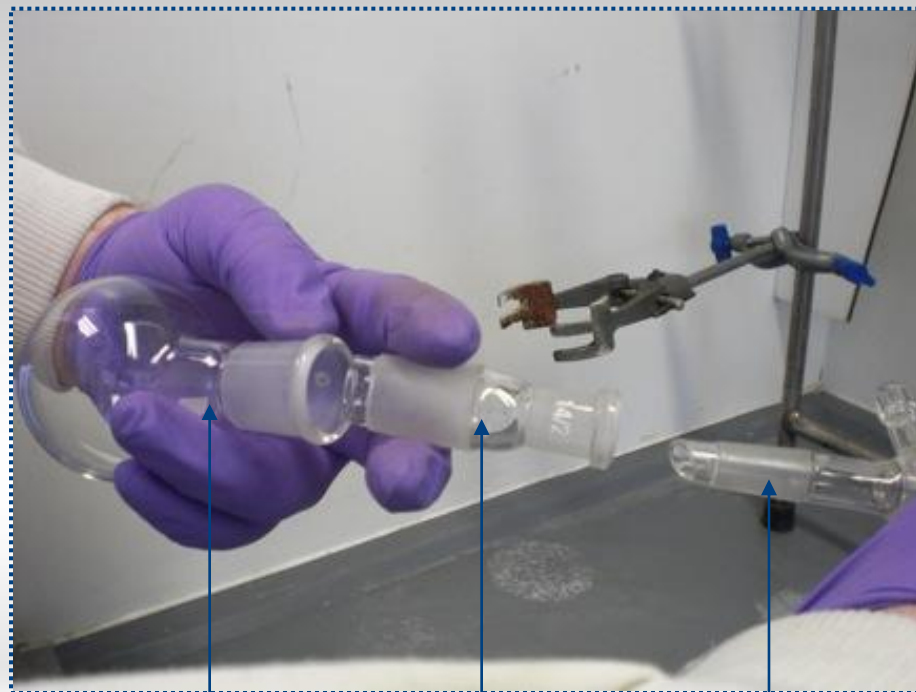


Whilst the pictures below show the use of adapters for connecting round bottomed flasks to condensers, it applies to any pieces of Quickfit glassware, including Dean-Stark. When connecting the Dean-Stark to the round-bottomed flask you may need to use an adapter.

**Always** use an appropriate size flask and make sure it is no more than half-full.



The condenser can not be inserted straight into the round-bottomed flask as the joints are different sizes



round-bottomed flask

adapter

condenser

This is a Dean-Stark head. A toluene/water azeotrope will reflux and condense into the portion above the stopcock, forming two separate layers. The water can then be removed via the stopcock

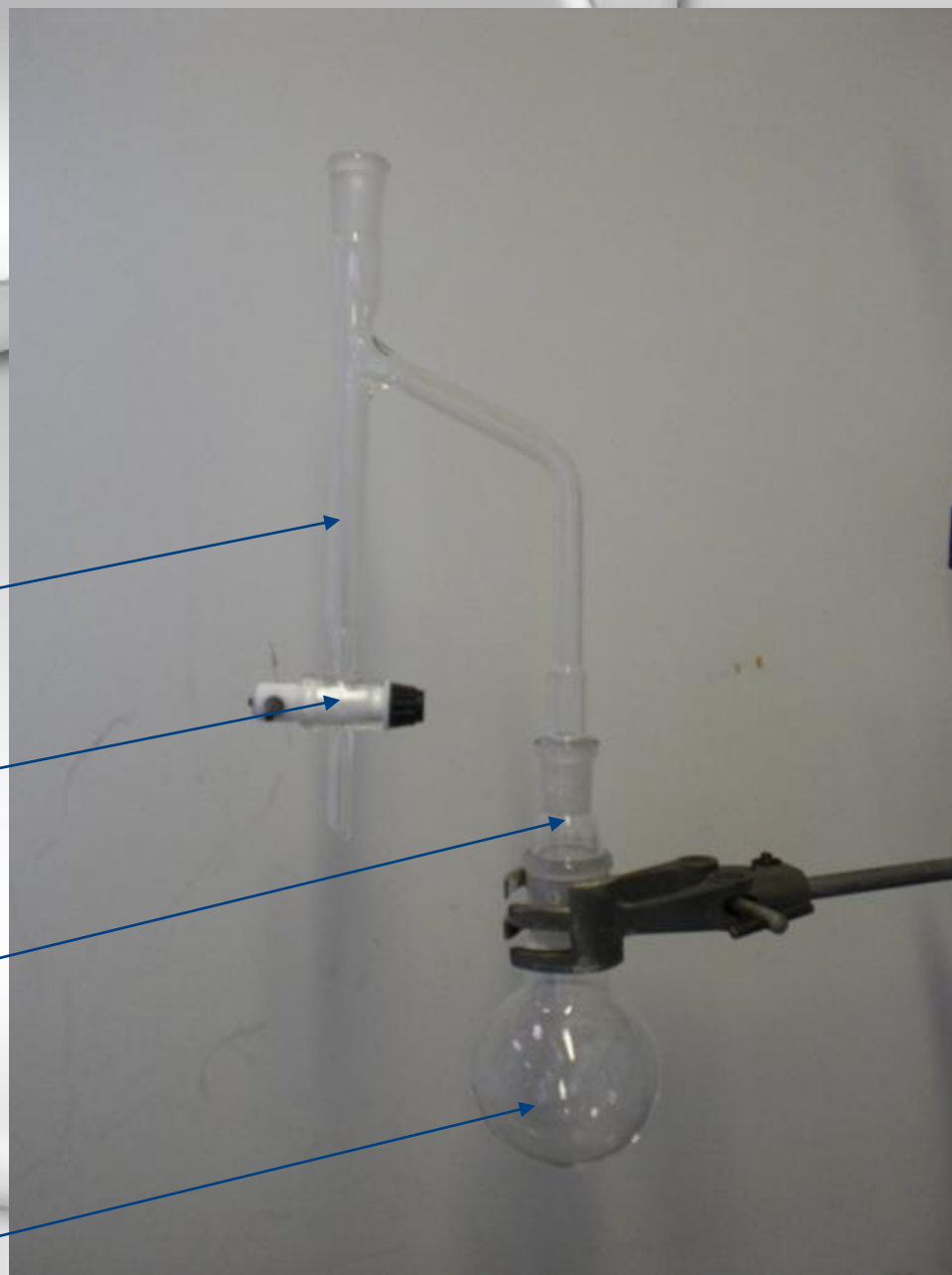
This is one specific Dean-Stark head. There are numerous variations so don't be worried if the type you are using looks slightly different. However, the principle is the same.

Dean-Stark head

stopcock

adapter

round-bottomed flask



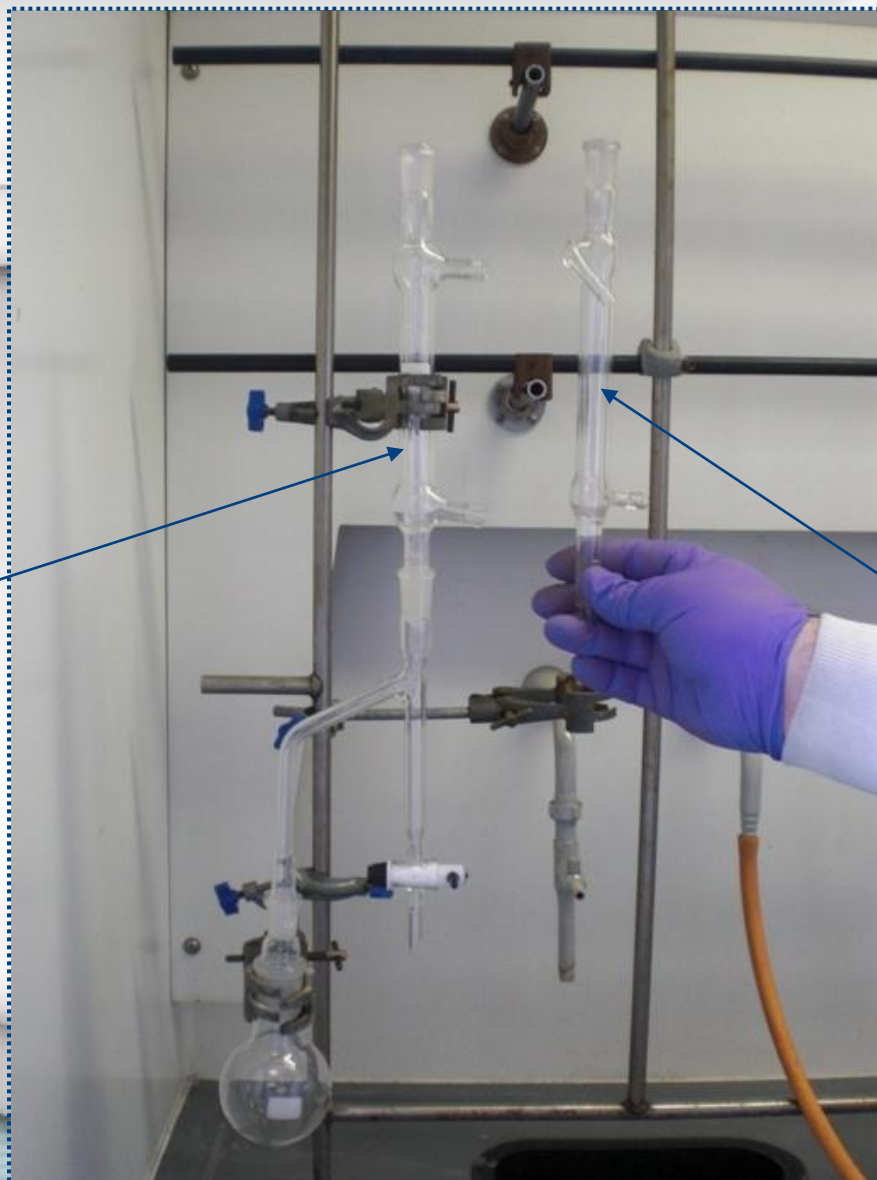
There are two types of condensers which attach to the rubber tube in different ways.

Condenser with screw thread on the glass inlet and outlet pipes

Attach the plastic adapter to the rubber tubing and then screw the adapter onto the pipe

Condenser with glass inlet and outlet pipes with a 'knuckle'

Slide the rubber tube onto the pipe and past the 'knuckle'





When setting up the condenser it is very important that you have the water flow in the correct direction.



Water in at the bottom

Water out at the top



When adding a heat source to the reflux set up, an oil bath may be used instead of the heating blocks.

heating  
blocks

heater  
stirrer



**Remember** to add  
either anti-bumping  
granules or a magnetic  
stirring bar to the  
reflux flask.