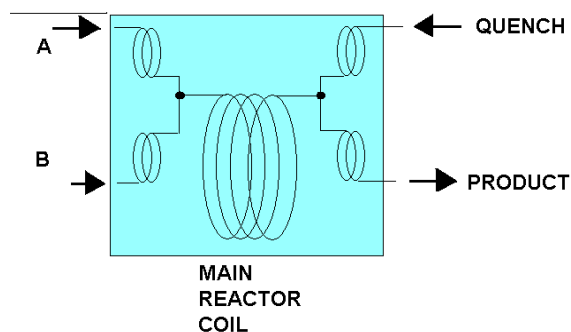
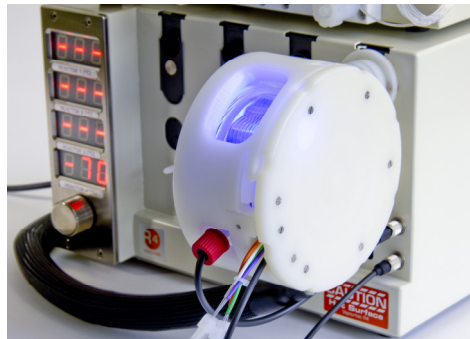


## New Split Coil Offers Multi Stage Cooled Reactions at a Single Temperature

### Background - The Cooled Reactor

The Vapourtec cooled reactor (right) includes, as part of its standard plumbing, special coils to pre-cool reagents before they mix, and then a pre-cooling coil for an inline quench. Finally, there is a coil in which the quench can react with the products of the main reaction before leaving the cooled zone.



This arrangement is shown (left).

The main reactor coil can be easily changed for different sized coils, while the pre-cooling coils are built into the manifold.

(This same tube layout is also present in the Vapourtec “heated mixer” manifold. )

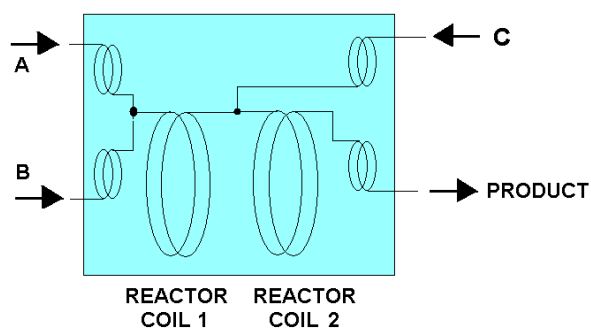
Because more than one cooled reactor can be used, (*each controlled at a different sub ambient temperature if necessary*), it is possible for multi step cooled reactions to be carried out.

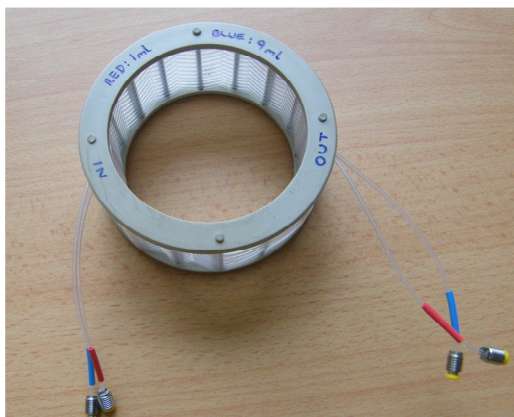
### **NEW** The “Dual Core™” reactor cartridge

However, in some cases, the two sub-ambient reaction steps may be carried out at the same temperature, and furthermore, may be very rapid reactions where it is necessary to minimise the tube lengths between one reactor and the next.

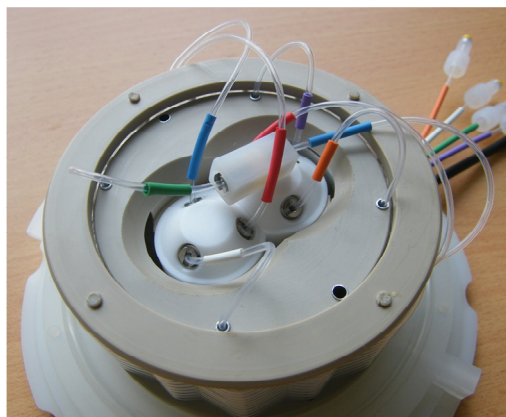
For this reason, Vapourtec have introduced the “Dual Core™” reactor cartridge, which features two reactor coils wound on a single former.

This means two reactors are controlled within a single manifold. When used in the Vapourtec cooled reactor manifold, the plumbing is effectively as shown (above). So two cooled reaction steps or one reaction step and a temperature controlled quench can be carried out with a single manifold.





The Dual Core™ cartridge is a simple drop in replacement for the standard cooled reactor coil usually supplied with the cooled reactor



Plumbing the colour coded tubes into the cooled reactor manifold is straightforward

## FAQ

**Q** When is the Dual Core™ reactor available ?

**A** Immediately

**Q** What are the constraints on the two coils' reactor size ?

**A** The two coils in total must not exceed 10ml volume.

**Q** What size coils are available ?

**A** The split coils are available to order. So for example 5:5 or 1:9 etc.

**Q** What will I need to use the dual core cartridge ?

**A** A standard Vapourtec cooling module and at least one cooled reactor manifold

**Q** Can I change the sizes of the built in pre-cooling coils in the cooled manifold?

**A** No, just the cartridge containing the reactor coil(s) is user changeable.

**Q** Can I use the Dual Core™ to carry out two heated reaction steps in a single conventional heated reactor manifold ?

**A** No, the conventional heated manifold does not have the correct plumbing and integral mixers.

**Q** Is there a Dual Core™ available for "heated mixer" reactor manifolds.

**A** Vapourtec offer a "heated mixer" reactor manifold which has the same internal plumbing as the cooled reactor but is for use at above-ambient temperatures. And yes, the DualCore™ can be used in conjunction with this, in exactly the same way it can be used with the cooled reactor manifold.

- Q Will I need an update to FlowCommander™ software to use the Dual Core™?**  
**A** No, FlowCommander only controls a single temperature (one per manifold) and so just needs to know tube lengths. It should be configured as shown below to ensure the pipe lengths are properly accounted for.

