

Now a DrySyn that can COOL down too...

## Controlled cooling without resorting to Jacketed Reaction Vessels

Building on the success of the DrySyn heating blocks, DrySyn COOL is an integrated concept for cooling.

The modular system includes a cooling base plate and various inserts for standard round bottomed flasks from 50ml - 1000ml.



*Pictured here is the cooling base plate which can be attached to any standard recirculating chiller unit.*

Exchange of reaction vessels is easily achieved in seconds without disrupting the thermal bath fluid, offering time saving and safety advantages over glass jacketed reaction vessels.

*Standard inserts are supplied for round bottom flasks for 1000 ml down to 50 ml*



With DrySyn COOL, chemists can control sub-ambient temperatures for prolonged periods of time preventing the use of solvent/ice baths

Utilizing more advanced chillers allows the chemist to control cooling/heating ramp rates in a round bottom flask.

## DrySyn COOL advantages:

- ◆ Can be used stand-alone on a laboratory bench with an overhead stirrer
- ◆ Also compatible with any magnetic stirrer
- ◆ Very small footprint
- ◆ Low cost compared to jacketed glass reaction vessels, especially for multiple sizes
- ◆ Robust, durable aluminium build instead of glass
- ◆ Compatible with virtually any brand of laboratory circulator or chiller system e.g. Julabo/Huber/Lauda/Grant
- ◆ Designed for sustained sub-ambient chemistry down to -30°C solution temperature

*Can be used with a standard magnetic stirrer for agitation*



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## Performance

Independent tests carried out at Huber in Germany showed that their low cost and compact Ministat circulator units can be utilized for specific solution temperatures down to  $-30^{\circ}\text{C}$

### DrySyn COOL performance tests with Huber Ministat 230 and 240 Series

Using a 1000 ml flask 1/3 filled in the DrySyn COOL the minimum temperature reached by the Huber Ministat 230 was  $-32.3^{\circ}\text{C}$ . The minimum temperature reached by the flask contents was  $-27.9^{\circ}\text{C}$ .

*Huber MINISTAT 230 pictured*



*Insulated hoses are recommended for powerful circulators like the Ministat 240*



We recommend that DrySyn COOL is used with insulation when taking temperatures below  $-10^{\circ}\text{C}$ . The optional Armaflex insulation we offer is designed specifically for sub-ambient conditions.

*DrySyn COOL with optional Armaflex insulation*



*DrySyn COOL pictured with a Heidolph overhead stirrer*



The same tests were performed with a Huber Ministat 240. The minimum temperature reached by the thermal fluid was  $-38.5^{\circ}\text{C}$ . The minimum temperature reached by the flask contents was  $-35.0^{\circ}\text{C}$

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