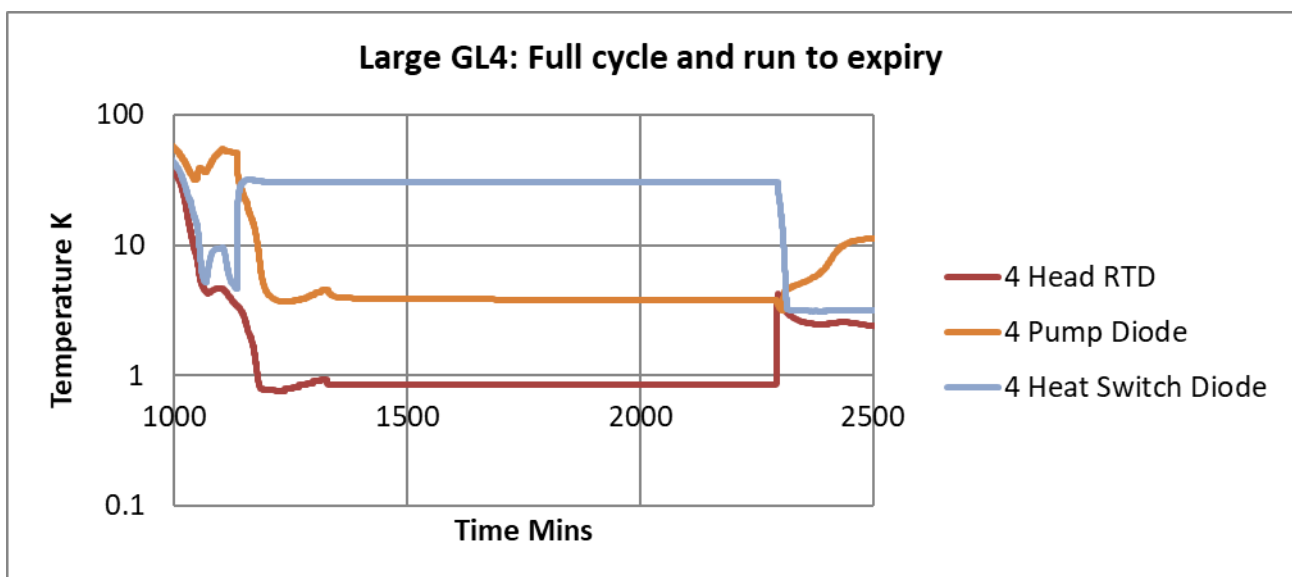




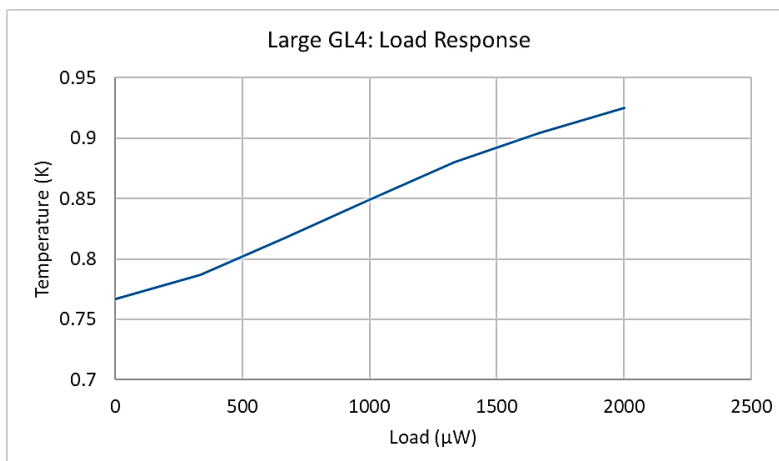
## PERFORMANCE NOTES FOR THE LARGE GL4 SORPTION COOLER

The GL4 is a single-stage, single-shot sorption cooler that is designed to interface to a low-power 4K GM cryocooler. The GL4 can be made in a range of sizes to suit different user applications. A Large GL4 is designed to run for more 15 hours under a 1mW load before it needs to be recycled. CRC can advise on the anticipated run times under higher or lower loading conditions. A typical run cycle for a large GL4 is shown in the following figure. The time trace shows a load response test immediately after the initial cooldown cycle. The Large GL4 is then run to expiry under a steady 1mW load. The total applied load was 64 Joules and the total run time was 16.1 hours in this test.



The Large GL4 comes fitted with three temperature sensors, a 4-wire RTD to the He4 head and housekeeping diodes to the pump, heat switch and film burner (this last does not require monitoring). It also has two resistive heaters that control the pump and heat switch operation.

Here is the load response:

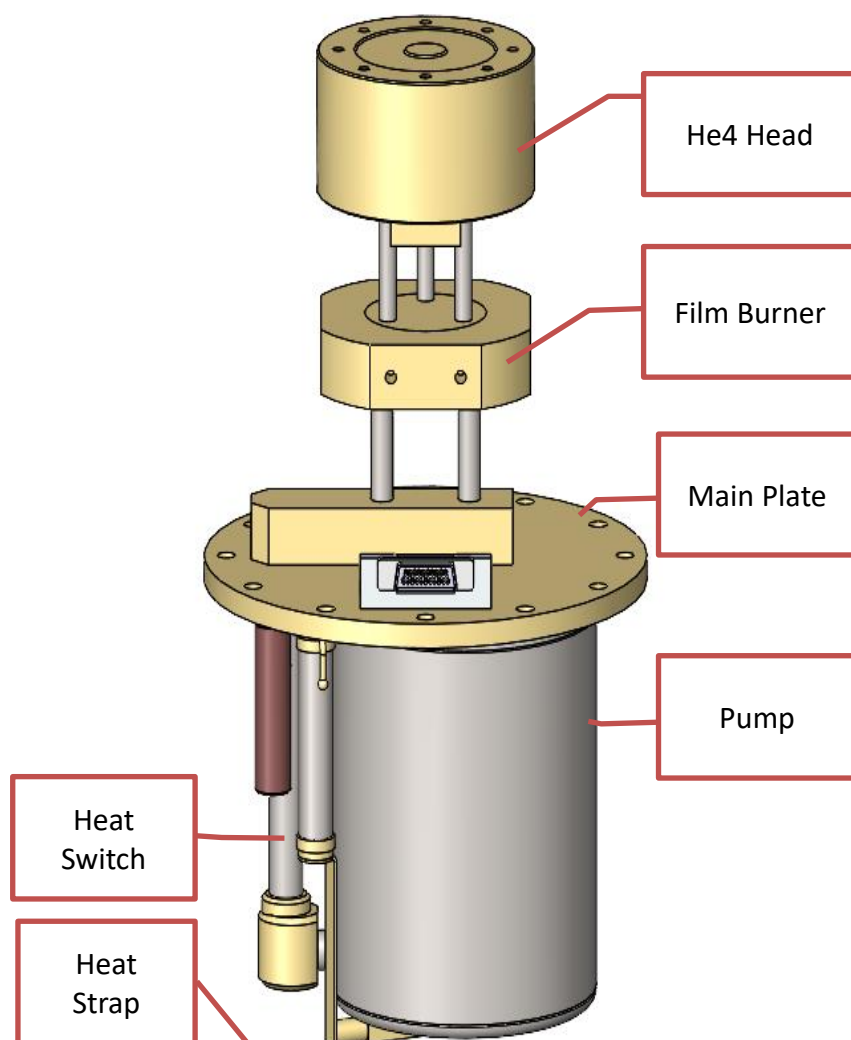


This shows how the temperature of the cold head increases in response to applied loads.

A large GL4 can be run using a very low-power GM precooler however the initial cooldown time will be long, around 20 hours. A precooler with at least 250mW cooling power is preferred. Alternatively, the GL4 may be installed in a 'wet' cryogenic system and precooled with liquid helium.

Finally, here is a schematic diagram of the large GL4. To assist with interfacing to your cryogenic system we will be happy to supply a STEP file on request. Note that in use, the cold head is oriented downwards, i.e. the opposite orientation to that shown in this diagram.

**Large GL4 sorption cooler (in use, the orientation is inverted)**



**Key Facts**

Weight of sorption cooler:	~ 3kg
Main Plate diameter:	127 mm
Total height of sorption cooler:	~242 mm
Distance from mainplate to top of He4 head:	~125 mm

See our website for more information on interfacing the Large GL4 to your cryostat and precooler. If the shape, dimensions, hole pattern or electrical connector position of this standard product do not suit your requirements, contact us to discuss the potential for customization.