

Cryogenic Test Equipment

Circular Test Dewar System (TD-c Model)

Range of applications

With over 15 years experience in cryogenic applications, Callisto is able to offer high precision and cost effective cryogenic test equipment and services, for a wide range of applications and sectors.

Callisto's Dewar (cryostat) designs serve the testing of RF, microwave, optical, electrical and mechanical components at cryogenic temperatures down to 30 or 15 Kelvin (according to the Dewar model). Our Dewar solutions use a vacuum environment and closed loop (cryogen-free) mechanical coolers.

Examples of components requiring testing are listed below, spanning the radio-astronomy, earth observation satellite, air-borne imaging systems, medical imaging and computing sectors:

- Ultra-low noise RF LNAs, mixers, filters, connectors and components
- Superconductor (HTS or LTS) components
- Infra-red detector components
- On-board space craft instrument components (optical, radar and electrical)
- Any electrical or mechanical component destined for use in cryogenic assemblies (e.g. imaging and medical instruments).

Test Dewar TD-c Model



Callisto Test Dewar TD-c Model with Dimensions of H. 700mm x Ø 450mm

Description (TD-c Model)

The cryogenic test Dewar system allows testing of various types of small components including RF, optical, electronics and mechanical. This system is cryogen-free (closed-loop helium gas circuit), operates under vacuum and uses a GM-type cryo-cooler. It can cool and stabilize components below 30K within less than 1 hour.

One of the main features of this system is the capability of **automatic thermal cycling** between +60°C down to below 50K and back to +60°C within a very short time frame, typically less than 1.5 hrs. The system is secured by hardware and software safety functions for instance to prevent overheating and undercooling.

This system includes 5 large ports located on the sides and on the top of the enclosure that can be used for a variety of hermetic connections to reach the components under test. Two additional small ports are available on the bottom plate, which can also be used for a variety of electrical connections.

The system also features a special trolley including a low noise turbomolecular high vacuum pump and a small table for components or tooling preparation for instance. The system is compatible with clean room ISO5.

The Dewar mechanical design is very flexible. For instance it is possible to either open the lid of the Dewar or the entire Dewar housing to access the components, meeting the exact requirements of your test setup.

Purchase options are available on demand.

Key Features of the TD-c Test Dewar Model

- Down to 30K tests
- RF, electronic, optical or mechanical components testing
- Monitoring and Control software with Recording and display of measured parameters
- Tested component sizes up to 140mm x 160mm x 160mm
- System compatible with clean room (ISO5)
- All included system: trolley, work table, electronic rack, PC, Safety system (watchdog) and M&C
- 220V and 380V mains requirements
- Customer must provide water cooling for the cryogenic compressor
- Custom design on-demand

Test Dewar Specifications

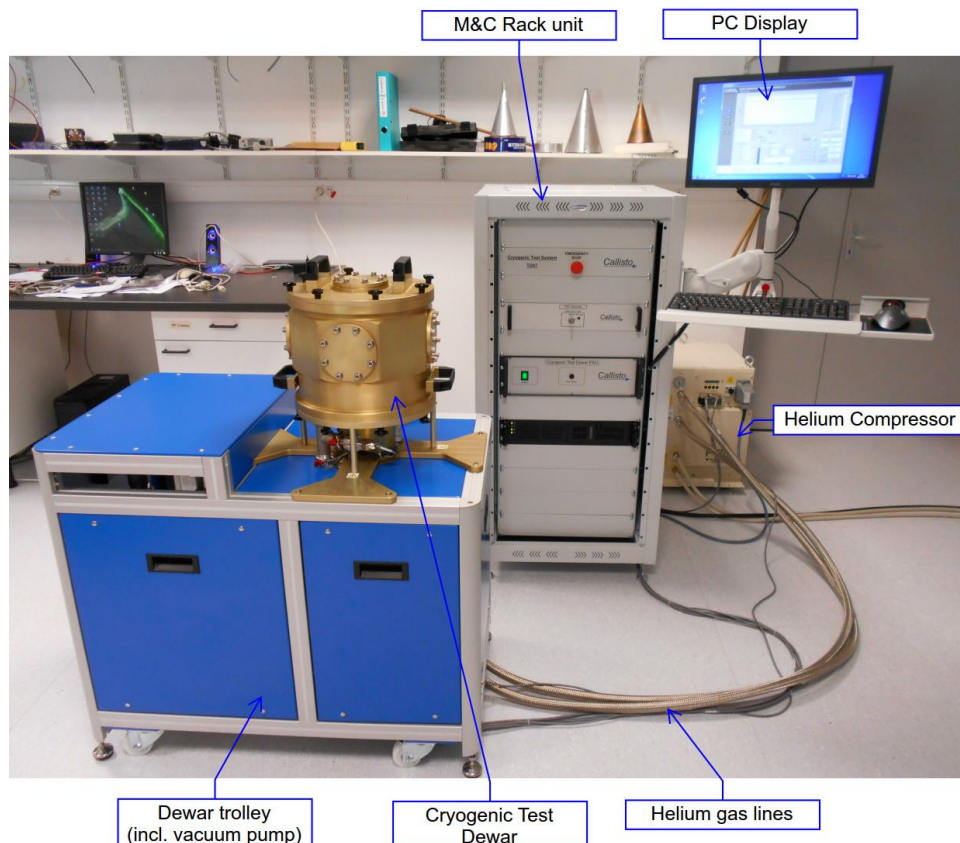
Parameter	Specifications
Base Operation Temperature	<30 Kelvin unloaded
Dewar Dimensions	H. 700mm x Ø 450mm
Inner dimensions of cold box	H. 140mm x L. 160mm x W. 160mm
Test Enclosure Environment	Vacuum 10 ⁻⁵ mbar
Cooling Power	140 Watts (@50K)
Mass	45kg
Minimum Test Duration	+60°C to 40K to +60°C in typically <1.5hrs
Mean Time Between Maintenance	10,000 hrs
Test Ports	5 ports Ø 80mm, 2 ports Ø 30mm
Thermometry	4 diode thermometers
External logging	Software for M&C and thermal cycle management running on MS Win. 7 Pro
Dewar Material	Aluminium
Cold Plate Material	Aluminium
Accessories	Support trolley (clean room compatible) and rack unit

Cryo Test System or Test Service Option

A complete Cryo Test System is available for purchase for clients' own in-house component testing. Modifications to the system design for specific requirements can be quoted for.

Alternative Procurement Options:

An alternative to buying the system, the Cryo Test Service offer includes the above described system (Dewar, cryo-cold head, cryo-compressor and vacuum pump), based at Callisto to run tests on behalf of the client.



The specifications provided in this data sheet are preliminary and intended as a guide only. Callisto reserves the right to modify specifications without notice.