



National Academy of Sciences of Ukraine  
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named after A. Galkin

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# ***SMALL-SIZE OPTICAL CT-CRYOSTATS***



Small size cryostats of “CT” series are designed for transmission coefficients measurements of different samples in temperature range from He to room temperature.

The “CT” series is presented by three cryostats for samples with diameter up to **25, 50, 75 mm.**

Supply set: Cryostat – 1 unitt.

### Mode of functioning

A sample holder with a sample is placed in vacuum. Sample’s temperature is controlled by expulsion of a heat exchanger of the sample holder with refrigerant with required temperature that arrives from the temperature control system heat exchanger with a built in heater. The refrigerant is fed into the heat exchanger of the temperature control system through filling tube by pumping or by expulsion at the expense of overpressure in transport Dewar vessel.

### Application

The cryostats are used for investigations of temperature dependence of:

- transmission coefficient of hard materials and coverings;
- transmission coefficient of liquids placed in ampoules;
- properties of semiconductor emitters, etc.

The cryostats can be used as cryogenic adapters to standard spectral devices.

A cryostat structure is represented in Fig. 1.

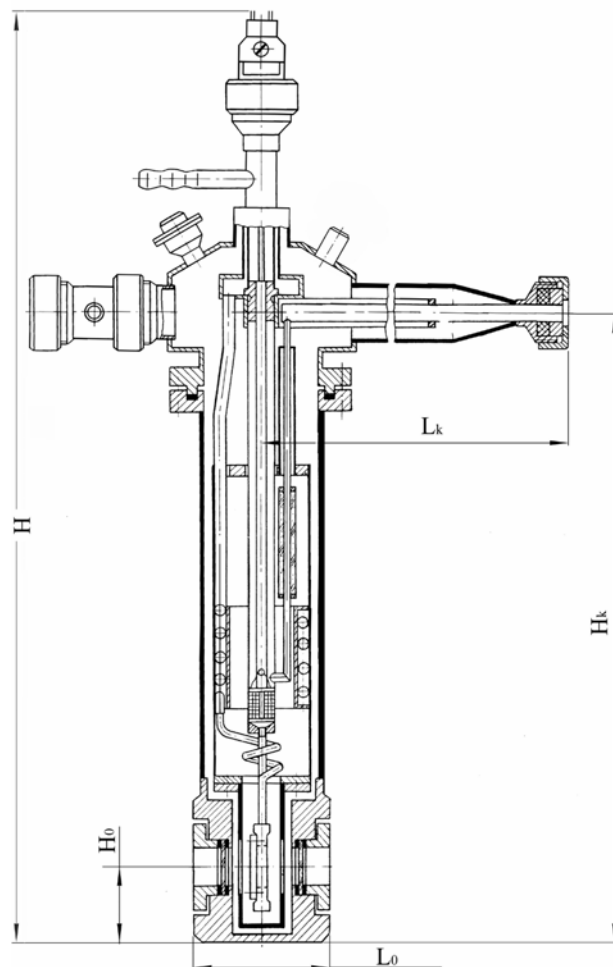
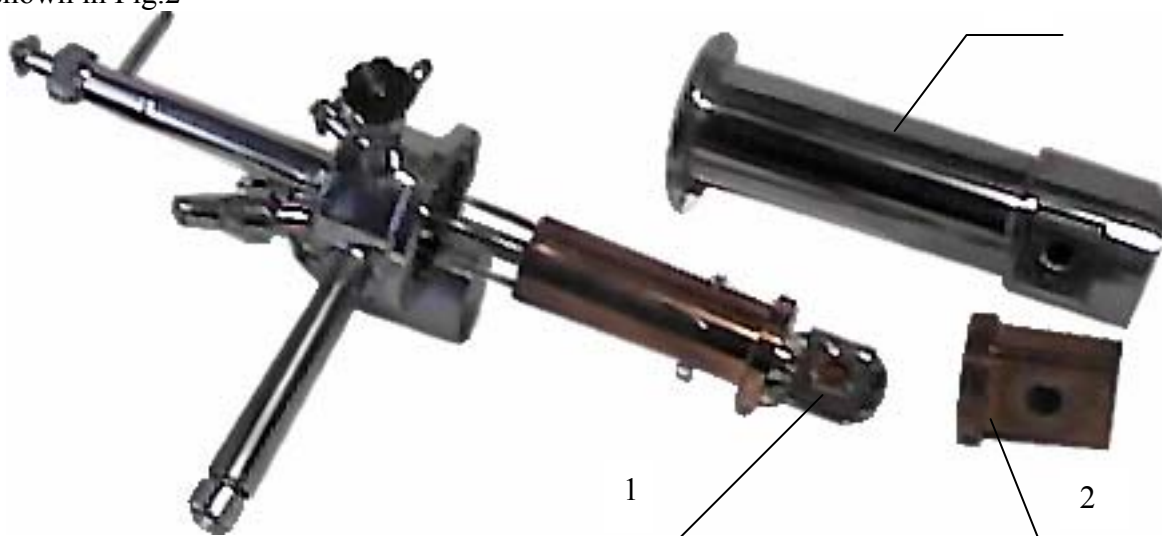


Fig. 1

The sample is changing after heating and demounting of the cryostat. Demounted cryostat is shown in Fig.2



- 1 – Sample holder;
- 2 – Screen demountable part;
- 3 – Cashing demountable part.

Fig. 2

### Performance specification

	CT-25	CT-50	CT-75
Temperature control range, K			
- using liquid helium at consumption 1 l/h		3 – 300	
- using liquid nitrogen at consumption 1 l/h		65 – 300	
Investigating sample dimensions, mm			
- diameter	10 – 25	10 – 50	10 – 75
- number of optical windows	2	2	2
Window diameters “in the light”	20	42	65
Inclination of plane of the windows to horizontal axis, deg.	10	10	10
Overall dimensions in optical axis zone, mm:			
- maximum dimension along optical axis, $L_0$	75	90	110
- height of optical axis, $H_0$	55	60	65
- $L_k$		350	
- $H_k$		350	
- H		600	
maximum weight, kg.	6.5	8	10

### Merits

- High certainly of results of sample transmission coefficient measurements.
- High vacuum and no-sediments on sample surface during the experiment. It is conditioned on application of the built in cryopump.
- Extended spectral range of investigation because of existing of exchanging windows.
- Efficiency in experiment preparation and realization.

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