

# Automatic level control systems for liquid nitrogen



## Automatic level control of liquid nitrogen in a Dewar flask

In many cryogenic applications, such as shrinking of shafts and bushings in LN2, freezing of components or biological samples, using of LN2 as a coolant in cold traps, calibrating of sensors in LN2, etc., it is important to maintain a constant LN2 liquid level. This is achieved with the LN2 level control of KGW-Isotherm. With help of our LN2 level control, it is possible to keep a constant level of LN2 between the minimum and maximum sensor inside the flask. The KGW LN2 level control can be connected to almost every LN2 container.

### The LN2 level control operates as follows:

If the LN2 level is sinking below the minimum sensor, a signal will be sent to the level control system. The LN2 level control opens the 24V LN2 magnetic valve, which is located at the transfer siphon which is connected at the LN2 storage container. Because of the over pressure inside of the LN2 storage container the LN2 will be pushed out the container and passes through a transfer line to the working Dewar Flask. The LN2 will float the working Dewar Flask until the maximum sensor will be dipped into the LN2 level. The maximum sensor is cooled as a result and gives a signal to the level controller. This will switch off the magnetic valve power supply so that the valve closes until the LN2 level will sink below the minimum sensor. Then the process described above will be repeated again.

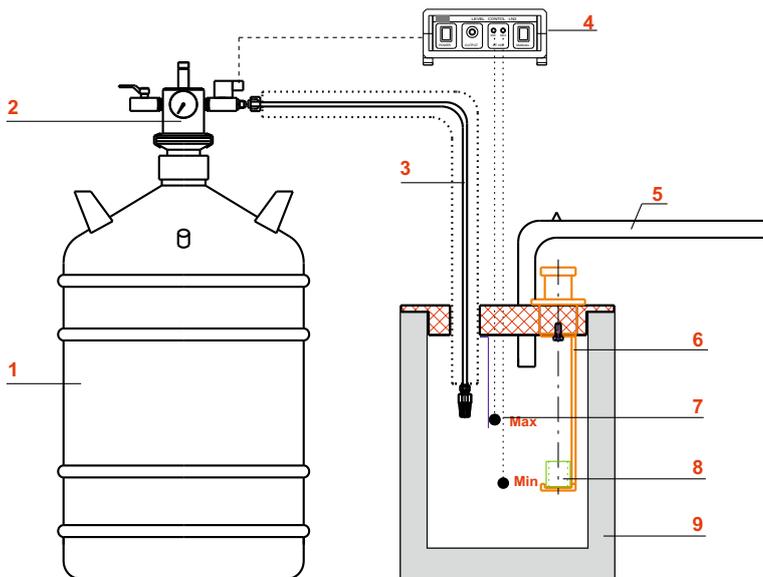
# Automatic LN2 - level control devices for manual shrinking

To make manual or automatic connections safely through shrinking, it is important that a sufficient cooling is ensured at the shrinking components. LN2 is usually used as coolant for shrinking bushes or shafts. With help of an automatic LN2 level control system the necessary cooling can be ensured. The cooling via LN2 can be secured for the shrinking process.



- 1) LN2 Storage container
- 2) Siphon with magnetic valve
- 3) Transfer line
- 4) LN2 level control
- 5) Exhausting pipe
- 6) Bushes holder
- 7) Min. max. sensor
- 8) Sample / probe for shrinking
- 9) Working Dewar flask

**Automatic LN2 - level control devices for manual shrinking with two holder for the shrinking bushes, Dewar flask, lid, gas outlet tube and LN2 store vessel with 35 litre. Art.No. 2760-35**



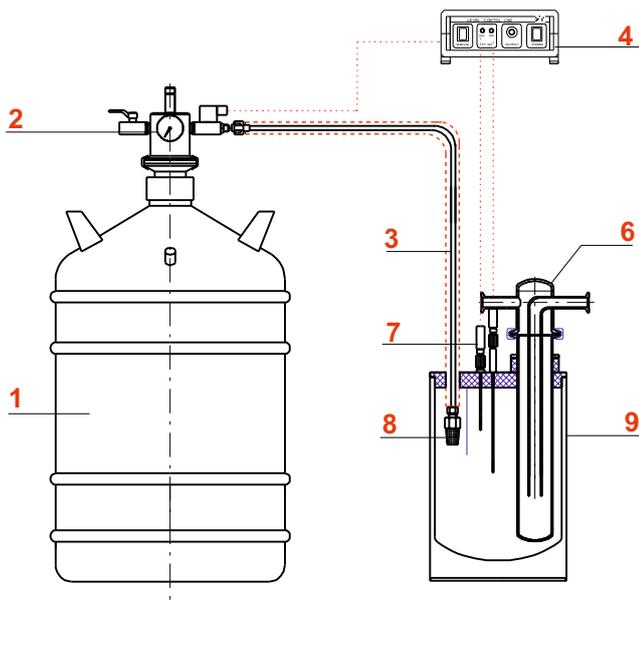
## Automatic LN2 - level control for cold trap application



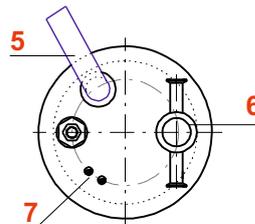
To secure the condensation performance of a cold trap, it is important to maintain a nearly constant LN2 liquid level inside the Dewar flask. With help of a constant LN2 level the entire condensate freeze wall of the cold trap will gain the function and the maximum useable capacity of the cold trap.

The LN2 level can be adjusted with the LN2 level control between a minimum and maximum sensor and will be able to hold the LN2 level constant.

**Automatic LN2 - level control with a glass cold trap SL 29 GL-A, Dewar flask, lid, gas outlet tube and LN2 store vessel with 25 litre. Art.No. 2755-35**



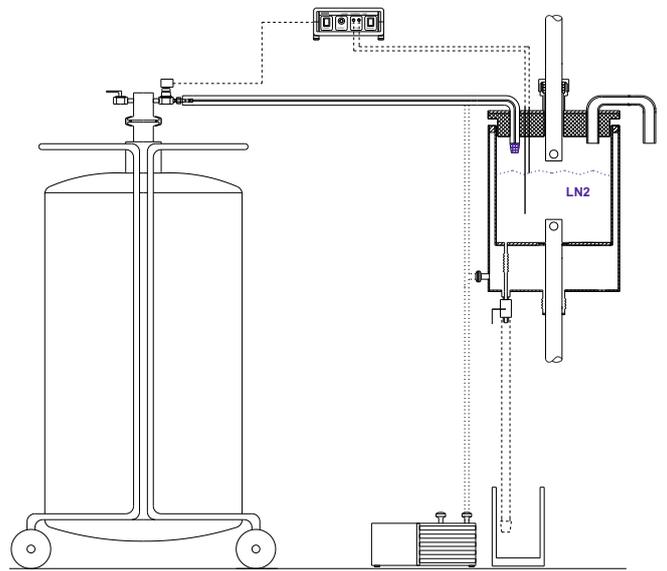
- 1) LN2 Storage container
- 2) Siphon with magnetic valve
- 3) Transfer line
- 4) LN2 level control
- 5) Exhausting pipe
- 6) Cold trap
- 7) Min. max. sensor
- 8) Phase separator
- 9) Dewar flask



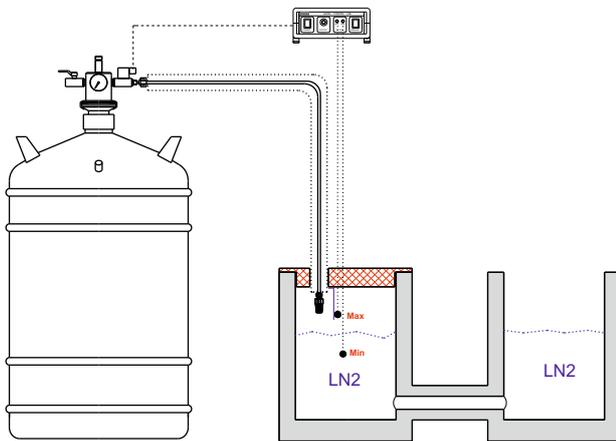
**Automatic LN2 - level control with a stainless steel cold trap S 54V-K16-Z, Dewar flask, lid, gas outlet tube and LN2 store vessel with 25 litre. Art.No. 2750-25**

# Application Examples

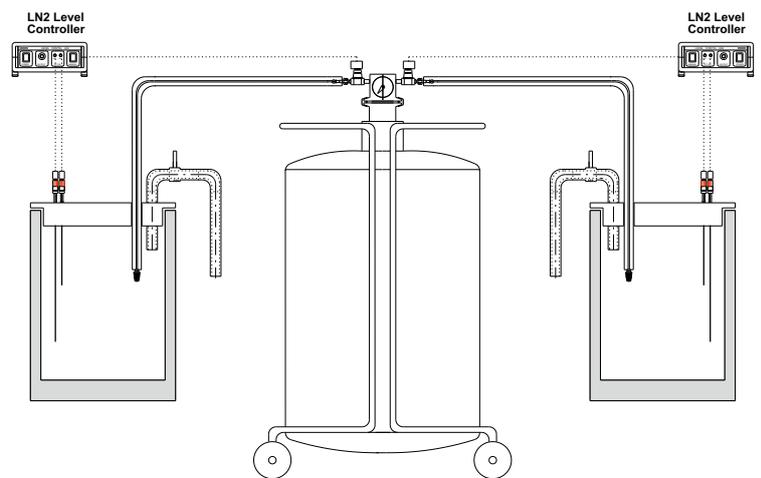
**Automatic LN2 - level control devices on a Dewar flask for a tension test**



**Automatic LN2 - level control devices with a corresponding Dewar flask**



**Automatic LN2 - level control devices with two Dewar flasks**



**In case of questions please contact to KGW-ISOTHERM under the keyword „LN2 level Control“**

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