# Cryomodule Warm-up sequence

1. Stop regulation of LT01 (CV02) – done automatically when exiting 4K operation state
2. **Step4** – ***Closing CV5202 & FV401*** (stop the cooling and wait for CV5202 and FV401 to close)
   1. Close CV01, CV02, CV07
   2. Open CV61
   3. Close CV5202 (LINDE system), FV501 will be kept open (HNOSS), LT03 regulation still on CV03)
   4. Close FV401 (HNOSS) – stop thermal shield cooling
3. **Step6** - ***Emptying 4K tank***
   1. When FV401 and CV5202 are closed stop regulation and open CV60
   2. CV550 stop regulation (HNOSS: MKS2 -m141.0 on CM PLC is used for turning on/off the PID regulator on MKS2) and set the position of the valve according to CM-RHtr:CV550:sSetV
   3. ~~Open CV552 (HNOSS: MKS1)~~ - not needed: this valve is controlled by HNOSS and is open when 2K Operation is not active.
   4. Wait for LT03 < 0.5
4. **Step8** – ***Emptying the CM*** (LT01 empty, warming-up the VB, waiting for emptying the CM)
   1. Stop the regulation of LT03 (CV03)
   2. Start the Valve box heaters (EH90, EH93-96, EH63\_64\_70, EH61-62, EH 60\_67-69, EH97-98
   3. Wait for LT01 < 0.5
5. **Step10** – ***Heating-up*** (CM empty – warming-up the CM)
   * 1. Start the CM heaters (EH903, EH920, EH918, EH904)
   1. Wait for LT01 < 0.5 AND LT03 < 0.5
      1. Open CV01 – CV04
   2. Wait for operator’s command to stop the warm-up

Green text – already implemented

Red text – not implemented – do it manually

Not tested:

* 3a
* 3b