



LHC - Cold masses: HELIUM MASS SPECTROMETER LEAK TEST REPORT

ITP Nr.
23
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Cold Mass Nr. **2046**

Step Nr. **1**
Volume / Volume to be tested
CM -> Vacuum

CM -> Heat Exch. **3**
Heat Exch -> Vacuum **4**

Fuga calibrata / Calibrated leak parameter

Calibrated leak N°	4011007195	4011007225	4011007195
Data calibr. / calibration date	08/10/02	08/10/02	08/10/02
Temp. calibrations fuga / Calibration Temp.	23,0 °C	23,0 °C	23,0 °C
Valore nom. fuga calibrata / Calibrated leak nom. value	3,00E-08 mbar l s-1	3,30E-08 mbar l s-1	3,00E-08 mbar l s-1

Calibrazione del sistema / System calibration

Conc. He nelle linee di test (100%) / Volumetric fraction of tracer gas in the injection envelope

T ambiente / Test temp.

Fuga calibrata con correz. T ed età / Size of calib. leak after corr. for ageing and T)

Segnate residuo prima delle misure di SFR / Residual signal prior SFR meas.

Segnate del LD / Signal given by the calibrated leak

Min. dev. segnale (=2x amp. segn. residuo) / Smallest read. signal dev. (= 2 x ampl. of RFR noise)

Tempo di attesa stabiliz. segnale / Time to achieve stabilised leak signal

$$= S_{PR} \cdot \frac{q_{PR}}{S_{PR} - R_{PR} \cdot C}$$

SENSIBILITA' DEL TEST / Sensitivity of the leak test

Condizioni del test / Leak test conditions

Pressione del sistema / System pressure

Segnate residuo del cercatughe ad inizio test / Residual signal prior to SF measurement

Segnate del LD a fine test / Signal given by the leak after 30 min. (>30)

CALCOLO DELLA FUGA / Leak evaluation

$$= \frac{q_{EX} \cdot (S_{FR} - R_{FR})}{S_{FR} - R_{FR} \cdot C}$$

VALORE DI RIFERIMENTO / REF. VALUE (MAX)

CONFORMANCE

Doc. di riferimento / Ref. documents

CERN contract number: F302/LHC/LHC
CERN technical spec.: LHC MMS-98-198 rev. 2
Leak test procedure (Ref. N°. Revision): 780RM09442 rev. 0

Strumentazione / Test equipment

Helium Mass Spectrometer type:
Pressure gauge type:
Pumping group:

Prepared by: Name / Date

PIU S. - Caserza B. 02/02/2004

Approved by: Name / Date

Terzi 02/02/2004

Checked at CERN by / Signature / Date

P. Gagliardi 02/02/2004

on vessel
PFEIFFER HLT 260
full range compact PFEIFFER PKR 251
turbo pump LEYBOLD PT 360 l/s
rotary vane pump PFEIFFER DUO 65 m3/h

on c.b.t. lines
PFEIFFER HLT 260
rotary vane pump PFEIFFER DUO 20 m3/h

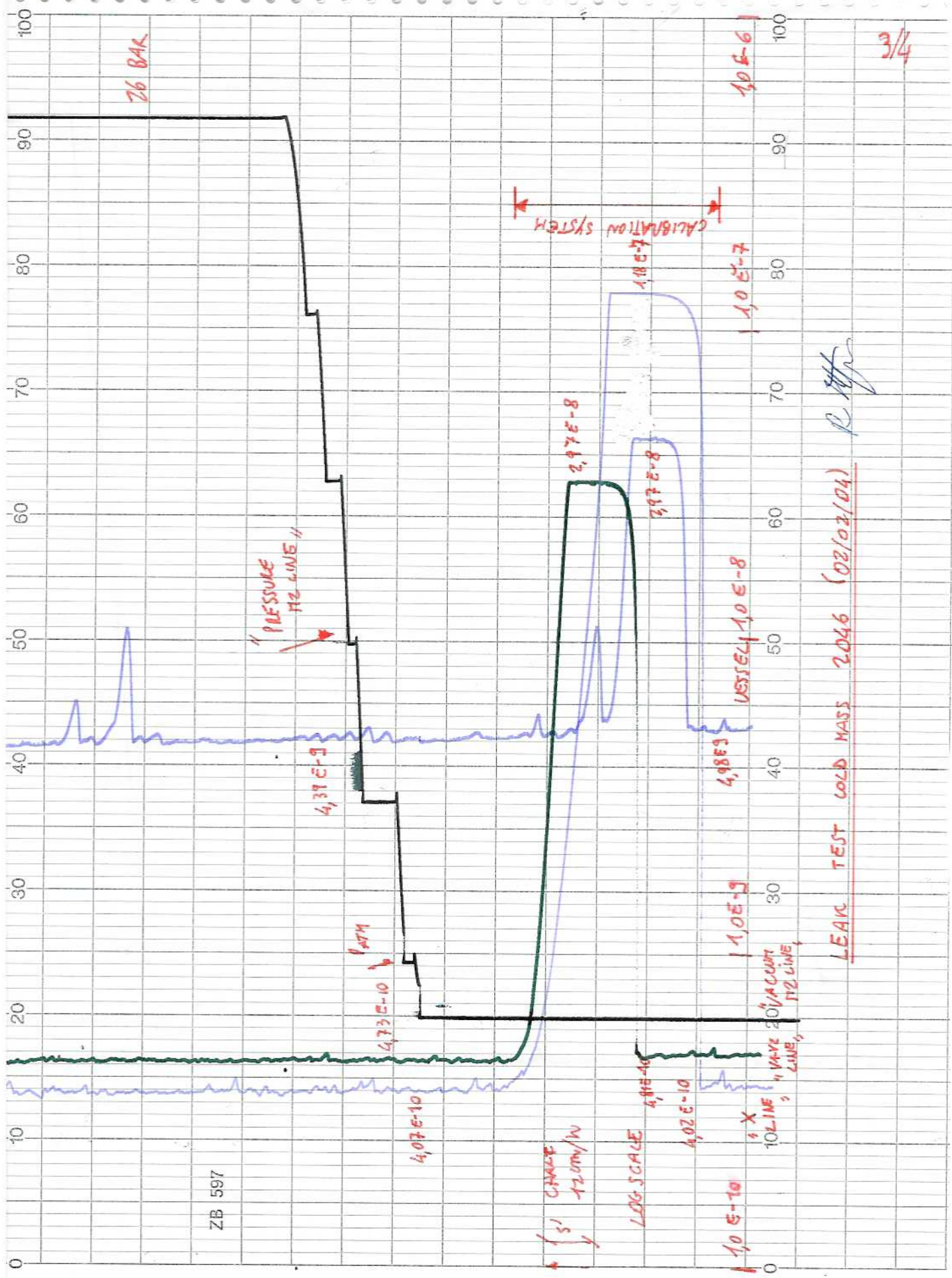
on heat exchanger line
PFEIFFER HLT 260
rotary vane pump PFEIFFER DUO 20 m3/h

on vessel
PFEIFFER HLT 260
full range compact PFEIFFER PKR 251
turbo pump LEYBOLD PT 360 l/s
rotary vane pump PFEIFFER DUO 65 m3/h

Note / Remarks

Test performed after welding of flange (Ø100) the capillary tube cold head, installed on the cold mass

x-line internal bellow changed (ref. To no cern 171 /mc 040127c)



ZB 597

LEAK TEST COLD MASS 2046 (02/02/04) R. [Signature]

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