



LHC - Cold masses: HELIUM MASS SPECTROMETER LEAK TEST REPORT

ITP Nr.
23
24

Cold Mass Nr. **2036**

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

2
CM -> cold bore tubes

3
CM -> Heat Exch.

4
Heat Exch -> Vacuum

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. calibrazione 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)

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

Segnale 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 stabilizz. segnale / Time to achieve stabilised leak signal

$$= S_w \frac{q_{FR}}{S_{FR}} - R_{FR} \frac{C'}{C}$$

SENSIBILITA' DEL TEST / Sensitivity of the leak test

Condizioni del test / Leak test conditions

Pressione del sistema / System pressure

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

Segnale del LD a fine test / Signal given by the leak after 30 min. (>3)

$$= \frac{q_{FR}}{S_{FR}} (S_p - R_p) \frac{1}{C}$$

CALCOLO DELLA FUGA / Leak evaluation

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:

on vessel

on heat exchanger line

on c.b.t. lines

on vessel

PFEIFFER HLT 260
full range compact PFEIFFER PKR 251
turbo pump LEYBOLD PT 360 l/s

PFEIFFER HLT 260
rotary vane pump PFEIFFER DUO 20 m3/h

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rotary vane pump PFEIFFER DUO 65 m3/h

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Prepared by: Name / Date

PIU S. - Caserza B. 20/11/2003

Approved by: Name / Date

Terzi - 20/11/2003

Checked by: Name / Date

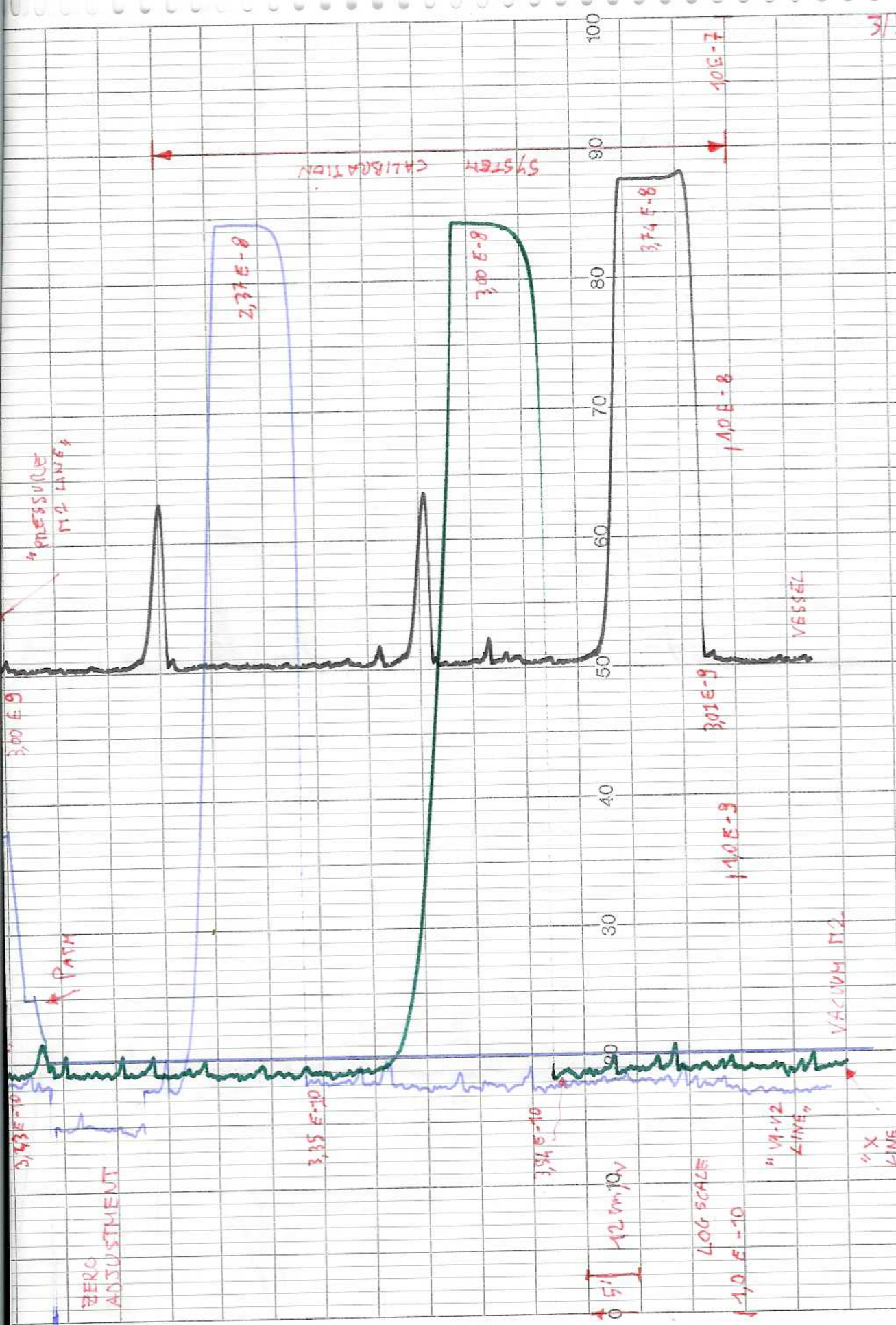
P. Gagliardi - 20/11/2003

Checked at CERN by / Signature / Date

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

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LEAK TEST COLD MASS 2036 (WITH GERM) 20-11-03 R. Wolf

ZB 597

3/5

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3.92E-8

