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LHC - Cold masses: HELIUM MASS SPECTROMETER LEAK TEST REPORT

ITP Nr.
23
24

Cold Mass Nr. **2045**

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

Heat Exch -> Vacuum
Heat Exch -> Heat Exch.
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. calibratore 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.	19.5 °C	19.5 °C	19.5 °C
Fuga calibrata con correz. T ed età / Size of calib. leak after corr. for ageing and T)	2,63E-08 mbar l s-1	2,90E-08 mbar l s-1	3,05E-08 mbar l s-1
Segnale residuo prima delle misure di SFR / Residual signal prior SFR meas.	3,36E-09 mbar l s-1	3,56E-10 mbar l s-1	3,36E-09 mbar l s-1
Segnale del LD / Signal given by the calibrated leak	2,22E-08 mbar l s-1	2,88E-08 mbar l s-1	2,22E-08 mbar l s-1
Min. dev. segnale (=2x amp. segn. residuo) / Smallest read. signal dev. (= 2 x ampl. of RFR noise)	2,00E-11 mbar l s-1	2,00E-12 mbar l s-1	2,00E-11 mbar l s-1
Tempo di attesa stabiliz. segnale / Time to achieve stabilised leak signal	700 sec	700 sec	700 sec

SENSIBILITA' DEL TEST / Sensitivity of the leak test

$$= S_{FR} \frac{q_{FR}}{S_{FR} - R_{FR}} \frac{1}{C}$$

Condizioni del test / Leak test conditions

Pressione del sistema / System pressure	2,50E-05 mbar	2,50E-05 mbar	2,40E-05 mbar
Segnale residuo del cercatighe ad inizio test / Residual signal prior to SF measurement	3,25E-09 mbar l s-1	3,39E-10 mbar l s-1	3,14E-09 mbar l s-1
Segnale del LD a fine test / Signal given by the leak after 30 min. (>3)	3,36E-09 mbar l s-1	3,41E-10 mbar l s-1	3,27E-09 mbar l s-1

CALCOLO DELLA FUGA / Leak evaluation

$$= \frac{q_{FR}}{S_{FR} - R_{FR}} \frac{1}{C}$$

VALORE DI RIFERIMENTO / REF. VALUE (MAX)	1,0E-09 mbar l s-1 at 26 bar	1,0E-10 mbar l s-1 at 26 bar	1,0E-09 mbar l s-1 at 5 bar
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CONFORMANCE

Doc. di riferimento / Ref. documents

CERN contract number: F302LHC/LHC
CERN technical spec.: LHC MMS-98-198 rev.2
Leak test procedure (Ref. N°: Revision): 700R08442 rev.0

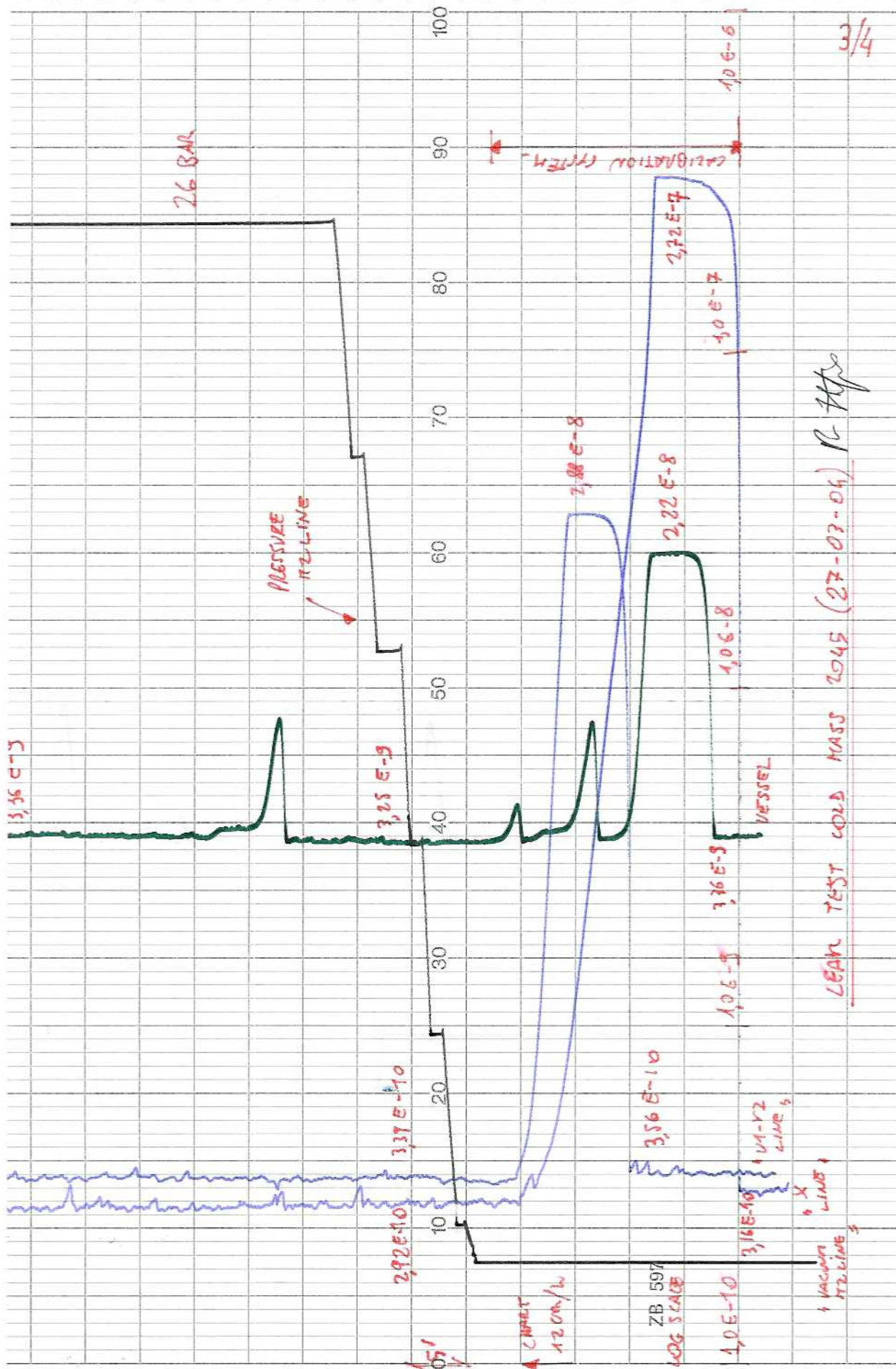
Strumentazione / Test equipment

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

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 heat exchanger line	PFEIFFER HLT 260	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
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Note / Remarks

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Checked at CERN by: Signature / Date	P. Gagliardi 27/03/2004



LEAK TEST COLD MASS 2045 (27-03-04) R-Hjs

