

Cold Mass Nr. **2028**

Step Nr. **1**

Volume / Volume to be tested

Fuga calibrata / Calibrated leak parameter

Calibrated leak N°	4011007195	4011007225	4011007195	4011007195
Data callor. / calibration date	08/10/02	08/10/02	08/10/02	08/10/02
Temp. calibratore fuga / Calibration Temp.	23.0 °C	23.0 °C	23.0 °C	23.0 °C
Valore nom. fuga calibrata / Calibrated leak nom. value	3.00E-08 mbar s-1	3.30E-08 mbar s-1	3.00E-08 mbar s-1	3.00E-08 mbar s-1

Calibratore del sistema / System calibration

Conc. He nelle linee di test (100%) / Volumetric fraction of tracer gas in the injection envelope	C	1	C	1	C	1	C	1
T ambiente / Test temp.	T	23.0 °C	T	23.0 °C	T	23.0 °C	T	23.0 °C
Fuga calibrata con correz. T ed età / Size of calib. leak after corr. for ageing and Tj	qFR	3.00E-08 mbar s-1	qFR	3.30E-08 mbar s-1	qFR	3.00E-08 mbar s-1	qFR	3.00E-08 mbar s-1
Segnale residuo prima delle misure di SFR / Residual signal prior SFR meas.	RFR	9.09E-09 mbar s-1	RFR	3.55E-10 mbar s-1	RFR	2.69E-10 mbar s-1	RFR	9.09E-09 mbar s-1
Segnale del LD / Signal given by the calibrated leak	SFR	3.79E-08 mbar s-1	SFR	3.40E-08 mbar s-1	SFR	3.52E-08 mbar s-1	SFR	3.79E-08 mbar s-1
Min. dev. segnale (=2x amp. segn. residuo) / Smallest read. signal dev. (= 2 x ampl. of RFR noise)	Sm	2.00E-11 mbar s-1	Sm	2.00E-12 mbar s-1	Sm	2.00E-12 mbar s-1	Sm	2.00E-11 mbar s-1
Tempo di attesa stabiliz. segnale / Time to achieve stabilised leak signal	3t	720 sec	3t	1400 sec	3t	720 sec	3t	720 sec
SENSIBILITA' DEL TEST / Sensitivity of the leak test	qem	2.08E-11 mbar s-1	qem	1.96E-12 mbar s-1	qem	1.72E-12 mbar s-1	qem	2.08E-11 mbar s-1

Condizioni del test / Leak test conditions

Pressione del sistema / System pressure	P	3.40E-05	P	mbar	P	mbar	P	3.40E-05
Segnale residuo del cercalughe ad inizio test / Residual signal prior to SF measurement	Rf	8.98E-09 mbar s-1	Rf	3.42E-10 mbar s-1	Rf	2.63E-10 mbar s-1	Rf	8.98E-09 mbar s-1
Segnale del LD a fine test / Signal given by the leak after 30 min. (-3t)	Sf	8.84E-09 mbar s-1	Sf	3.71E-10 mbar s-1	Sf	2.79E-10 mbar s-1	Sf	8.81E-08 mbar s-1
CALCOLO DELLA FUGA / Leak evaluation	qG	<1.0E-09 mbar s-1	qG	2.84E-11 mbar s-1	qG	1.37E-11 mbar s-1	qG	<1.0E-09 mbar s-1
VALORE DI RIFERIMENTO / REF. VALUE (MAX)		1.0E-09 mbar s-1 at 26 bar		1.0E-10 mbar s-1 at 26 bar		1.0E-06 mbar s-1 at 26 bar		1.0E-09 mbar s-1 at 5 bar

CONFORMANCE

YES

YES

YES

YES

Doc. di riferimento / Ref. documents

CERN contract number: F302LHCLHC
 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

Casezza - 13/09/2003

Approved by: Name / Date

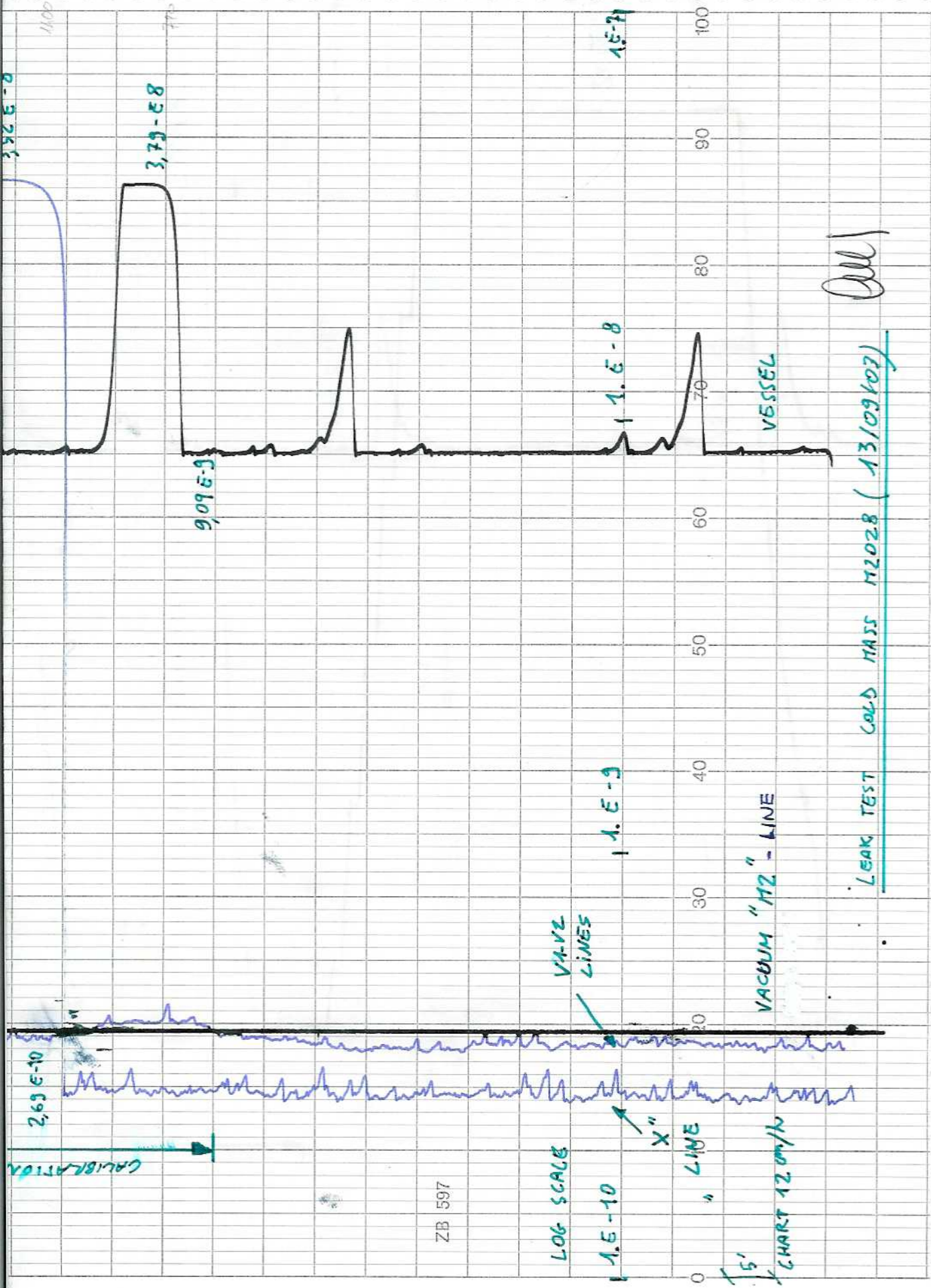
Terzi - 13/09/2003

Checked by: Name / Date

P. Gagliardi - 13/09/2003

Checked at CERN by / Signature / Date

on vessel	on c.b.t. lines	on heat exchanger line	on vessel
PFEIFFER HLT 260	PFEIFFER HLT 260	PFEIFFER HLT 260	PFEIFFER HLT 260
full range compact PFEIFFER PKR 251 turbo pump LEYBOLD PT 360 l/s rotary valve pump PFEIFFER DUO 65 m3/h	rotary valve pump PFEIFFER DUO 20 m3/h	rotary valve pump PFEIFFER DUO 20 m3/h	full range compact PFEIFFER PKR 251 turbo pump LEYBOLD PT 360 l/s rotary valve 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			



LEAK TEST COLD MASS M2028 (13/09/03)



