AMS-02: TRDTN10

TRD System Test

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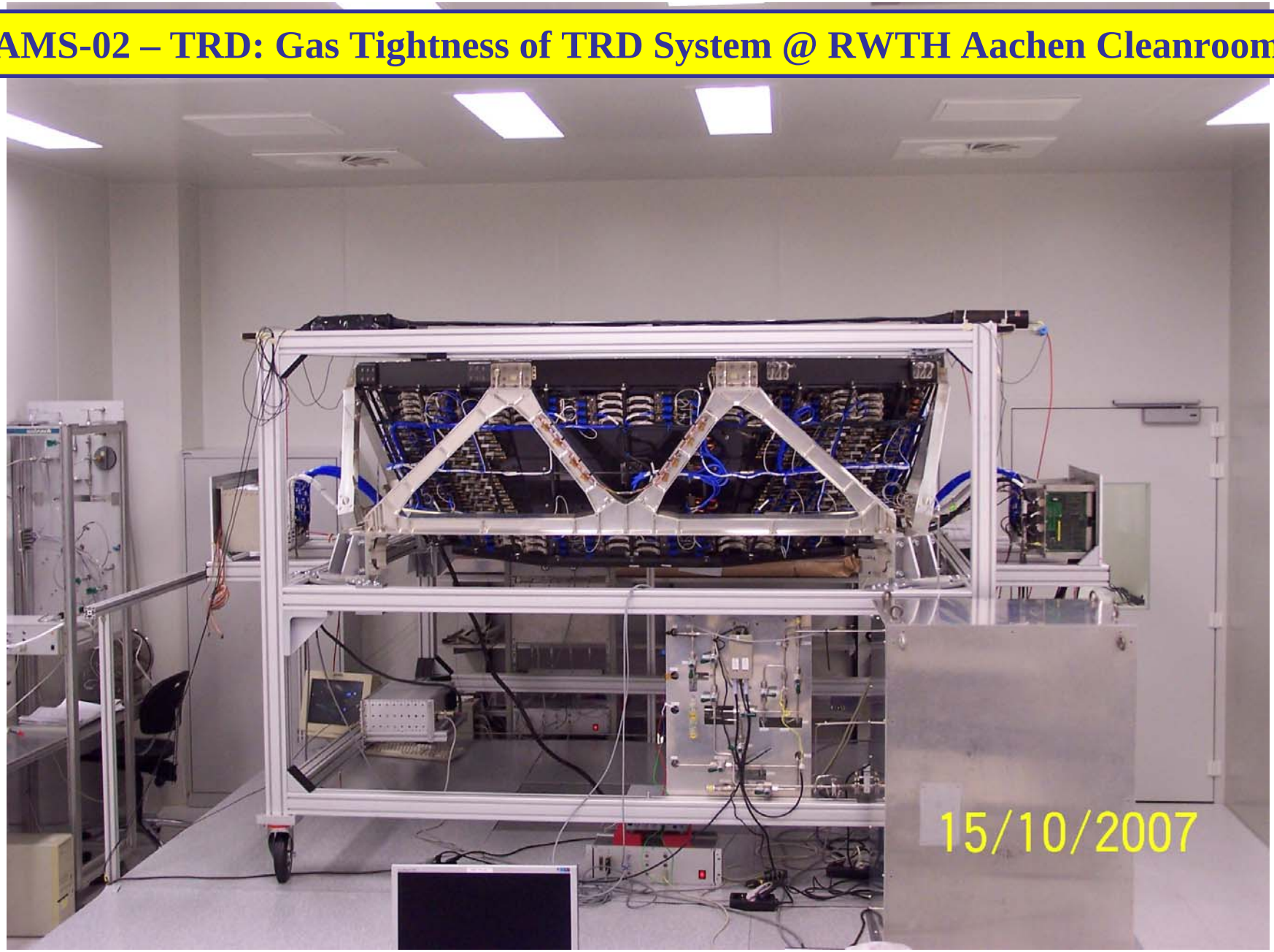
Aachen, 13th January 2009

Gas Tightness

AMS-02 – TRD: Gas Tightness of TRD System @ RWTH Aachen Cleanroom



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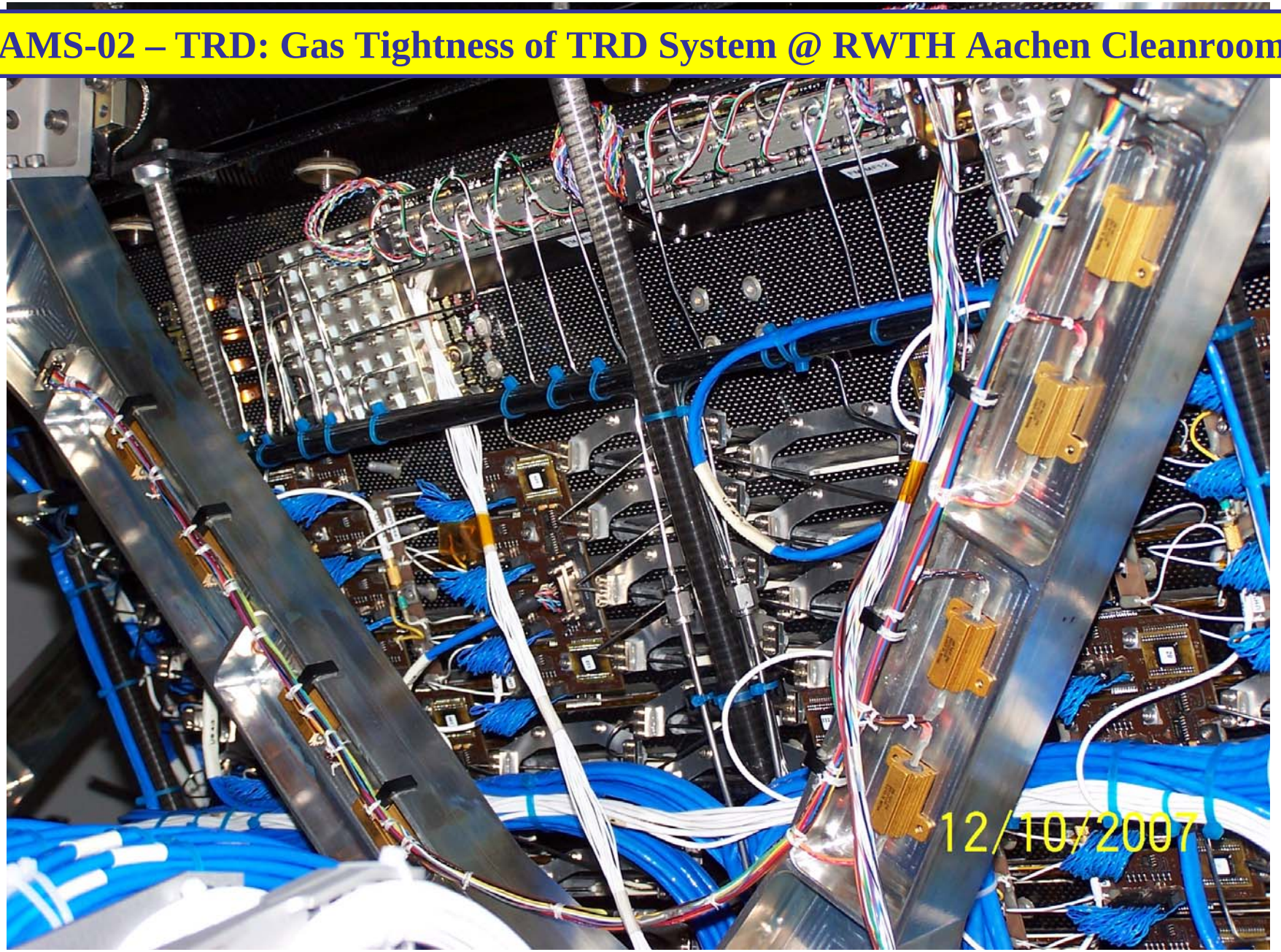

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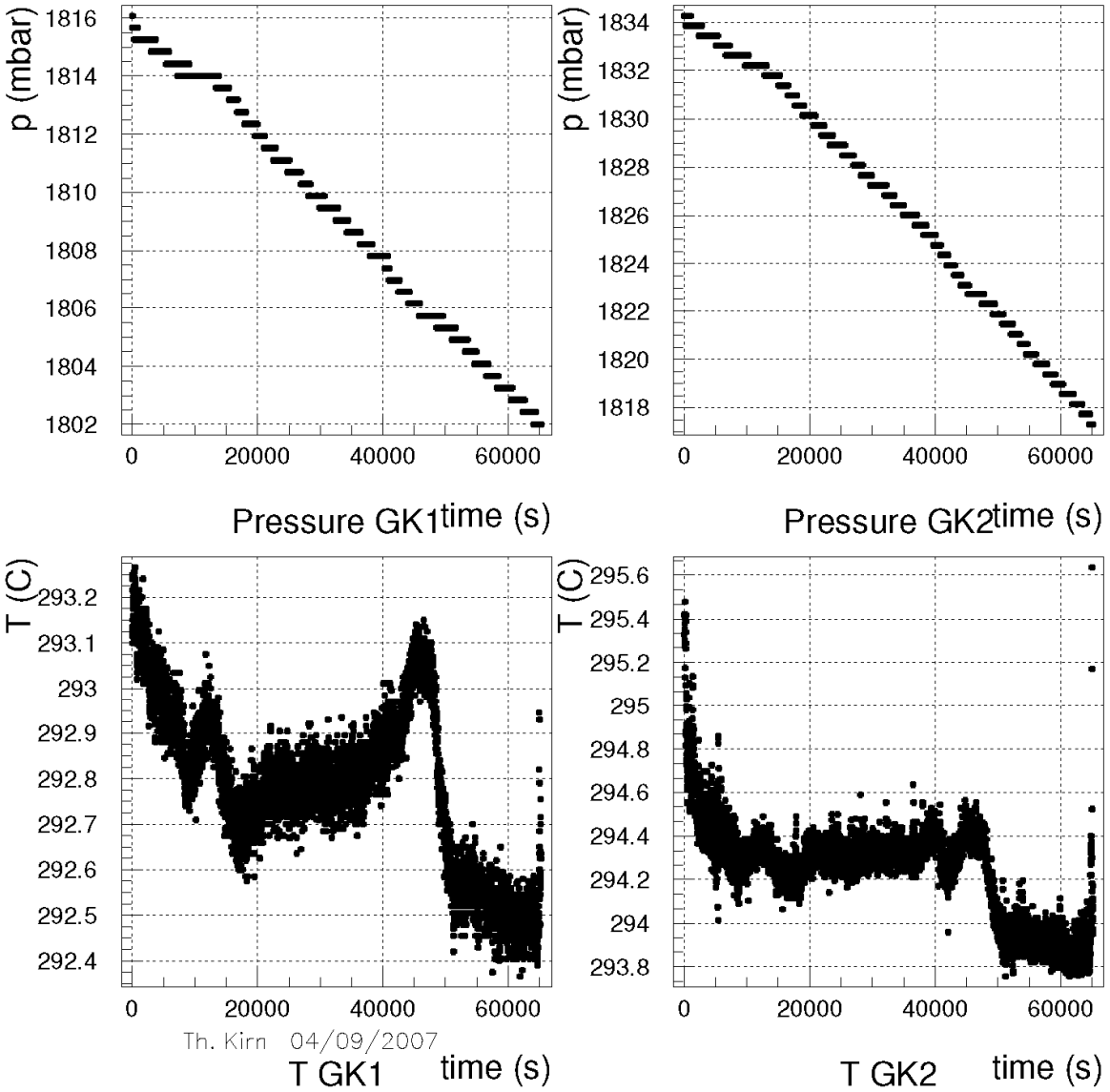

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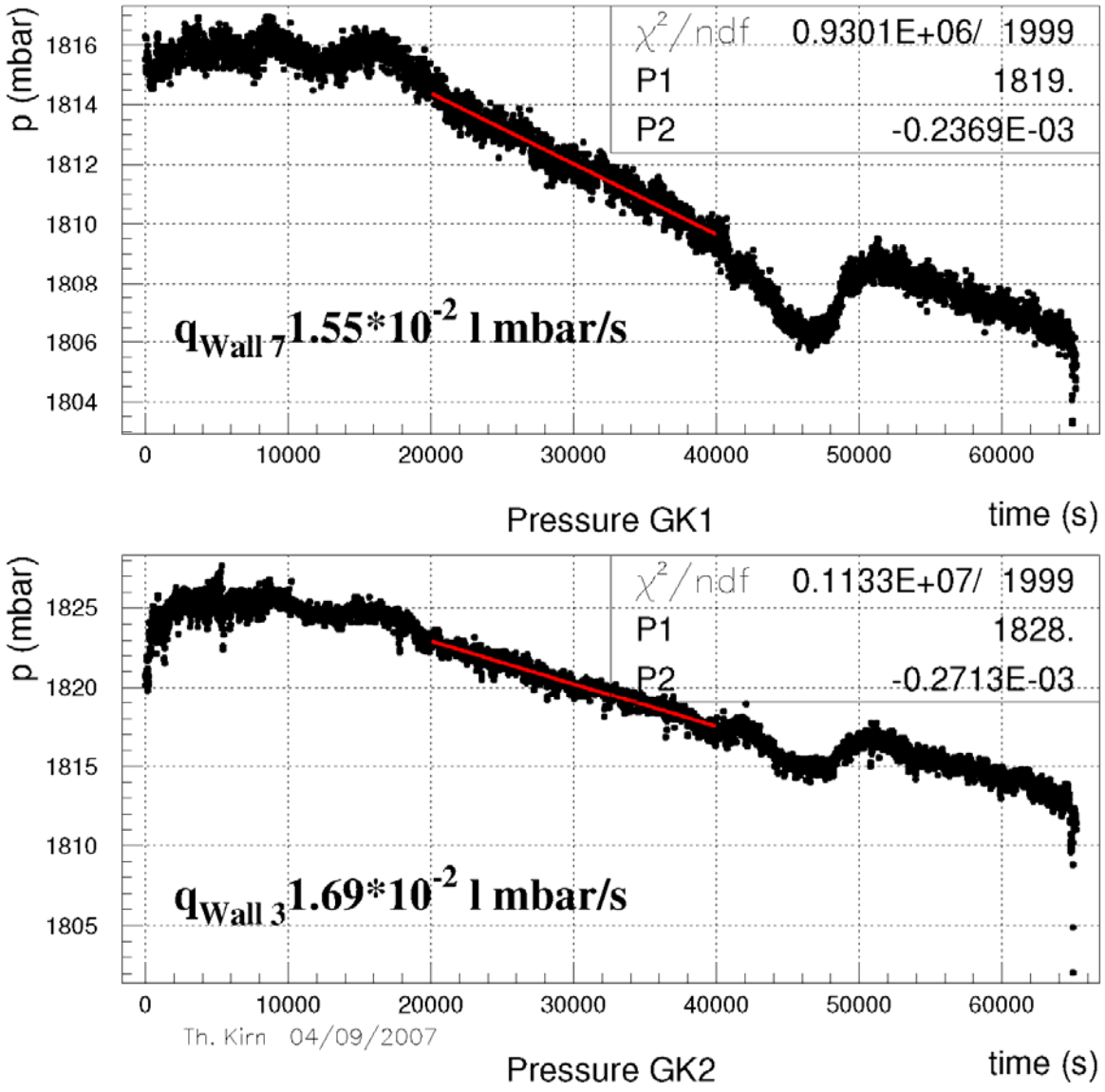


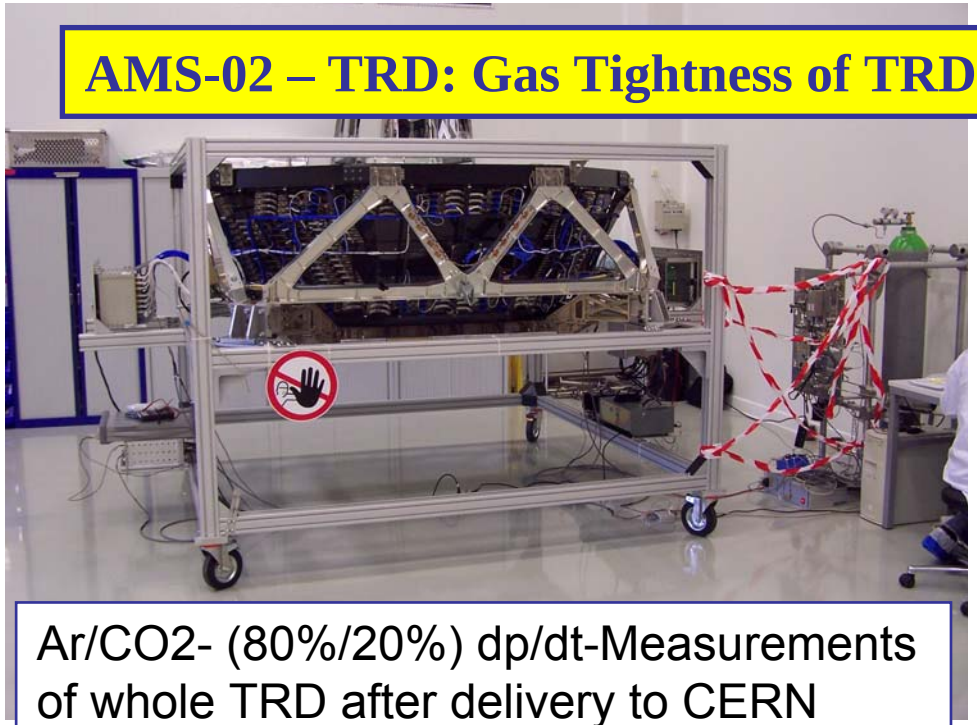
He-dp/dt-Measurements of individual straw modules during production:

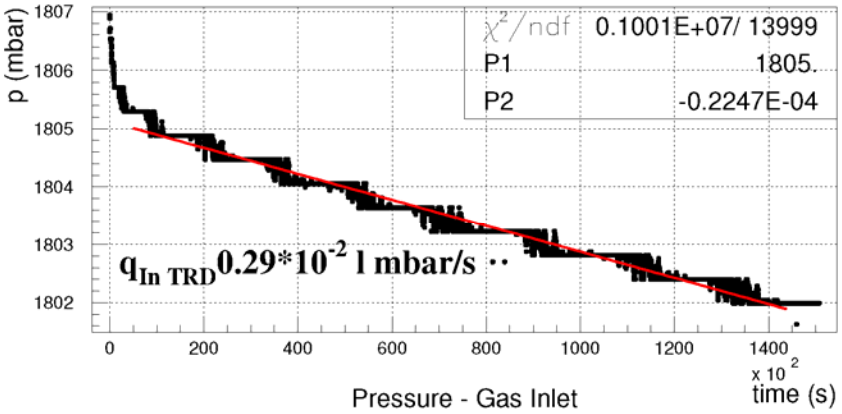
$q_{Wall\ 7}$ = 1.56*10^{-2} l mbar/s

$q_{Wall\ 3}$= 1.53 * 10^{-2} l mbar/s

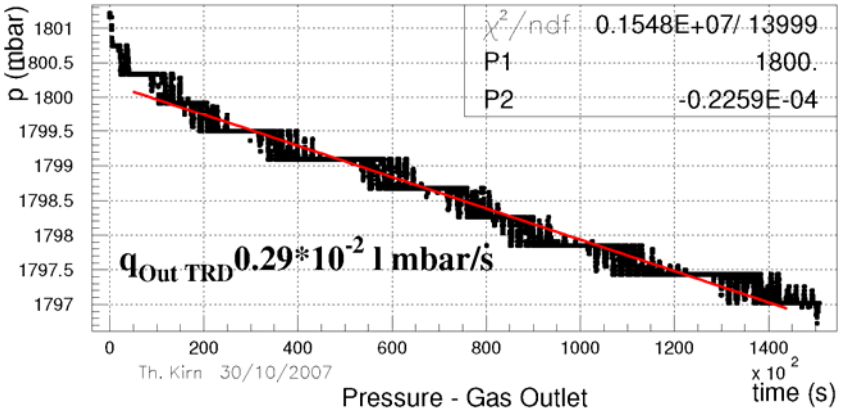
→ Safety Factor 8 for CO_2

AMS-02 – TRD: Gas Tightness of TRD System @ CERN AMS Cleanroom





Pressure - Gas Inlet



Pressure - Gas Outlet

Ar/CO2- (80%/20%) dp/dt-Measurements of whole TRD after delivery to CERN end of 2007:

q_{CO2}= 0.29 * 10^{-2} l mbar/s

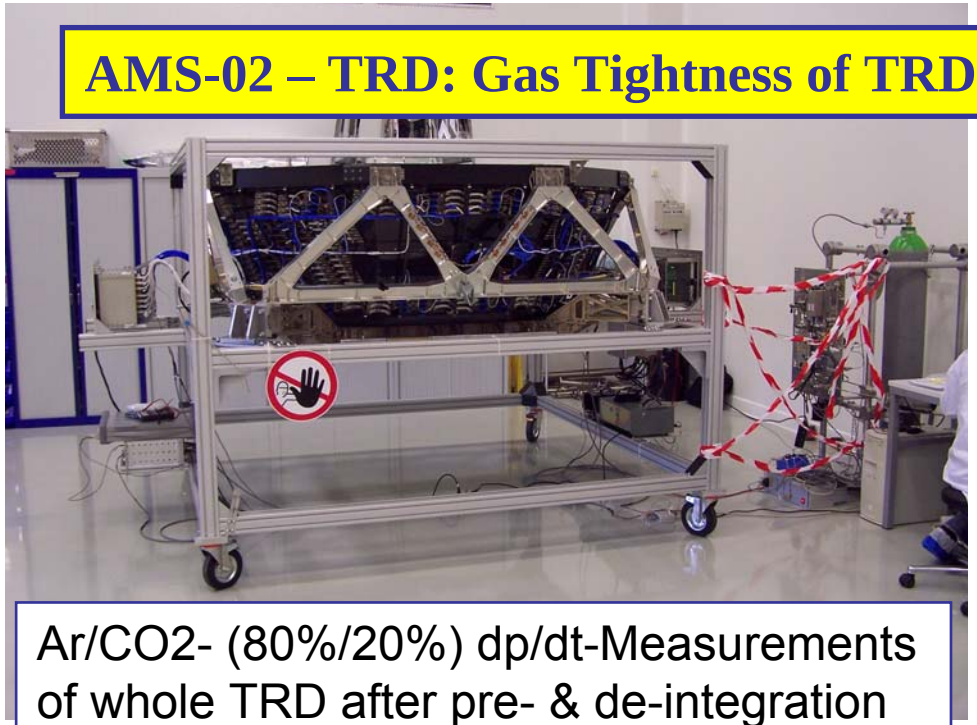
• Comparison Measurement dp/dt in air: He ↔ CO2 Factor of 2

• Factor 5 20% to 100 % CO2

↳q_{He} = 3.09*10^{-2} l mbar/s

→ TRD gastight

AMS-02 – TRD: Gas Tightness of TRD System @ CERN AMS Cleanroom



Ar/CO2- (80%/20%) dp/dt-Measurements of whole TRD after pre- & de-integration End of 2008:

q_{CO2}= 0.29 * 10^{-2} l mbar/s

• Comparison Measurement dp/dt in air:
He ↔ CO2 Factor of 2
• Factor 5 20% to 100 % CO2

↳ q_{He} = 3.09*10^{-2} l mbar/s

→ TRD gastight