

# **Cryogenics and Vacuum at the Tokyo EBIT**

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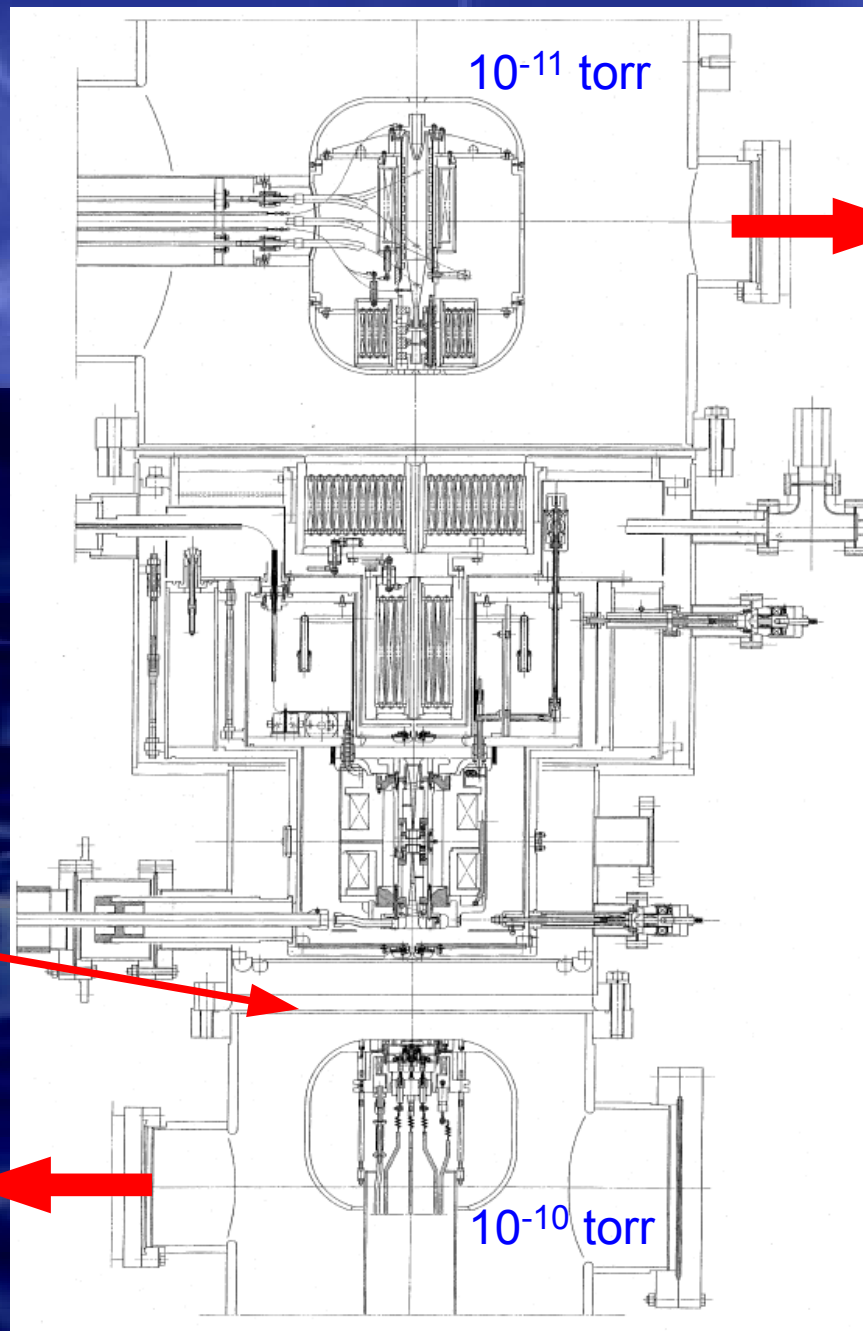
**Inst. for Laser Science, The Univ. of Electro-Communications**

**HIE-EBIS**

**CERN**

**October 16, 2012**

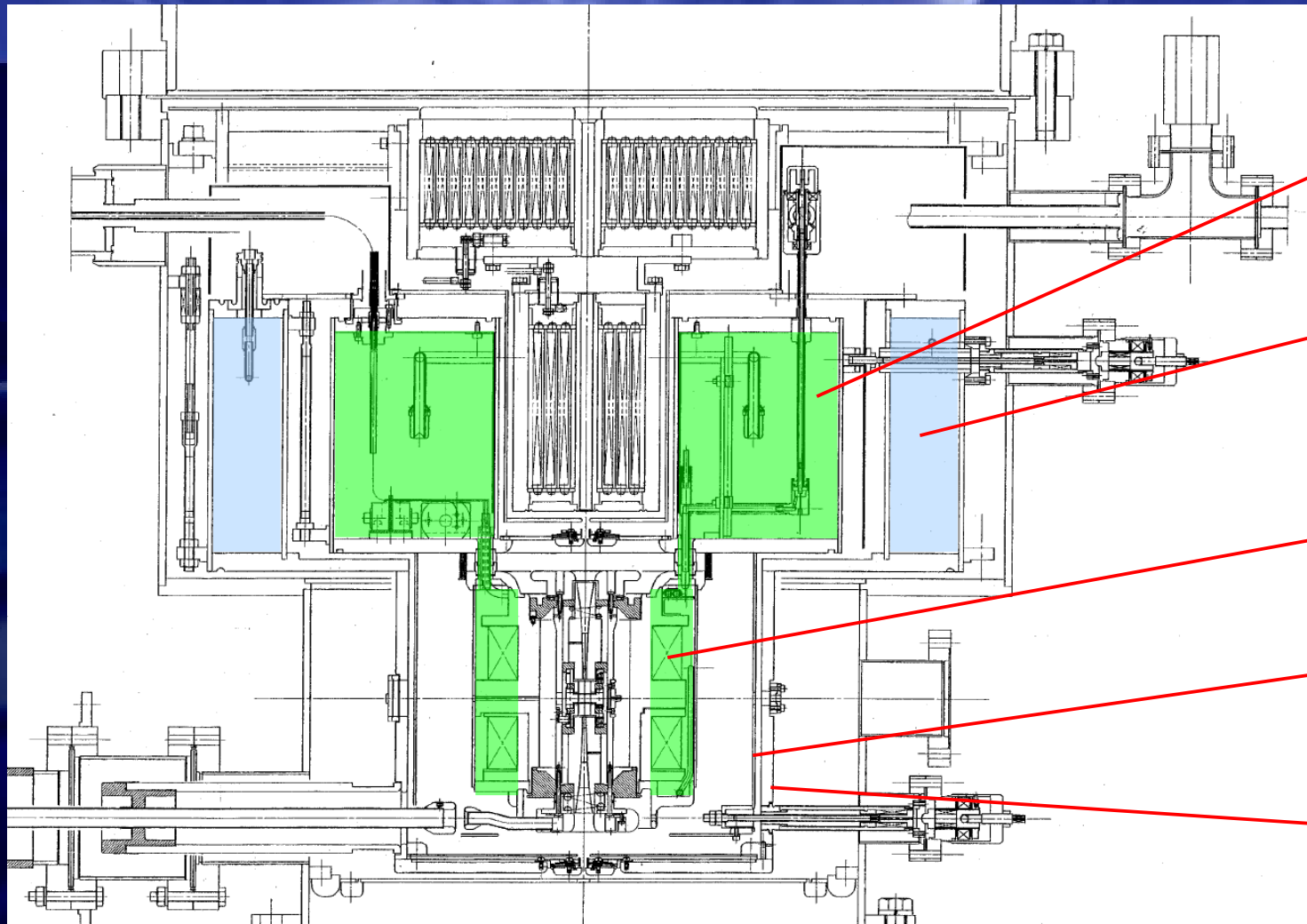
# Vacuum pumping system



# Vacuum

- No baking
- Pumping with two TMPs
- Severe accident in June 2007  
sudden influx of air during operation....

# Cryogenics



LHe

LN2

SCM

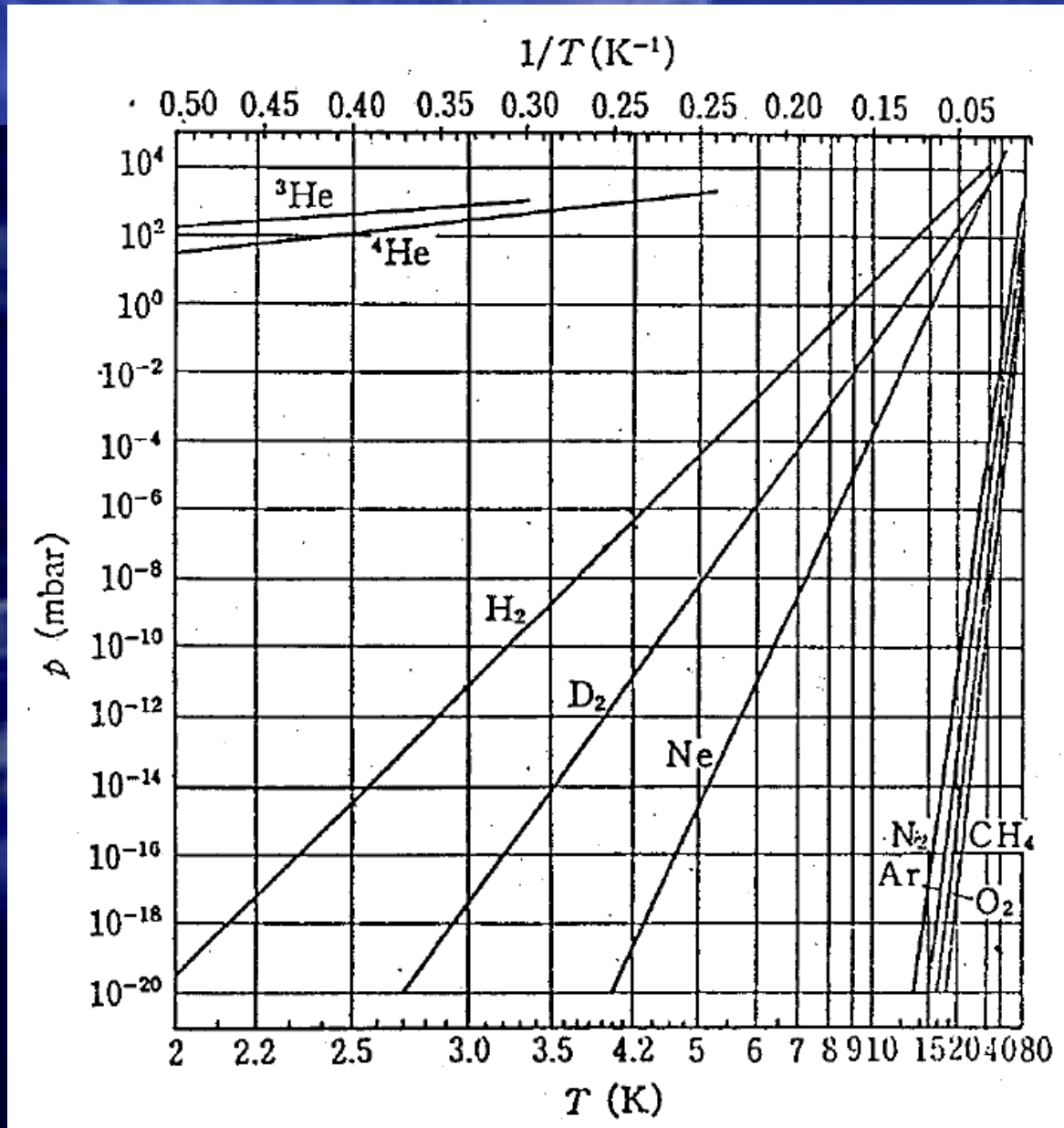
20K shield

80 K shielded

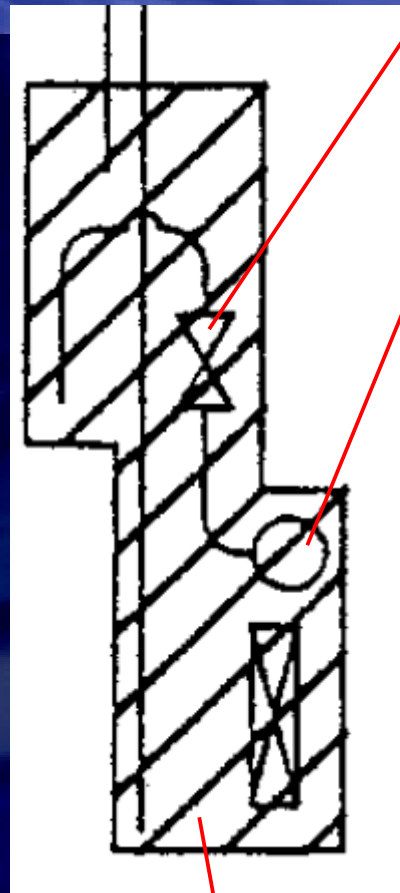
# Cryogenics

- temperature: 2.4 K (typically 4.2 K)
- LHe reservoir volume: ~12 L
- consumption: 1.4 L/hr (8 hrs) → ~2 L/hr (5-6 hrs)

# Why cool down to 2.4 K

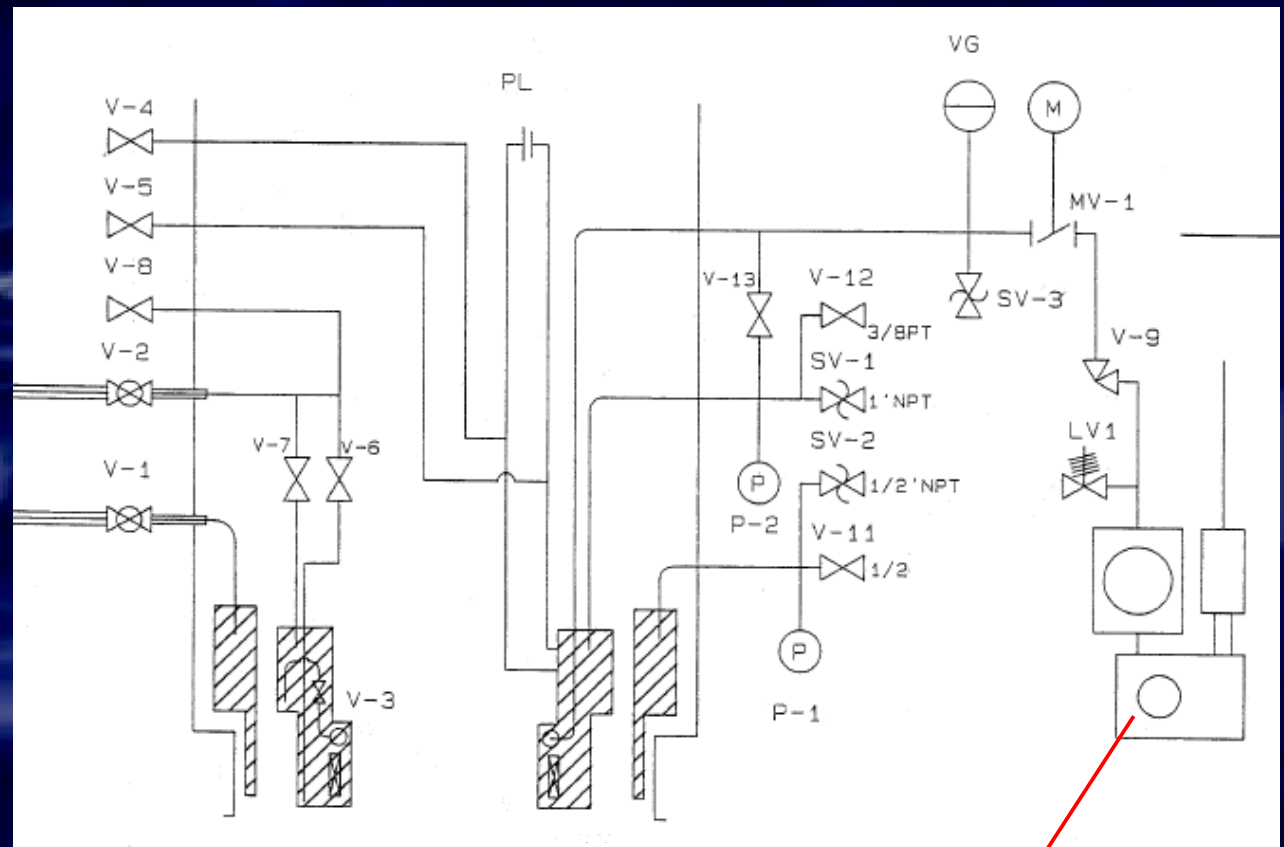


# How to cool down to 2.4 K



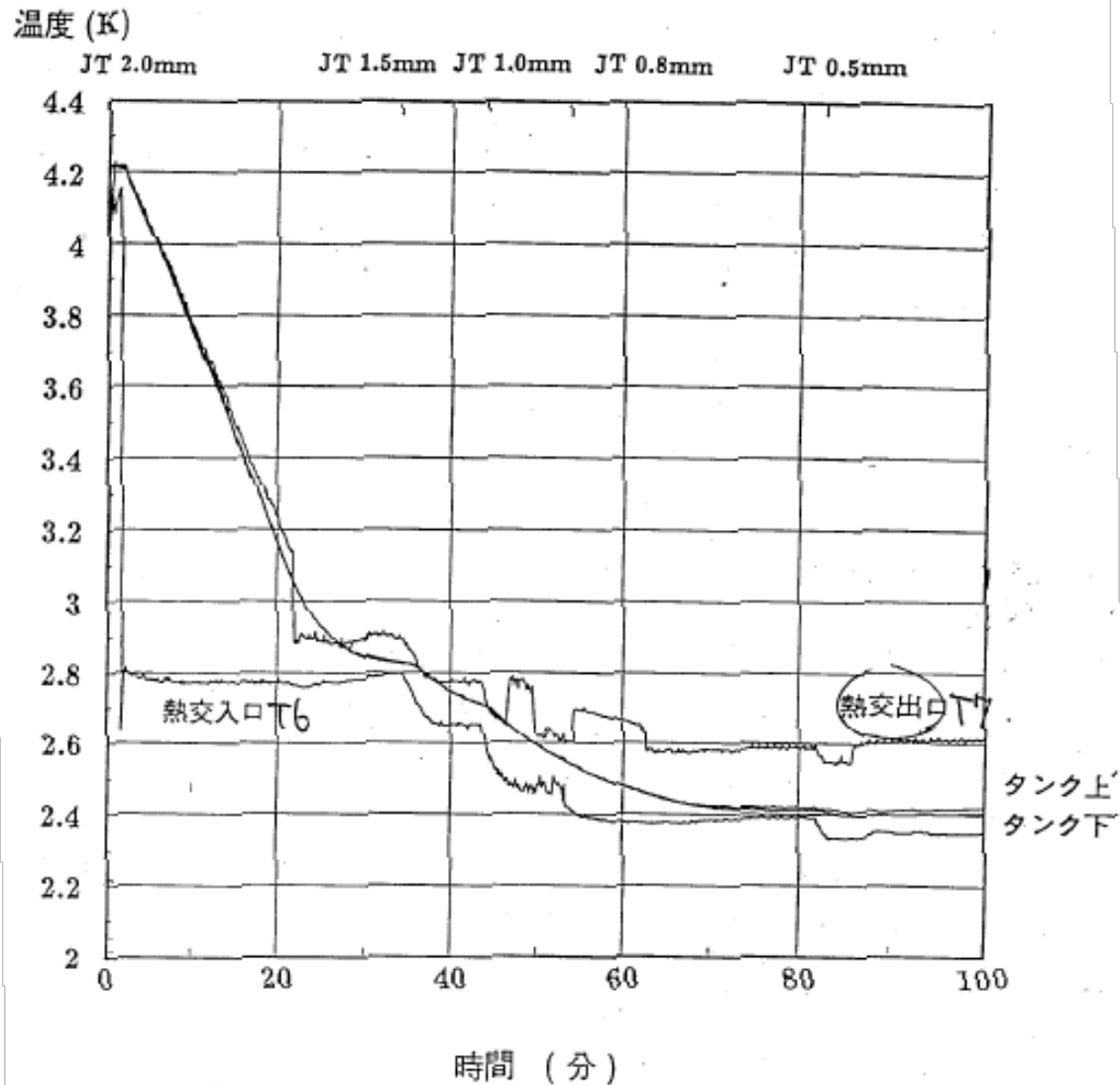
valve  
pipe

LHe reservoir



mechanical booster pump

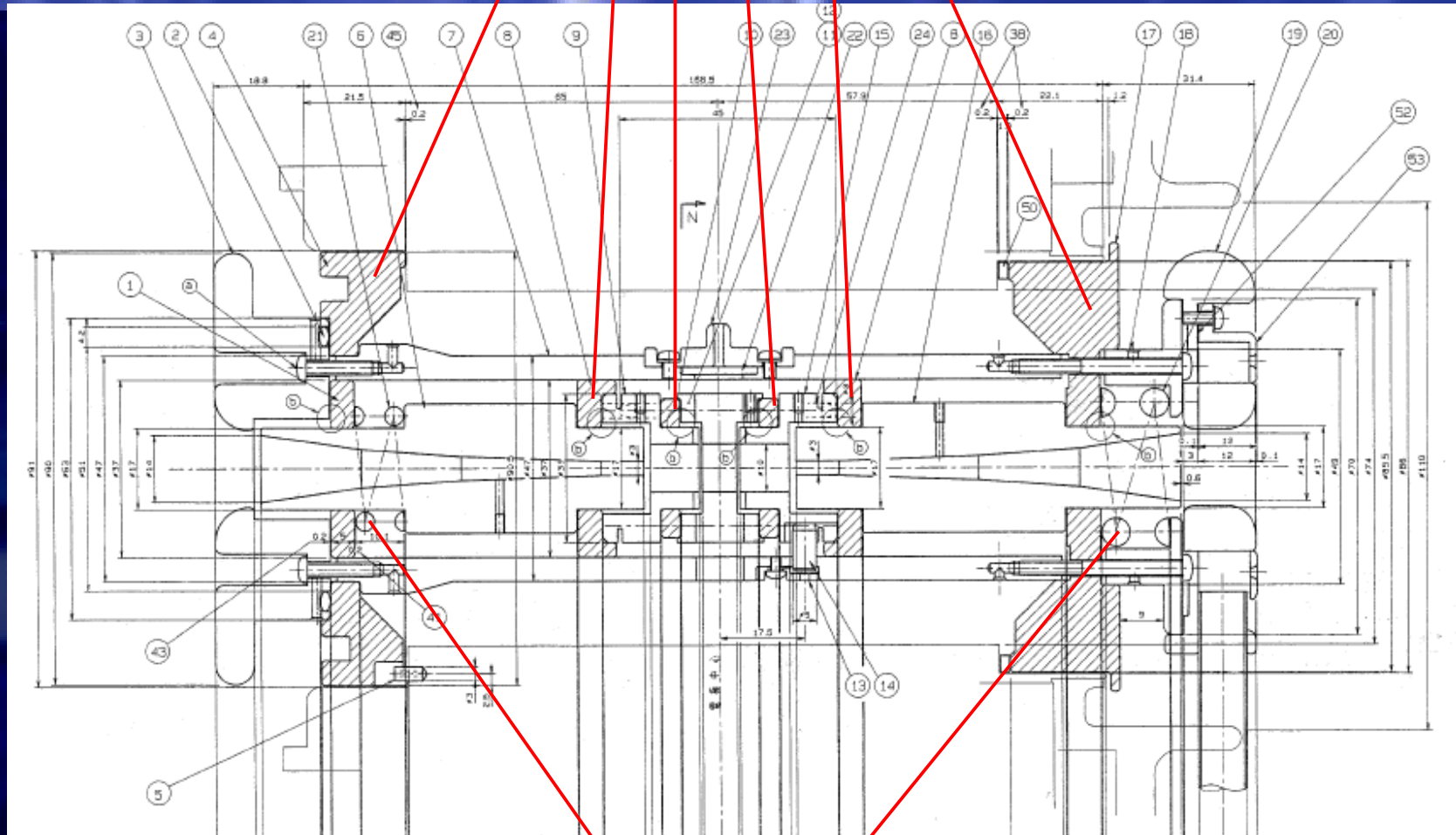
# time vs temperature





# How to support the DT

insulators (sapphire)

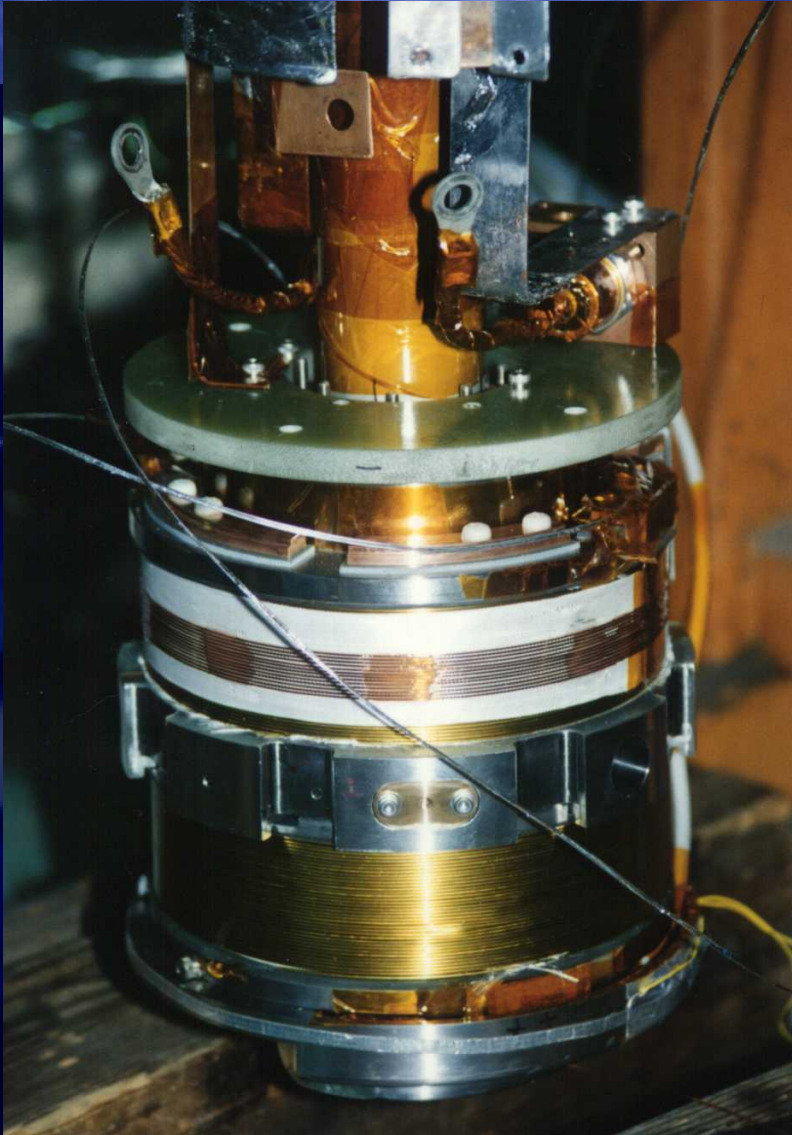


springs (SUS)

A indium sheet was inserted between each insulator and electrode.

# SCM

before welding



after welding



# B-field uniformity

