Pressure relief valve DN200
Status 05/03
Sectors 1-2, 3-4, 5-6, 6-7

M. Karppinen TE-MSC-ML
on behalf of
S. Atieh, P. Cruikshank, M. Duret, J-C. Perez,
V. Parma, T. Renaglia,
S107, S108, Dubna teams
Cold sectors, new (temporary) relief scheme

- Keep existing 2 DN90 relief devices
- Mount relief springs on 5 DN100 vac. flanges
- Mount relief springs on 8 DN100 BPM flanges
- Mount relief springs on 4 DN63 cryo.instr. flanges
  → Cross section increase: x 10

Pressure for MCI still high and well above 1.5 bars design pressure

Reinforced ground fixations for SSS with vacuum barriers are being studied (see O. Capatina’s talk)

Further testing of support posts and vacuum barriers to assess next structural limit

L. Tavian
Warm sectors: New overpressure relief scheme

- Keep existing 2 DN90 relief devices
- Mount relief springs on 4 DN100 blank flanges
- Add 12 DN200 new relief devices (1 per dipole)

→ Cross section increase: $x \times 33$
Special cases

Mid-arc vacuum sub-sectors:
- ½ length insulation vacuum sub-sector (~100 m)
- 6 dipoles → only 6 DN200 relief devices
- 2 SSS → 4 DN100

DS zones:
- 20% shorter insulation vacuum sub-sector (~170 m)
- 8 dipoles → only 8 DN200 relief devices
- 4 SSS (Q11-Q8), [5 around Pt.3-7 (Q7)] → ~ 8 DN100

>1.8 bars → install 12 x DN200 (2 per MB)
Marginal, >1.5 bars, if T>80K → install 12 x DN 200
Top position is best for safety (personnel, H/W).

IFS end best for flow conductance through thermal shield (large openings).

Interconnection sleeve (W bellow) need to be opened to protect MLI (fire risk due to hot metal chips).
DN200 Point-6 (8xMB)
Protective measures

Protection of the IC

Opening W bellows

IFS covers

MLI protection
DN200 Status: Preparation

- **Personnel:**
  - Three contracts: S107 (6+1), S108 (6+1), ATLAS-Dubna collaboration (6)
  - 2 teams of 3 (1 welder + 2 mechanics) per sector.
  - Dedicated FSU (S108) team of 10 persons opening and closing W bellows.

- **Material & Tooling:**
  - All tools and equipment available.
  - 420 nozzles delivered. Blank flanges expected W10 (TBC)
  - Issues with the cutting machines: Modifications to improve the reliability in progress. In parallel looking for alternative solutions.
  - Machine for in-situ rectification of the sealing surface being commissioned.

- **Quality control:**
  - Visual inspection of the welds being done by external welding inspectors.
  - Dimensional control of the valves (flatness of the sealing surface)
  - Local leak detection equipment tested and qualified. Inspections underway.
  - Leak testing of vacuum sectors after closing the W bellows.
Core drilling machines

M. Duret, P. Lambert, J-F. Rakotoarison

T. Renaglia
Local Leak detection

Rubber seal

P. Cruikshank
In-situ rectification of the sealing surface

Flatness spec < 0.3 mm

J-C Perez & T. Sahner
DN200 Status: Installation

- All magnets marked and the paint stripped off in the arcs and DS.
- W-bellow opening synchronized with the valve installation.

**Installation status (3/3/09):**

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<tr>
<th>Sector</th>
<th>Magnets</th>
<th>Valves</th>
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<td>Sector 1-2</td>
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<td>Sector 5-6</td>
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**TOTAL:** 100 magnets (126 valves)
# DN200 Installation Schedule (27 Feb)

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<th>Sector 1-2</th>
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