



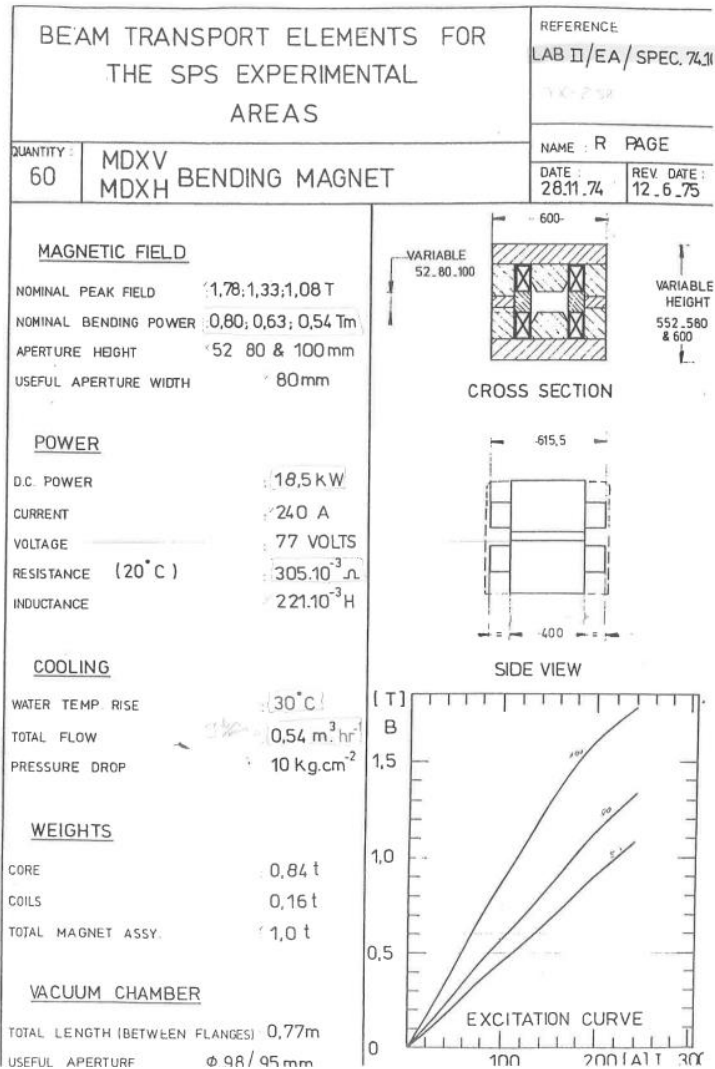
# MDX 100 L design requirements

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# MDX specifications



- There are **9 MDX (MCXCA) correctors** installed in P42 and **1 vertical bumper** to be installed in TCC2 for the T4 bypass.
- The correctors have **80 mm gap** between the poles.
- Aperture constraint comes from the **vacuum system - elliptical 129 x 72 mm<sup>2</sup>** (inspected by Philippe B-B).
- Max integrated strength  $\int Bdl \approx 0.63 \text{ Tm}$

New laminated design is in progress.

It was suggested to use **100 mm gap** for all the new correctors.



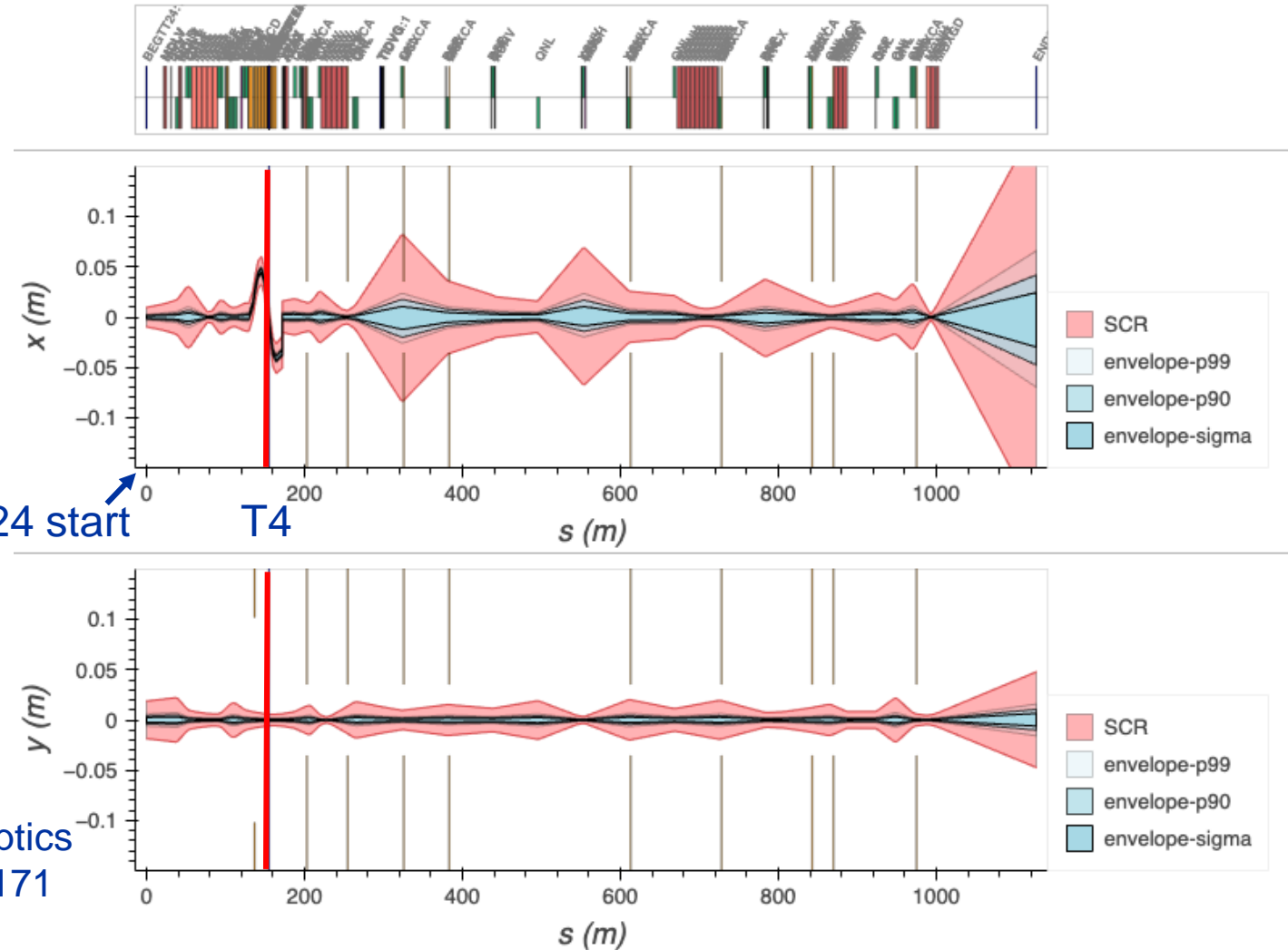
# MDX correctors in P42

Three correctors in P42 may cause beam transmission issues, because SCR is larger than the vacuum system  $\varnothing = 72$  mm at these locations.

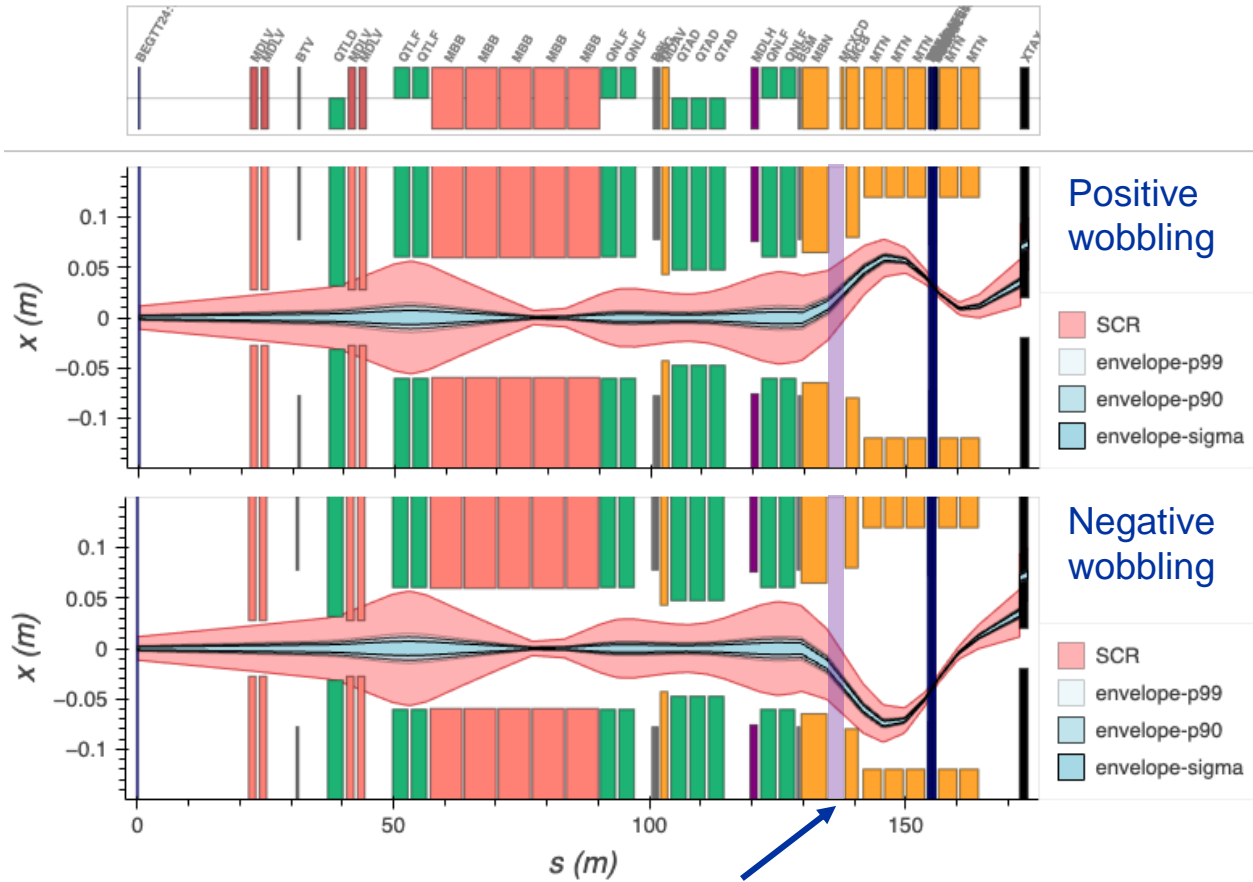
Slot	Max SCR [mm]
MCXCA.X0430048 (V)	28.9
MCXCA.X0430100 (V)	27.7
MCXCA.X0430171 (H)	165.8
MCXCA.X0430228 (V)	72.5
MCXCA.X0430458 (V)	51.2
MCXCA.X0430573 (V)	38.3
MCXCA.X0430688 (H)	35.3
MCXCA.X0430715 (V)	28.5
MCXCA.X0450820 (H)	55.9

However, this can already be fixed near T4 by the optics rematching. Dispersion reduction at MCXCA.X0430171 is being studied.

The new aperture should be  $\varnothing \geq 72$  mm.

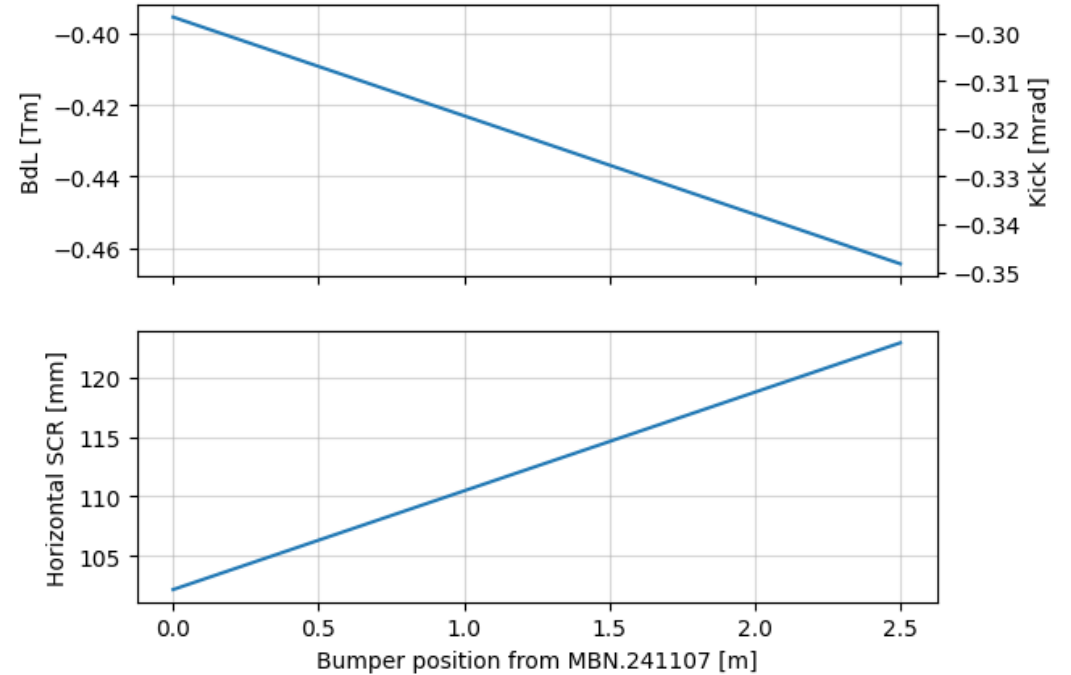


# MDX upstream T4 for vertical bump



Corrector position is scanned between MBN.241107 and MCB.241110.

Bending strength is matched for the beam to have -5 mm vertical offset at T4.



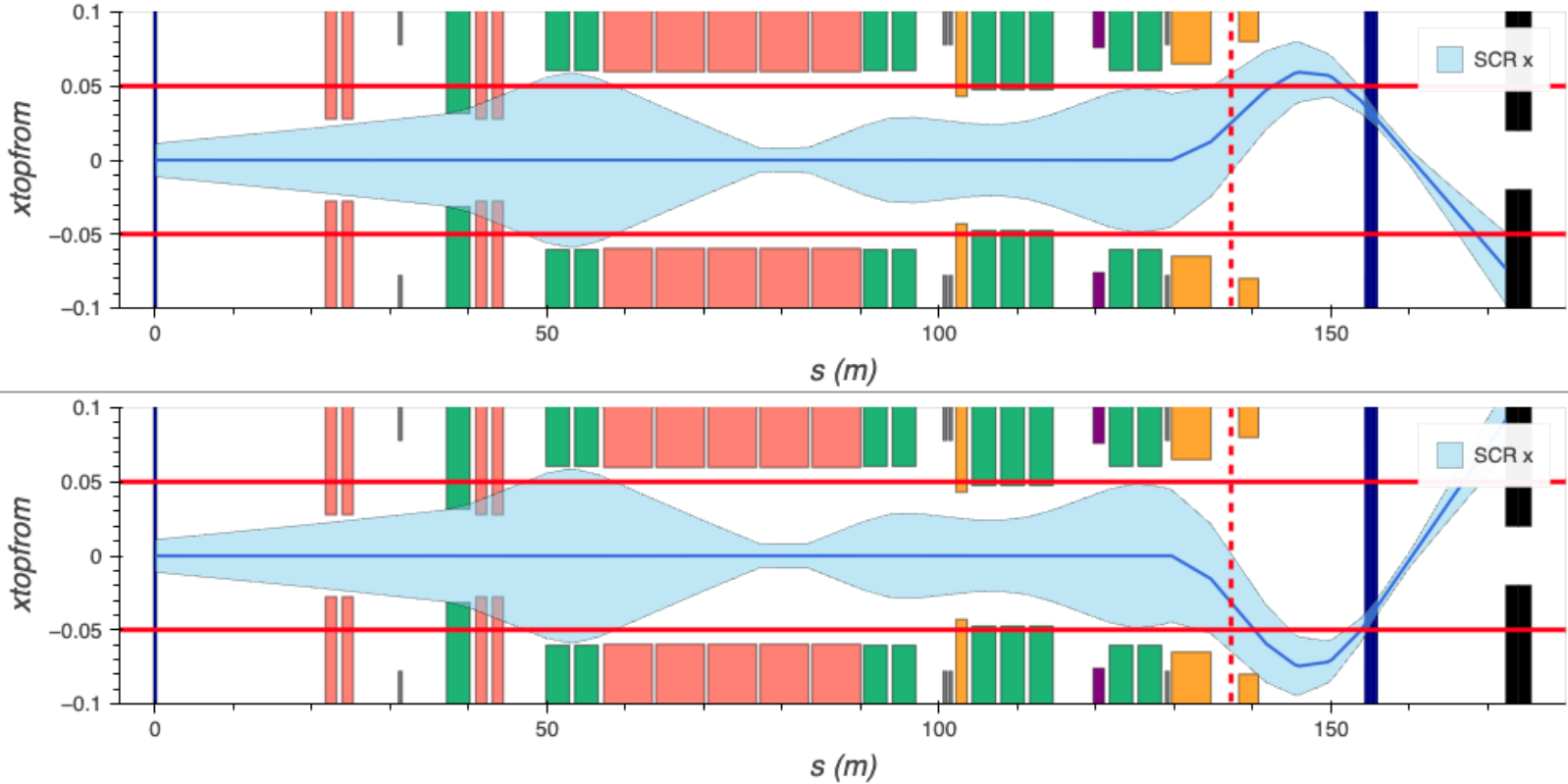
Moving the corrector closer to the MBN.241107 is reasonable, because it would reduce the SCR by 20 mm, while  $BdL$  does not change dramatically.

Maximum bending strength required is 0.46 Tm. For comparison, MDX 100 has 0.54 Tm.



Thanks for your attention!

# MDX upstream T4 for vertical bump



Stay clear region + wobbling is too big for 100 mm gap.