New beam screens & Geometrical aperture (b)

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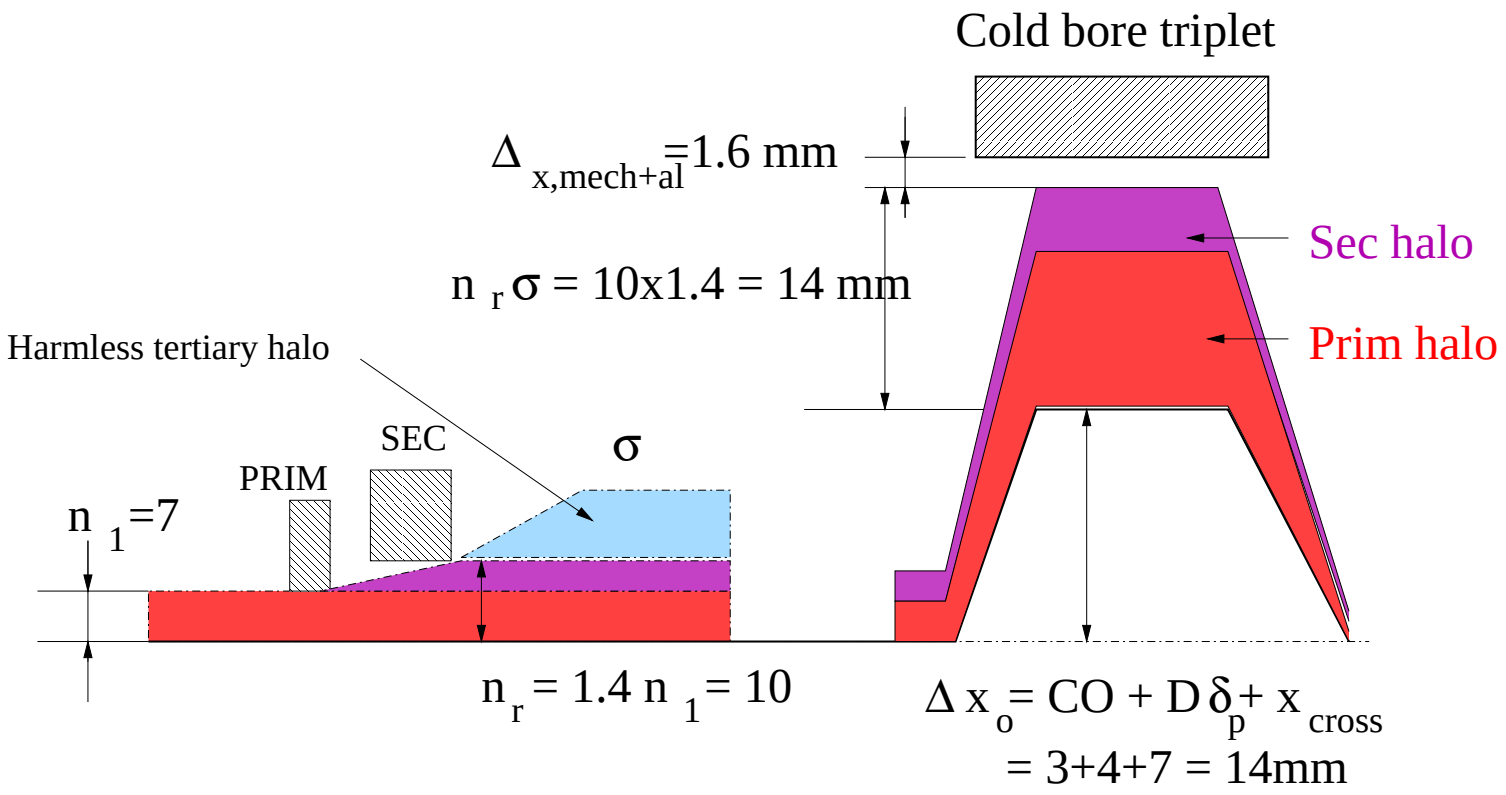
Halo and aperture in Experimental triplet



$\Delta x_o + n_r \sigma + \Delta_{x,mech+al} = 29.6 \text{ mm} \sim r_{cold.bore} = 30 \text{ mm}$

Margin factors

$\sigma_\beta \simeq 1.4$ mm in triplet at 7 TEV (effective 1D equivalent)

- Operational error margin
  1. $\Delta_1 n = n_r - n_1 = 3\sigma_\beta \simeq 4$ mm before possible damage
  2. $\Delta_2 n = \frac{\Delta_1 n}{2} \simeq 2$ mm before quench
  3. (therefore 2 mm of warning area, using BLM's)
- Additional clearance if
  1. Better control of $CO = 3$ mm down to ?
  2. Bunch spacing $25 \rightarrow 75$ ns, ($\alpha_{cross} \searrow \equiv 2$ mm)
  3. Larger β^*, but: $-10\% \mathcal{L} \equiv 1$ mm (W.Herr)
  4. $n_1 = 6 \rightarrow n_r = 8.4 \rightarrow \delta n_r = 1.6 \equiv 2$ mm