

Recap of Orbit Tolerances for Crabs

Jun 19, 2015

The input power amplifier is limited to 80 kW maximum (independently powered)

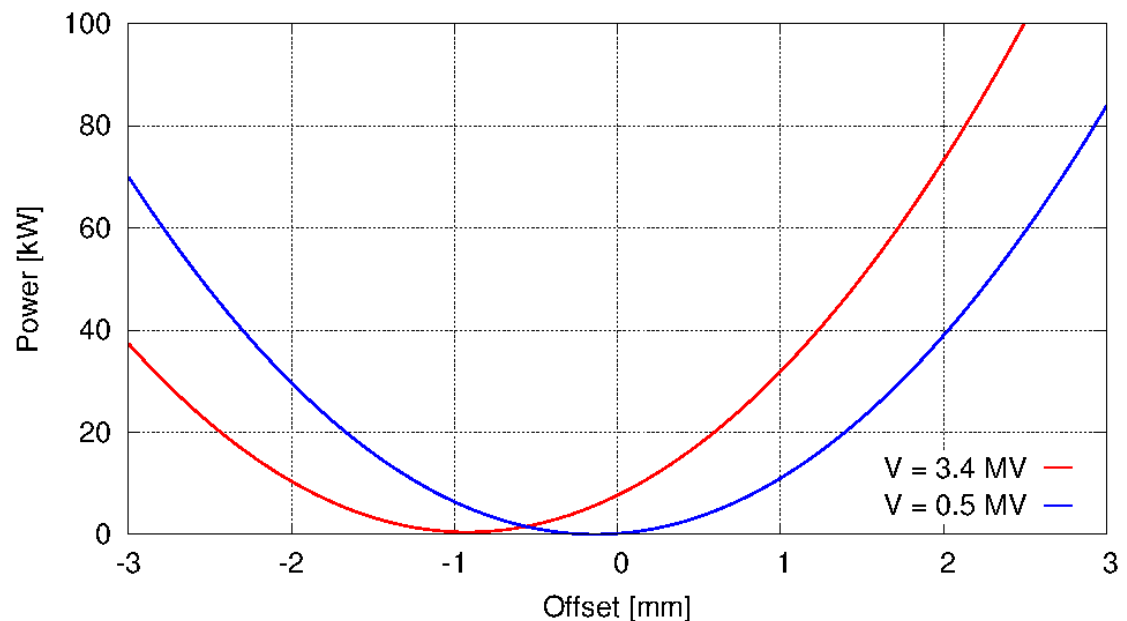
For stable beams during collisions ($V = 3.4$ MV)

1mm offset (single crab cavity), required power < 50 kW

2 mm offset: required power < 80 kW (also not optimum coupling)

For rest of the cycle, voltage for cavity control ($V \sim 15\%$ of nominal)

With 80 kW, we should be able to tolerate ± 3.0 mm (at the limit!)



Peak detuning: 100 Hz assumed

$R/Q = 400 \Omega$

$I_{\text{beam}} = 1.1$ A

Alignment Monitoring for SPS

Courtesy EN-MME

Goal is to reach 0.5mm for each cavity w.r.t to the closed orbit

For LHC, a warm alignment of the CM looks reasonable after SPS experience

BCAM – Wire

Targets on He-tank



FSI targets on cavity flanges

