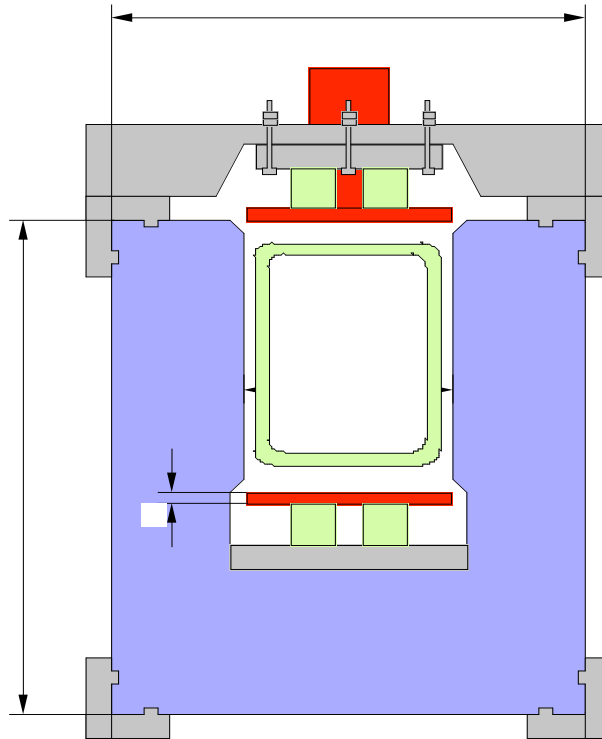


# *Vertical Painting Magnets*



- In the vertical plane, two steering magnets are installed on the beam-transport line at a upstream point led by  $p$  from the foil.
- Painting injection in the vertical plane is performed by sweeping of the injection angle.
- Both correlated and anti-correlated painting injections are available by changing the excitation pattern of the vertical painting magnet

# Waveform of Vertical Painting Bump Field

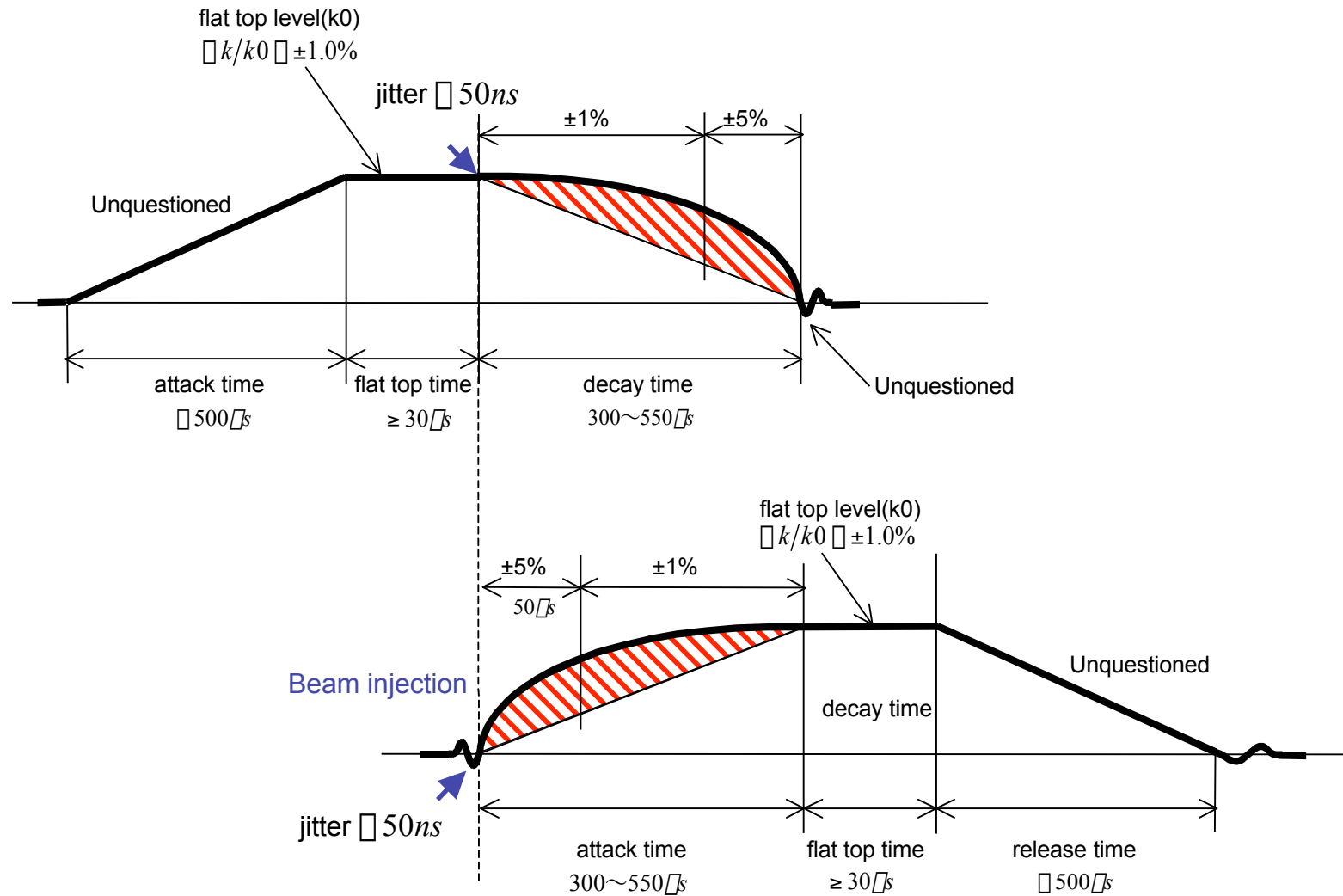
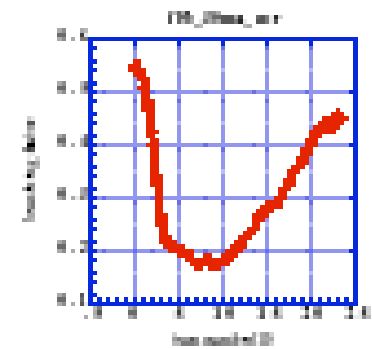
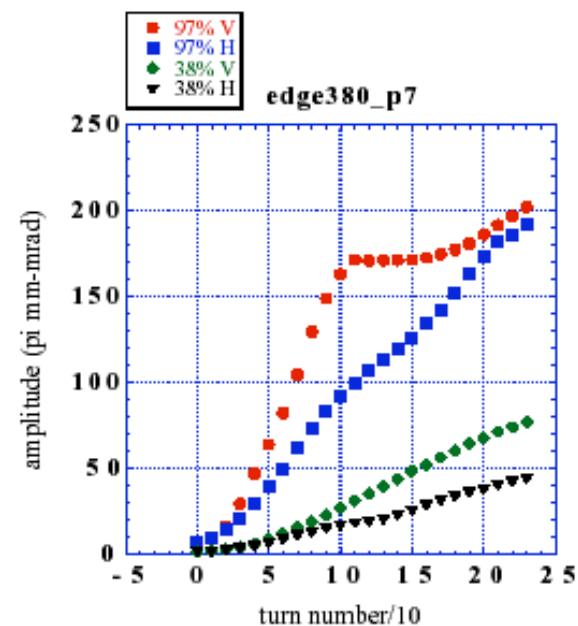
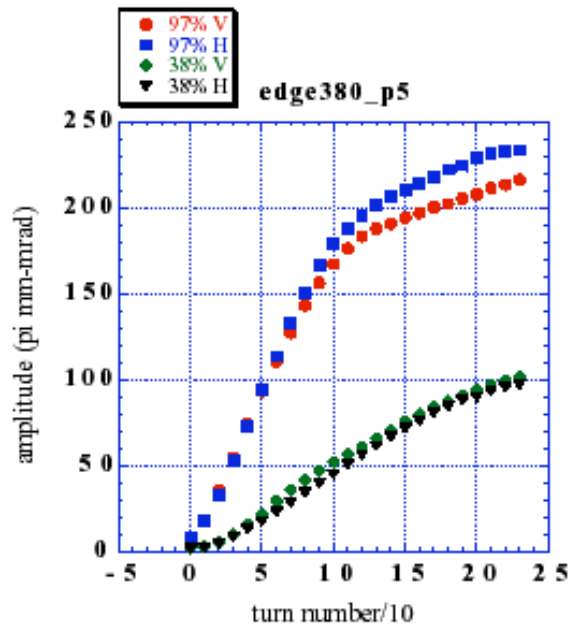
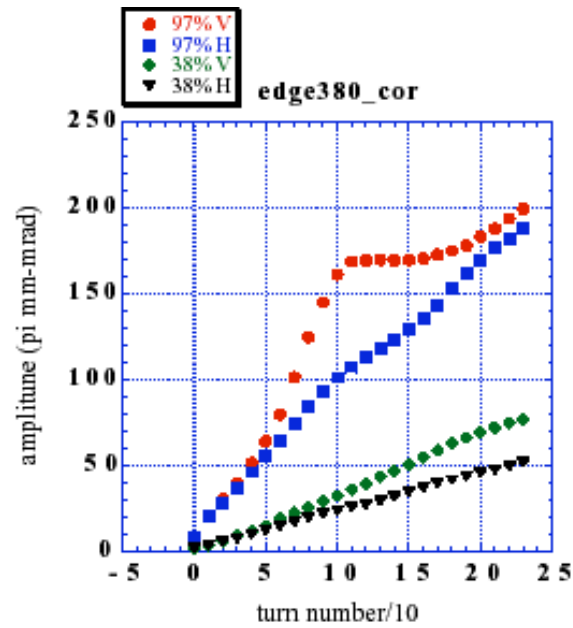
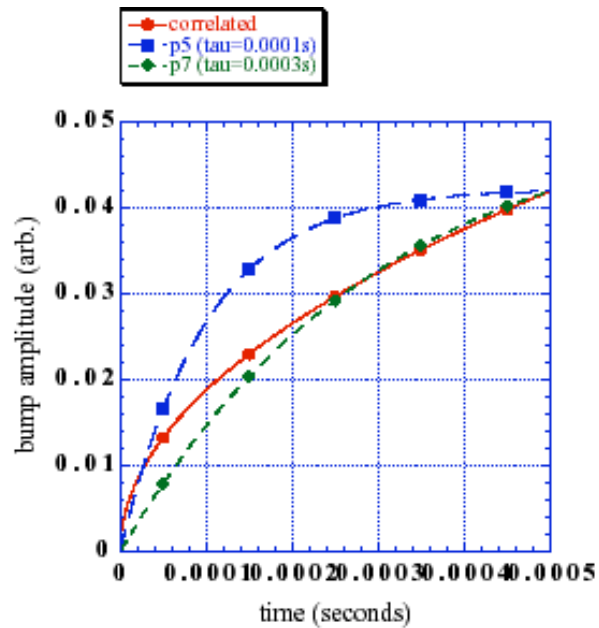


Fig.2 Current pattern of the power supply of the painting bump magnet in vertical



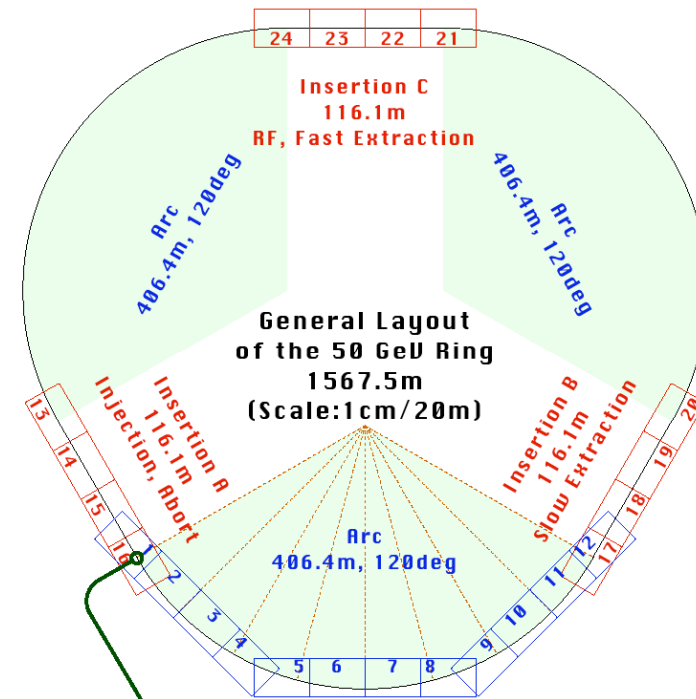
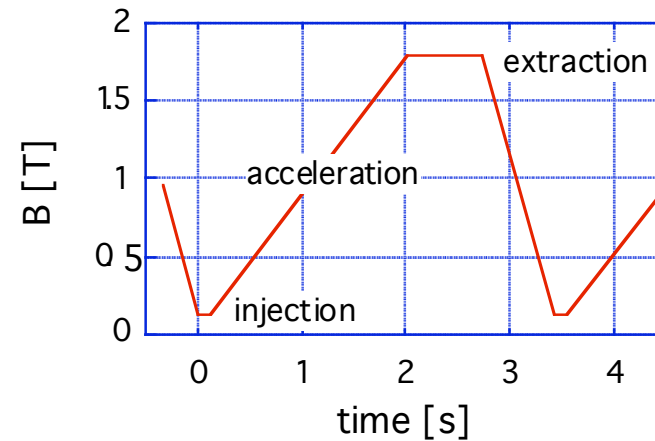
## *Development of Stripping Foil*



- Self-supported stripping foil.
- Having a horizontal length of 105mm and a vertical height of 30mm to make sure a full acceptance of 486 p.mm.mrad at the stripping foil.
- Curved structure around the long axis and one side of the foil is fixed on the outside frame.

# Injection system of JKJ 50GeV MR

- Overview of JKJ 50GeV MR
  - Circumference 1567.5m
  - Injection energy 3GeV
  - Extraction energy 50GeV
  - Repetition rate 0.3Hz
  - output power 0.78MW
    - 3.2e14 particles/pulse
- parameters of injection
  - injection pulse 4pulses (8 bunches)
  - injection period 120ms
  - Emittance
    - Injection 54 $\mu$ .mm.mrad
    - extraction 4.1 $\mu$ .mm.mrad



# *Summary*

- The injection system is designed to be constructed in the FODO structure, which has rather short drift space.
- The bump orbit for painting injection has a full acceptance for the circulating beams.
- A full-acceptance bump orbit will enable both correlated and anti-correlated painting injection.
- The H<sup>-</sup> injection line and the H<sup>0</sup>, H<sup>-</sup> disposal lines can be designed so as to have a sufficient acceptance for low-loss injection
- The painting area is optimized for both 3-GeV users and 50-GeV users in a pulse-to-pulse mode operation.