

Collimator Operation Manual

0.1 Contacts

Hall-B beam line expert:

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0.2 Collimator

Figure 1 shows the SVT protection collimator. “3 mm gap” and “2 mm gap” are 1cm-thick Tungsten collimator with a 3 mm gap and 2 mm gap, respectively. “3 mm gap + Foil” has a 10^{-4} r.l. Gold foil at the downstream surface. The nominal positions in the collimator coordinate are,

- Collimator out: 0 mm
- Wire: 20 mm
- Middle of 3 mm gap + Foil: 31.5 mm
- Middle of 3 mm gap: 54.5 mm
- Middle of 2 mm gap: 77 mm

0.3 Wire Scan

Setup

- MCC is not moving the beam or changing beam conditions
- Ask MCC to mask BOM and Downstream Halo Counters in FSD as we are doing Collimator Wire Scan.
- SVT is fully retracted and the power is off.
- ECal is operational.
- Downstream Halo Counter is operational.

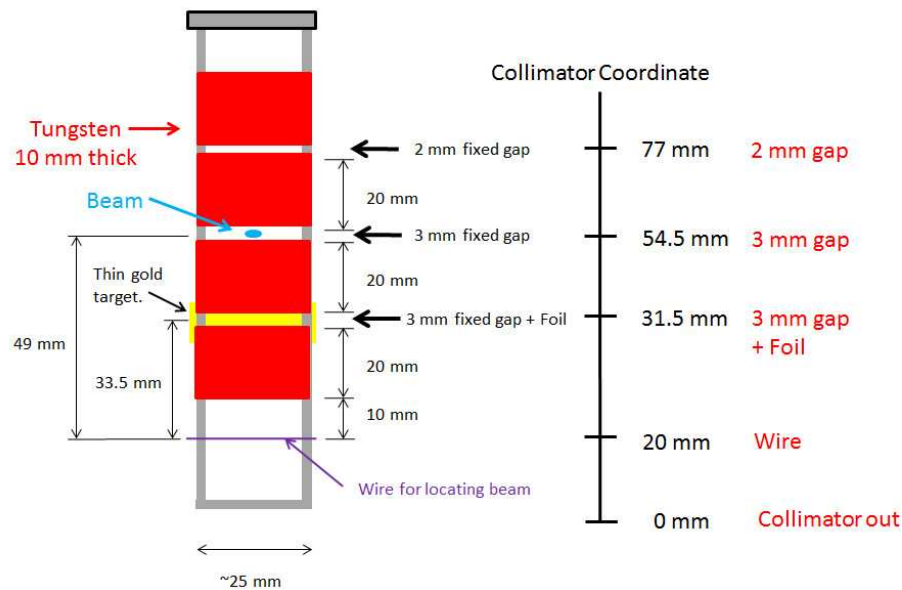


Figure 1: SVT Protection Collimator

Scan

A wire scan can be performed from the wire scan GUI (Figure 2) which is launchable from *clas epics*. Once the scan is completed, the collimator will move to “out” position.

- Type in who you are.
- Choose either ECal or Halo Counter as the detector.
- Click “scan” using default values.
- When the motor is “Done”, click the red button to the right of “Analyze Scan Data”.
- Find the beam offset (Δy) from the nominal beam position ($y=20$ mm).

0.4 Setting the collimator

Once the beam offset is measured, the collimator can be set by running the collimator GUI shown in Figure 3.

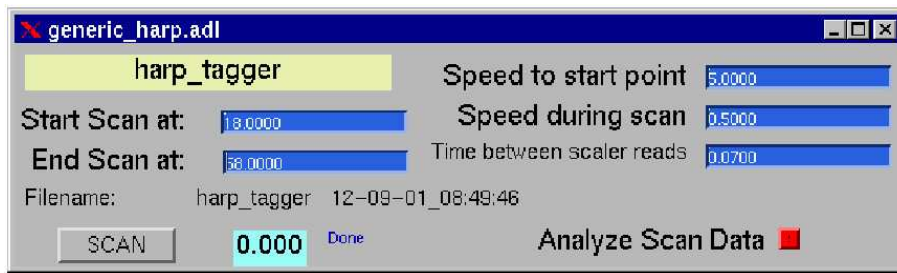


Figure 2: HARP GUI

- Type in who you are.
- Call MCC to turn off the beam and click “Have you called MCC to turn off the beam?”.
- Type in the beam offset value.
- Hit “3 mm + Foil”, “3 mm gap”, or “2 mm gap” button.
- Hit “PANIC” button to abort.

If you don't provide the beam offset, the collimator will be set at the nominal position. If you provide the beam offset and hit “Reset”, the collimator nominal position will be reset by this value. The collimator position can be fine tuned by providing an arbitrary offset value. However, maximum offset value is limited to 1 mm for the 3-mm gap and 0.5 mm for the 2-mm gap.

Hitting “OUT” moves the collimator to $y=0$ mm.

SVT Protection Collimator

Who:

Have you called MCC to turn off the beam?

3 mm Gap **2 mm Gap** **3 mm + Foil** **OUT**

Offset: mm **Reset**

Collimator Position: mm

PANIC

Figure 3: Collimator GUI