Ideally Double Crystal Monochromators select one wavelength from the synchrotron spectrum without doing anything else to the beam. In the real world of monochromator design much effort is spent to provide a stable beam when the energy is tuned, i.e. when rotation and translation stages are moved. If the beam shall not steer over a defined energy range the scattering vectors must be positioned perpendicular to the rotation axes. For beamlines with long secondary lever arms, as is typical for third generation synchrotron radiation sources, particularly when focusing elements like toroidal mirrors or sagittally bent second crystals are used to produce sub-millimeter focal spot sizes, the steering stability requirements can be very tight. The miss-steering during energy tuning is amplified by a mirror and in the case of a toroid coupled to the vertical focal spot size. Recent availabilities of good quality Diamond crystals for high-power undulator beam lines tighten the stability requirements further due to the larger angular changes than the traditional Silicon(111) monochromators crystals. Numerical examples will be presented, which show that these Diamond crystals have to be positioned within a few seconds of arc in the perpendicular direction, a positioning and mounting requirement which is hard to meet with externally pre-oriented mounting bases. Typically Diamond crystals are small and have to be positioned accurately in the narrow radiation cone from an undulator. When particle beam stability becomes an issue, i.e. when the radiation from the undulator can change in the horizontal direction, a translation stage need to be added for not allowing the beam to hit the clamping device of the Diamond. A mechanical device, which can accommodate both the angular alignment and the translation capability was prototyped. The device is based on a clever lever system linked with flex-pivot bearings and two linear motors to produce independent degrees of motion and a rotation around the small monochromator crystal.

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