



Improvements were designed for an existing emergency line stop design (operating on A-Line) for the Cornell High Energy Synchrotron Source (CHESS). These included a new support structure to allow table mounting and simplify manufacturing, an added tungsten backing block to attenuate higher-energy photons, widening the cooled copper absorber to accommodate the canting angle on F-Line, and improving limit switch position tuning. The photon absorber is a length of beam pipe made from copper, with a thick, water-cooled upper wall. When closed, one end of the pipe is lowered so that the upper interior surface blocks the beam path with a ramp to spread the deposited power over a wide area. The robust frame is made from two mirror-imaged aluminum plates and cross bars cut from 80/20® 15-Series extrusion. For security, features on the tungsten block engage with features on the copper absorber to hold the two together, while the added bolts are safety-wired to prevent tampering. NEG pumps and vacuum diagnostics connect to ports on the absorber section. The absorber is opened and closed by a pneumatic cylinder, and fails closed under loss of air pressure.

Key Specifications:

Description	Value	Units
Range of Motion	21 [0.827]	mm [inch]
Range of Motion	17.4 [1]	mrad [degree]
Upstream Flange	6" CF	-
Downstream Flange	8" CF	-
Weight	112.3 [247]	kg [lb.]