



iBX70 / iBX80 Diamond Anvil Cells (DAC) with symmetric 70° / 80° x-ray diffraction openings

Models iBX70(L)-DAC and iBX80(L)-DAC

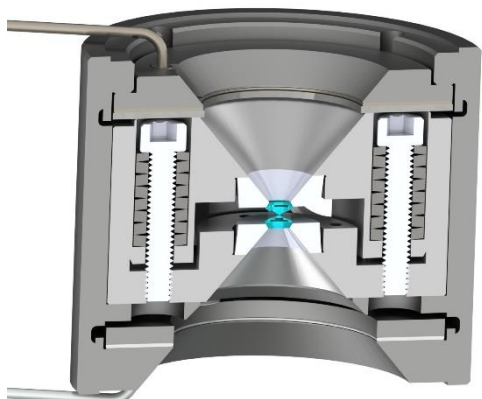
The iBX70 / iBX80 DACs are based on large symmetric opening Spherical Seat DACs (SSDAC70/80), but does not have a spherical rocker, which potentially results in easier handling and better stability. The iBX70 / iBX80 can be viewed as upgraded user-friendly and membrane-friendly versions of BX90 DAC with more symmetric configuration and better compatibility with external devices.

iBX70 / iBX80 DACs were specifically designed for single crystal X-ray diffraction and total scattering measurements, but can also be used with other techniques (such as Brillouin and other optical spectroscopies as well as powder x-ray diffraction) where large symmetric opening is required. The DAC can be provided with a detachable pin for mounting on a diffractometer goniometer. If 80 degrees symmetric opening is not absolutely crucial, a more stable 70 degrees configuration is recommended.

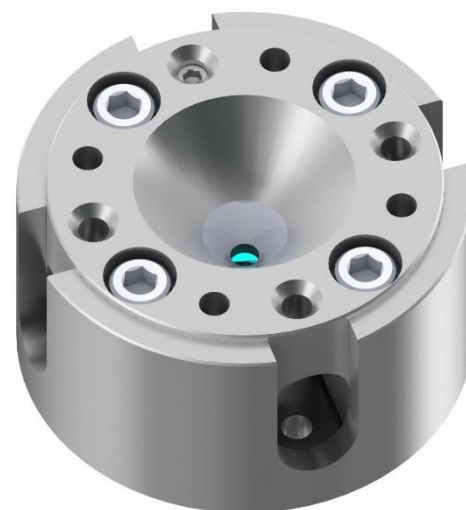
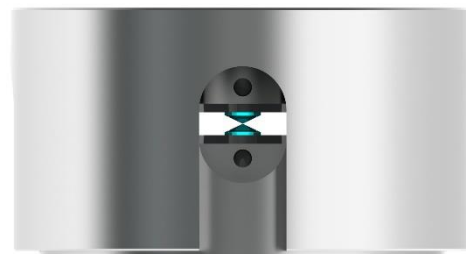
iBX70 / iBX80 DACs have the same diameter (although slightly different height) and hole pattern as DACTools' SSDAC70 / SSDAC80 cells and are compatible with equipment designed for those DACs (membrane cans, gearboxes for gas-loading systems, etc.). Typically the DACs come with two left-handed (LH) and two right-handed (RH) #8-32 pressurizing screws, although all RH versions can be available on demand.

The DAC can be used with many diamond / seat combinations, but to make full use of the large symmetric opening the Boehler-Almax type diamond / seats with conical support are preferred (assuming that the diamond is properly aligned with respect to the seat base). Please note that the DAC will only work properly if the diamond culets are parallel to the bases of the diamond seats. The minimum 2x diamond + seat height is 11.5 mm for SSDAC70 and 10.5 mm for SSDAC80).

With proper diamond culet (<250 μm), diamond alignment, and sample preparation the DAC can be routinely used in sub-Megabar and Megabar pressure range.



The DACs allows for multiple ways of pressure control – either with screws, mechanical gearboxes, or with membranes (see e.g. *Sinogeikin et al., Rev. Sci. Instruments 86, 072209, 2015*). The DAC can be preloaded to starting pressure with four #8-32 screws and then engaged with remote pressure control device. The DAC can be supplied as stand-alone version, with one membrane enclosure, or in double-membrane symmetric configuration which provides up to 70 or 80 degrees symmetric X-ray and optical opening with proper choice of membranes.



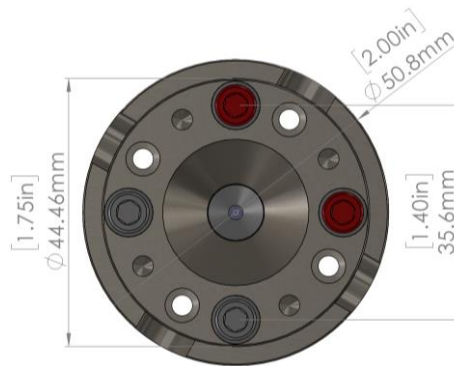


Specifications of iBX70 / iBX80 Diamond Anvil Cells (DAC)

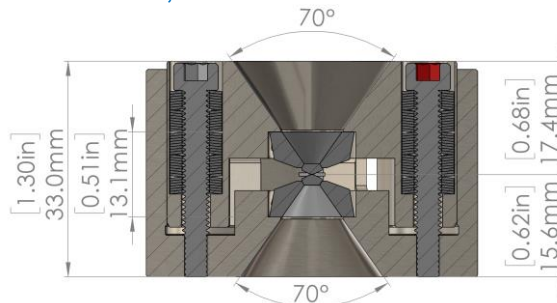
Main DAC Specifications (iBX70 / iBX80)

- Height: ~33.0 / 27.6 mm
- Diameter: 2.00" = 50.8 mm
- Working distance: ~15.6 / 12.6 mm
- Mass: ~ 350 / 290 g
- Optical / top angle: 70° / 80° max.
- X-ray angle (max): 70° / 80° symmetric
- DAC material: *Stainless Steel 440C or Vascomax C300/C350 Tempered to HRc ~55*
- Seats: *Tungsten carbide (typ.), Vascomax, cBN (optional)*
- Screws: *#8-32, 2RH+2LH (all RH optional) 1.125 / 0.875" long*
- Screw position: *4x 90° apart on 1.40" BCD*
- Spring washers: *8.0 mm OD, 4.2 mm ID, 0.4 mm thick (typical)*
- Diamond seat diameter: *12.5 – 13.0 mm (13.4 mm max)*
- Minimum height of two seats+diamonds: 12.0 / 10.5 mm

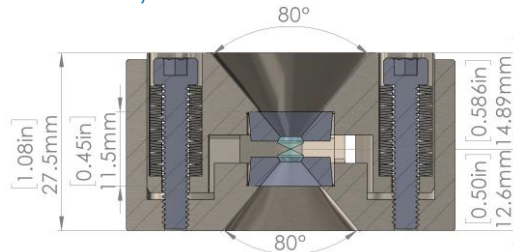
DAC Dimensions



iBX70, BA 70° diamonds/seats



iBX80, BA 80° diamonds/seats



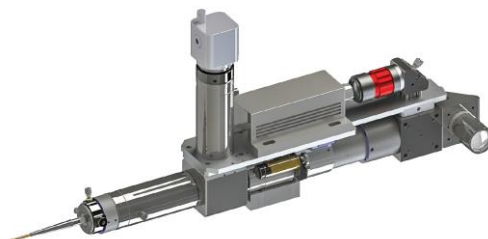
NOTE: The Actual height of the DACs can slightly vary in different models

Related equipment

Pressure controllers



Ruby pressure systems



DAC Accessories



For more information please visit <http://dactools.com/diamond-cells>



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