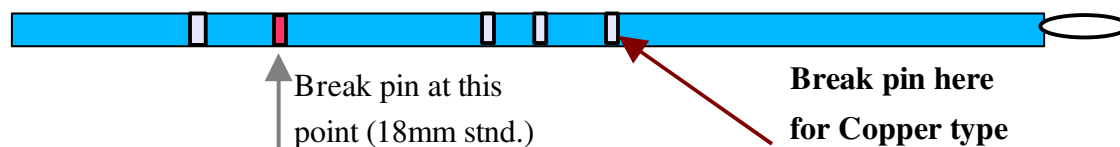


Cryo-cooling and Cryo-loop How To

The SCSB-XRL diffractometers and the GCPCC beam line are both optimized for the 18mm Hampton Cryo-Loop system. I recommend the **18 mm CrystalCap Copper Magnetic** type of loop. The CrystalCap Copper type are superior at preventing icing, but are sometimes more difficult to work with. The 20 micron Cryoloops are superior to the 10 micron loops which are too flexible. The sampler pack is a good starting choice. However if you know the approximate size of the crystals you are going to work with then purchasing a set of the correct sized loops is more cost effective. The loops are glued into the bases with superglue after they are cut to the right length. Each group will need at least one set of tools (Wand & Clamp) for freezing samples, CryoCanes will be needed to store samples. The Center maintains two long term storage dewars and two shipping dewars (for synchrotron trips) in the X-ray Instrument room. Hampton Research: (www.hamptonresearch.com), phone 800-452-3899. MiTeGen: (www.mitegen.com), 607-266-8877

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|---------------------------------------------------------|------------------|-----------------------------------|
| 18 mm CrystalCap Copper Magnetic | HR4-745 | \$159 for a pack of 30 |
| CrystalCap Magnetic (bases & vials) | HR4-733 | \$255 for a pack of 60 |
| 20 micron Mounted Cryoloop sampler | HR4-953 | \$66 for a pack of 30 |
| 20 micron Mounted Cryoloop 0.1mm | HR4-625 | \$55 for a pack of 25 |
| 20 micron Mounted Cryoloop 0.1-0.2mm | HR4-955 | \$55 for a pack of 25* |
| 20 micron Mounted Cryoloop 0.2-0.3mm | HR4-957 | \$55 for a pack of 25* |
| 20 micron Mounted Cryoloop 0.3-0.4mm | HR4-959 | \$55 for a pack of 25* |
| 20 micron Mounted Cryoloop 0.4-0.5mm | HR4-961 | \$55 for a pack of 25* |
| 20 micron Mounted Cryoloop 0.5-0.7mm | HR4-963 | \$55 for a pack of 25* |
| Crystal Wand Magnetic | HR4-729 | \$45.00 |
| Vial Clamp Curved | HR4-671 | \$40.00 |
| CryoCane (5 vial cane with locating tabs) | HR4-709 | \$13.50 twelve pack |
| MiTeGen Cryo-Tools set (19mm) | T1-L19-A1 | \$75 for set of 30 |
| MiTeGen Copper-post base (also for RT sleeve) | GB-B3-20 | \$100 for a set of 20 |
| MiTeGen 19mm pins (XX= loop size < xtal size) | MM-19-XX | \$60 for a set of 20 |
| MicroRT (quick-use RT capillary) | RT-T1 | \$45 for set 20 (reusable) |



Glycerol Cryo-Soaks: Crystals should be soaked up to ~ 30% glycerol in the crystallization buffer. This may be done all at once, but step soaking is safer and less likely to damage the crystal. The crystals should be flash-cooled shortly after reaching 30% glycerol otherwise they may slowly deteriorate. The standard Cryo-soaking procedure is to step soak (1%, 2%, 5%, 10%, 15%, 20%, 25%, 30% glycerol) for about 10 minutes at each step. Any special additives (cAMP, heavy metals, ligands, etc.) are usually only present in the 30% glycerol solution.

MPD and Other Cryo-protectants: Some precipitants, such as MPD, act as effective cryo-protectants. Crystals grown in MPD should be soaked up to 30% MPD for cryo-cooling.