

# XtalTool

## The ALL-in-ONE Sample Holder



Crystal handling is a major bottleneck in protein crystallography. Macromolecular crystals are often fragile and suffer from mechanical stress during manipulation and/or mounting. This can lead to impairment and even complete loss of diffraction quality. **XtalTool** was developed to minimize the handling steps of crystals in order to obtain the best possible diffraction data<sup>[1]</sup>.

### 1. XtalTool is used as a cover slide for hanging drop crystallization

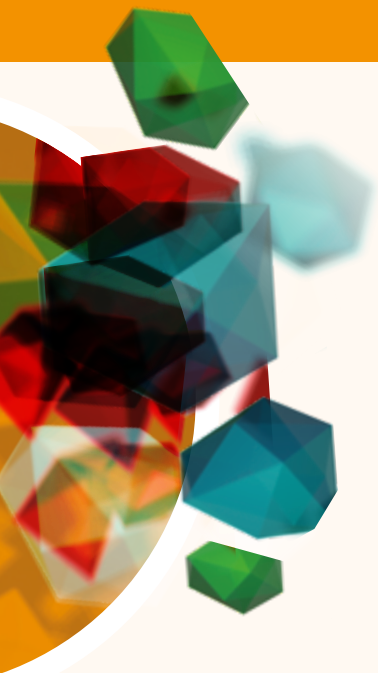


### 2. Crystal manipulation such as ligand soaking or cryoprotection is performed in a gentle way directly on the sample holder



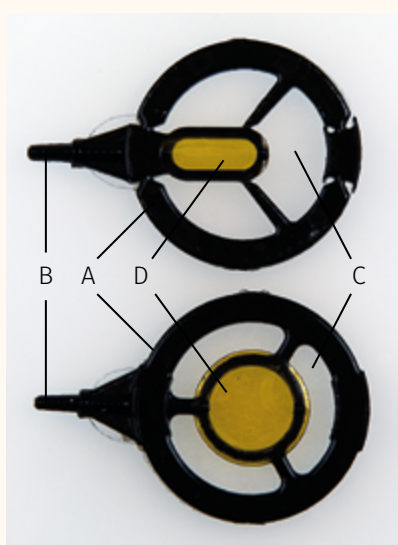
### 3. X-ray diffraction data are collected *in-situ* at ambient or cryo temperature





### One technology – two designs

The patent-pending XtalTool consists of a round black plastic support (A) with an outer diameter of 18 or 22 mm and an extension (B) that fits into a customized goniometer base. A transparent removable COC film (C) tightly seals the well during crystallization. An inner X-ray transparent polyimide film (yellow) with 5  $\mu\text{m}$  pores (D) enables a gentle crystal soaking procedure by diffusion and serves as crystal support during data collection.



**XtalTool HT** with predetermined breaking points at the outer frame is compatible with robot assisted sample mounting. It is available in 22 mm diameter (Cat.-No. X-XT-103) to fit the Crystalgen SuperClear Plates and in 18 mm diameter (Cat.-No. X-XT-104) to fit the smaller Greiner Combo Plates with SBS footprint.

The classic **XtalTool** with 22 mm diameter (Cat.-No. X-XT-101) can be used with Crystalgen SuperClear Plates and is manually mounted on the goniometer.

Product	Cat.-No.	Amount
<b>XtalTool HT 22 mm</b>	X-XT-103	20 pcs.
<b>XtalTool HT 18 mm</b>	X-XT-104	20 pcs.
<b>XtalTool Bases</b>	X-XT-105	20 pcs.
<b>XtalTool</b>	X-XT-101	24 pcs. + 1 Base
<b>XtalTool Soaking Kit</b>	X-XT-102	1 Kit

XtalTool is unique on the market, it was developed by the HZB MX-group at BESSY II (AG Weiss).

#### Reference:

[1] Feiler *et al.* (2019) An All-in-one Sample Holder for Macromolecular X-ray Crystallography with Minimal Background Scattering. *J. Vis. Exp.* **149**:e59722.

