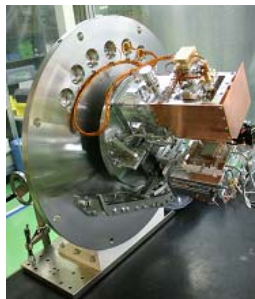# Double Cam type DCM   <NSM-1>
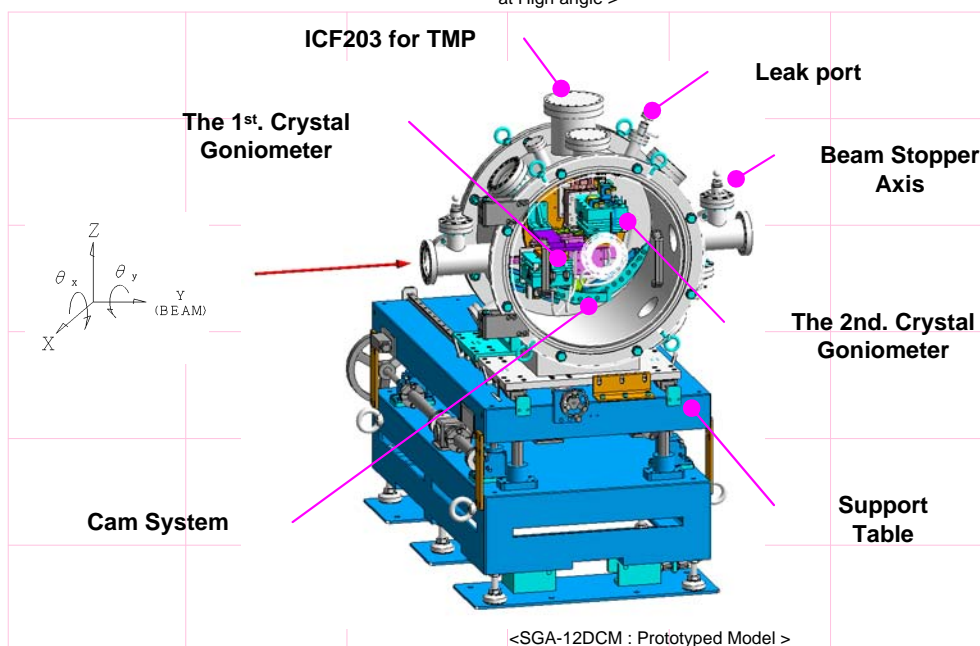
This typed DCM is only released by Kohzu.

It allows to optimize the distance between double crystal planes and the distance between the double crystal centers at the same time by using double cams.

<Prototype SGA-12DCM : View at High angle >

<View at low angle >

ICF203 for TMP

Leak port

The 1st. Crystal Goniometer

Beam Stopper Axis

The 2nd. Crystal Goniometer

Cam System

Support Table

<SGA-12DCM : Prototyped Model >

Features

◆2 types (L and R)

◆ It allows to reduce the number of vacuum motors.

◆ The simple control by only rotating the main axis.

◆The accuracy is within 10 arcsec with open loop.

◆Don't need to move other alignment stages to get a monochromatic beam in each angle.

◆The quick scan is available.

◆The footprint occurs on the first crystal.

◆Direct beam can pass through the DCM

◆The first crystal is cooled by water.

◆The first crystal alignment stages
  Z1 : ±10.0 mm(manual)
  θx1 : ±1 degree (Coarse)
      : ±4.2 arcsec (Fine)
  θy1 : ±1 degree (manual)

◆The second crystal alignment stages
  Z2 : ±10mm(manual)
  θx2 : ±1 degree (Coarse)
  θy2 : ±1 degree

◆The supporting table
  Xt : ±50mm
  Zt : ±50mm

Specifications

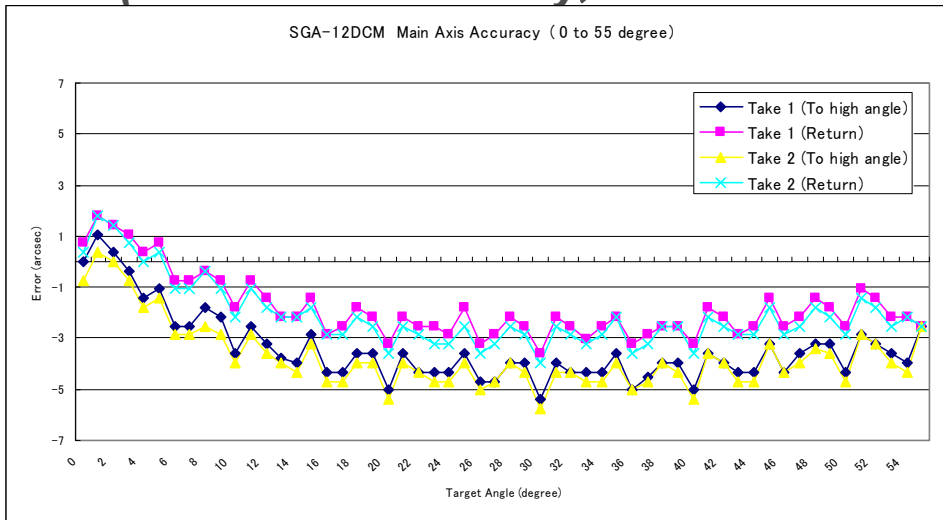| Model	NSM-1 (L, R)
Beam Height	1200 mm (incident beam)
Beam Offset	25 mm Upward
Bragg Angle Range	5.0 – 72.0 degree (0 – 75 degree mechanically) 5.0 – 50.0 degree (0 – 72 degree mechanically) [1]
Main θ Rotation Center	Center, and surface of the second crystal
Output Beam Stability	±20 um / m (θ = 5 – 10 degree, 60 – 70 degree) ±10 um / m (θ = Except for above angle)
Crystal Parallelism	20 arcsec (θ = 5 – 10 degree, 60 – 70 degree) 10 arcsec (θ = Except for above angle)
Vacuum Pressure	1.33 x 10E-5 Pa
Crystal Size	100 x 70 x 10 (W x L x T : mm) [2]
Dimension	1130 x 1811 x 1675 (W x L x H : mm)

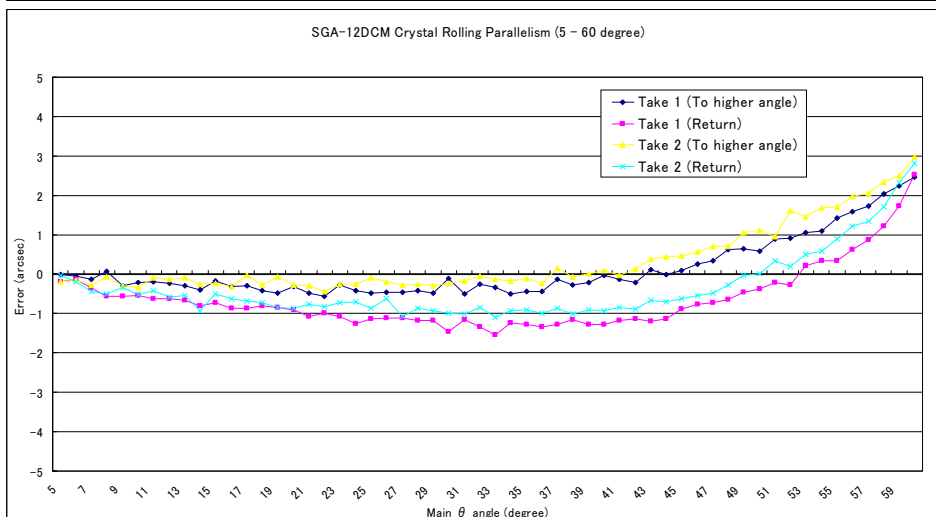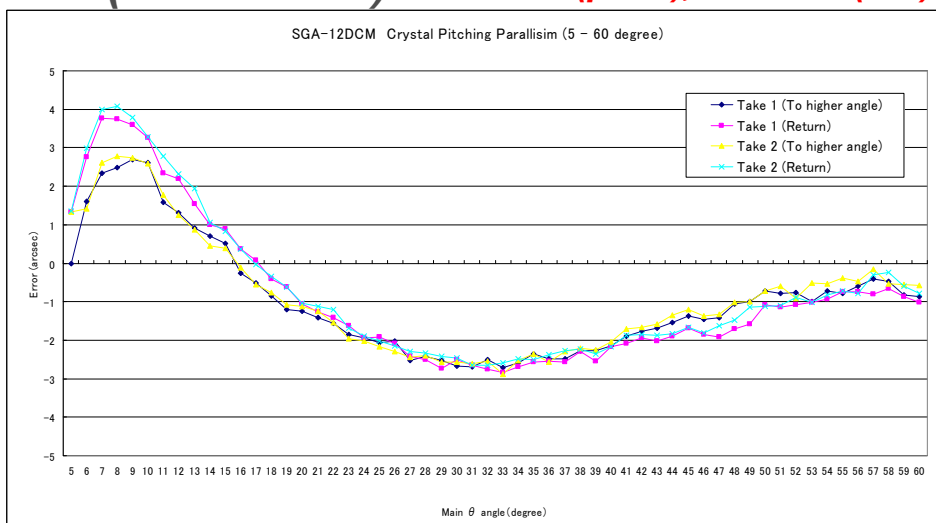*1 In a case of compton shield installed   *2 The crystal is not abailable

Double Cam type DCM <NSM-1> Continued

Data (Main Axis Accuracy） 7 arcsec

SGA-12DCM Main Axis Accuracy（0 to 55 degree）

Legend:
- Take 1 (To high angle)
- Take 1 (Return)
- Take 2 (To high angle)
- Take 2 (Return)

Error (arcsec) vs Target Angle (degree)

Data (Parallelism) 7 arcsec (pitch), 5 arcsec (roll)

SGA-12DCM Crystal Pitching Parallisim (5 – 60 degree)

Legend:
- Take 1 (To higher angle)
- Take 1 (Return)
- Take 2 (To higher angle)
- Take 2 (Return)

Error (arcsec) vs Main θ angle（degree）

SGA-12DCM Crystal Rolling Parallelism (5 – 60 degree)

Legend:
- Take 1 (To higher angle)
- Take 1 (Return)
- Take 2 (To higher angle)
- Take 2 (Return)

Error (arcsec) vs Main θ angle (degree)

Features

◆2 types (L and R)

◆ It allows to reduce the number of vacuum motors.

◆ The simple control by only rotating the main axis.

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  θ x1 : ±1 degree (Coarse)
       : ±4.2 arcsec (Fine)
  θ y1 : ±1 degree (manual)

◆The second crystal alignment stages
  Z2 : ±10mm(manual)
  θ x2 : ±1 degree (Coarse)
  θ y2 : ±1 degree

◆The supporting table
  Xt : ±50mm
  Zt : ±50mm

Date of issue: 2010/May/19