DW-3000 XRD Technical Solution

X-ray diffractometer（XRD） is a widely used large analysis instruments in internal structure of the material studying. It can accurately determine the crystal structure, lattice constant, and complete material qualitative or quantitative analysis. By installing some accessories it can realize structure, macroscopic stress or micro stress determination, crystal size and degree of crystallinity determination, etc.The perfect combination of hardware and software can meet the needs of scholars and researchers in different application fields.

Main Technical parameters

- **1. High pressure generator（Adopting imported PLC control technology）：**

  Rated Power：3kW；
  Tube Voltage：10～60kV It is automatically controlled by computer terminal（1kV/step）；
  Tube Current：5～80mA It is automatically controlled by computer terminal（1mA/step）；
  Tube Voltage and Current Stability≤0.01%；
  Protection of over voltage, over current, over power, and low water level；
  X-Ray Tube：Cu target、Focal point 1×10mm2、Power 2.0kW；
  Optical shutter switch is automatically controlled by computer terminal;
  Unibody structure cooling device, Cooling device is unibody structure, and the automatic temperature control system can indicate the water temperature of X-ray tube.

- **2. Goniometer and Control (Horizontal type):**

  Horizontal Type θ—2θ, diffraction circle radius 185mm; Rotation of goniometer is controlled by stepping motor (forward or reverse, forward scan), drive mode (move individually or jointly), scanning mode(continuous, stepping), scanning speed, it can do angle-auto correction, detect losing step and avoid lost motion;
  Minimum Step Angle: 0.001°
  Continues Scan Speed: 0.0012°－70°min
  Step scanning step width angle: 0.005～165°
  2θAngle measurement range：≤0.005°;
  2θAngle measurement range：0--164°
  Goniometer 2θangle uni-directional Repeatability 0.001°

- **3. Recording and Controlling Unit and Detector:**

  Closed scintillation counter
  Auto differential and integral conversion
  Base line and channel width: 0%～99%
  Continuous adjustable high voltage of detector : 0～2000V
  High voltage stability of detector: ≤0.01%
  Optional X-ray tube target material: Cr、Fe、Co、Cu、Mo
  Energy Spectrum Analysis (Cu,Kα Curve): ≤25%（PC），≤50%（SC)

- **4. Overall Stability**

  System overall stability ≤0.3%；

- **5. Outline Dimension**

  XRD host net Dimension：1100×950×1750mm

- **6. X-ray protection up to national standard**

- **7. On-line control software**

  The on-line control software can order the XRD system to do continuous scanning or step scanning and data acquisition. The software can process the general diffraction data and manage the disk file. Data processing including peak seeking (automatic and manual), single peak integral intensity calculation, smoothing, peak shape amplification, multiple drawing, etc .

Configuration List

Part	Element	Unit	Qty.
X-Ray High Voltage Generator	①1505 High Voltage Transformer	Set	1
	②DW-75kV High Voltage Cable	Piece	1
	③9850 Control panel	Set	1
	④9820 High voltage control unit	"	1
	⑤9830 Control gate	"	1
	⑥9810 System Case	"	1
	⑦9840 Main power cable	Piece	1
	⑧X-ray tube 2kW Cu, Focus size 1×10mm²	Piece	1
	⑨3306 Tube holder	Set	1
	⑩9924 X-ray Protective cover	"	1
Angle Measuring System	①3501 Goniometer	Set	1
	②Goniometer layer board	"	1
	③Powder sample plate with blind Holes	Piece	20
	④Powder sample plate with through holes	"	10
	⑤Micronutrient powder sample board	"	10
	⑥Zero setting sample piece, double-knife edge slit	Piece	1
	⑦Standard ruler, watch oil	Piece	1
	⑧Filter Ni	Piece	1
	⑨Slit	Set	1
Recording and Controlling Unit	①2013 Recording and controlling units	Set	1
	②CH132 Scintillation counter	Set	1
	③Counter cable	Piece	1
	④Stepping motor cable	"	2
	⑤Interface cable	"	1
Circulating Water Cooling System	①DW-ZFB-3000 Cooling device	Set	1
	②9509 Power cable	Piece	1
	③Water pipe 6 meters	Piece	2
	④Water relay cable	Piece	1
Computer	①INTEL Pentium G2030, RAM 2G ,500G Hard disk 19″LCD	Set	1
	②Canon LBP6018 Laser printer	"	1
System Control Program and Applicable Software	①Data collecting and processing software	Piece	1
	②Data analysis and processing software	"	1
	③Application software	"	1
	④Diffraction data card stock	"	1
Technical Material	①DW-Y3000 X-ray diffractometer user manual	Piece	1
	②DW-ZFB-3000 Cooling device user manual	"	1
Spare Parts	①Ring rubber blanket	Piece	4
	②Fuse 2A 3A 6A	Piece	10