

## PRE-INSTALLATION REQUIREMENTS

1. The diffractometer must be located in a separate room or in the instrument room where other diffractometers or other analytical instruments (spectrometers, microscopes etc.) are installed.
2. There should be no sources of electromagnetic interference in the room, where the diffractometer is installed.
3. The room must be dry and heated, with natural and forced ventilation, with natural and artificial lighting according to the applicable norms for laboratory rooms.
4. No explosion-hazard or aggressive gasses or vapors and dust must be present in the room. Dust content in air should not exceed  $1 \text{ mg/m}^3$  with particle size not more than  $3 \text{ }\mu\text{m}$ .
5. Floor vibration in the room should not exceed  $0.1 \text{ mm}$  with a frequency up to  $25 \text{ Hz}$ . The floor must be made of insulation material (linoleum, wood, etc.) and rated for load of  $500 \text{ kg/m}^2$ .
6. The room should be equipped with water supply mainline with outlet nozzle of  $13 \text{ mm}$  in diameter and pipe nominal diameter not less than  $20 \text{ mm}$ ; the mainline must provide the cooling water flow rate not less than  $3 \text{ l/min}$  with a temperature not less than plus  $10^\circ\text{C}$  and not more than plus  $20^\circ\text{C}$  and pressure not more than  $6 \text{ bar}^1$ .
7. The water header should be equipped with additional nozzle with a hose for water discharge to clean the water mainline prior to switching ON of the diffractometer cooling.<sup>1</sup>
8. Cleaning of cooling water from solid particles of  $150 \text{ }\mu\text{m}$  and more must be provided.<sup>1</sup>
9. The room must be equipped with drainage system located at a height of not more than  $1 \text{ m}$  above floor level, with open drain and nominal diameter of drain pipe not less than  $40 \text{ mm}$ . Distance from the device to the drain throat must be not more than  $2\text{-}3 \text{ m}$ .<sup>1</sup>
10. The room must be equipped with a board with protective automatic circuit breaker for  $40 \text{ A}$ , one-phase AC voltage of  $220 \text{ V}$  with permissible deviation  $\pm 10 \%$  from nominal value, frequency ( $50 \pm 1$ )  $\text{Hz}$ . Voltage must be supplied to the board from a separate power feeder eliminating strong pulse and other interference in the network from powerful electrical equipment and similar sources.
11. The room must be equipped with an earthing loop with resistance of not more than  $4 \text{ Ohm}$  in all seasons.
12. The equipment should not be installed near heating systems and exposed to sun rays.
13. Distance from the diffractometer assemblies to the nearest wall must be not less than  $1 \text{ m}$ , and from water-supply networks – not less than  $1.5 \text{ m}$ .
14. It is necessary to provide closed channels in the room to lay connection cables and water lines.
15. It is recommended to provide enclosed trenches for laying connecting cables and water utilities indoors.

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<sup>1</sup> The requirements are not applied, if the instrument is equipped with a thermochiller.