

Solid Environment High Pressure and High Temperature (SEHPHT) Station

Solid environment high pressure and high temperature station is a system for conducting research related to HPHT extreme conditions for large volume materials. The experimental station mainly consists of a new generation of cylindrical high-pressure cavity ultrahigh-pressure generator (under construction) and a high-precision 2-6-8 octahedral compression cavity HPHT generator based on the two-sided top frame. While increasing the pressure of the existing large-cavity press, the volume of the sample cavity is increased. The cylindrical high-pressure cavity ultrahigh-temperature and high pressure generator can realize extreme conditions of 20 GPa, 300-2500 K on centimeter-sized samples after the completion of the device; the octahedral compression cavity high-temperature and high pressure generator includes 3000T Kawai, 1000T Kawai, and 1000T DIA-type high-pressure generator, which can achieve extreme conditions of 28 GPa and 300-2500 K on millimeter-scale samples,, which can expand the scope of research work related to ultrahigh-pressure high-temperature. The station is capable of carrying out research on the preparation of large-size new functional materials, in-situ measurements of the transport properties of matter at high temperature and pressure, high-pressure chemical reaction processes of matter, simulation of the deep Earth's environment, and research on Earth's minerals and celestial meteorites.

Octahedral pressure chamber high temperature and high pressure generation device

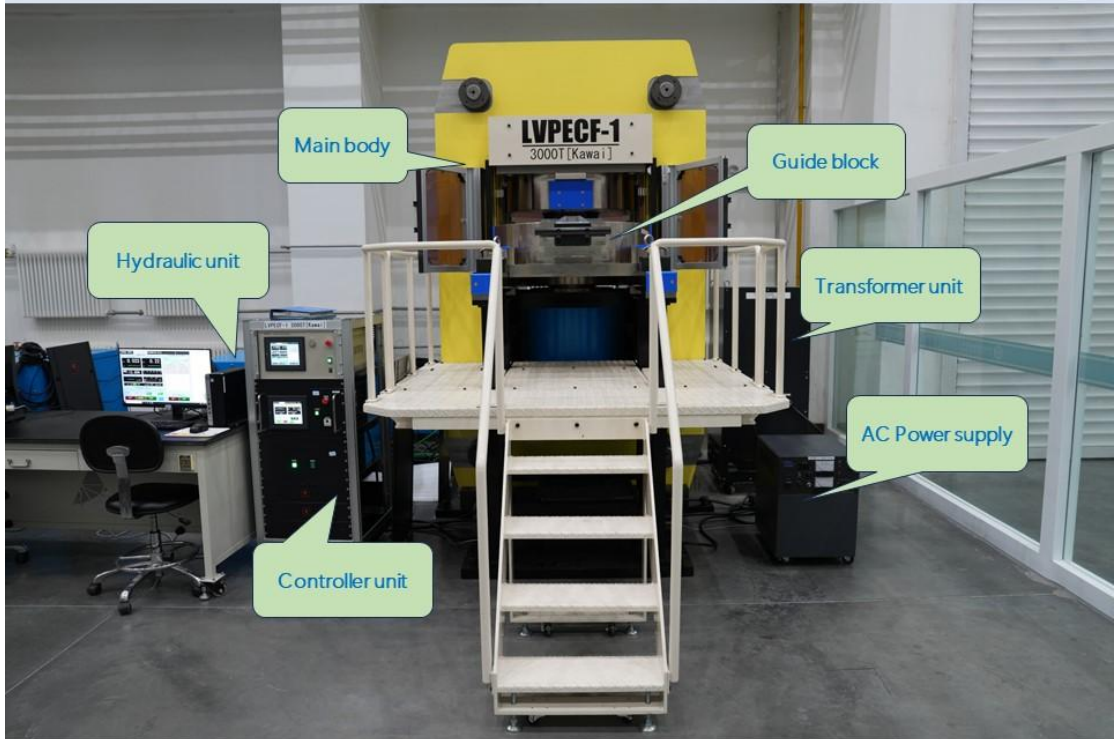


Photo of the station

The capacities of the experimental system in the station

Parameters	Values
Cylindrical pressure chamber high pressure generation device (under construction)	
Maximum pressure	20 GPa
Temperature range	300-2500 K
Cavity volume	1000 mm ³

Octahedral pressure chamber high temperature and high pressure generation device (trial operation)	
Maximum pressure	28 GPa
Temperature range	300-2500 K
Cavity volume	10 mm ³

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