

## DESCRIPTION OF THE ORDER

### THE DIAMOND ANVIL SUPPLY WITH THE EQUIPMENT WITH THE PRESSURE CALIBRATION SYSTEM FOR DIAMOND ANVIL

#### 1. Diamond anvil with the equipment – 1 item (index number: W1/1000061469)

##### Diamond anvil with the equipment:

##### 1) Range of pressure:

- Pressure up to 30 GPa,
- Temperature range from 100 K to 500 K .

##### 2) High Pressure Cell:

- High pressure cell dedicated for the Fourier Transform Infra-Red and Raman measurements
- type IIa diamond
- Working distance to sample - not higher than 18 mm,
- Cell material: BeCu
- Anvil Support Material: Tungsten Carbide

##### 3) High pressure system:

- High pressure is applied via the gas membrane drive mechanism
- enabling continuous pressure change,
- An accuracy of pressure determination not worse than 0.1GPa
- Consisting of pressure controller and digital display ,
- Controller enabling disconnection of the cell from the control box without loss of pressure.

##### 4) Temperature regulation system:

- single internal compact (resistive) gasket heater
- Temperature sensor,

##### 5) The other accessories required for the high pressure measurements as well as pressure determination

- Ruby powder and Spheres. *Contains 0.5mg of different sized ruby spheres. The diameters are variable between 10 to 50microns in size*
- Gasket pre indentation and drilling. *Work performed on the 20 pieces included in the DAC*

#### 2. The pressure calibration system for diamond anvil – 1 item (index number: W1/1000061473)

##### The pressure calibration system for diamond anvil based on the measurement of luminescence crystal ruby:

##### Equipment and parameters:

- The Spectrometer with detector used for ruby manometry in diamond anvil cells. The system can provide an accuracy of +- 0.1 GPa or better on ruby fluorescence pressure determination.

- The stable green (532 nm) or blue (450 nm) laser working in TEM00 mode Should enable pressure determination with the given accuracy
- Optical system with microscope objective enabling positioning of the laser beam as well as collecting splitted light
- XYZ positioning stage
- advanced data acquisition software and automatic or manual pressure determination
- Connection between spectrometer and computer via an USB port to carry out the measurements
- CCD camera connected to the Computer via an USB port.