HYDROTHERMAL SYNTHESIS REACTOR UNIT

OPERATION MANUAL

HIRO COMPANY

SPECIFIED CONDITIONS

Design Pressure : 3MPa
Design Temperature: 210℃
Main Materials : 304 Stainless. Teflon
Strength Calculation Product designed and manufactuered in accordance with the JIS B8243 standard for pressurized container construction
Manufacturing Drawings: HIRO Company Serial Nos, A3—3039/A4—3037

Precautions for Use and Operating Instructions

① This equipment must not be used under conditions that exceed those specified herein. if used under conditions that exceed those specified. the reaction vessel. drive and other equipment will be subjected to unforeseen loads that could resultin accidents and damage.

② Reaction Vessel Setup Procedure (Use the reverse procedure for disassembly)

a) Test Material Filling ⇨ Set『Teflon Partition Sheet』 ⇨ Set『Stainless steel presser sheet』⇨Insert screws as far as will go by hand ⇨ Tighten the 6 Setting Bolts evenly With a torque Wrench, and finally tighten the Teflon Pressure Release Cap.

* Do not apply excessive tightening torque when tightening bolts.
Effective tightening should be applied to the 6 setting bolts.

b) After setting up the reaction vessels, aftach the reaction vessel set to the rotary drive shaft in the heater unit with the mounting bolts provided.

c) Turn on the switch on the right side of the heater unit, set the temperature (note A, program Settings) and set to ON to begin the heating cycle.
Note A:Available as option

d) Turn on the rotary drive switch and adjust to the desired RPM (set with speed dial according to the velocity of the vessel contents,) Normally, the speed should be 10~15rpm above this speed range there is a possibillty insufficient mixing of the contents owing to centrifugal force.

③ When handling the reaction vessels, there is a danger of accidents occrring if subjected to sudden forced cooling when the vessel is at high temperature and high pressure, Be sure, therefore, to allow the reaction vessels to cool to room temperature before operating the pressure release cap to resume normal pressure before opening the cover Release pressure gradually with the pressure release cap valve lf the pressure release valve is opened suddenly there is danger of the inner vessel Teflon container being deformed.

④ When cleaning the inside and outside of a reaction vessel, be sure to wear protectlve gloves to avoid injury to the hands on parts containing screws, etc. After cleaning be sure to protect sheet surfaces against damage before reuse.

⑤ Do not touch or place your hands anywhere near the drive unit or its rotating drive shaft when in operation, Serious injuries may result.

⑥ As regards the heater unit, please read the Operations Manual (under separate cover) thoroughly to avoid any inappropriate operations. Never place and equipment other than the specified reaction vessel mentioned herein in the heater unit.

⑦ Make sure that the unit is held securely in place, to protect it against falling over in the event of earthquakes or sudden lmpacts, The unit is equipped with castors for ease of movement under normal circumstances, but which can be hazardous during an earthquake. Be, sure, therefore, to anchor the unit firmly against a wall, using chains or other securing device.

⑧ As regards other aspects of handling not mentioned herein, this equipment should be handled within the bounds of common sense (Electrical equipment should not be subjected to impacts or water)

⑨ Do not modify this equlpment in any way without notification. When wishing to modify the equipment, be sure to first consuit the design department of hiro Co, Ltd

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