

# Overview of Development of Explosion-proof Electric-powered Reactor

## 1. Development framework

Chubu Electric Power Co., Inc.

Location: 1 Higashi-Shincho, Higashi-ku, Nagoya City, Aichi Prefecture

President: Toshio Mita

ITO KOKI CO., LTD.

Location: 14-20 Mitsuya-cho, Yokkaichi City, Mie Prefecture

President: Taizo Ito

Nihon Dennetsu, Co. Ltd.

Location: 500 Toyoshina, Azumino City, Nagano Prefecture

President: Shigeaki Yamamoto

## 2. Specifications of newly developed product

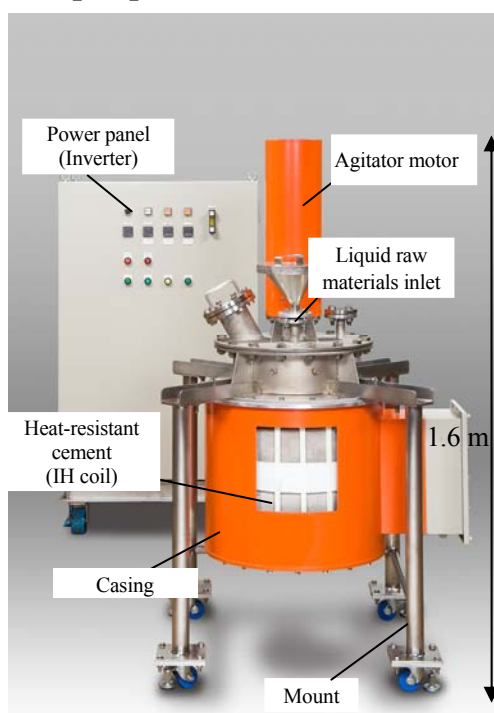


Fig. 1: Appearance of developed product

Table 1 Specifications of developed product

| Item   |               | Units                       | Developed product  | Available by special order                 |
|--|---------------|-----------------------------|--------------------|--|
| Internal capacity                              |               | L                           | 100                | 100 – 3,000                                |
| Power source capacity                          |               | kW                          | 25                 | 25 – 750                                   |
| Thermal capability                             |               | kW                          | 20                 | 20 – 600                                   |
| Dimensions                                     | Reactor       | Ext. diameter × Height (mm) | 740 × 1,600        | 740 × 1,600<br>– 1,900 × 4,000             |
|  | Control panel | W × D × H (mm)              | 800 × 200 × 1,500  | 800 × 200 × 1,500<br>– 1,200 × 300 × 1,800 |
| Price (not including tax and construction fee) |               | 10,000 yen                  | 600                | 600 – 7,200                                |
| Power specs                                    |               | –                           | AC200V three-phase |  |
| Temperature                                    |               | °C                          | 200 – 400          |  |

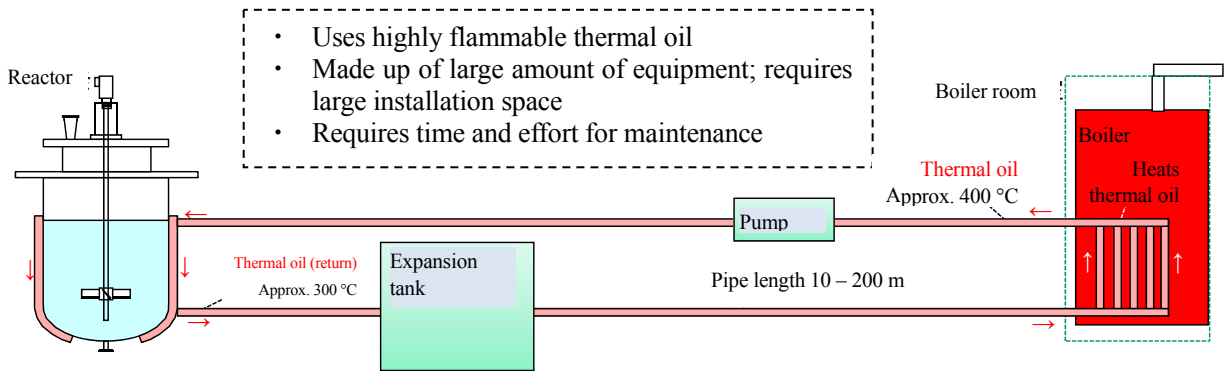
Note 1 Specifications and price are indications only, and will differ depending on type of contents and thermal capability.

Note 2 The developed product has been certified as an “explosion-protected electrical apparatus” by the Technology Institution of Industrial Safety, and can be used in Zone2 of Constructional Requirement for Electrical Equipment for Explosive Atmospheres (places in which there is a possibility that flammable gases will be produced, and there is a danger that occasional sparks, etc., may cause an explosion). However, separate certification is required for high-capacity reactors.

### 3. Aspects of Development

#### <1> Conventional (thermal oil-heated) reactor

... Heats reactor by supply of high-temperature oil from oil- or gas-fired boiler

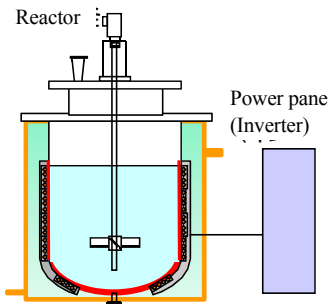


- Uses highly flammable thermal oil
- Made up of large amount of equipment; requires large installation space
- Requires time and effort for maintenance

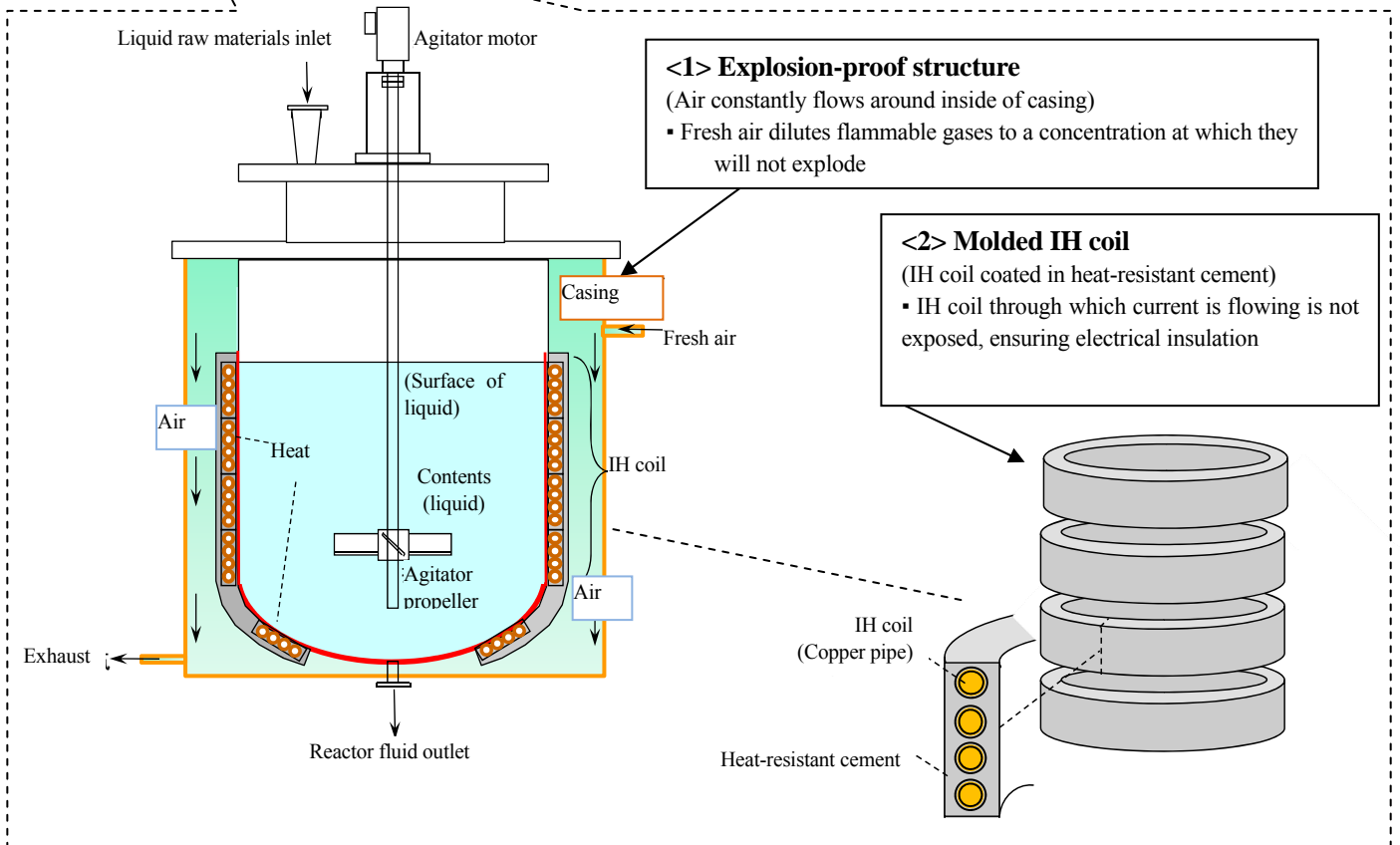


Realizes reduced installation space and reduced maintenance!

#### <2> Developed product ... Reactor itself produces heat using electricity



- Safe; does not use highly flammable thermal oil
- Requires little space; made up of reactor and inverter only
- Low maintenance



**<1> Explosion-proof structure**  
 (Air constantly flows around inside of casing)  
 ▪ Fresh air dilutes flammable gases to a concentration at which they will not explode

**<2> Molded IH coil**  
 (IH coil coated in heat-resistant cement)  
 ▪ IH coil through which current is flowing is not exposed, ensuring electrical insulation

