The himac High-Speed Refrigerated Centrifuge established reputations as a standard model in the global market. CR-G III series have taken over its reliability and are featuring various advanced functions with high performance. In addition, CR-G III series have been designed for easy to use and environment-friendly than ever.

**Improved Accel/Decel Time — Max. 3 times Faster**

**himac original technology “PWM motor control”**
- PWM (pulse width modulation) motor control has realized substantial reduction in acceleration and deceleration time.
- Acceleration and deceleration time of CR-G III series with large capacity rotor has improved max. 3 times faster than the one of our former models of high-speed refrigerated centrifuge.
- Reducing running time contributes to energy saving and reducing CO2.

**e.g. Comparison of Centrifugation (1 cycle)**
(conditions : 500ml x 6 bottles, at 10,000rpm, for 10min.)

Energy Saving

**Acceleration and Running at set speed**
- Reduced electricity consumption substantially by IGBT inverter

Deceleration
- himac regenerative braking system re-generates max.40% electricity used for acceleration and running.
- It reduces heat radiation into the room and is high efficient for energy saving.

Former models
- Kinetic Energy → Heat radiation into the room

New System
- Kinetic Energy → Regenerated to electricity and reused

Self-Locking Rotor System
- Hitachi Koki is a pioneer to introduce “Self-Locking Rotor System” in Centrifuges.
- Just placing a rotor onto the drive shaft
- No need to fix the rotor by screw or push the button to lock or unlock the rotor.
- Automatic rotor identification
- Optimized running condition is automatically adjusted. (such as compensating for air friction and implement temperature control)

**Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>CR22G</th>
<th>CR21G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Speed (rpm)</td>
<td>22,000</td>
<td>21,000</td>
</tr>
<tr>
<td>Max. RCF (x.g)</td>
<td>55,200 (R22A4)</td>
<td>50,300 (R22A4)</td>
</tr>
<tr>
<td>Temp. Control Range (°C)</td>
<td>-20 to +40</td>
<td>-20 to +40</td>
</tr>
<tr>
<td>Accel/Decel Mode</td>
<td>Accel : 9 modes / Decel : 9 modes, free deceleration</td>
<td></td>
</tr>
<tr>
<td>Chiller</td>
<td>Induction Motor (inverter control)</td>
<td></td>
</tr>
<tr>
<td>Refrigerator</td>
<td>1,500W (hermetically sealed type) (Refrigerant : R404A)</td>
<td></td>
</tr>
<tr>
<td>Standard</td>
<td>ICE61010-2-020, EN61326, CE marking qualified</td>
<td></td>
</tr>
<tr>
<td>Dimension</td>
<td>752x810x1,144 (panel opened)</td>
<td></td>
</tr>
<tr>
<td>(height to table : 858)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>AC220V, 230V, 240V, Single Phase, 30A 50/60Hz</td>
<td></td>
</tr>
</tbody>
</table>

* When using following rotors, please place an order of CR-G III series without CE mark.

Continuous flow rotor: R18C/R13C/R10C
**Advanced Technologies and Useful Functions**

- **Automatic Rotor Identification**
  - This function automatically adjusts optimized running condition based on the rotor automatically identified by compensating for air friction and implementing temperature control etc.

- **Non-Contact Imbalance Protection**
  - The himac original imbalance sensor continuously measures oscillation over the entire rpm range. The system immediately detects abnormal vibrations and stops rotation.

- **Actual Run Timer**
  - Conventional run timer starts when the rotor starts acceleration. But himac original Actual Run Timer starts when the set speed is attained. It enables users to control actual run time and obtain higher reproducibility of separation.

- **Pre-Cooling Chamber**
  - This function maintains temperature inside chamber room at low temperature with preventing from icing, in order to reach target temperature shortly.

**Angle Adjustable LCD Panel**

- Wide viewing angle LCD Panel
- Angle of the panel is adjustable at easily viewable position.
- Large indication of basic information (Speed, Time, Temp.) for running status at a glance.

**Various Functions (9)**

- **New Rotor Registration**
  - When you purchase newly released rotor, the rotor information can be entered into the system by manual. It eliminates troublesome work, such as replacing ROM etc.

**Various Functions (10)**

- **Alarm Information Display**
  - If any alarm is activated during operation, details and counter measurement of the alarm are displayed on the screen. It enables you to recover the unit from the alarm condition shortly.

**Various Functions (11)**

- **User Lockout System**
  - Users of the centrifuge are limited by this function. Before usage, user ID and pass word should be registered to the system, then log in the system to start operation. It is useful function to control users based on the groups or laboratories.

**Various Functions (12)**

- **Operating Log Management Function**
  - Under “user lockout function” is selected, you can manage and display operating log based on the user. User name, operating date, type of rotor, running speed, running time, temperature and RCF value can be recorded up to 99 cases in total.

**Optional Functions**

- **Data Output Port (comply with GLP/GMP)**
  - Operating conditions and histories can be output through RS232C communication port to PC or Printer. (factory option)
  - Exclusive software to manage operating log is also available.

- **Biosafety Modification**
  - The himac High-Speed Refrigerated centrifuge can be modified for biosafety model as factory option.

**Example of Centrifuge with HEPA Filter**

- In order to make negative pressure inside a chamber room of the centrifuge, air can be exhausted by vacuum pump through HEPA filter from the chamber. (factory option)

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**New Swinging Bucket Rotor**

- **R8S**
  - Max. Speed : 8,000 rpm
  - Max. RCF : 11,500 g
  - No wind-sheilded shaft design offers easy operation to users.
  - Nominal Capacity : 50ml TC tube (conical-type) x 4 tubes

**High-capacity Light WeightRotor**

- **R9A**
  - Innovative aluminum alloy made lightweight rotor
  - This series’ rotors are half the weight of conventional rotors in the same capacity. Greatly reduce acceleration/deceleration times. Enables to rotate at Max. speed with bottles filled with any volume, as long as balanced.
  - Nominal Capacity : R13A : 250ml x 6 (10.9kg) (autoclavable)
  - R12A6 : 500ml x 4 (14.8kg) (autoclavable)
  - R10A5 : 500ml x 6 (15.9kg) (autoclavable)
  - R8A : 1,000ml x 4 (13.7kg) (autoclavable)

**Fixed Angle Rotor for 50ml TC (Conical-Bottom) Tube**

- **R18A**
  - 18,000rpm
  - 42,200 x g
  - 50ml x 8

- **R15A**
  - 15,000rpm
  - 32,240 x g
  - 50ml x 10

**Special Sealed-type Fixed Angle Rotor**

- “himac 50ml TC tube” applicable to high x g is available!!
  - (Part No. S30796A : 5pcs x 50 pack/lot)

**Swinging Bucket Rotor**

- **R6S**
  - Carousel type
  - Suitable for pelleting samples with conical-type tube

**Fixed Angle Rotor with Fluid Annulus**

- Even if a sample is overflowed from a tube inside the rotor during centrifugation, overflowed sample is dwelled in the fluid annulus.

- Model : R13A, R23A, R12A6

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**Bio Safety Modification**

- The himac High-Speed Refrigerated centrifuge can be modified for biosafety model as factory option.