

# HITACHI

## SCREW AND CENTRIFUGAL CHILLER SERIES

# HITACHI

Johnson Controls - Hitachi Air Conditioning India Limited (Formerly known as Hitachi Home & Life Solutions (India) Limited).  
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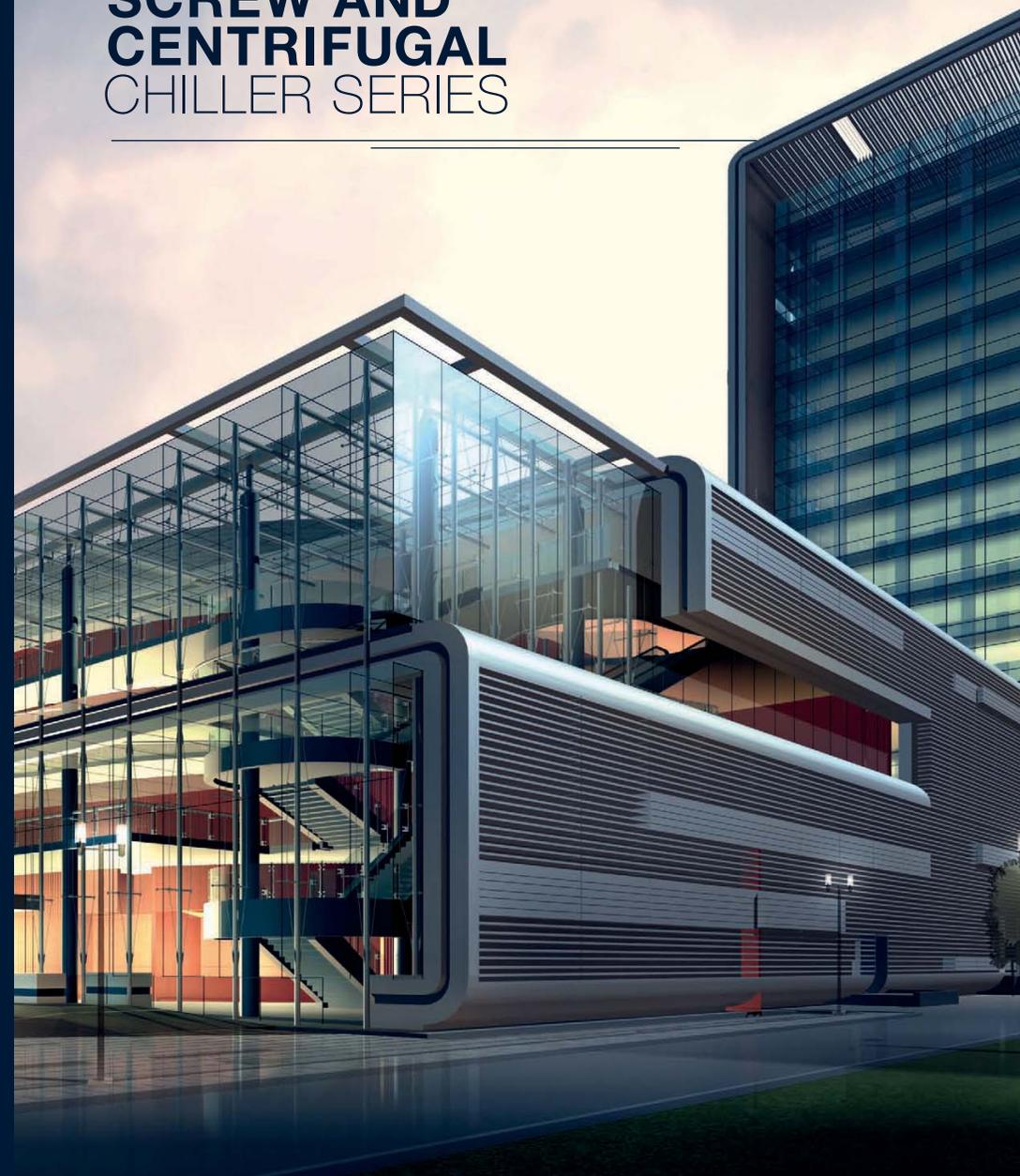
\*T&C Apply: Products shown in catalogue are for representation purpose only. Due to continuous research and development process, product may vary without any prior notice.

**HITACHI**  
Dial-a-Care  
1800 238 4848  
3522 4848



This is an e-waste product and should not be mixed with general household waste at the end of its life.  
For more details, kindly visit our website or contact Hitachi Dial-a-Care.

\*Prefix local city/state capital STD code or 079. Available only in limited states.



OUR THOUGHTS,  
YOUR BELIEF,  
TOGETHER CREATING  
**EXPERTISE  
THAT  
DELIVERS!**



**CUSTOMERS, OUR PRIORITY**  
We always put  
you first.



**INNOVATIVE  
TECHNOLOGY**  
We make your  
life easier.



**ADVANCE TESTING  
FACILITIES**  
We test, so you  
get the best.



**CUSTOM-BUILT  
PRODUCTS**  
We design  
around you.



**FAST DELIVERY**  
We manufacture our  
products in India.



**VAST DEALER  
NETWORK**  
We are near you.



**TRAINING CENTRES**  
We train to  
serve you better.



**PROJECT EXECUTION  
SUPPORT**  
We are around you all  
the time.

We believe in your dreams and are always eager to go the extra mile to turn them into reality. From sharing our knowledge, technology, and expertise to creating customized solutions for your business, we do everything to help your business grow. We aim to set new benchmarks with our service standards, and this drive to delight you defines who we are.

## ABOUT HITACHI

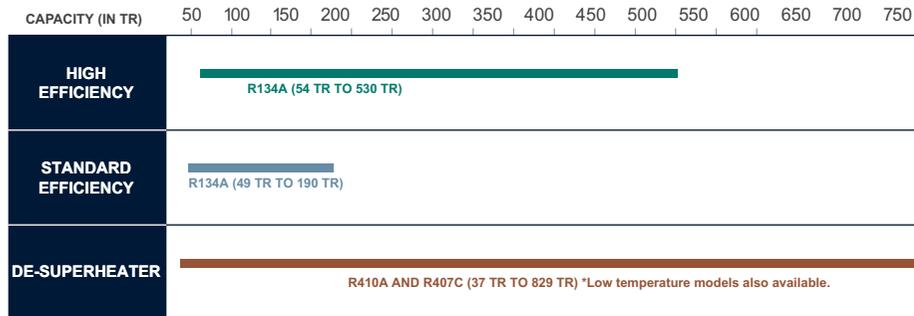
Johnson Controls-Hitachi Air Conditioning is a joint venture company of Johnson Controls (JCI) and Hitachi Appliances, Japan. Through this joint venture, we have combined the rich heritage and innovative technology of Hitachi with the industry-leading expertise and global network of Johnson Controls. Its India unit Johnson Controls Hitachi Air Conditioning India Ltd. (JCH-IN) headquarter is situated in Ahmedabad, Gujarat with manufacturing plant in Kadi, Gujarat. JCH-IN provides advanced air conditioning solutions to meet a wide variety of needs. We offer numerous models for commercial use including VRF air conditioning systems, packaged air conditioners, chillers and district cooling. Drawing on our extensive experience and advanced air conditioning and refrigerating technology, we are able to offer end-to-end solutions that can make a lot of difference to your business.



State-of-the-art factory at Kadi, Gujarat

## WATER COOLED SCREW CHILLER RANGE

### PRODUCT CAPACITY



### Features That Make Us Unique

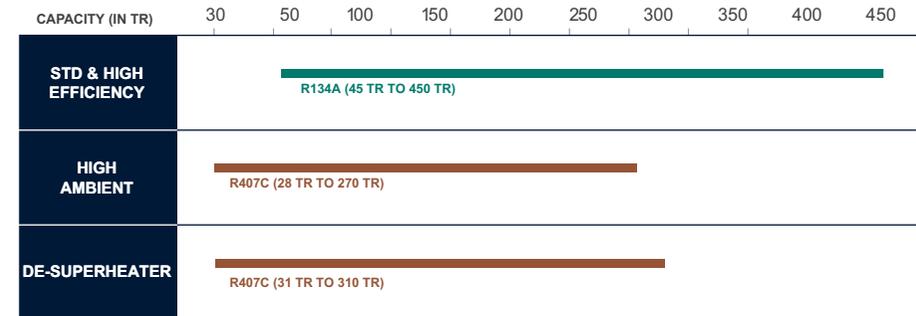
- Highly efficient Hitachi screw compressor
- Max. ARI COP 6.48 achieved
- High-performance twin-screw compressor
- Semi-hermetic design compressor
- Increased oil separation efficiency due to cyclone type oil separator
- Available with eco-friendly R134a, R410a and R407c refrigerant
- Multiple compressors & refrigerant circuits design
- De-superheater & low temperature models (up to -20°C) are available.
- Advanced control panel
- Extremely low noise and vibration
- Factory fitted excellent protection controls
- Precise continuous capacity control technology (25% to 100%)



\*Features may vary from model to model.

## AIR COOLED SCREW CHILLER RANGE

### PRODUCT CAPACITY



### Features That Make Us Unique

- Highly efficient Hitachi screw compressor
- Max. COP 3.38 achieved
- High-performance twin-screw compressor
- Semi-hermetic design compressor
- Increased oil separation efficiency due to cyclone type oil separator
- Available with eco-friendly R134a and R407c refrigerant
- Multiple compressors & refrigerant circuits design
- De-superheater & high ambient models (up to 52°C) are available.
- Advanced control panel
- Extremely low noise and vibration
- Factory fitted excellent protection controls
- Precise continuous capacity control technology (25% to 100%)



\*Features may vary from model to model.

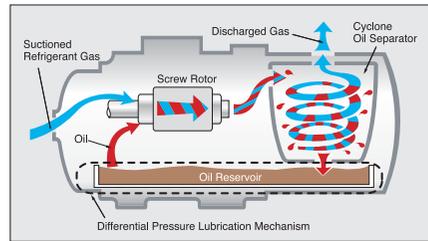
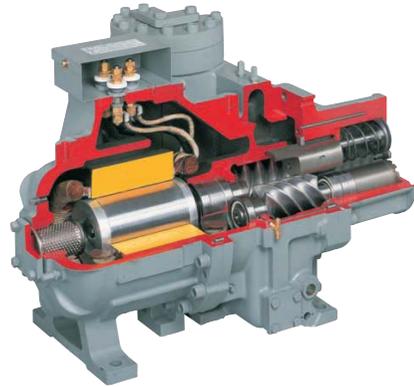
## TECHNOLOGIES OF SCREW CHILLERS

### HITACHI SCREW COMPRESSOR

Since we started manufacturing, we have delivered more than 200,000 Hitachi twin-screw compressors to countries around the world where they continue to meet essential air conditioning needs.

Our screw chillers have highly efficient semi-hermetic twin-screw compressors that run on green refrigerant R134a, R410a & R407c.

The cyclone oil separator they employ has been designed with extensive use of computer simulation. Thanks to these efforts, oil separation efficiency is greatly increased.

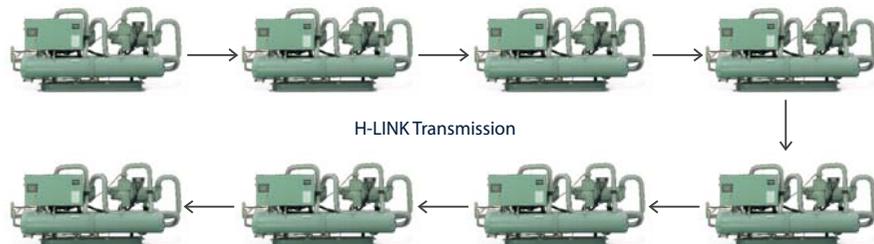


### MODULAR TECHNOLOGY

Hitachi chiller units feature a modular technology.

8 units with the same model can be connected via H-LINK transmission.

So each module can be packed and transported individually for more convenient local installation and displacement. Further, the refrigerant system of each module can be operated independently, which makes maintenance easier. If unexpected trouble occurs in one module, the remaining modules are operated as a backup.



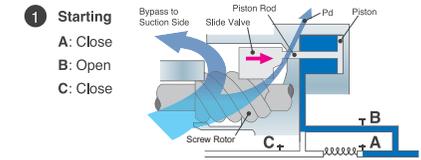
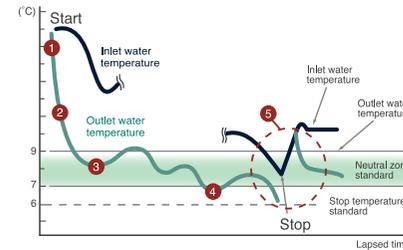
## CONTINUOUS CAPACITY CONTROL

Continuous Capacity Control is based on the precise control of the chilled water outlet temperature, depending on the temperature requirement of the cooling load.

- A slide valve within the screw compressor to change the refrigerant circuit variables according to the requested load.
- An optimized electronic system based on the control band to maintain a constant outlet temperature.

Continuous Capacity Control is performed by adjusting the position of the slide valve. The position of the slide valve can be changed freely between 25% to 100%.

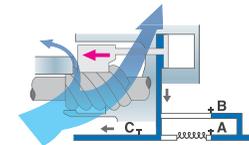
### Capacity Controller Structural Outline



**1 Starting**  
**A:** Close  
**B:** Open  
**C:** Close

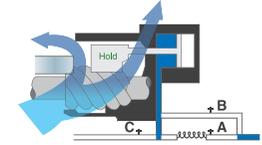
Starting with minimum capacity, solenoid valve B is opened. Oil is discharged to the cylinder, and its discharge pressure moves the piston to the right. The suction pressure moves the slide valve to the right completely opening the refrigerant bypass. The advantage is quick response with minimum capacity (25%).

- 2 Load Up**  
**A:** Close  
**B:** Close  
**C:** Open



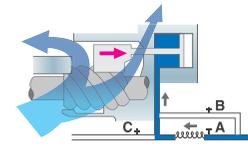
If the chilled water outlet temperature is higher than the set point, the compressor increases its capacity to achieve it by opening solenoid valve C. As the slide valve is moved to the left, the refrigerant bypass is closed and the quantity of compressed refrigerant is increased. This results in an increased capacity.

- 3 Load Constant**  
**A:** Close  
**B:** Close  
**C:** Close



If the chilled water outlet temperature is close to the set point, all solenoid valves are closed. The slide valve remains in the same position, and the capacity is maintained.

- 4 Load Down**  
**A:** Open  
**B:** Close  
**C:** Close



If the chilled water outlet temperature is lower than the set point, the compressor decreases its capacity by opening solenoid valve A. Oil is discharged to the cylinder little by little through the capillary tube, and the capacity is ratcheted down.

- 5**

If the chilled water outlet temperature is lower than the band for stop, its thermo turns off and the compressor is stopped. When the thermo is turned off, it memorizes the chiller water inlet temperature. If the chilled water inlet temperature reaches 2°C higher than the thermo-off point, the compressor is restarted.

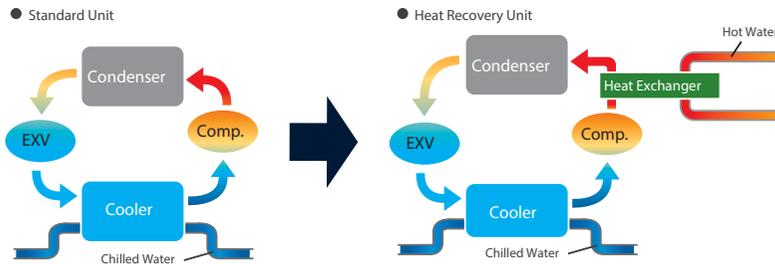
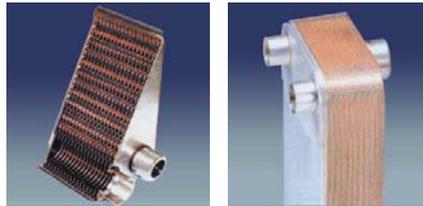
The electric control system compares the value measured by the thermistors with the set value. Depending on the measured value, the control signal instructs the position of the slide valve. When a quick response is

needed and the measured temperature is very far from the set point, the system can be programmed to provide quick control. When precise control is required, the measured temperature is close to the set point, and it can be programmed to give a more precise response  $\pm 1^\circ\text{C}$ .

Thanks to Hitachi's technical expertise in the Twin Screw Compressor, it is possible to achieve precise water temperature control that is ideal for industrial processes and air conditioning applications.

### COMPACT HEAT RECOVERY SYSTEM BY USING A PLATE-TYPE HEAT EXCHANGER (OPTIONAL FEATURE)

Hitachi's heat recovery unit consists of a small heat exchanger and is compactly designed. This recovery unit utilizes the energy of making chilled water to supply hot water. Therefore, hot water is supplied for free, and the capacity of the boiler can be reduced. It can supply  $60^\circ\text{C}$  hot water (at 100% operation), and its COP is improved.



This Heat Recovery chiller is suitable for various uses such as Hospital, Restaurant and Hotel.



### EASY-TO-VIEW, USER-FRIENDLY TOUCH PANEL TYPE LIQUID CRYSTAL SCREEN DISPLAY

The display makes it easy to view the current operating state and simplify the setting procedure. Various parameters can be confirmed at a glance.

Regardless of the operating state, the interface keyboard allows you to set a variety of operation modes.

A warning log function makes it possible to recall the ten most recent warning events.

The user interface is provided in both English and Chinese.



Main Screen



Compressor Screen



Status Screen



Parameter setting Screen



Setting Screen

### BUILDING MANAGEMENT SYSTEM (BMS)

A BMS-connecting interface can be supplied.

