

# HITACHI

Johnson Controls - Hitachi Air Conditioning India Limited (Formerly known as Hitachi Home & Life Solutions (India) Limited).  
Head Office: Hitachi Complex, Karan Nagar, Kadi, Distt. Mehsana - 382727, Gujarat, India. Tel: (02764) 277571.  
Website: [www.jci-hitachi.in](http://www.jci-hitachi.in) | Email: [sales@jci-hitachi.com](mailto:sales@jci-hitachi.com)

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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.

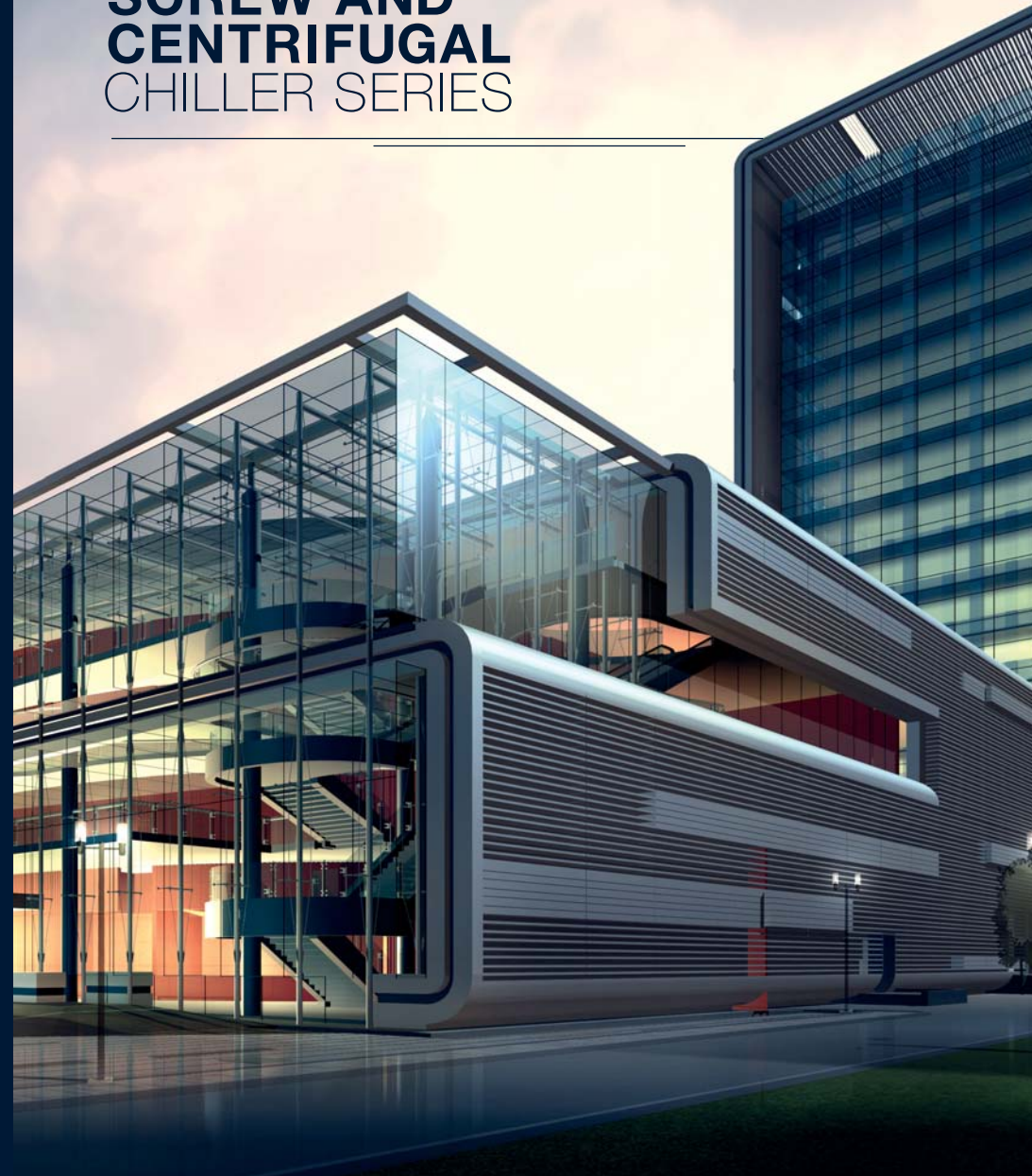


This is an e-waste product and should not be mixed with general household waste at the end of its life.  
For more details, kindly visit our website or contact Hitachi Dial-a-Care.

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

# HITACHI

## SCREW AND CENTRIFUGAL CHILLER SERIES



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



**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.



**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.



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

CENTRIFUGAL  
CHILLER RANGE

## PRODUCT CAPACITY

CAPACITY (IN TR)	300	500	700	900	1100	1300	1500	1700	1900	2100	2300	2500
<b>GEAR DRIVE CENTRIFUGAL CHILLER</b>	R134A (300 TR TO 2500 TR) *MAX. 5,000TR WITH TWIN MODULE (LEAD-LAG) APPLICATION											
<b>NEW DIRECT DRIVE CENTRIFUGAL CHILLER</b>	R134A (300 TR TO 1100 TR)											

## Features That Make Us Unique

- Highly efficient Hitachi Centrifugal Compressor
- 3 dimensional blade impeller with 2-stage compression
- Max. COP 7.0 & IPLV 11.5 achieved
- Available with eco-friendly R134a refrigerant
- Available with Start Delta Starter, Soft Starter and Inverter Starter options.
- Highly reliable Advance Surge Protection technology
- Continuous operation under high ambient temperature
- Eco mode operation for drastic improvement in COP during off season
- Quick auto-restart within 10 sec after power failure
- Energy Saving mode operation (optional feature)
- 10.4 Inch Advance Touch LCD Panel
- Precise Continuous Capacity Control technology (10% to 100%)
- Compact and light-weight design
- Saving in maintenance cost due to reduction in rotating parts in direct drive centrifugal chiller
- Zero mechanical loss in direct drive centrifugal chiller



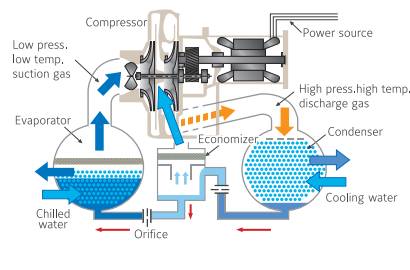
\*Features may vary from model to model.

TECHNOLOGIES  
OF CENTRIFUGAL CHILLERS2-STAGE  
COMPRESSION CYCLE

To improve compressor efficiency, refrigerant economizer is added with 2-stage compressor equipped with 2 impellers, as shown in the drawing below. In this case, the refrigerant goes through two expansion devices. When the refrigerant goes through the first device, some of the refrigerant flashes, or becomes a gas.

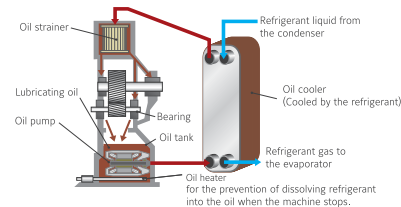
The flashed refrigerant is introduced to the compressor between the two stages. In one stage compressor cycle without the economizer, all refrigerant flows in the cycle. Comparatively, in the 2 stage compressor cycle part of the refrigerant is bypassed from the economizer to the 2 stage impeller.

## • 2-stage Centrifugal Chiller Cycle

HIGH RELIABILITY  
LUBRICATION SYSTEM

Direct refrigerant cooling of lubrication oil in oil cooler without cooling water piping increases reliability.

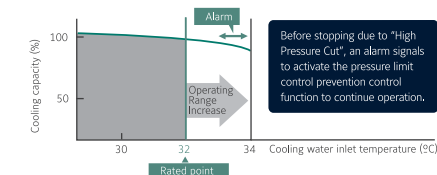
## • Lubrication Oil Supplying System



## WIDER OPERATION RANGE

Stable operation continues even after the rise of condenser pressure due to cooling water temperature in hot summer and/or producing of tube fouling.

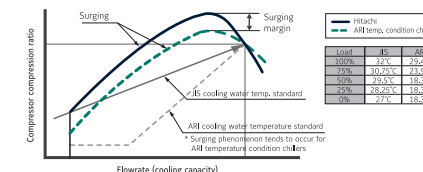
- Example of rising cooling water temperature due to rising ambient temperature.



## SURGE PROTECTION

Adopting strict criteria in JIS for stable operation under high cooling water temperature. 3D 2 stage impeller enables stable operation even at low cooling load or high cooling water inlet temp. which prevents occurrence of surge.

## • Compressor characteristic comparison



\* This figure shows general characteristics and does not provide any guarantees as to the performance.

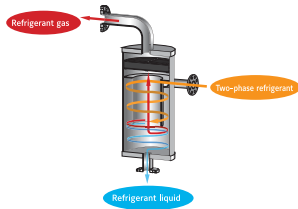
OTHER UNIQUE FEATURES  
TO ENHANCE RELIABILITY

- Key-free impeller coupling system
- Accurate chiller water temperature control within +0.2c
- Low noise & longer bearing life due to lower rotation speed of 2 stage compression cycle.
- Continuous oil recovery with automatic refrigerant cleaner.
- Prevention of oil degradation by removing residual water with filter dryer.



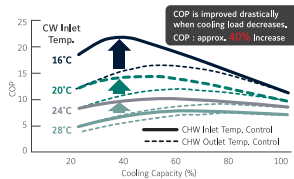
## NEW TYPE ECONOMIZER

Improvement of vapor-liquid separation performance and significant downsizing are realized by the use of newly developed economizer. (Cyclonic system)

ENERGY AND POWER SAVING  
OPERATION FUNCTIONS“ECO MODE” OPERATION (CHILLED  
WATER INLET TEMP. CONTROL)

The chiller is usually controlled so the chiller water outlet temperature remains constant. This ‘eco-mode’ operation introduces the inlet temperature control, where the chilled water inlet temperature is controlled to be constant. The outlet temperature rises a bit but this is enough for the off-peak season air conditioning.

- Comparison of Characteristics between CHW Outlet/Inlet Temp. Control

ENERGY SAVING MODE  
OPERATION (OPTIONAL FEATURE)

Once the target motor power consumption is set, the chiller is automatically controlled by the motor speed, the inlet guide vane opening and the chiller water outlet temperature rise. This control is extremely useful for the energy saving especially in the off-peak season when the motor speed is easily decreased.

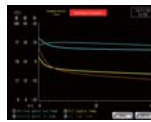
- Energy Saving Mode Setting Screen

EASY OPERATION WITH  
TOUCH PANEL TYPE  
CONTROL PANEL

- 10.4 inch color touch panel screen
- Monitor various operating data
- Indicate trend graph during operation
- Trend data for max. 40 hours. (Updated every 1 hour)
- Indicate and store operation history for past 12 hours(updated every hour)
- Indicate and store failure and alarm history (latest 6 times each)
- Show handling guide in case of failure
- Automatic restart function after instantaneous power failure(option)
- Multiple language indication
- Download 3-month operation data to USB memory



Operation screen



Failure screen



Trend data screen



Handling guide screen

## COMPATIBLE WITH BMS

Chiller control panel is equipped with RS485 communication port and compatible with building Management system through MODBUS RTU protocol.

QUICK AUTOMATIC RESTART  
AFTER POWER FAILURE

Chiller automatically starts up after instantaneous power failure (less than 10 sec) and reverts to normal operation in shortest period.

EXCLUSIVE TECHNOLOGY OF  
NEW DIRECT DRIVE  
CENTRIFUGAL CHILLERS

Presenting the new Direct-drive VSD Centrifugal Chiller. This top of the line chiller comes with environment friendly refrigerant and high-performance heat exchanger tubes that give it excellent cooling potential while being eco-friendly, thus making it one of the best of its kind.



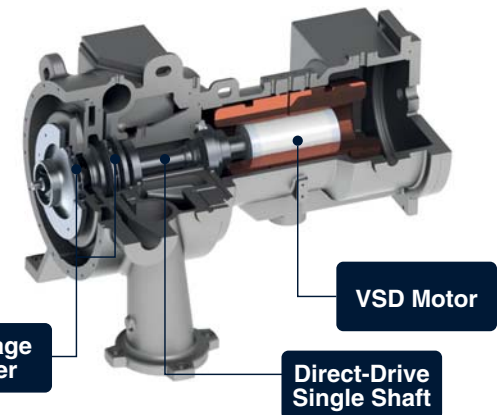
It is also a joy to control, thanks to its touch control panel with 10.4 inch graphic display. Direct-drive two stage compressor improves its efficiency drastically to give it an extra edge by greatly reducing mechanical loss as well as cost of maintenance.

## GEARLESS DIRECT-DRIVE TWO-STAGE COMPRESSOR

Higher efficiency compared to conventional compressor because of no mechanical loss of speed increasing gear.

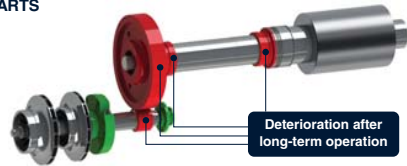
FOCUSING ON  
TOTAL EFFICIENCY  
ALL THROUGH THE YEAR

Adopting VSD Motor and Gearless Direct-drive two-stage compressor, the new series of chiller can realize higher efficiency than the conventional type compressor with gear, and achieve maximum IPLV 11.5 by eliminating mechanical loss of speed-increasing gear.

HITACHI'S LATEST  
DEVELOPMENTTwo-Stage  
Impeller

VSD Motor

Direct-Drive  
Single Shaft

SAVING OF  
MAINTENANCE COSTGEAR TYPE:  
MORE FRICTION  
PARTS

VS

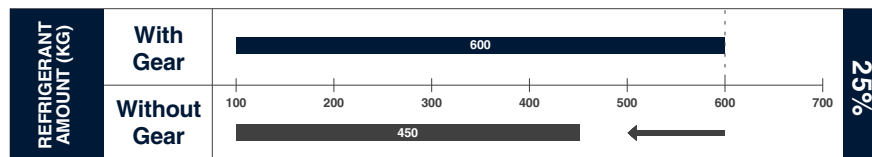
DIRECT-DRIVE  
TYPE: LESS  
FRICTION PARTSReduction of  
Consumable Parts

Adopting VSD direct-drive single-shaft impeller, speed increasing gear is removed and power transmission system is simplified. By reduction of moving parts, the compressor structure is simplified and its dimensions was reduced.

Major rotating parts are reduced from 6 items to 2 items (66% reduction), and contributes customer's service cost saving.

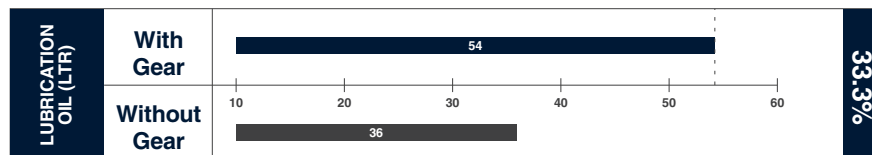
## Reduction of Refrigerant

In comparison of 600TR chiller, refrigerant amount of direct-drive model can be reduced by approx. 25% compared with geared model.



## Reduction of Lubrication Oil

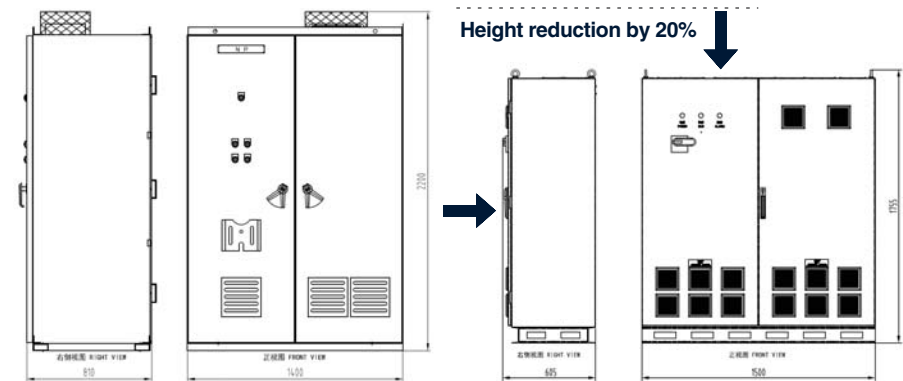
In comparison of 600TR compressor, number of bearing is reduced from 4 sets to 2 sets. Accordingly amount of lubrication oil can be reduced by approx. 33.3%.



## EXCELLENT DOWNSIZING

Downsizing of Inverter Panel  
– Saving Installation Space

New inverter panel also has compact feature. In comparison of 600TR chiller, size of the panel is approx. 64% of the conventional model, and the height is reduced by approx. 20%.



## Installation Space and Operating Weight

Comparison of 600TR Chiller

