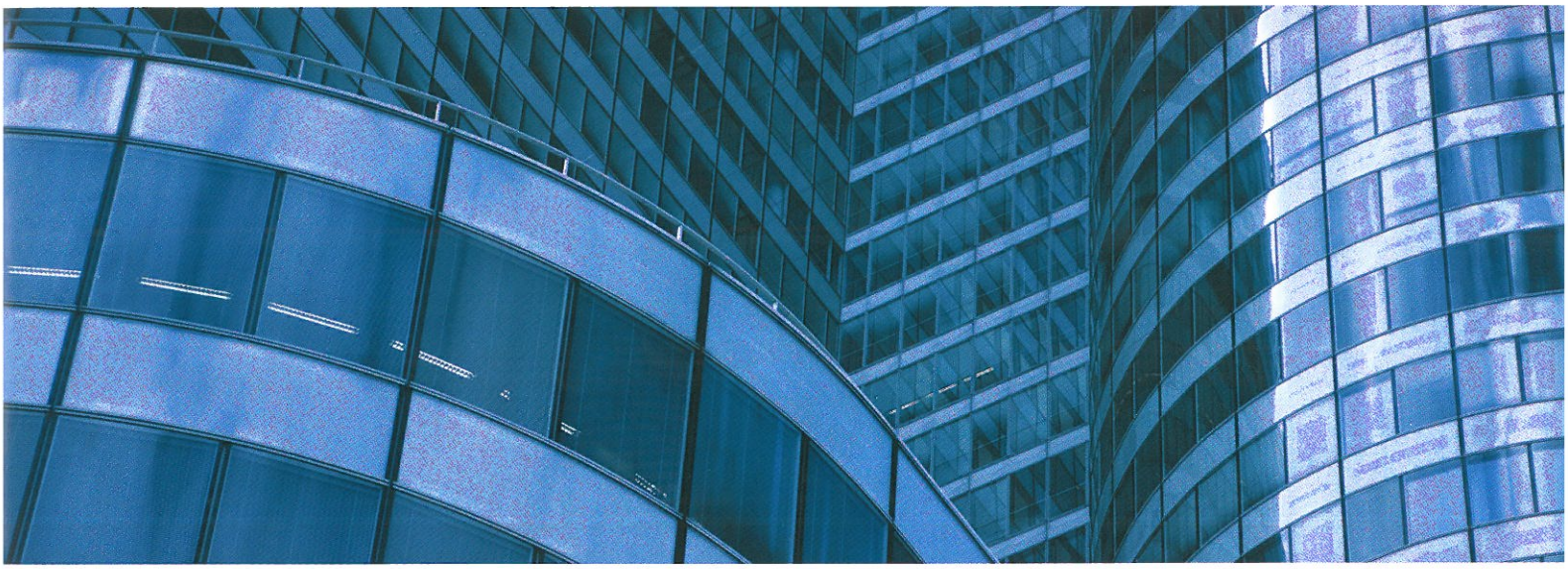
HITACHI
Inspire the Next

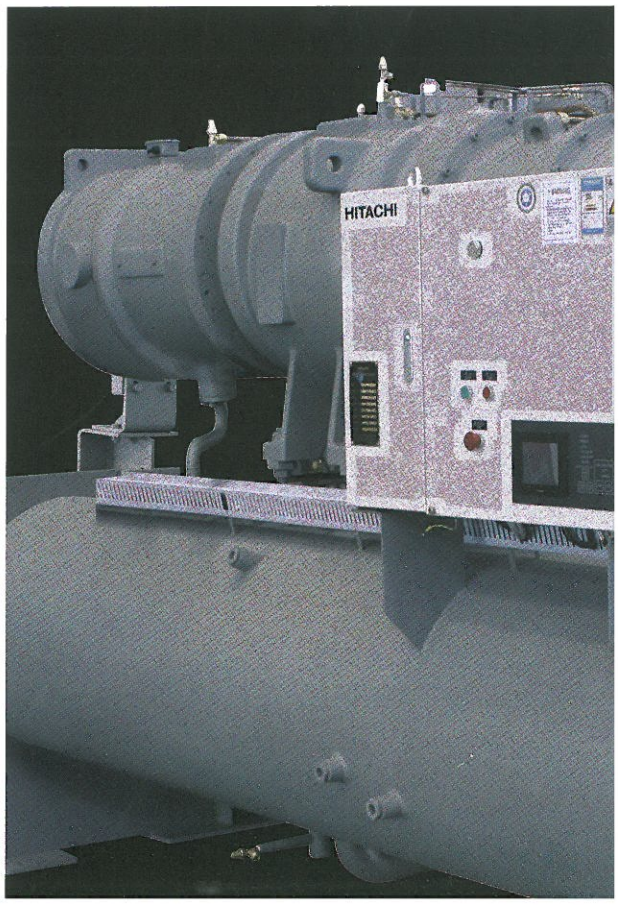
High Efficiency
Inverter Controlled
Centrifugal Chiller



GXG-SIT/GSG-SIT Series

1055 ~ 3516kW
(300 ~ 1000USRT)

HFC134a



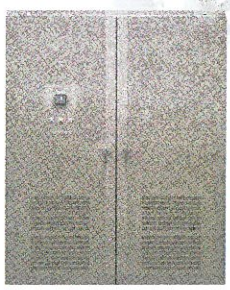
Hitachi High Efficiency Inverter Controlled Centrifugal Chiller

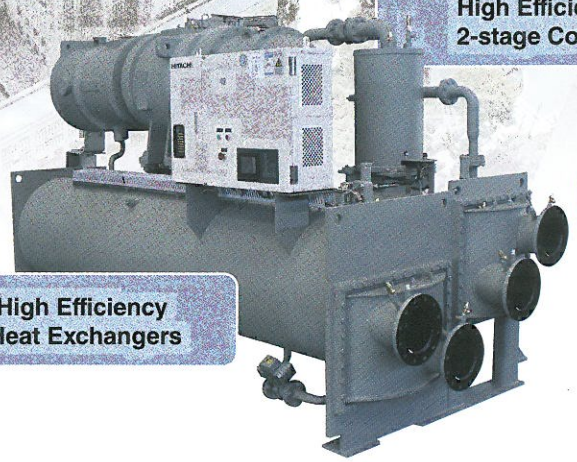
GXG-SIT / GSG-SIT Series

Hitachi inverter centrifugal chillers GXG-SIT/GSG-SIT Series realize energy-saving operation throughout the year utilizing variable motor speed control with inverter unit, drastically improving partial load efficiency under low cooling water temperature condition in off-peak seasons.

In addition, GXG-SIT/GSG-SIT have many excellent features such as compact design and high reliability, etc.,and it is also possible to improve efficiency with flexible combination of compressors and heat exchangers.

Excellent Efficiency throughout the Year





High Efficiency 2-stage Compressor

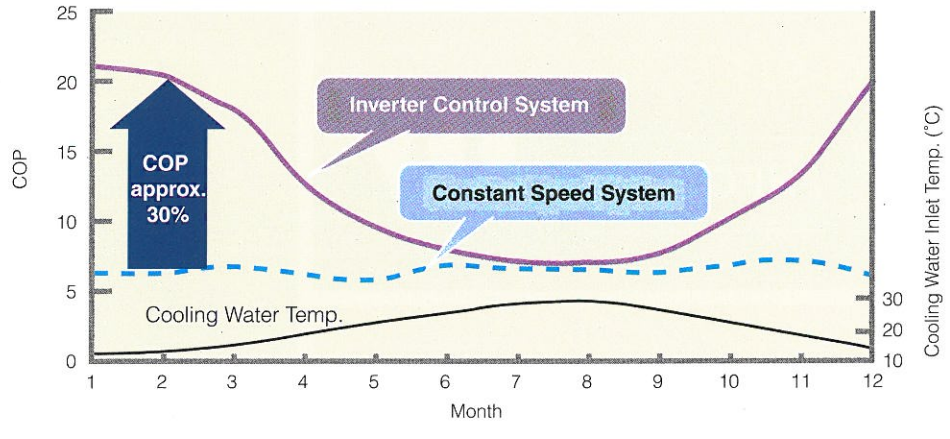
High Efficiency Heat Exchangers

Max. Partial Load COP 21.4

COP during winter season is improved to maximum 330%.

GXG-SIT/GSG-SIT Series can be operated stably even in the very low cooling water temperature. In accordance with the cooling water temperature by seasons, the chillers can maintain highly efficient operation with variable speed control of compressor. Therefore, the chillers are recommended for the customers who need the cooling operation throughout the year.

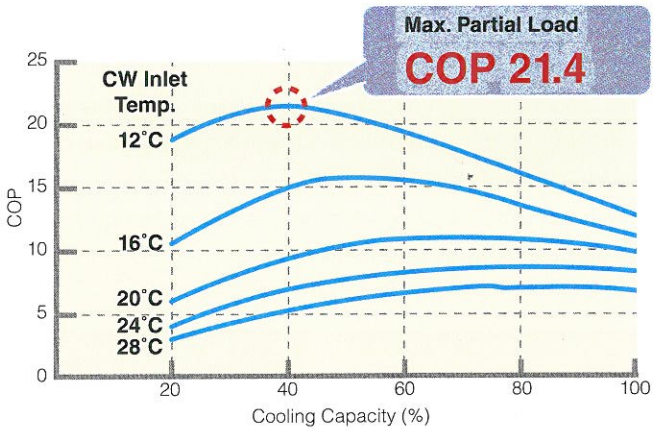
● **COP Characteristics throughout the year**

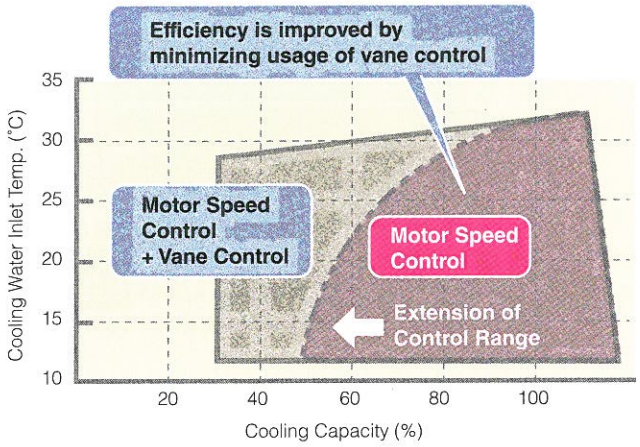


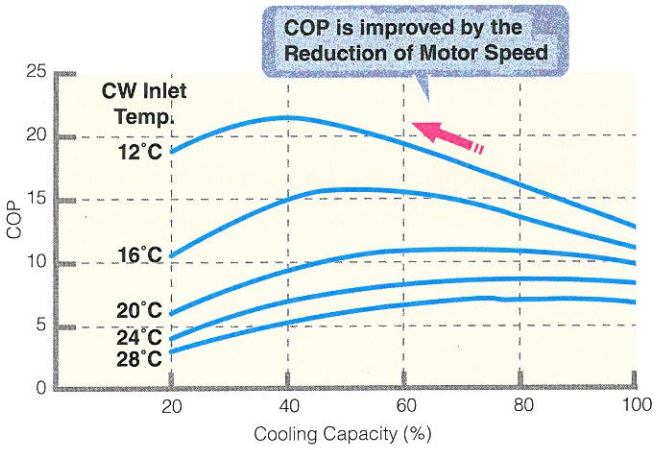
Excellent COP at Partial Load

Various technologies such as newly developed high efficiency economizer (cyclonic system), etc. enabled drastic improvement of the efficiency at partial load with low cooling water temperature.

Improvement of the oil supply temperature control and the automatic oil recovery enables extension of the motor speed control range at low cooling water inlet temperature.

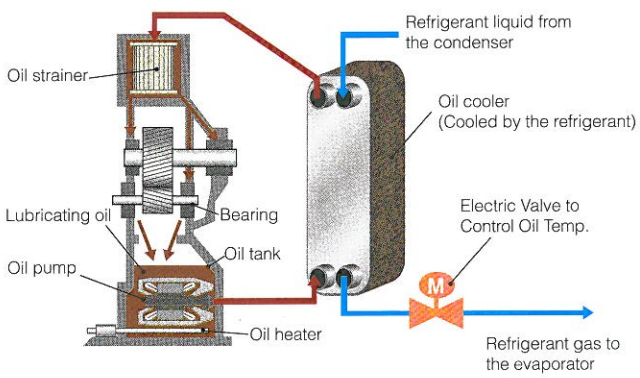






Improvement of the Oil Supply Temperature Control

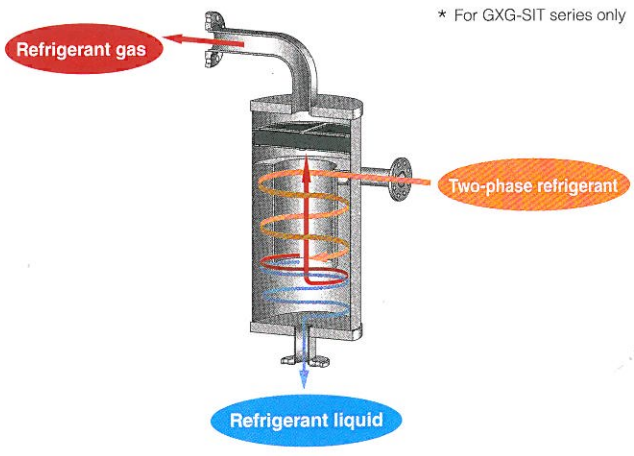
When the compressor rotation speed is low, the friction heat generated at bearings decreases. Therefore, refrigerant flow to oil cooler is controlled to keep the oil temperature property.



Newly Developed Economizer

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

* For GXG-SIT series only

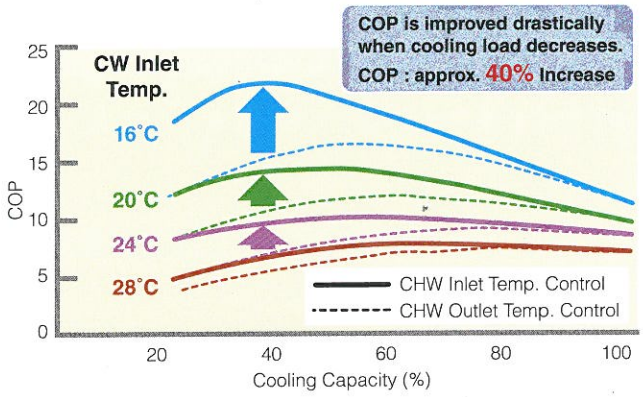


Energy & Power Saving Operation Functions

"Eco Mode" Operation (Chilled Water Inlet Temp. Control)

The chiller is usually controlled so the chilled water outlet temperature to be 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.

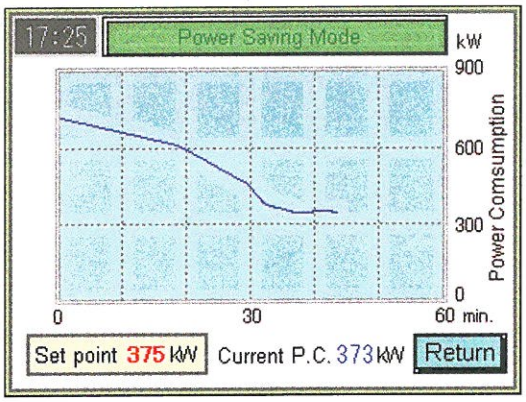
● **Comparison of Characteristics between CHW Outlet/Inlet Temp. Control**



"Energy Saving Mode" Operation (Peak Cut Operation) (option)

Once the target motor power consumption is set, the chiller is automatically controlled by the motor speed, the inlet guide vane opening and the chilled 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.

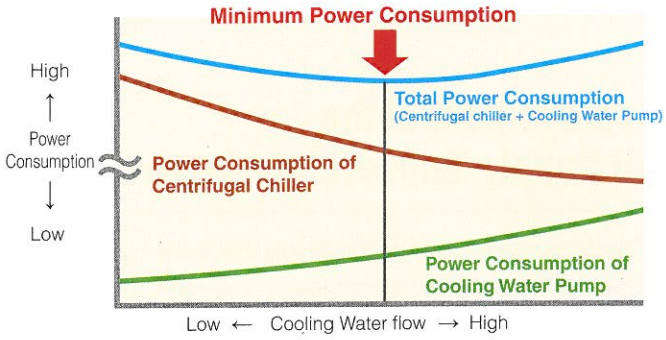
● **Energy Saving Mode Setting Screen**



Cooling Water Variable Flow Operation (option)

When the cooling water variable flow control is applied, the cooling water flow rate is automatically calculated so the total power consumption of the compressor motor and the cooling water pump motor becomes minimum.

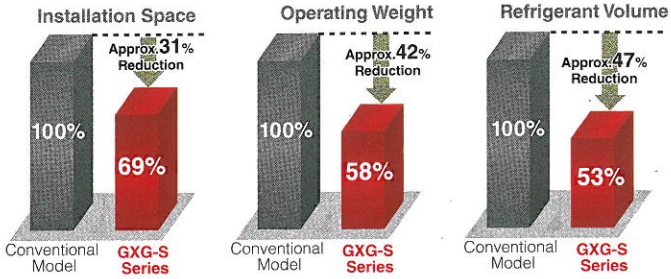
● **Characteristics of Cooling Water Variable Flow Operation**



Top-class Compact Design and Light Weight Design

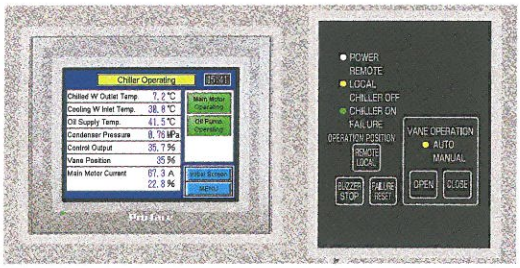
- The compact design greatly improves flexibility in installation.
- Realizing space saving of machine room.
- Easy carry-in to machine room.
- Suitable for replacement of long-operating chillers.
- Significant reduction of refrigerant volume.

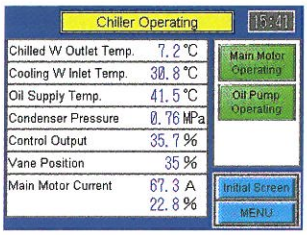
● **Comparison of Chiller Size (Comparison of 1000RT models)**



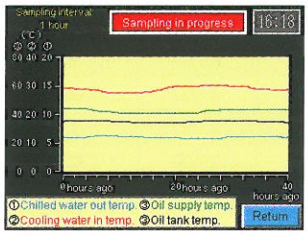
Easy Operation with Touch Panel Type Control Panel

- 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 the 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)
- Multilingual Languages Indication (Japanese, English, Chinese [Simplified, Traditional], Portuguese)

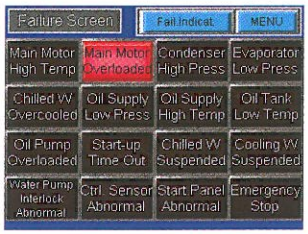




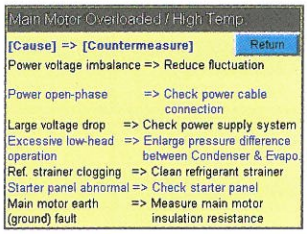
Operation screen



Trend data screen



Failure 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.

Communication Item

Operation Condition

- Date (Year/Month/Day)
- Time (Hour/Min. /Sec.)
- Chiller (operation/stop)
- Oil pump (operation/stop)
- Oil heater (operation/stop)
- Main motor (operation/stop)
- Low load stop (on/off)
- Restart restriction (on/off)
- Condenser pressure Limit (on/off)
- Failure (presence/absence)
- Chiller operation (remote /local)
- Chiller operating hours
- Main motor operating hours
- Oil pump operating hours
- Oil heater operating hours
- Chiller operation times
- Main motor operation times
- Failure times
- Failure information (*1)

Operation Data

- Chilled water inlet temperature
- Chilled water outlet temperature
- Cooling water inlet temperature
- Cooling water outlet temperature
- Oil supply temperature
- Oil Tank temperature
- Main motor operating current (A)
- Main motor operating current (%)
- Vane position
- Control output for Vane position
- Condenser pressure
- Evaporator pressure
- Oil supply pressure

(*1) Failure Information

- Main motor high temperature
- Main motor overloaded
- High condenser pressure
- Low evaporator pressure
- Chilled water overcooled
- Low oil supply pressure
- High oil supply temperature
- Low oil tank temperature
- Oil pump overloaded
- Start-up time out
- Starter panel abnormal
- Chilled water suspended
- Cooling water suspended
- Water pump interlock abnormal
- Control sensor abnormal
- Emergency stop

Feature of Low Voltage Inverter (380V~460V)

- Light and compact structure do not choose installation location.
- Inverter is equipped with DC reactor to is moderate high frequency wave.

Optional Items

- Min.cooling water inlet temperature 12°C (GXG-SIT), and 15°C (GSG-SIT)
- Variable chilled water flow rate (chilled water/cooling water)
- Max. working pressure up to 2.0MPa (evaporator/condenser)
- Min. cooling capacity 10%
- Marine type/hinged type water box (evaporator/condenser)
- Delivery in knockdown form (3 pieces – compressor, heat exchangers, control panel, 4 pieces)

Specifications

■ High Efficiency Type HC-F_GXG-SIT

Model	Cooling Capacity		COP	Overall Dimension				Shipping Weight kg	Operating Weight kg
	USRT	kW		Length (A) mm	Width (B) mm	Height (C) mm	Extubation space		
HC-F300GXG-SIT	200 – 300	703 – 1055	5.05 – 6.04	3,550	1,650	2,200	3,000	5,800	7,200
HC-F350GXG-SIT	301 – 350	1058 – 1231	5.05 – 6.04	3,550	1,650	2,200	3,000	5,800	7,300
HC-F400GXG-SIT	351 – 400	1234 – 1407	5.25 – 6.28	3,550	1,900	2,400	3,000	7,000	8,500
HC-F450GXG-SIT	401 – 450	1410 – 1582	5.25 – 6.28	3,550	1,900	2,400	3,000	7,000	8,600
HC-F500GXG-SIT	451 – 500	1586 – 1758	5.47 – 6.55	4,050	1,900	2,450	3,500	8,400	9,900
HC-F550GXG-SIT	501 – 550	1762 – 1934	5.51 – 6.59	4,050	2,000	2,500	3,500	8,700	10,400
HC-F600GXG-SIT	551 – 600	1937 – 2110	5.59 – 6.69	4,050	2,000	2,500	3,500	8,900	10,500
HC-F650GXG-SIT	601 – 650	2113 – 2286	5.52 – 6.60	4,050	2,000	2,500	3,500	9,100	10,900
HC-F700GXG-SIT	651 – 700	2289 – 2461	5.48 – 6.56	4,050	2,250	2,650	3,500	10,700	12,600
HC-F750GXG-SIT	701 – 750	2465 – 2637	5.54 – 6.62	4,050	2,250	2,650	3,500	10,700	12,700
HC-F800GXG-SIT	751 – 800	2641 – 2813	5.63 – 6.73	4,050	2,250	2,650	3,500	11,100	13,300
HC-F850GXG-SIT	801 – 850	2817 – 2989	5.48 – 6.56	4,050	2,400	2,800	3,500	12,200	14,500
HC-F900GXG-SIT	851 – 900	2992 – 3165	5.54 – 6.62	4,050	2,400	2,800	3,500	12,400	14,800
HC-F950GXG-SIT	901 – 950	3168 – 3340	5.55 – 6.63	4,050	2,400	2,800	3,500	12,400	14,900
HC-F1000GXG-SIT	951 – 1000	3344 – 3516	5.69 – 6.81	4,550	2,400	2,800	4,000	13,900	16,900

■ Compact Type HC-F_GSG-SIT

Model	Cooling Capacity		COP	Overall Dimension				Shipping Weight kg	Operating Weight kg
	USRT	kW		Length (A) mm	Width (B) mm	Height (C) mm	Extubation space		
HC-F300GSG-SIT	200 – 300	703 – 1055	4.51 – 5.39	2,800	1,750	2,200	2,000	5,000	6,200
HC-F350GSG-SIT	301 – 350	1058 – 1231	4.57 – 5.47	2,900	2,070	2,300	2,000	6,200	6,800
HC-F400GSG-SIT	351 – 400	1234 – 1407	4.66 – 5.57	2,900	2,070	2,300	2,000	6,300	7,000
HC-F450GSG-SIT	401 – 450	1410 – 1582	4.69 – 5.61	3,190	2,070	2,350	2,500	7,600	8,500
HC-F500GSG-SIT	451 – 500	1586 – 1758	4.92 – 5.89	3,190	2,070	2,350	2,500	7,600	8,500
HC-F550GSG-SIT	501 – 550	1762 – 1934	4.90 – 5.86	3,190	2,080	2,350	2,500	7,700	8,700
HC-F600GSG-SIT	551 – 600	1937 – 2110	4.94 – 5.91	3,190	2,080	2,350	2,500	7,800	8,800
HC-F650GSG-SIT	601 – 650	2113 – 2286	4.97 – 5.94	3,490	2,090	2,430	2,800	9,200	10,600
HC-F700GSG-SIT	651 – 700	2289 – 2461	5.03 – 6.02	3,490	2,090	2,430	2,800	9,300	10,700
HC-F750GSG-SIT	701 – 750	2465 – 2637	5.07 – 6.06	3,490	2,090	2,430	2,800	9,400	10,800
HC-F800GSG-SIT	751 – 800	2641 – 2813	5.23 – 6.26	3,490	2,350	2,560	2,800	10,800	12,300
HC-F850GSG-SIT	801 – 850	2817 – 2989	5.28 – 6.31	3,490	2,370	2,560	2,800	10,900	12,500
HC-F900GSG-SIT	851 – 900	2992 – 3165	5.29 – 6.33	3,490	2,370	2,560	2,800	11,000	12,600

■ Inverter Panel

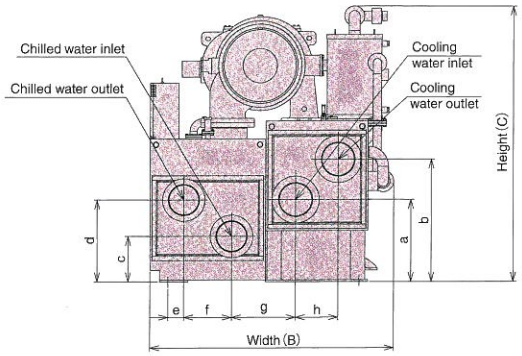
Model		Dimensions (mm)			Weight (kg)
		Length	Width	Height	
GXG-SIT	HC-F300~400GXG-SIT	1,600	1,000	2,330	950
	HC-F450~600GXG-SIT	2,000	1,000	2,330	1,250
	HC-F650~750GXG-SIT	2,000	1,100	2,580	1,600
	HC-F800~1000GXG-SIT	2,300	1,300	2,780	2,150
GSG-SIT	HC-F300~350GSG-SIT	1,600	1,000	2,330	950
	HC-F400~550GSG-SIT	2,000	1,000	2,330	1,250
	HC-F600~700GSG-SIT	2,000	1,100	2,580	1,650
	HC-F750~900GSG-SIT	2,300	1,300	2,780	2,150

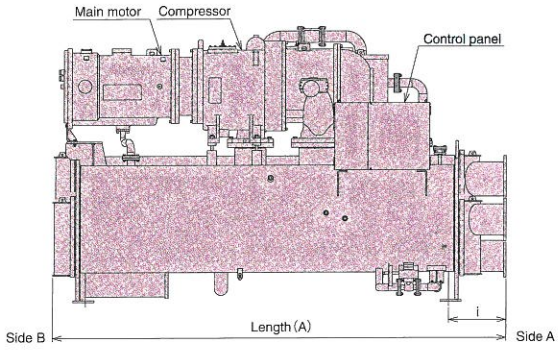
REMARKS

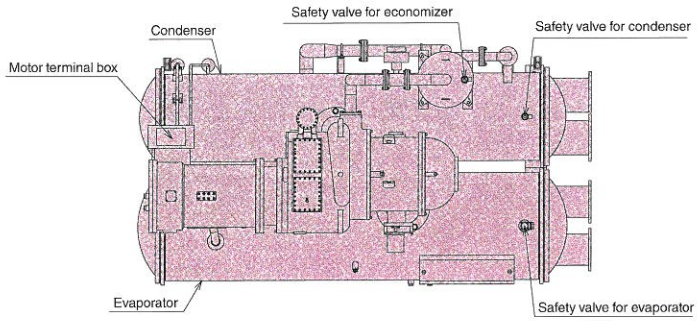
*** Please consult with our sales staff or distributor for actual specifications for cooling capacity, expected kW input, and COP, depending on selected operating parameters.**

* The above Specifications are subject to change without notice for technical improvements.
* This table is applicable to chillers to be manufactured for normal water.
* Capacity control range is 100% to approx. 20%.
* Fouling factor is assumed to be 0.018m^2K/kW for chilled water and 0.044m^2K/kW for cooling water.
* Standard main power sources: 380V/400V/415V/440V/460V AC, 50Hz/60Hz, 3phase.
* Maximum working pressure is 1.0MPa for both chilled water and cooling water. If higher maximum working pressure is required, please specify during inquiry. (Up to 2MPa is available.)

Dimensional Outline Drawing







This dimensional outline drawing shows a standard nozzle location.
Please consult with our sales staff or distributor in case of a 3-pass or 4-pass system.

■Positional Dimension of Water Piping

(unit: mm)

Model	Positional dimension of nozzle								
	a	b	c	d	e	f	g	h	i
HC-F300GXG-SIT	673	933	398	616	33	339	444	290	420
HC-F350GXG-SIT	673	933	398	616	33	339	444	290	420
HC-F400GXG-SIT	715	975	442	642	101	358	525	292	420
HC-F450GXG-SIT	715	975	442	642	101	358	525	292	420
HC-F500GXG-SIT	714	974	462	662	101	358	525	292	420
HC-F550GXG-SIT	734	1,027	474	695	102	400	535	320	420
HC-F600GXG-SIT	734	1,027	494	715	102	400	535	320	420
HC-F650GXG-SIT	734	1,027	494	715	102	400	535	320	420
HC-F700GXG-SIT	810	1,155	430	730	107	500	562	380	420
HC-F750GXG-SIT	810	1,155	430	730	107	500	562	380	420
HC-F800GXG-SIT	810	1,155	430	730	107	500	562	380	420
HC-F850GXG-SIT	780	1,160	435	795	139	480	640	380	420
HC-F900GXG-SIT	780	1,160	455	815	139	480	640	380	420
HC-F950GXG-SIT	780	1,160	455	815	139	480	640	380	420
HC-F1000GXG-SIT	780	1,160	475	835	139	480	640	380	420

Model	Positional dimension of nozzle								
	a	b	c	d	e	f	g	h	i
HC-F300GSG-SIT	432	632	340	540	130	358	530	358	405
HC-F350GSG-SIT	432	632	359	559	130	358	530	358	405
HC-F400GSG-SIT	432	632	359	559	130	358	530	358	405
HC-F450GSG-SIT	378	673	352	532	118	352	619	358	405
HC-F500GSG-SIT	378	673	352	532	118	352	619	358	405
HC-F550GSG-SIT	378	673	352	572	115	358	616	358	405
HC-F600GSG-SIT	378	673	352	572	115	358	616	358	405
HC-F650GSG-SIT	432	727	387	607	135	358	618	358	409
HC-F700GSG-SIT	432	727	387	607	135	358	618	358	409
HC-F750GSG-SIT	432	727	407	627	135	358	618	358	409
HC-F800GSG-SIT	404	719	380	680	154	415	704	410	409
HC-F850GSG-SIT	404	719	380	680	154	415	704	410	409
HC-F900GSG-SIT	404	719	380	680	154	415	704	410	409

Standard Scope of Supply

The following table shows the standard scope of supply, but the actual scope depends on the contract.
Please consult with our sales staff or distributor.

Item	Standard Scope
Main Equipment	Compressor, Main motor, Lubrication system, Heat exchanger
Auxiliary Equipment	Safety device, Control panel, Standard accessories (Oil strainer elements, Gasket for oil strainer elements, Dryer), Inverter Unit
Coating	Chiller main unit: Anti-corrosive prime coating Control panel: Finish coat (color: Munsell 5Y 8/1 gloss) Starter (optional): Finish coat (color: Munsell 5Y 7/1 semigloss)
Out of Supply Scope	Foundation work, Carrying-in, Installation, Piping work, Cold insulation, Primary and secondary side electrical wiring, Commissioning for total system, Forced ventilation system, Outdoor discharge piping for safety valve, Counter flange, Bolt, Nut, Gasket, Foundationbolt, Refrigerant

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