

# Thermo-chiller Inverter Type

## Air-cooled 400 V Type

### HRSH Series



#### How to Order

HRSH **250** - **A** - **40** - **40**

**Cooling capacity**

100	10.5 kW
150	15.7 kW
200	20.5 kW
250	25 kW
300	28 kW

**Cooling method**

**A** Air-cooled refrigeration

**Pipe thread type**

Nil	Rc
F	G (with Rc-G conversion fitting)
N	NPT (with Rc-NPT conversion fitting)

**Power supply**

40	3-phase 380 to 415 VAC (50/60 Hz) 3-phase 460 to 480 VAC (60 Hz)
----	---

#### Option

Nil*1	None
A	With caster adjuster-foot
K*2	With fluid fill port
M	Applicable to DI water piping
W	SI unit only

\*1 400 V type is provided with an earth leakage breaker with handle (-B1) as standard.

\*2 This is a manual fluid fill port that is different from the automatic fluid fill port. Fluid can be supplied manually into the tank without removing the side panel. (Fluid can be supplied manually for models without option K if the side panel is removed.)

#### Specifications

Model		HRSH100-A□-40-□	HRSH150-A□-40-□	HRSH200-A□-40-□	HRSH250-A□-40-□	HRSH300-A□-40-□
<b>Cooling method</b>		Air-cooled refrigeration				
<b>Refrigerant</b>		R410A (HFC)				
<b>Refrigerant charge</b>	kg	1.27	2.1	2.1	2.8	2.8
<b>Control method</b>		PID control				
<b>Ambient temperature/Altitude*1, 8</b>		Temperature: -20 to 45, Altitude: less than 3000 m				
<b>Circulating fluid*1, 2</b>		Tap water, 15 to 40% Ethylene glycol aqueous solution, Deionized water				
<b>Set temperature range*1</b>		5 to 35				
<b>Cooling capacity*3, 8</b>		10.5	15.7	20.5	25	28
<b>Heating capacity*4</b>		2.5	3	5.5		7.5
<b>Temperature stability*5</b>		±0.1				
<b>Circulating fluid system</b>	<b>Pump capacity</b>	45 (0.43 MPa)		45 (0.45 MPa)		125 (0.5 MPa)
	<b>Rated flow (Outlet)</b>	L/min		L/min		L/min
	<b>Maximum flow rate</b>	120		130		180
	<b>Maximum pump head</b>	m		50		80
	<b>Settable pressure range*6</b>	MPa		0.1 to 0.5		0.1 to 0.8
	<b>Minimum operating flow rate*7</b>	L/min		25		40
	<b>Tank capacity</b>	L		42		60
	<b>Circulating fluid outlet, circulating fluid return port</b>	Rc1 (Symbol F: G1, Symbol N: NPT1)				
	<b>Tank drain port</b>	Rc3/4 (Symbol F: G3/4, Symbol N: NPT3/4)				
	<b>Automatic fluid fill system (Standard)</b>	<b>Supply side pressure range</b>	MPa			
	<b>Supply side fluid temperature</b>	°C				
	<b>Automatic fluid fill port</b>	Rc1/2 (Symbol F: G1/2, Symbol N: NPT1/2)				
	<b>Overflow port</b>	Rc1 (Symbol F: G1, Symbol N: NPT1)				
<b>Fluid contact material</b>		Metal: Stainless steel, Copper (Heat exchanger brazing), Brass, Bronze Resin: PTFE, PU, FKM, EPDM, PVC, NBR, POM, PE, NR				
<b>Electrical system</b>	<b>Power supply</b>		3-phase 380 to 415 VAC (50/60 Hz) Allowable voltage range ±10% (No continuous voltage fluctuation) 3-phase 460 to 480 VAC (60 Hz) Allowable voltage range +4%, -10% (Max. voltage less than 500 V and no continuous voltage fluctuation)			
	<b>Earth leakage breaker (Standard)</b>	<b>Rated current</b>	A		30	
		<b>Sensitivity of leak current</b>	mA			
		<b>Rated operating current*5</b>	A		30	
	<b>Rated power consumption*5</b>	kW (kVA)		7.4 (9.3) 9.3 (12.8) 12.8 (16) 16 (20.5) 18 (23.2)		
	<b>Noise level (Front 1 m/Height 1 m)*5</b>	dB (A)		4.6 (5.1) 5.8 (6.4) 8.2 (8.9) 10.1 (11.1) 10.8 (12.3)		
<b>Waterproof specification</b>		IPX4				
<b>Accessories</b>		Alarm code list stickers 2 pcs. (English 1 pc./Japanese 1 pc.), Operation Manual (for installation/operation) 2 pcs. (English 1 pc./Japanese 1 pc.), Y-strainer (40 meshes) 25A, Barrel nipple 25A, Anchor bolt fixing brackets 2 pcs. (including 6 M8 bolts)*9				
<b>Weight (dry state)</b>		kg		Approx. 180 Approx. 215 Approx. 280		

\*1 When the ambient temperature or circulating fluid temperature is 10°C or below, refer to "Operation at low ambient temperature or low circulating fluid temperature" (page 342).  
 \*2 Use fluid in condition below as the circulating fluid.  
 Tap water: please refer to "Specific Product Precautions".  
 15 to 40% ethylene glycol aqueous solution: Diluted with clean water, without any additives such as antiseptics. (Refer to "Operation at low ambient temperature or low circulating fluid temperature" (page 342) for the concentration of the ethylene glycol aqueous solution.)  
 Deionized water: Electric conductivity 1 μS/cm or higher (Electric resistivity 1 MΩ·cm or lower)  
 \*3 ① Ambient temperature: 32°C, ② Circulating fluid: Tap water, ③ Circulating fluid temperature: 20°C, ④ Circulating fluid flow rate: Rated flow, ⑤ Power supply: 400 VAC  
 \*4 ① Ambient temperature: 32°C, ② Circulating fluid: Tap water, ③ Circulating fluid flow rate: Rated flow, ④ Power supply: 400 VAC  
 \*5 ① Ambient temperature: 32°C, ② Circulating fluid: Tap water, ③ Circulating fluid temperature: 20°C, ④ Load: Same as the cooling capacity, ⑤ Circulating fluid flow rate: Rated flow, ⑥ Power supply: 400 VAC, ⑦ Piping length: Shortest  
 \*6 With the pressure control mode by inverter. When the pressure control mode is not used, the pump power frequency set mode can be used.  
 \*7 Fluid flow rate to maintain the cooling capacity and the temperature stability. If the actual flow rate is lower than this, install a bypass piping.  
 \*8 If the product is used at an altitude of 1000 m or higher, refer to "Operating Environment/Storage Environment" (page 341) Item 13 "For altitudes of 1000 m or higher."  
 \*9 The anchor bolt fixing brackets (including 6 M8 bolts) are used for fixing to wooden skids when packaging the thermo-chiller. No anchor bolt is included.