

No more labor costs and time
with Flon-gas.



A complete Non-flon-gas oil chiller lineup

NEW 1500W type / 6000W type

Non-flon-gas oil chillers are now standard equipment



New refrigerant HFO-1234yf

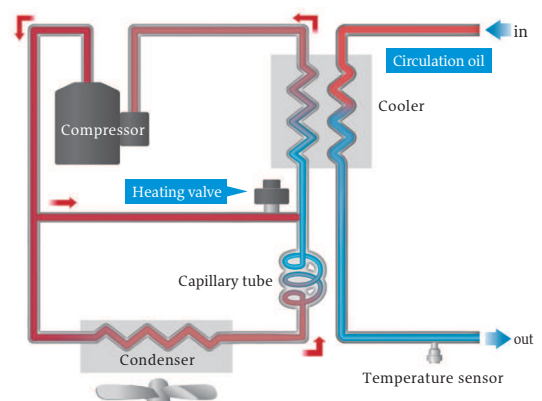
No more labor costs and time with Flon-gas.

VSC-N Series oil chiller units use Non-flon-gas HFO-1234yf refrigerant. Businesses are able to lower their Flon-gas related costs because they are exempt from the Fluorocarbons Recovery and Destruction Law and thus are not required to collect and discard of refrigerant or perform periodic inspections.

Refrigerant	HFC-407C	HFC-410A	HFC-32	CO ₂	HFO-1234yf
Ozone depletion potential	0	0	0	0	0
Global warming potential	1774	2090	675	1	< 1

Hot gas bypass control accurate $\pm 0.1^{\circ}\text{C}$

VSC-N Series oil chiller units are equipped with heating valve hot gas bypass control. Adjusting cooling capacity in response to calorific value in the system being cooled achieves highly precise oil temperature control within $\pm 0.1^{\circ}\text{C}$, a level of performance that older oil chiller models struggled to achieve. The VSC-N Series also has specifications that enable safe use of machine tool main spindle cooling and other features needed for precision control.



External communication function IoT Available

To meet the rising demand for IoT compatible in manufacturing work floors, the VSC-N series is equipped with RS-232C compatible Modbus/RTU protocol that enable reading and writing with an external device. Along with data readout, you can change and update your settings from a PLC touch panel.

■ Table of main communication options

Operation	Run
	Auto tuning
	Alarm reset
Output	Setting temperature
	Liquid temperature
	External temperature
	Warning code
	Alarm code
Setting change	Setting temperature
	Liquid temperature offset
	External temperature offset
	Maintenance cycle setting

The Fluorocarbons Recovery and Destruction Law that went into effect in April 2015 establishes the following six new requirements for Flon-gas users in Japan.

- 1 Users must properly install equipment and properly maintain the installation environment
- 2 Users must periodically and comprehensively inspect equipment
- 3 Users must record and archive a maintenance and repair history
- 4 When Flon-gas leaks occur, users must take appropriate measures
- 5 Leakage amount report (when over 1000CO₂ – t/year)
- 6 Assign Flon-gas replenishment and collection for machines and equipment

The Fluorocarbons Recovery and Destruction Law that went into effect in April 2020 establishes. The revised law imposes stricter penalties for violations related to the improper disposal of machinery and equipment.

- 1 When discarding machinery and equipment, the user must deliver any Flon-gas within the equipment to a freon replenishing and recycling business.
→ Violations impose direct punishment incurring a fine of 500000 yen or less.
- 2 When discarding machinery and equipment, the user must prepare and issue a recycling request form and consignment confirmation form. The user must also preserve a copy of the recycling request form, a copy of the consignment confirmation form, and proof of the transaction for at least 3 years. The recycling request form and consignment confirmation form must be filled out accurately and truthfully.
→ Violations impose direct punishment incurring a fine of 300000 yen or less.
- 3 When delivering discarded machinery and equipment, the user must deliver a record of the transaction to the business (industrial equipment disposal business, recycling business, etc.) receiving the discarded equipment.
→ Violations impose direct punishment incurring a fine of 300000 yen or less.
- 4 The Freon Emissions Law requires that users prepare and archive a one page record of inspections and repairs, refrigerant replenishment and collection, and other relevant items for each piece of equipment, including oil chillers and control panel coolers containing freon.
→ Violations impose direct punishment incurring a fine of 300000 yen or less.

Direct punishment:

unlike the administrative processing for a traffic violation, violations are prosecuted at a criminal trial and the defendant retains a record of the conviction under civil and criminal law.


Inspections

The Fluorocarbons Recovery and Destruction Law also requires that oil chillers and control panel coolers containing Flon-gas have a full inspection at least once every three months.


Equipment
maintenance record

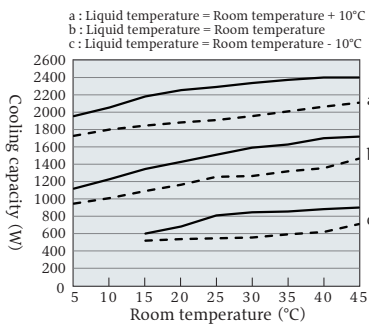
The Fluorocarbons Recovery and Destruction Law requires that users prepare and archive a one page record of inspections and repairs, refrigerant replenishment and collection, and other relevant items for each piece of equipment, including oil chillers and control panel coolers containing Flon-gas.

Model			VSC-N1500	VSC-N3200	VSC-N6000	
Performance	Cooling capacity (W)		1350/1580	2650/3050	5200/6000	
	Temperature control (configurable)	Tuned type	Setting criteria	Room temperature, unit temperature		
			Control target	Outlet opening oil temperature		
		Fixed type	Tuning range (°C)	Within -9.9 to +9.9 of the set standard temperature		
			Control target	Outlet opening oil temperature		
	Usable oil		Lubricating oil, petroleum hydraulic oil			
	Temperature control accuracy(°C)		±0.1			
	Oil viscosity (mm ² /s)		2 to 100			
	Use area temperature (°C)		5 to 45			
	External	External dimensions (mm) (H×W×D)		720×360×500	755×400×450	1100×475×495
Weight (kg)		53	58	95		
Coating color		Munsell N7				
Power Source	Power-supply voltage (V)		Three-phase AC200			
	Consumption current (A)		2.8/2.6	3.7/3.9	8.6/8.6	
	Power consumption (W)		600/720	806/1030	1920/2340	
Coolant		HFO-1234yf 306g	HFO-1234yf 600g	HFO-1234yf 540g		
Noise (dB(A))		70				
Pump	Rated output (W)		400		700	
	Discharge volume (ℓ/min)		12/14.4	24/28.8	30/36.0	
	Relief valve pressure setting (MPa)		0.6			
Plumbing	Oil inlet connection diameter		Rc3/4		Rc11/4	
	Oil outlet connection diameter		Rc3/4		Rc11/4	
Safety circuit	Compressor		Temperature protector, overcurrent relay			
	Cooling cycle		Pressure switch			
	Pump		Overcurrent relay, relief valve			
Input / output	Alarm output		Non-voltage, normally open or normal close can be selected			
	Run / stop input		Non-voltage normally open			

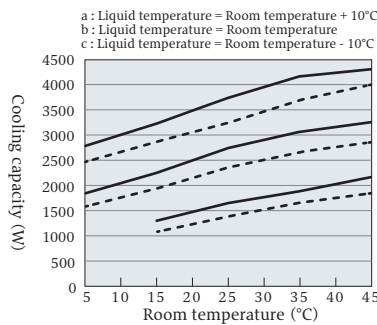
- * Cooling capacity, current consumption, and power consumption values are based on a 35°C room temperature and 35°C oil temperature (ISO VG5).
- * Do not use machining fluids, grinding fluids, water and water soluble liquids, pharmaceutical and food product liquids, gasoline, kerosene, thinner and other highly volatile, low-lubricant fluids, or flame-retardant hydraulic oil.
- * Temperature control precision is based on the temperature gage reading under constant load.
- * Maintain power supply voltage within ±10% of rated voltage.

Capacity characteristic chart

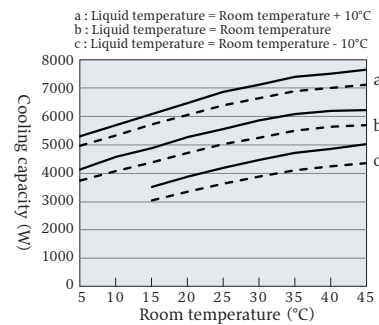
■ VSC-N1500



■ VSC-N3200

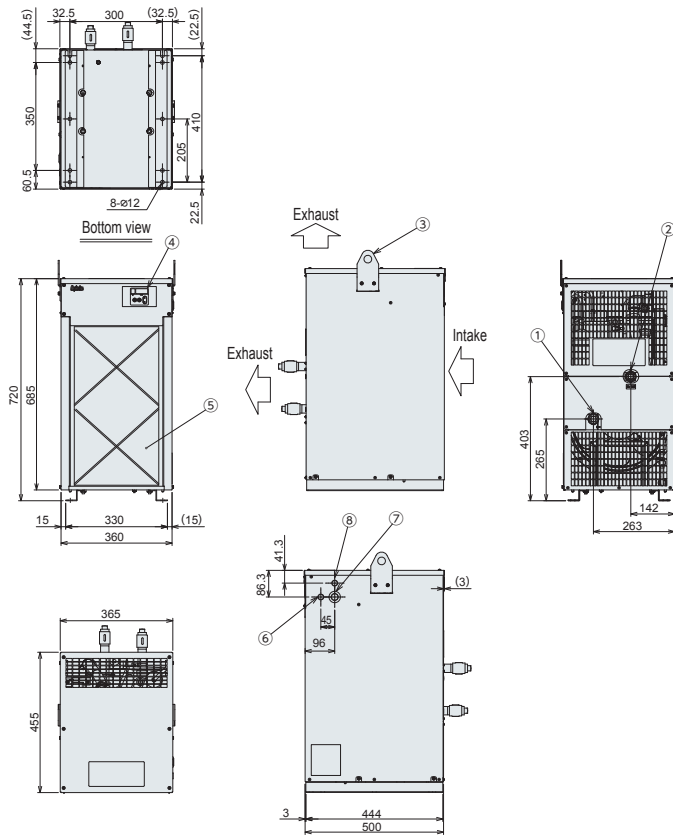


■ VSC-N6000



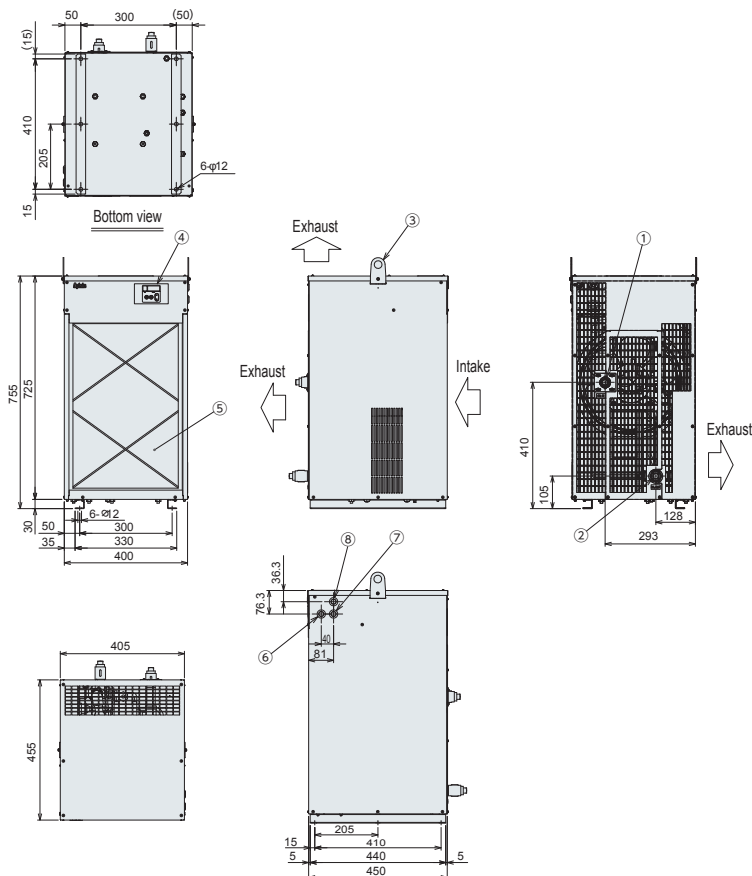
- * Solid line: 60Hz operation, dashed line: 50Hz operation.
- * Oil: ISO VG5
- * Cooling performance may vary depending on room temperature, liquid temperature, oil viscosity, and other conditions.

■ VSC-N1500



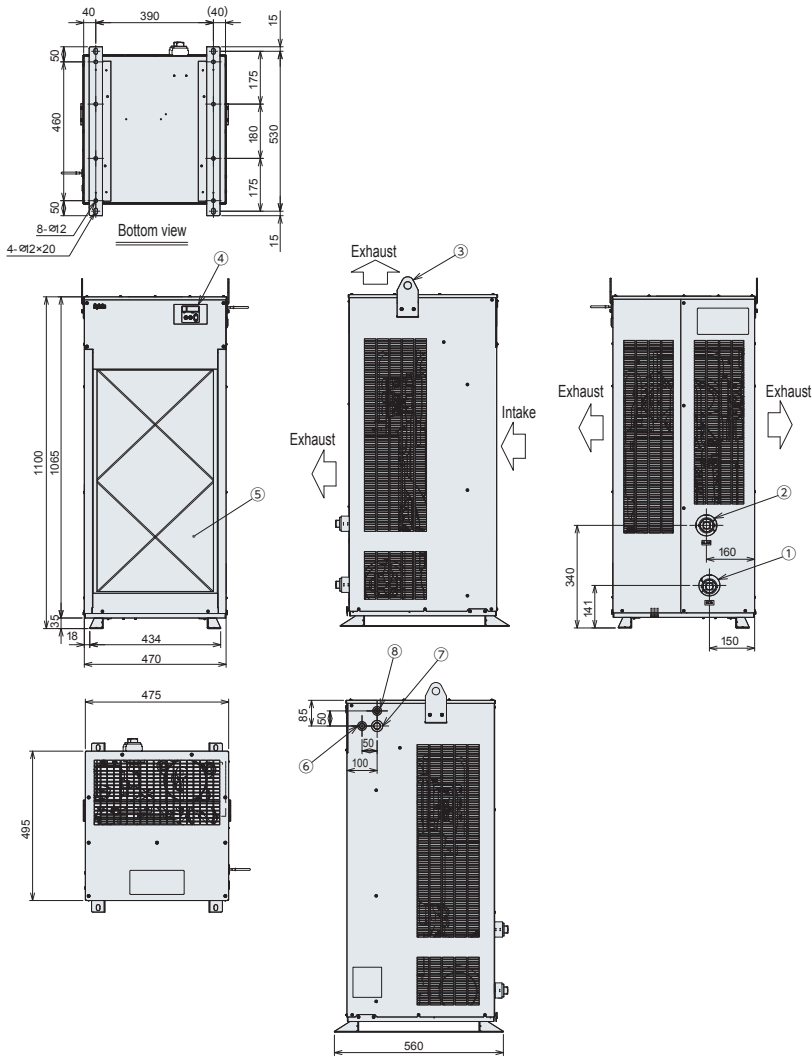
①	Circulating oil inlet	Rc3/4
②	Circulating oil Outlet	Rc3/4
③	Hanging bracket	
④	Control Panel	
⑤	Filter	
⑥	External input/output wiring opening	φ22
⑦	Power source wiring opening	φ28
⑧	External temperature thermistor wiring opening	φ22 (Optional)

■ VSC-N3200



①	Circulating oil inlet	Rc3/4
②	Circulating oil Outlet	Rc3/4
③	Hanging bracket	
④	Control Panel	
⑤	Filter	
⑥	External input/output wiring opening	φ22
⑦	Power source wiring opening	φ22
⑧	External temperature thermistor wiring opening	φ22

■ VSC-N6000



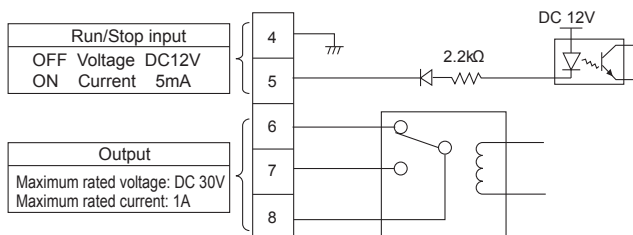
①	Circulating oil inlet	Rc11/4
②	Circulating oil Outlet	Rc11/4
③	Hanging bracket	
④	Control Panel	
⑤	Filter	
⑥	External input/output wiring opening	ϕ 22
⑦	Power source wiring opening	ϕ 28
⑧	External temperature thermistor wiring opening	ϕ 22 (Optional)

Electrical specifications

■ Output contact specifications

Connection terminal	6 · 8	7 · 8
DIP Switch 5 OFF (Initial setting)	Operation Stop / At alarm: CLOSE	Operation Stop / At alarm: OPEN
ON	At alarm: CLOSE	At alarm: OPEN

■ Terminal board interface

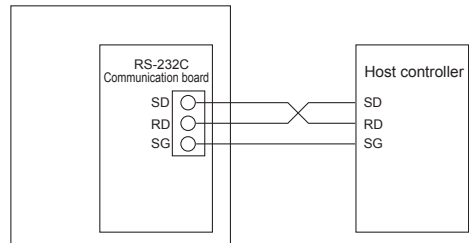


⚠ Voltage application to input terminals 4 and 5 may equipment failure.

⚠ DC voltage above the rated voltage to the output terminals 6, 7 and 8 may equipment failure. Applying a AC voltage to the output terminals 6, 7 and 8 may equipment failure.

■ Communication protocol MODBUS/RTU

● Connector signal allocation



* This product does not include connection cable and host controller.

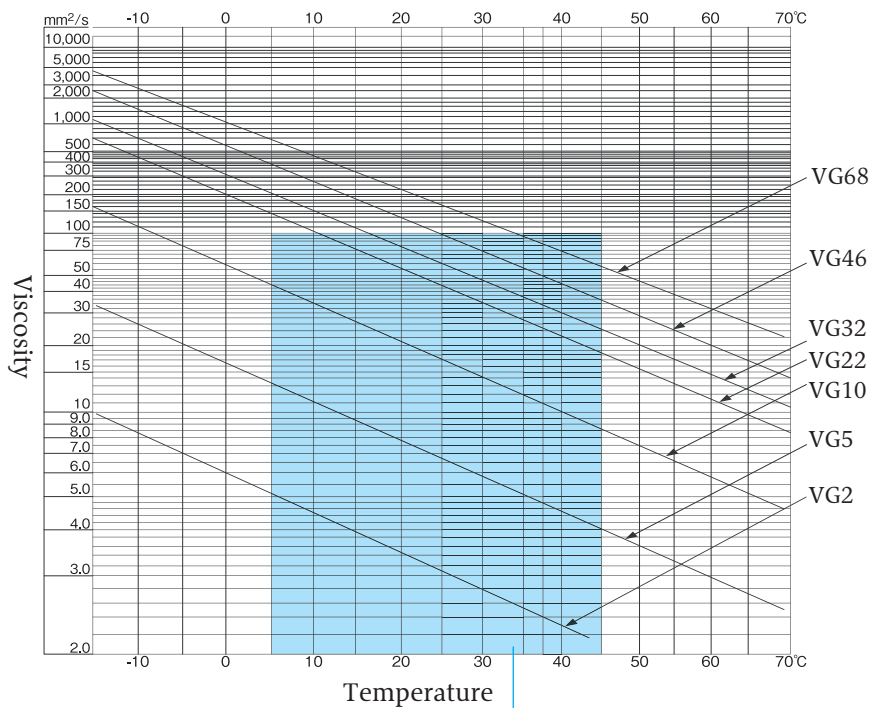
Oil chiller oil

1 Only use oil that meets all of the following requirements.

- ① Lubricant oil or hydraulic oil. (mineral oil.)
- ② A type 3 or type 4 oil as classified under type 4 hazardous substances of the Fire Prevention Law in Japan.
- ③ Corresponds to discolor number 1 of the oil product copper plate corrosion color strip test. (JIS K 2513)
- ④ Viscosity of 2 - 100mm²/s²

* Be sure to perform regular oil maintenance, as oil that meets all of the above requirements can still affect performance when it becomes old.

2 Temperature affects oil viscosity. Refer to the graph below to check that the oil meets the above requirements. The graph shows the characteristics of commonly-used oils. As there are slight differences among oils depending on the manufacturer and type of oil, contact the manufacturer for more details.



Oil in this range is available for the VSC-N Series

* VSC-N Series cooling capacity, cooling capacity graph, current consumption, and power consumption is based on the data when using ISOVG5 oil. Changing oil also changes viscosity and cooling characteristics, be sure to adjust accordingly.

* Surrounding environment, oil condition, and installation and operation conditions affect cooling capacity and heat quantity. When choosing a model, we recommend conducting a test to verify in advance whether oil chiller cooling capacity is above heat quantity.

Non-flon-gas & Fin-less Energy saving Control panel cooling unit

A complete ENC-GR-Pro Series lineup

Side mounting type 530W / 1000W / 1460W / 2000W



■ **For product inquiries, please contact us.**

The specifications and other descriptions are subject to change without prior notice.



<http://www.apiste-global.com/>

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