



INFORMATION

Circulating Fluid Temperature Controller

Thermo-chiller



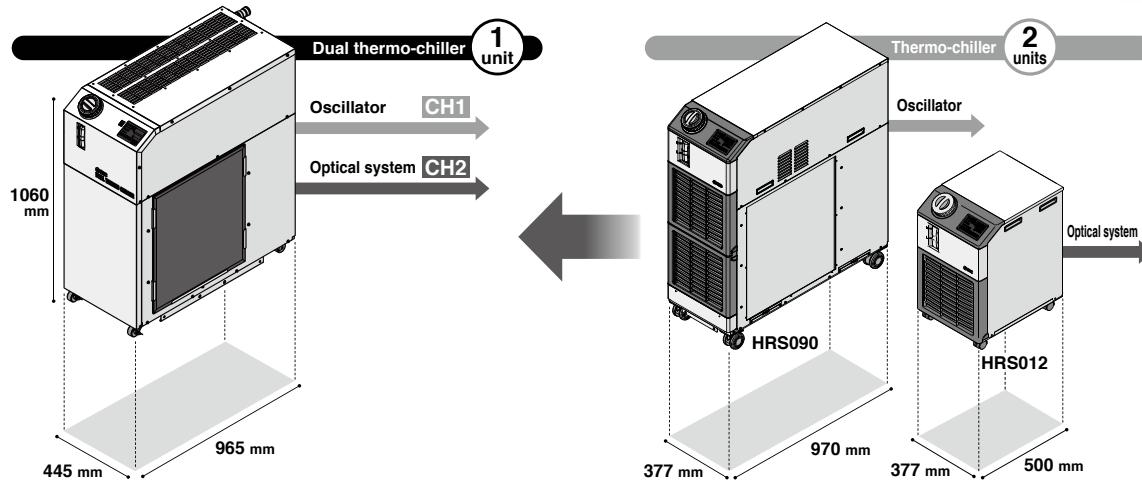
Compact Dual/Basic Type for Lasers

Air-cooled Refrigeration



The temperatures of 2 fluid channel systems can be controlled individually by 1 chiller.

Space saving Footprint reduced by 21%



Energy saving Power consumption reduced by 17%

- 1 refrigerator, fan, and pump
 - Uses a heating method that doesn't require a heater
- Cooling capacity (CH1, 2 total) **8.0 kW/9.5 kW (50 Hz/60 Hz)**
- Temperature stability **±0.1°C CH1, ±0.5°C CH2**
- Set temperature range **15 to 25°C CH1, CH1 temperature + 0 to 15°C CH2**
- Water splash-resistant outdoor installation type (IPX4 compliant)
- Low noise function (due to adjustable fan rotation count)
- Increased cooling capacity function (With compressor inverter: Option C)
- Circulating fluid pressure adjustment function (With pump inverter: Option P)

HRLE Series

NC479A
(21-E770)

Thermo-chiller

Compact Dual/Basic Type for Lasers

HRLE Series



Power supply	3-phase 200 VAC (50 Hz) 3-phase 200 to 230 VAC (60 Hz)
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How to Order

HRLE 090-A-20-

Cooling capacity	CH1, 2 total 090 9.5 kW
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Cooling method	A Air-cooled refrigeration
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Power supply	20 3-phase 200 VAC (50 Hz) 3-phase 200 to 230 VAC (60 Hz)
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Option	Nil None C With compressor inverter M Applicable to DI water piping P With pump inverter
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- When multiple options are combined, indicate the symbols in alphabetical order.

Specifications

Model		HRLE090-A-20
Cooling method		Air-cooled refrigeration
Refrigerant		R410A (HFC)
Refrigerant charge	kg	2
Control method		PID control
Ambient temperature	°C	2 to 45
Circulating fluid system	Circulating fluid ^{*1}	Tap water, Deionized water
	Set temperature range °C	CH1: 15 to 25, CH2: CH1 + 0 to 15
	Cooling capacity (CH1, 2 total) 50/60 Hz ^{*2} kW	8.0/9.5
	Heating capacity (CH1, 2 total) 50/60 Hz ^{*3} kW	2.0/2.5
	Temperature stability ^{*4} °C	CH1: ±0.1, CH2: ±0.5
Pump capacity	Rated flow 50/60 Hz ^{*5} L/min	CH1: 25/35, CH2: 2/2
	Max. flow rate 50/60 Hz L/min	55/65
	Max. pump head m	50
	Min. operating flow rate 50/60 Hz ^{*6} L/min	CH1: 25/35, CH2: 1/1
	Tank capacity (CH1, 2 total) L	Approx. 18
	Circulating fluid outlet, circulating fluid return port	CH1: Rc1, CH2: Rc1/2
	Tank drain port	Rc1/4
	Fluid contact material	Stainless steel, Copper (Heat exchanger brazing), Bronze (Pump), Ceramic, Carbon, FKM, PP, PE, POM, PVC, PA, EPDM
Electrical system	Power supply	3-phase 200 VAC (50 Hz) Allowable voltage range ±10% (No continuous voltage fluctuation) 3-phase 200 to 230 VAC (60 Hz) Allowable voltage range ±10% (No continuous voltage fluctuation)
	Earth leakage breaker (Standard)	30
	Sensitivity current mA	30
	Rated operating current 50/60 Hz A	14/17
	Rated power consumption 50/60 Hz kW(kVA)	4.3/5.3 (4.9/5.8)
	Communication function	Contact input/output, Serial communication (RS-485)
	Noise level dB(A)	65
Accessories ^{*7}		Operation Manual (for installation/operation) 2 pcs. (English 1 pc./Japanese 1 pc.), Anchor bolt fixing brackets 2 pcs. (includes 4 M8 bolts), Cable accessory (For communication cable)
Weight	kg	140

*1 Use fluid that fulfills the conditions below as the circulating fluid.

Tap water: Standard of The Japan Refrigeration And Air Conditioning Industry Association (JRA GL-02-1994)

Deionized water: Electric conductivity 0.4 µS/cm or higher (Electric resistivity 2.5 MΩ·cm or lower)

*2 ① Ambient temperature: 32°C, ② Circulating fluid: Tap water, ③ Circulating fluid temperature: CH1 20°C/CH2 25°C, ④ Circulating fluid flow rate: Rated flow, ⑤ Power supply: 200 VAC

*3 ① Ambient temperature: 32°C, ② Circulating fluid: Tap water, ③ Circulating fluid flow rate: Rated flow, ④ Power supply: 200 VAC

*4 ① Ambient temperature: 32°C, ② Circulating fluid: Tap water, ③ Circulating fluid temperature: CH1 20°C/CH2 25°C, ④ Circulating fluid flow rate: Rated flow, ⑤ Power supply: 200 VAC, ⑥ Piping length: Shortest, ⑦ Load: Same as the cooling capacity

*5 Circulating fluid discharge pressure = at 0.5 MPa

*6 Fluid flow rate to maintain the cooling capacity and to keep the circulating fluid discharge pressure at 0.5 MPa or less

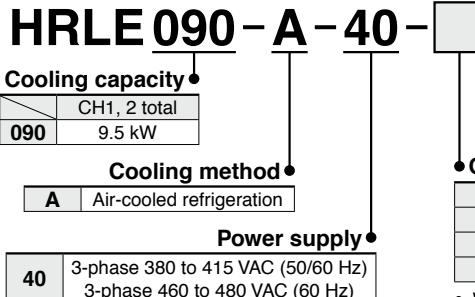
If the actual flow rate is lower than this, install bypass piping.

*7 The anchor bolt fixing brackets (includes 4 M8 bolts) are used for securing the product to wooden skids when packaging the thermo-chiller.

The anchor bolt is not included.

Scheduled to acquire
UL Standards (60 Hz)

Power supply	3-phase 380 to 415 VAC (50/60 Hz) 3-phase 460 to 480 VAC (60 Hz)
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How to Order**Air-cooled refrigeration**

Nil	None
C	With compressor inverter
M	Applicable to DI water piping
P	With pump inverter

- When multiple options are combined, indicate the symbols in alphabetical order.

Specifications

Model		HRLE090-A-40	
Cooling method		Air-cooled refrigeration	
Refrigerant		R410A (HFC)	
Refrigerant charge	kg	2	
Control method		PID control	
Ambient temperature	°C	2 to 45	
Circulating fluid system	Circulating fluid ^{*1}	Tap water, Deionized water	
	Set temperature range	CH1: 15 to 25, CH2: CH1 + 0 to 15	
	Cooling capacity (CH1, 2 total) 50/60 Hz ^{*2}	8.0/9.5	
	Heating capacity (CH1, 2 total) 50/60 Hz ^{*3}	2.0/2.5	
	Temperature stability ^{*4}	CH1: ±0.1, CH2: ±0.5	
	Rated flow 50/60 Hz ^{*5}	CH1: 25/35, CH2: 2/2	
	Max. flow rate 50/60 Hz	55/65	
	Max. pump head	50	
	Min. operating flow rate 50/60 Hz ^{*6}	CH1: 25/35, CH2: 1/1	
	Tank capacity (CH1, 2 total)	Approx. 18	
Electrical system	Circulating fluid outlet, circulating fluid return port		CH1: Rc1, CH2: Rc1/2
	Tank drain port		Rc1/4
	Fluid contact material		Stainless steel, Copper (Heat exchanger brazing), Bronze (Pump), Ceramic, Carbon, FKM, PP, PE, POM, PVC, PA, EPDM
	Power supply		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)
	Applicable earth leakage breaker ^{*8}	A	20
	Sensitivity current	mA	30
	Rated operating current 50/60 Hz	A	6.8/8.2
	Rated power consumption 50/60 Hz	kW(kVA)	4.3/5.3 (4.9/5.8)
	Communication function		Contact input/output, Serial communication (RS-485)
	Noise level	dB(A)	67
Accessories ^{*7}		Operation Manual (for installation/operation) 2 pcs. (English 1 pc./Japanese 1 pc.), Anchor bolt fixing brackets 2 pcs. (includes 4 M8 bolts), Cable accessory (For communication cable)	
Weight	kg	140	

*1 Use fluid that fulfills the conditions below as the circulating fluid.

Tap water: Standard of The Japan Refrigeration And Air Conditioning Industry Association (JRA GL-02-1994)

Deionized water: Electric conductivity 0.4 µS/cm or higher (Electric resistivity 2.5 MΩ·cm or lower)

*2 ① Ambient temperature: 32°C, ② Circulating fluid: Tap water, ③ Circulating fluid temperature: CH1 20°C/CH2 25°C, ④ Circulating fluid flow rate: Rated flow, ⑤ Power supply: 400 VAC

*3 ① Ambient temperature: 32°C, ② Circulating fluid: Tap water, ③ Circulating fluid flow rate: Rated flow, ④ Power supply: 400 VAC

*4 ① Ambient temperature: 32°C, ② Circulating fluid: Tap water, ③ Circulating fluid temperature: CH1 20°C/CH2 25°C, ④ Circulating fluid flow rate: Rated flow, ⑤ Power supply: 400 VAC, ⑥ Piping length: Shortest, ⑦ Load: Same as the cooling capacity

*5 Circulating fluid discharge pressure = at 0.5 MPa

*6 Fluid flow rate to maintain the cooling capacity and to keep the circulating fluid discharge pressure at 0.5 MPa or less

If the actual flow rate is lower than this, install bypass piping.

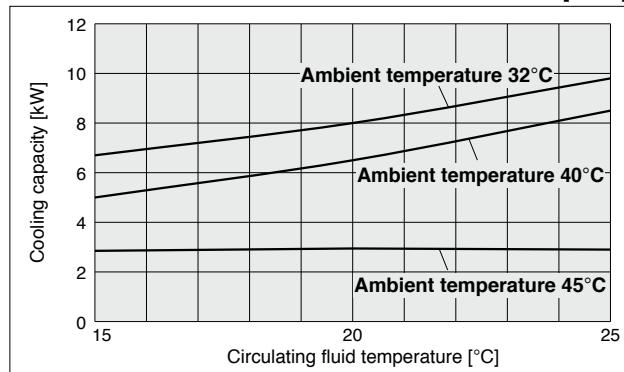
*7 The anchor bolt fixing brackets (includes 4 M8 bolts) are used for securing the product to wooden skids when packaging the thermo-chiller.

The anchor bolt is not included.

*8 To be prepared by the customer

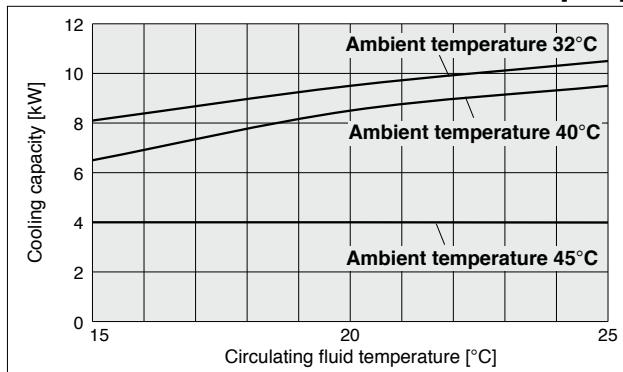
Cooling Capacity

HRLE090-A-20/40



[50 Hz]

HRLE090-A-20/40

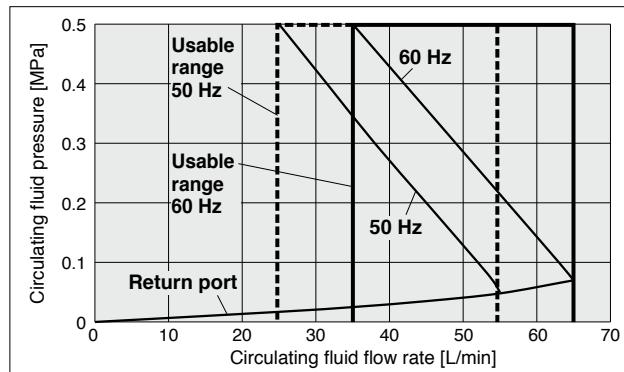


[60 Hz]

- * The cooling capacity is the sum of the capacities of CH1 and CH2.
- * The ambient temperature of 32°C is at 60% fan output (default setting).
- * The ambient temperatures of 40°C and 45°C are at 100% fan output. (The noise level rises by approx. 3 dB(A) from the rated condition.)

Pump Capacity

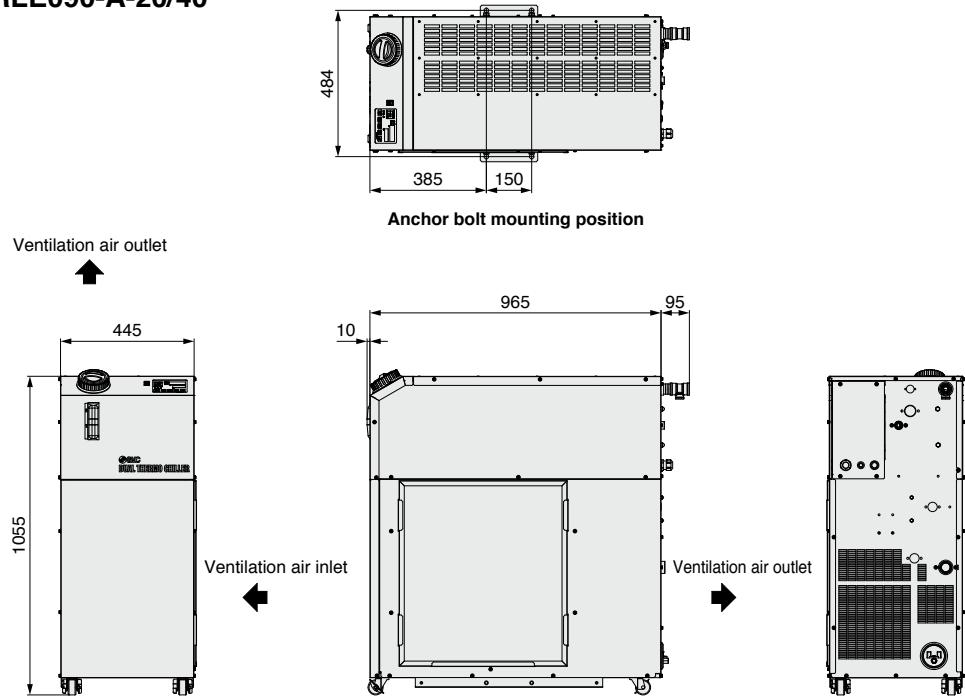
HRLE090-A-20/40



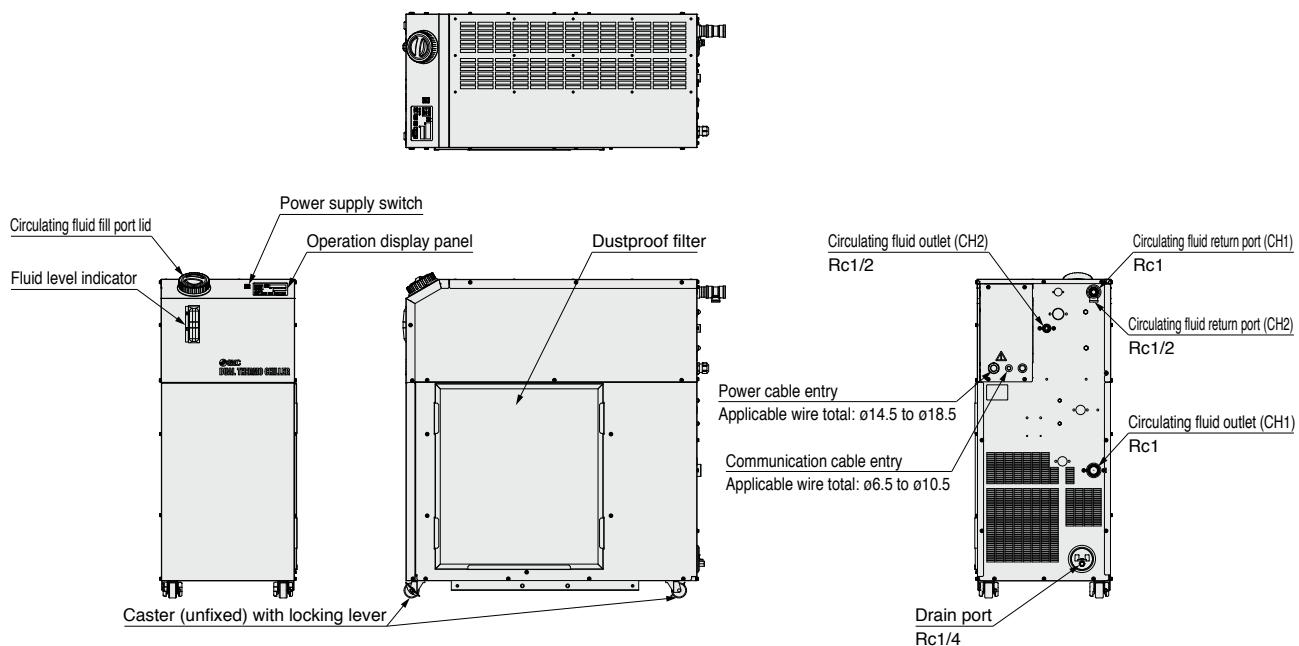
- * The pump capacity is the capacity of CH1 when 2 L/min are applied to CH2.

Dimensions

HRLE090-A-20/40



Parts Description



HRLE Series

Options

C Option symbol

With Compressor Inverter

HRLE090-A-□-C

With compressor inverter

The compressor inverter increases the cooling capacity of the 50 Hz area to that of the 60 Hz area. (Refer to the 60 Hz graph under "Cooling Capacity" on page 3.)

* No change in external dimensions

M Option symbol

Applicable to DI Water Piping

HRLE090-A-□-M

Applicable to DI water piping

The contact materials of the circulating fluid circuit are made from non-copper materials.

Applicable model	HRLE090-A-□-M
Contact materials of circulating fluid	Stainless steel (including heat exchanger brazing), SiC, Carbon, PA, PP, PE, POM, FKM, EPDM, PVC, PTFE

* No change in external dimensions

P Option symbol

With Pump Inverter

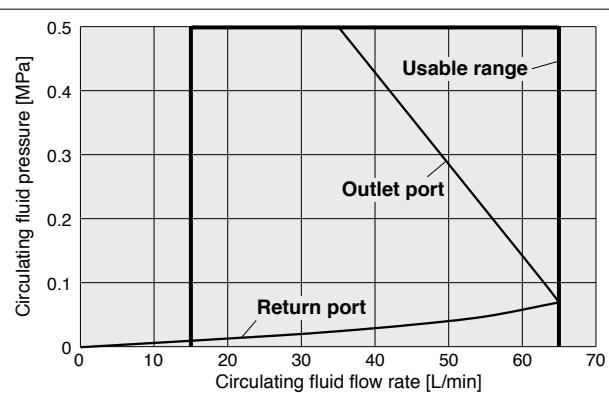
HRLE090-A-□-P

With pump inverter

The pump inverter increases the pump capacity of the 50 Hz area to that of the 60 Hz area.

Pressure setting is also available, allowing for auto control to any pressure without the need for valve position adjustments.

* No change in external dimensions



* The pump capacity is the capacity of CH1 when 2 L/min are applied to CH2.

HRLE Series

Optional Accessories

Optional Accessories List

No.	Description	Part no.	Applicable model
①	G thread conversion fitting set	HRL-EP003	Converts the piping connection port from Rc to G
		HRL-EP011	Select the HRL-EP011 when using the HRL-JK001.
②	NPT thread conversion fitting set	HRL-EP004	Converts the piping connection port from Rc to NPT
		HRL-EP012	Select the HRL-EP012 when using the HRL-JK001.
③	Bypass piping set	HRL-BP001	When the circulating fluid flow rate falls below the min. required flow rate, the temperature stability declines. The min. required flow rate can be secured by connecting bypass piping.
④	Electric conductivity control set	HRL-DI001	This set can be used to display and control the electric conductivity of the circulating fluid.
⑤	Particle filter set	HRL-PF001	Allows you to remove foreign matter from CH1
		HRL-PF002	Allows you to remove foreign matter from CH2
⑥	Handle	HRS-S0600	A handle for the HRL-PF001 used for filter vessel removal
		HRR-S0079	A handle for the HRL-PF002 used for filter vessel removal
⑦	Filter for circulating fluid fill port	HRS-PF007	Prevents foreign matter from entering the tank when supplying the circulating fluid
⑧	Automatic water fill setting	HRL-JK001	Automatically refills the tank when the circulating fluid level decreases
⑨	Ball valve set (With pressure gauge)	HRL-BB001	Allows you to adjust the circulating fluid pressure and flow rate

UNIT CONVERSIONS

	unit	conversion	result		unit	conversion	result
length	m	x 3.28	ft	pressure	MPa	x 145	psi
	mm	x 0.04	in		kPa	÷ 6.895	psi
mass	g	x 0.04	oz	temperature	°C	x 1.8 then add 32	°F
	kg	÷ 2.205	lb		°F	÷ 1.8 then add 32	°C
volume	cm ³	÷ 16.387	in ³	torque	N·m	x 0.738	ft-lb
	L	x 61.024	in ³		N	÷ 4.448	lbf
speed	mm/s	÷ 25.4	in/s	force	N	÷ 28.317	cfm
				flow	L/min		

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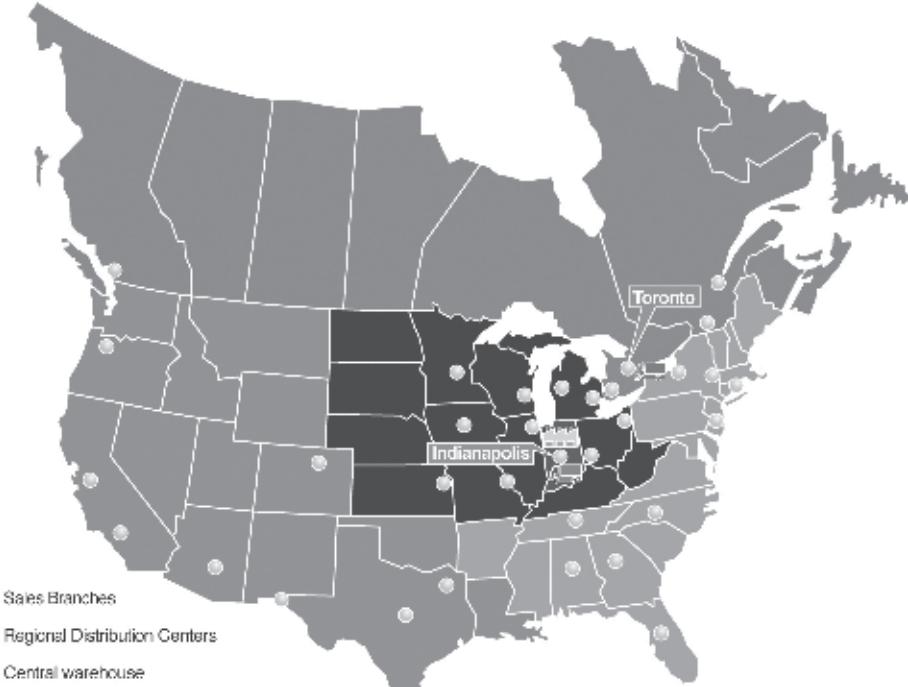
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