

## Recirculating Chillers - HX Series

The HX Series of chillers are NESLAB's versatile, highly configurable chiller series that can go from a simple workhorse to a highly sophisticated chiller via the many options available. This makes it perfectly suitable for use in laboratory, laser, industrial, semiconductor, or medical applications. Since its introduction in the late sixties, the HX Series has undergone continuous design enhancements and improvements. But, some things haven't changed for over 35 years; dependable performance, use of the highest quality materials, and a design that will be trouble free for many years.

Your HX chiller is a solid investment to protect and maximize the performance of your valuable equipment. The HX Series comes in a variety of standard configurations. To meet your needs exactly, we offer choices of controllers, pumps, temperature ranges, and condenser designs. If you're not sure which version would be the most suitable for your application, contact one of our Applications Engineers. They have the expertise necessary to make the perfect recommendation.

### Easy Access

Hinged top opens for easy access to internal components



### Digital Temperature Controller

An LED readout displays recirculating temperature and setpoint, both with a resolution of 1°C. A low liquid level indicator guards against fluid evaporation or circulating leaks. Idle and Cool lights are essential for diagnostics and operating status.

### TC-400 Temperature Controller

A fully programmable, self-diagnostic microprocessor controller featuring:

- Recirculating fluid and setpoint temperature to a 1°C resolution
- Process flow rate readout
- Low level, high temperature, low temperature, and low flow fault with alarm
- User adjustable alarm limits
- Analog interface
- Remote sensor interface (remote sensor purchased separately)

### Options include:

- Remote sensor
- Remote controller
- Resistivity display for deionized water applications
- RS-232 or RS-485 serial communications interface
- 0.1°C temperature resolution

### Smart Design

Stainless steel reservoir and heat exchanger ensures fluid compatibility

Reservoir drain for quick fluid changes

# Recirculating Chiller Specifications

MODEL	HX-75	HX-150
<b>TEMPERATURE RANGE</b>	+5°C to +35°C	+5°C to +35°C
<b>TEMPERATURE STABILITY</b>	±0.1°C	±0.1°C
<b>COOLING CAPACITY</b>		
60 Hz Models	2000 Watts at 20°C 6820 BTU/hr at 20°C 1720 Kcal/hr at 20°C	4500 Watts at 20°C 15345 BTU/hr at 20°C 3870 Kcal/hr at 20°C
50 Hz Models	1660 Watts at 20°C 5660 BTU/hr at 20°C 1428 Kcal/hr at 20°C	3735 Watts at 20°C 12735 BTU/hr at 20°C 3212 Kcal/hr at 20°C
<b>PUMP</b>	Specify from pump graphs	Specify from pump graphs
<b>RESERVOIR VOLUME</b>		
Gallons/Liters:	5/18.9	8/30.3
<b>DIMENSIONS (H x W x D)</b>		
In.	35 <sup>3</sup> / <sub>4</sub> x 23 <sup>1</sup> / <sub>4</sub> x 18 <sup>3</sup> / <sub>4</sub>	39 <sup>5</sup> / <sub>8</sub> x 26 <sup>1</sup> / <sub>4</sub> x 21 <sup>1</sup> / <sub>8</sub>
Cm.	90.8 x 59.0 x 47.6	100.6 x 66.7 x 53.7
<b>POWER REQUIREMENTS</b>		
50 Hz Models:	208-230V, 60 Hz, 12 Amps 220-240V, 50 Hz, 11 Amps	208-230V, 60 Hz, 17 Amps 220-240V, 50 Hz, 14 Amps
<b>SHIPPING WEIGHT</b>	261 Lbs/118.4 Kgs	320 Lbs/145.2 Kgs

Specifications listed for standard units circulating water at 20°C ambient. Performance specifications will be affected by changes in temperature, ambient or coolant. Cooling capacity and amperage ratings based on units with CP-25 pump, may be affected by optional pumps. Specifications subject to change.

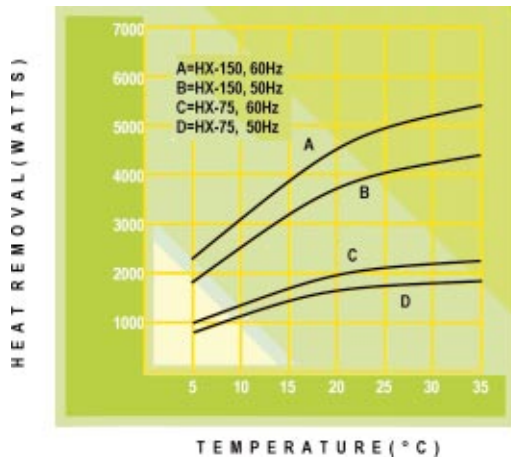
## APPLICATIONS

- Lasers
- Process Cooling
- Medical Lasers
- Linear Accelerators
- Diffusion Pumps
- Turbo-Molecular Pumps
- Vacuum Systems
- Plasma Etch Equipment
- Sputtering Systems

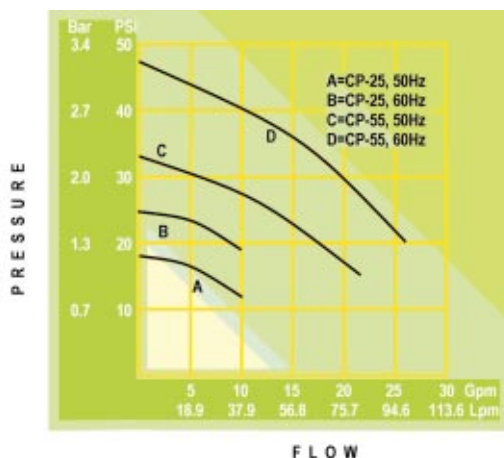
## ACCESSORIES

- External Pressure Reducer
- External Temperature Readout
- Plumbing Packages
- Circulating Hose
- Hose Insulation

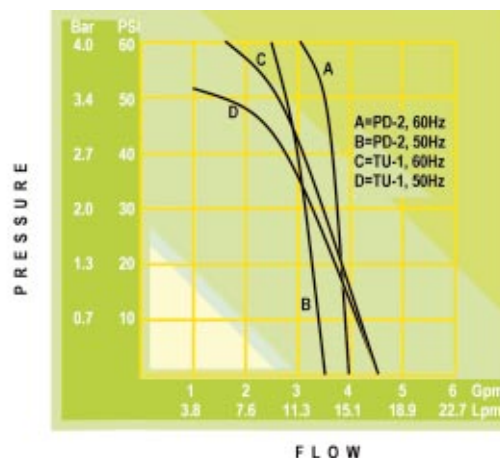
### Cooling Capacity



### Centrifugal Pump Capacity



### Positive Displacement & Turbine Pump Capacity



# Recirculating Chiller Specifications

MODEL	HX-300	HX-500
TEMPERATURE RANGE	+5°C to +35°C	+5°C to +35°C
TEMPERATURE STABILITY	±0.1°C	±0.1°C
<b>COOLING CAPACITY</b>		
60 Hz Models	10000 Watts at 20°C 34100 BTU/hr at 20°C 8593 Kcal/hr at 20°C	15700 Watts at 20°C 53500 BTU/hr at 20°C 13502 Kcal/hr at 20°C
50 Hz Models	8300 Watts at 20°C 28303 BTU/hr at 20°C 7132 Kcal/hr at 20°C	13030 Watts at 20°C 44430 BTU/hr at 20°C 11206 Kcal/hr at 20°C
PUMP	Specify from pump graphs	Specify from pump graphs
<b>RESERVOIR VOLUME</b>		
Gallons/Liters:	15/56.8	28/106
<b>DIMENSIONS</b> (H x W x D) In. Cm.	45 <sup>7</sup> / <sub>8</sub> x 33 <sup>3</sup> / <sub>4</sub> x 25 <sup>1</sup> / <sub>4</sub> 116.5 x 85.7 x 64.1	50 <sup>5</sup> / <sub>8</sub> x 46 x 28 <sup>3</sup> / <sub>4</sub> 128.6 x 116.8 x 73
<b>POWER REQUIREMENTS</b>		
50 Hz Models:	208-230V, 60 Hz, 21 Amps 3Ø 380-420V, 50 Hz, 12 Amps 3Ø	208-230V, 60 Hz, 38 Amps 3Ø 380-420V, 50 Hz, 17 Amps 3Ø
SHIPPING WEIGHT	477 Lbs/216.4 Kgs	746 Lbs/338.4 Kgs

Specifications listed for standard units circulating water at 20°C ambient. Specifications will be affected by changes in temperature, ambient, or coolant. Cooling capacity and amperage ratings based on units with CP-25 pump, may be affected by optional pumps. Specifications subject to change.

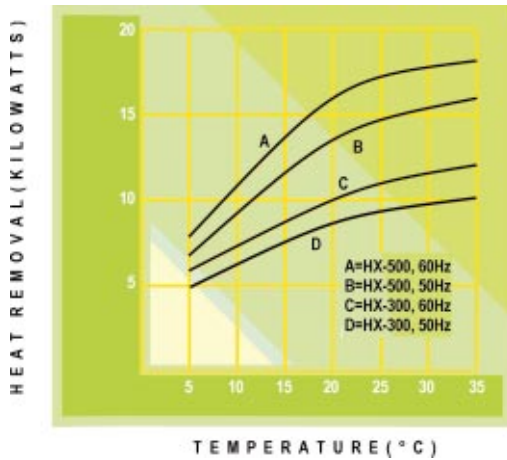
## APPLICATIONS

- Lasers
- Process Cooling
- MRI
- Medical Lasers
- Linear Accelerators
- Diffusion Pumps
- Vacuum Systems
- Plasma Etch Equipment

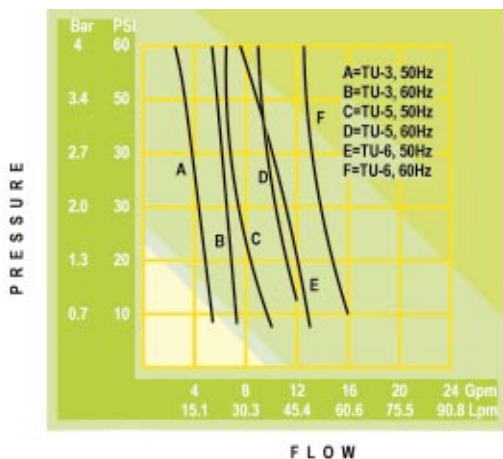
## ACCESSORIES

- External Pressure Reducer
- External Temp. Readout
- Plumbing Packages
- Circulating Hose
- Hose Insulation
- Algicide

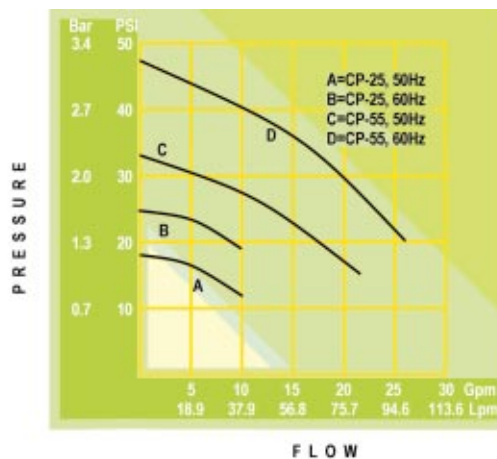
### Cooling Capacity



### Turbine Pump Capacity



### Centrifugal Pump Capacity



# Recirculating Chiller Specifications

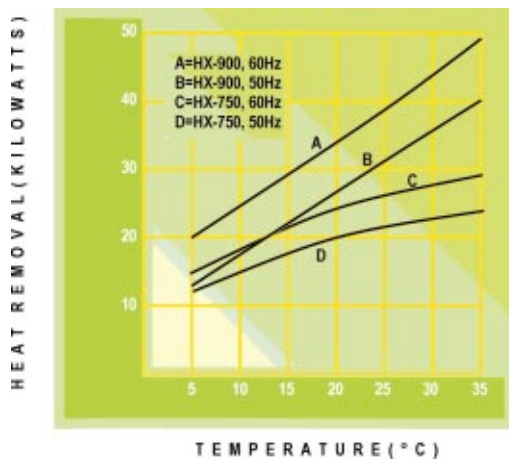
MODEL	HX-750	HX-900
<b>TEMPERATURE RANGE</b>	+5°C to +35°C	+5°C to +35°C
<b>TEMPERATURE STABILITY</b>	±0.1°C	±1.0°C
<b>COOLING CAPACITY</b>		
60 Hz Models	24000 Watts at 20°C 81840 BTU/hr at 20°C 20640 Kcal/hr at 20°C	38000 Watts at 25°C 129580 BTU/hr at 25°C 32760 Kcal/hr at 25°C
50 Hz Models	19920 Watts at 20°C 67925 BTU/hr at 20°C 17131 Kcal/hr at 20°C	31500 Watts at 25°C 107415 BTU/hr at 25°C 27155 Kcal/hr at 25°C
<b>PUMP</b>	Specify from pump graphs	CP-100 38 gpm @ 40 psi 60Hz CP-100 28 gpm @ 30 psi 50Hz
<b>RESERVOIR VOLUME</b>		
Gallons/Liters:	40/151.4	15/56.8
<b>DIMENSIONS (H x W x D) In.</b>	63 <sup>3</sup> / <sub>4</sub> x 46 x 29*	63 <sup>3</sup> / <sub>4</sub> x 46 x 29
<b>Cm.</b>	161.9 x 116.8 x 73.7*	161.9 x 116.8 x 73.7
<b>POWER REQUIREMENTS</b>		
208-230V, 60 Hz, 40 Amps 3Ø		208-230V, 60 Hz, 56 Amps 3Ø
50 Hz Models:	380-420V, 50 Hz, 21 Amps 3Ø	380-420V, 50 Hz, 32 Amps 3Ø
<b>SHIPPING WEIGHT</b>	971 Lbs/440.4 Kgs	1250 Lbs/567 Kgs

Specifications listed for standard units circulating water at 20°C ambient. Specifications will be affected by changes in temperature, ambient, or coolant. Cooling capacity and amperage ratings based on units with CP-25 pump, may be affected by optional pumps. \*Water cooled dimensions same as HX-500. Specifications subject to change.

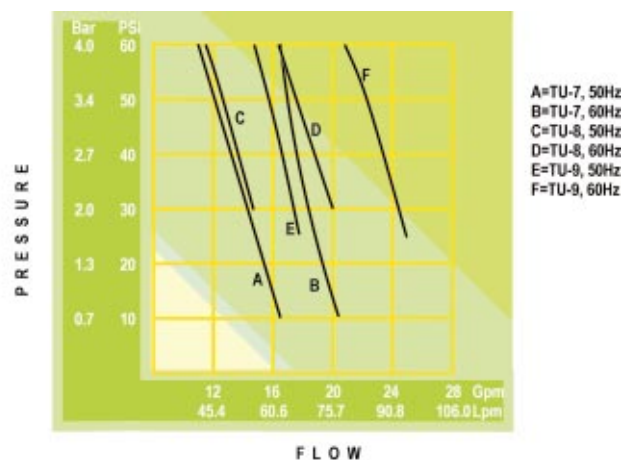
## APPLICATIONS

- Lasers
- Process Cooling
- MRI
- NMR Magnet
- Vacuum Systems
- Plasma Etch Equipment
- Sputtering Systems
- Power Supplies

### Cooling Capacity



### Turbine Pump Capacity



### TC-400 Temperature Controller

A fully programmable, self-diagnostic microprocessor controller featuring:

- Recirculating fluid and setpoint temperature to a 1°C resolution
- Process flow rate readout
- Low level, high temperature, low temperature, and low flow fault with alarm
- User adjustable alarm limits
- Analog interface
- Remote sensor interface (remote sensor purchased separately)

## Recirculating Chillers

### HX Series - Indoor/Outdoor

NESLAB's HX-1000 and HX-2000 are high capacity chillers designed for indoor or outdoor installation. The largest of our recirculating chiller family, these heavy duty, industrial units are ideal for replacing building water cooling of multiple systems, or for handling the heavy heat loads of high capacity lasers, medical imaging equipment, and industrial processing equipment. In addition to these applications, the HX-1000 and HX-2000 are ideal for laboratory or hospital/clinic settings when it is necessary to discharge heat outside.

#### *Air Cooled Refrigeration*

Two large condensing fans are mounted at the top of the units. They draw air through the system and discharge it at the top, and are completely self-contained and designed to withstand rain and harsh weather

A large industrial grade pump provides strong pressure for circulating at distances, and excellent fluid agitation for temperature uniformity. A digital control box remotes by cable to a convenient internal location. It provides all of the features of our TC-400 including high temperature, low temperature, low flow, and low level safeties. The refrigeration system is controlled by our hot gas bypass, which eliminates compressor cycling on and off and greatly enhances compressor life.

#### *Electrical Enclosure*

The electrical components are designed to NEMA 4 Code for operational safety. All electronics are encased in a durable, locking enclosure for protection from tampering and outdoor conditions



# Recirculating Chiller Specifications

Indoor/Outdoor

MODEL	HX-1000	HX-2000
TEMPERATURE RANGE	+10°C to +25°C	+10°C to +25°C
TEMPERATURE STABILITY	±1.0°C	±1.0°C
COOLING CAPACITY		
60 Hz Models	53000 Watts at 25°C 18730 BTU/hr at 25°C 45544 Kcal/hr at 25°C	75000 Watts at 25°C 255750 BTU/hr at 25°C 64450 Kcal/hr at 25°C
50 Hz Models	43990 Watts at 25°C 150005 BTU/hr at 25°C 37800 Kcal/hr at 25°C	62250 Watts at 25°C 212270 BTU/hr at 25°C 53490 Kcal/hr at 25°C
PUMP	CP-100	CP-100
RESERVOIR VOLUME		
Gallons/Liters:	14/53	14/53
DIMENSIONS (H x W x D) In. Cm.	73 <sup>1/2</sup> x 58 x 30 186.7 X 147.3 X 76.2	76 x 67 <sup>1/4</sup> x 34 193 X 170.8 X 86.4
POWER REQUIREMENTS		
50 Hz Models:	440-480V, 60 Hz, 33 Amps 3Ø 380-420V, 50 Hz, 30 Amps 3Ø	440-480V, 60 Hz, 58 Amps 3Ø 380-420V, 50 Hz, 40 Amps 3Ø
SHIPPING WEIGHT	1612 Lbs/731.2 Kgs	2061 Lbs/934.9 Kgs

Specifications listed for HX-1000 and HX-2000 circulating at 25°C, ambient 21°C, with 50% Ethylene Glycol as coolant. Specifications will be affected by changes in temperature, ambient, or fluids. Specifications subject to change.

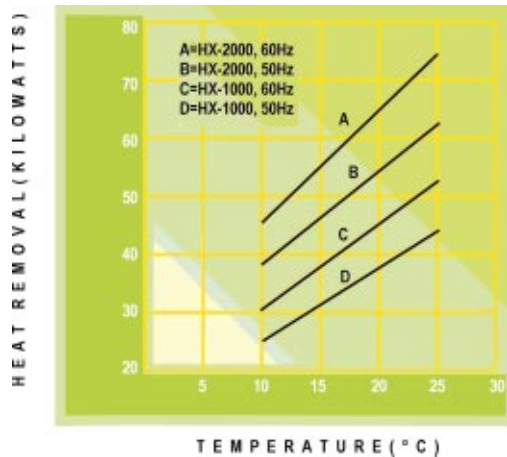
## FEATURES

- All weather design
- High capacity circulating pump
- NEMA 4 electrical enclosure
- Hot gas bypass system

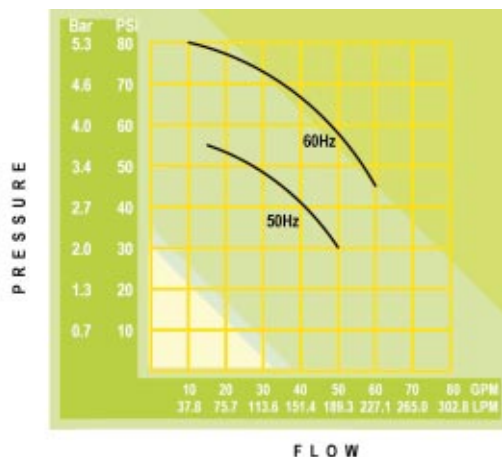
## APPLICATIONS

- Multiple Instruments Cooling
- Heat Exchangers
- Laser Cooling
- Semiconductor Equipment
- Plastic Molding & Extrusion

### Cooling Capacity



### Pumping Capacity



## Recirculating Chillers

### HX Series - Low Temperature

The HX -540 low temperature chiller is ideal for applications requiring high heat removal at low temperatures. Typically, a low temperature/high heat removal chiller would require a large case to accommodate the special components needed. NESLAB's years of experience in chiller technology has enabled us to offer this chiller in an extremely compact size. Feel free to compare to the competition. Standard features include a stainless steel reservoir, plate style heat exchanger, NEMA 4 electrical enclosure, and hot gas bypass temperature control. The sophisticated TC400 micro-

processor controller monitors all chiller functions as well as providing fluid safeties such as low reservoir liquid level, high and low temperature overshoot, and low flow. The TC400 even provides a recirculating flow readout in gallons or liter per minute, you choose. The HX-540 is perfect for use in a variety of applications. Reaction vessels in the chemical and pharmaceutical industries, quenching of cables in the fiber optics industry, and many chip manufacturing and testing processes in the semiconductor industry are just a few of the many applications where the HX-540 has become useful.

*Compact Design*  
Maximizes use of  
limited floor space



*Safety Certifications*  
NEMA 4 electrical  
enclosure for safety and  
reliability

# Recirculating Chiller Specifications

*Low Temp*

<b>MODEL</b>	<b>HX-540</b>
<b>TEMPERATURE RANGE</b>	-40°C to +25°C
<b>TEMPERATURE STABILITY</b>	±0.5°C
<b>COOLING CAPACITY</b>	
60 Hz Models	7500 Watts at -20°C 25575 BTU/hr at -20°C
50 Hz Models	6000 Watts at -20°C 20460 BTU/hr at -20°C
<b>PUMP</b>	TU-3/6 gpm, 65 psi
50Hz Models	18.8 Lpm, 3.1 bar
<b>RESERVOIR VOLUME</b>	
Gallons/Liters:	5/18.4
<b>DIMENSIONS (H x W x D) In.</b>	44 x 34 x 25 <sup>1/2</sup>
<b>Cm.</b>	111.8 x 86.4 x 64.8
	add 9in (22.8 cm) to depth for electrical enclosure
<b>POWER REQUIREMENTS</b>	440-480V, 60 Hz, 15 Amps 3Ø
50 Hz Models:	380-420V, 50 Hz, 17 Amps 3Ø
<b>SHIPPING WEIGHT</b>	915 Lbs/415 Kgs

Specifications listed for units circulating 60% Ethylene Glycol, 20% water, and fluid with specific heat of .6. Specifications will be affected by changes in temperature, ambient or fluids. Specifications subject to change.

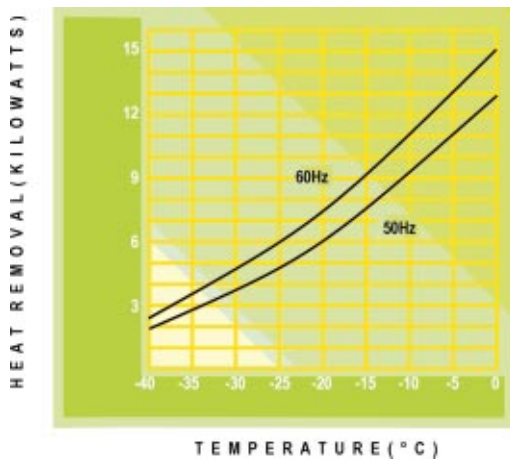
## FEATURES

- High cooling capacity at low temperatures
- Semi-hermetic compressor
- High pressure circulating pump
- Designed for 24 hour, continuous duty
- Hot gas bypass system
- Water cooled condenser

## APPLICATIONS

- Plasma Etch Chamber
- Quenching Fiber Optics Cables
- Chemical and Organic Reactions
- Gallium Arsenide Crystal Growth
- Molecular Beam Epitaxy

**Cooling Capacity**



**Pumping Capacity**

