



A Comprehensive Selection

CHILLERS



Expanded Listing

From 1/7 Ton to 40 Ton



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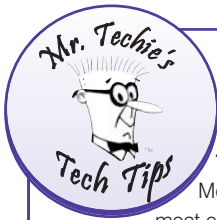
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Sizing a Chiller for Injection Molding

The Right Type

Most refrigeration is designed for static loads, like in a meat cooler. In plastics processing, heat is added to and removed from the mold during every cycle. Select a chiller designed for active heat loads.

The Right Size

Although an undersized chiller will cost less to buy, the chiller will be running at full capacity, resulting in higher operating costs. And even then, you may have trouble consistently keeping the mold cold.

Chillers are rated in tons; one ton equals the ability to transfer 12,000 BTUs/hr. The tonnage rating should be stated at a specific "leaving water temperature and at a specific ambient temperature".

Choose a chiller that can achieve the anticipated water temperature that your process will need and the rate of BTU's required. Producing colder water than necessary will cost in two ways; initially for the equipment and continually to operate it.

IMS Chillers are Rated based on actual testing. Avoid arbitrary Tonnage claims and select the chiller producing enough BTU's and a temperature required for your process.

Overall Chilling System Losses

IMS recommends a 20% allowance for radiation losses through the lines, mold base and platen, and for such factors as heat input from the pump. The easiest way to factor this in is to use 12,000 BTU/hp/hr at 50° F as the chilling system capacity, even though the chiller itself is rated for 12,000 BTU at 44° F.

The Right Temperature

The colder the water needs to be, the less efficient the chiller is, mainly because the tank and lines absorb more heat from the ambient air. A chiller removes heat most efficiently when set at 50° F to 55° F. The tonnage rating at 50° F is cut in half at 30°.

Water Flow through the Mold

At a flow of 10 gpm, chilled water must rise 12° F through the mold to remove 1,000 BTU/minute. At a flow of 3 gpm, the temperature must rise 40° F to remove 1,000 BTU.

If low flow is due to the mold's design, the only solution is having the mold reworked. But if normally occurring water deposits are clogging the lines, water line cleaner, IMS Lime Buster III, can greatly boost mold flow and increase heat transfer.

Avoiding Antifreeze

Water transfers heat better than antifreeze. 30% inhibited glycol to 70% water is recommended for freeze protection and corrosion resistance. DO NOT use automotive antifreeze.

Antifreeze Selection

If antifreeze is needed, add only inhibited ethylene glycol with high corrosion resistance (available as EG-17 from IMS in 5-gallon pails and 55-gallon drums). Avoid straight ethylene glycol as it becomes acidic and corrosive in use. Automotive antifreeze is also acidic and contains silica-based inhibitors that form a gel within two years in open-air systems such as chillers.

Computing Size for IMS® Chillers (2 Methods)

Method 1 (Based on coolant temperature and flow rate)

To determine chiller tonnage required, you must calculate the delta T between the inlet and outlet water temperatures and the rate of flow in gallons per minute. Measuring the delta T requires a thermocouple or thermometer. To perform a load test: 1.) Strap a thermocouple to the inlet water line of the processing equipment and wrap it with tape to hold it in place. 2.) Strap a thermocouple on the outlet water line of the processing equipment to record the amount of heat the water is picking up in your equipment.

To measure flow rate of the water place a flow meter on the outlet water line of your equipment. If a flow meter is not available, simply disconnect the outlet line and let the water pour into a five gallon bucket while you time it with a watch. This provides you with the "GPM" (gallons per minute) rate of discharge.

Now you have the necessary information to size a unit properly. Use the following formula to calculate your equipment's BTU's of required cooling.

$$\text{BTU} = \text{Constant (weight of water)} \times \text{GPM} \times \text{Temperature Differential}$$

Multiply the fluid flow (GPM) by 500. Multiply the result by the temperature differential or rise (return water temperature minus the input or supply water temperature). Divide the result by 12,000 and you now have your required rating.

$$\begin{aligned} \text{Example: } & 500 \text{ Constant (weight of water)} \\ & \times 10 \text{ GPM (gallons per minute)} \\ & 5000 \\ & \times 12^\circ \text{ Temperature Differential (or rise)} \end{aligned}$$

60,000 Required BTU's per hour

12,000 EACH 12,000 BTU's requires 1 Ton of Cooling

= 5 Ton (This equipment would require a 5 Tons capacity)

• • •

Method 2 (Based on material use and melt temperature)

You can also calculate the proper tonnage using the following formula:

$$\text{Tonnage} = \frac{A \times (B - C)}{\text{Removal Capacity}}$$

where: A = Material use in lbs./hr.
Use actual lbs./hr., not machine's capacity rating

B = Temperature of melt

C = Temperature of part when it comes out of mold

Removal Capacity = 12,000 BTU/hr./ton removal capacity of chiller system set at 50° F, which includes estimated radiation losses, etc. At 40° F, use 8,000. At 30° F, use 6,100. At 20° F, use 5,800.

Example: 100 lbs./hr.
450° F melt temperature
150° F part temperature when mold opens

$$\begin{aligned} \text{Tonnage} &= \frac{100 \times (450 - 150)}{12,000} \\ &= \frac{100 \times 300}{12,000} \\ &= \frac{30,000}{12,000} \\ &= 2.5 \end{aligned}$$

Use the next size up, in this case a three ton chiller, to avoid problems caused by using an undersized chiller.

For assistance with sizing, contact an IMS Product Specialist.



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OVERVIEW CHILLERS



Hydra Series Air Cooled Chillers

Maximum cooling capacity for multi-industrial use

- 1 Ton to 23.2 Ton Standard
- **20°-80° F** Set Point Range Standard
 - allows maximum cooling in less time with fewer rejects
- **MAXIMUM** Cooling Capacity:
 - tonnage rated at 50° F fluid leaving temperature with 95° F ambient air
- Several Optional Accessories to Meet Your Requirements
- Casters Standard on All Sizes



18 MONTH WARRANTY



IMS MC Series and MicroMax Air Cooled Chillers

Industry standard quality

- **1/7 Ton** to 20 Ton Standard
- MicroMax Stainless Steel Cabinet
 - perfect for medical and food applications
- Cooling Capacity:
 - tonnage rated at 65° F fluid leaving temp with 95° F ambient air
- Casters Standard up to 5 Ton
- Outdoor and Tankless Chillers Available
- Several Optional Accessories
 - to meet your requirements



1 YEAR WARRANTY

Shini USA Portable Air Cooled Chillers

Great value for multi-industrial use

- 3 Ton to 40 Ton Standard
- Many Sizes **IN STOCK** for Quick Delivery
- Cooling Capacity:
 - tonnage rated at 50° F fluid leaving temp with 90° F ambient air
- Worldwide Electrical Safety Standards Available
- Casters Standard up to 15 Tons
- Fully Tested in the U.S.A.

1 YEAR WARRANTY





Hydra Series Air Cooled Chillers

Maximum cooling capacity for multi-industrial use



Hydra Series Chillers allows you to mold better parts in less time with fewer rejects.



★ 20°-80° F Set Point Range Standard

Galvanized multi-blade propeller fans

★ Manufactured at an ISO 9001:2008 facility

★ Tested at full capacity prior to shipping

Microprocessor controller - accurate temperature control (±1° F) and extensive diagnostics

EXCEPTIONAL WARRANTY

No manufacturer offers a better / more comprehensive warranty:

- Eighteen months on parts
- One full year on labor
- Five full years on micro-processor with lifetime controller exchange price of \$200



Features - Benefits

- **Dual LED digital displays** - provides "to process" and "set point" temperatures
- **Anti-cycle timer** - prevents short-cycling of compressor every 2.5 minutes
- **Deviation alarm** - 30 minute timer delay to prevent nuisance alarms during start-up and set point changes
- **Display temperatures** - allows operator to easily switch from °F to °C from the front panel
- **Diagnostic lights** - alerts operator to no flow, high refrigerant pressure, low refrigerant pressure, freeze stat, over set point, under set point, pump on, compressor on, partial load, water make-up (active if option is purchased), low water level (active if option is purchased), high water temperature and probe fault
- **Operation lights** - indicates control power on, stop alarm reset, alarm horn silence (active if option is purchased)
- **PID control algorithm** - assures most accurate process control temperatures
- **Front panel alarm** - with easy reset button



10 Ton Unit shown

NPT chilled water supply/return



External sight glass fill / drain connection



Inlet air filter - cleanable, flexible, durable and ensures maximum operating efficiency

1 to 3 Ton units have one of the smallest footprints in the industry

— see next page for additional specifications and pricing —



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Hydra Series Air Cooled Chillers



Craftsmanship and Quality Components are what separates us from the competition



Standard Features:

- **Nonferrous construction** - includes evaporator, pump, reservoir and piping to resist corrosion
- **Air-cooled condenser** - generously sized air-cooled condensers for industrial environments with ambient temperatures up to 115° F
- **Removable side panel** - allows easy access to interior components



- **Internal insulated polyethylene reservoir** - comes with large capacity and a removable top.
- **Process Y-strainer** - protects the evaporator from contaminants in the water
- **Evaporator freeze-up protection**
- **Heavy gauge steel cabinet**
- **Casters standard on all sizes**
- **R407C refrigerant**

Mechanical Features:

- **Scroll compressor(s)** - energy efficient and reliable
- **Generously sized copper tube/aluminum finned air-cooled condensers** - designed for industrial environments (includes air inlet filters)
- **Stainless steel process pump with pressure gauge**
- **Refrigerant TXV, filter/drier and sight glass**
- **Stainless steel brazed plate evaporator** - higher heat transfer coefficients due to reduced fouling
- **Electronic hot gas bypass** - handles varying load conditions
- **Freezestat safety switch with solid state sensor**
- **Encapsulated high and low refrigerant pressure safeties**

Call today and allow our engineers on staff to design the custom chiller that's right for you.

Hydra Series Air Cooled Chillers

IMS Item #		Compressor	Pump	Flow Rate	Tank	Standard	In/Out	Dimensions			Weight	Price	
230/60/3	460/60/3	Ton*	HP	HP	(GPM)	Size (gal)	Set Point†	NPT	Height	Width	Depth		(LBS)
149619	NA	1	1	1/4	2 @ 80	3	20°-65° F	1"	34"	19"	28"	255	\$5,075
149620	149621	2	2	1	5 @ 39	11	20°-65° F	1"	42"	24"	40"	420	\$6,440
149622	150186	3	3	1	7 @ 38	11	20°-65° F	1"	42"	24"	40"	430	\$7,150
149623	149624	5.5	5.5	1-1/2	13 @ 43	11	20°-65° F	1-1/2"	55"	35"	44"	720	\$8,750
149625	149626	7.5	7.5	1-1/2	18 @ 42	22	20°-80° F	1-1/2"	55"	35"	75"	1195	\$10,825
149627	149830	10	10	1-1/2	24 @ 40	22	20°-80° F	1-1/2"	55"	35"	75"	1195	\$12,240
149628	149629	13.1	13.1	1-1/2	31 @ 36	22	20°-80° F	1-1/2"	55"	35"	75"	1215	\$15,175
149630	149631	15	15	3	36 @ 57	70	20°-80° F	2"	94"	42"	81"	3200	\$19,290
149632	149633	20	2 X 10	3	48 @ 52	70	20°-80° F	2"	94"	42"	81"	3300	\$22,460
149634	149635	23.2	2 X 11.6	5	56 @ 60	70	20°-80° F	2"	94"	42"	81"	3800	\$24,250

*Tonnage rated @ 50° F fluid leaving temp w/95° F ambient air

†To extend range to 20°-80° F a CPR Valve option is required for 5.5 Ton and smaller

Inquire about Water Cooled Chillers

Optional Accessories

Description	Price	Description	Price
Alarm Horn	\$185	Remote Alarm Dry Contact	\$100
Automatic Water Makeup & Low Level Light	\$390	Remote On/Off Contacts	\$75
Extend Set Point Range to 80° F (1-3 Ton)	\$220	Return Water Temperature Display	\$70
Extend Set Point Range to 80° F (5.5 Ton)	\$270	Special Color Air Dry Enamel Paint	\$1,055
Hand Held Remote with 50' cable	\$490	3-Phase Monitor	\$230
SPI Communications Port	\$240	575 volt add (2 and 3 ton units)	\$460
Inlet Air Filter (for #149622 and #150186)	\$75	575 volt add (5 through 15 ton units)	\$1,035
Low Water Level Light	\$180	575 volt add (20 through 25 ton units)	\$1,400
NEMA-4/12 Window Kit	\$295		



MC Series Air Cooled Chillers

Industry standard quality



Features - Benefits

- ★ **Vertical Air Discharge with Cleanable Air Filters** - allows/affords operator comfort
- ★ **Removable Panel Doors** - allows easy access and maintenance of components
- ★ **Built-In Sub Cooling Circuit on Condensers** - improves efficiency and reduces refrigerant charge



- ★ **Brazed Plate Evaporators** - provide most efficient thermal transfer

- R-407C Refrigerant
- Self Contained Unit with Re-Circulating Pump
- Fused Disconnect



- Non-Ferrous Welded Components
- Manual Bypass

1 YEAR WARRANTY

- Powder Coated, Galvanized Sheet Metal Cabinet
- Digital Temperature Controller
- Casters standard on units up to 5 Tons



IMS Item #		Compressor Ton*	Compressor HP	Pump HP	Flow Rate (GPM)	Tank Size (gal)	In/Out NPT	Dimensions			Weight (LBS)	Price	
230/60/3	460/60/3							H	W	D		230V	460V
147710	147711	2	3	1	10 @ 35	10	1"	50"	28"	31"	460	\$6,598	\$6,476
147716	147717	3	3	2	10 @ 44	36	1-1/4"	70"	34"	37"	540	\$7,081	\$7,086
147722	147723	5	5	2	15 @ 43	36	1-1/4"	70"	34"	37"	570	\$8,074	\$8,136
NA	147728	7.5	7.5	2	23 @ 40	60	1-1/4"	70"	37"	57"	570	NA	\$10,307
NA	147731	10	10	2	30 @ 36	60	1-1/4"	70"	37"	57"	1350	NA	\$11,923
NA	147734	15	15	3	60 @ 45	100	2"	74"	57"	60"	1800	NA	\$16,481
NA	147737	20	20	3	60 @ 45	100	2"	74"	57"	60"	2500	NA	\$19,798

*Tonnage rated @ 65° F fluid leaving temp @ 95F ambient

Inquire about Water Cooled, Tankless and Outdoor Chillers

Optional Accessories

Description	Price	Description	Price
Auto Water Fill	\$120	Stainless Steel Cabinet	\$1,848
Inlet Water Filter	\$183	60 PSI Pump	\$771
Pressure Relief	\$222	80 PSI Pump	\$771
Anti Backflow Kit	\$775	Remote Control	\$312



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★ 1/8 to 1.5 Ton Sizes Available

Features - Benefits

- ★ **Removable Panel**
"Lift Out Doors" - allows easy access and maintenance of components
- ★ **Stainless Steel Cabinet** - great for medical packaging and food applications
- ★ **Digital Temperature - Controller** allows for easy operation

1 YEAR WARRANTY



- Closed-Loop Style
- UL and CE Rated
- Casters Standard
- R-407C Refrigerant



Stainless STEEL

- Corrosion-Free Reservoir
- Non-Ferrous Welded Components
- Submersed Copper Coil
- High Flow Re-Circulating Pump



Item #	Cooling		Compressor HP	Pump HP	Flow Rate (GPM)	Tank Size (gal)	In/Out NPT	Dimensions			Weight (LBS)	Price
	Capacity*	Voltage						Height	Width	Depth		
147701	1690	115/60/1	1/8	1/4	2 @ 50	5	1/2"	25"	19"	22"	160	\$2,607
147702	3760	115/60/1	1/4	1/4	4 @ 50	5	1/2"	27"	21"	22"	210	\$2,992
147703	5040	115/60/1	1/2	1/4	4 @ 50	5	1/2"	27"	21"	22"	210	\$3,442
147704	5040	230/60/1	1/2	1/4	4 @ 50	5	1/2"	27"	21"	22"	210	\$3,775
147705	7230	230/60/1	3/4	1/3	4 @ 50	10	1/2"	32"	26"	29"	235	\$3,881
147706	11360	230/60/1	1	1/3	4 @ 50	10	1"	32"	26"	29"	260	\$4,057
148857	11360	230/60/3	1	1	10 @ 35	10	1"	32"	26"	29"	260	\$4,472
147707	11360	460/60/3	1	1	10 @ 35	10	1"	32"	26"	29"	260	\$4,472
147708	17000	230/60/1	1.5	1/3	4 @ 50	10	1"	32"	26"	29"	260	\$4,553
149636	17000	230/60/3	1.5	1/2	4 @ 50	10	1"	32"	26"	29"	260	\$5,260
149637	17000	230/60/3	1.5	1	10 @ 35	10	1"	32"	26"	29"	260	\$5,179
147709	17000	460/60/3	1.5	1	10 @ 35	10	1"	32"	26"	29"	260	\$4,999

*Rated In BTUs Per Hour
65° F fluid leaving temp @ 95F ambient



Shini USA Portable Air Cooled Chillers

Great value for multi-industrial use

Features - Benefits

- ★ **Vertical Discharge** - allows/affords operator comfort
- ★ **Hot Gas Bypass Valve** - handles varying load conditions
- ★ **Automatic Water Bypass Valve** - protects against freeze up
- ★ **Non-Proprietary Temp Controller** - maintains an accuracy of $\pm 1^\circ \text{F}$
- ★ **Siemens Electrical Components**
- ★ **Compressor and Pump Overload Protection**



**Most Sizes
IN STOCK**

**1 YEAR
WARRANTY**

- Full Diagnostics Panel
- Non-Ferrous Water Components
- Fully Insulated Stainless Steel Reservoir
- Heavy Duty Powder Coated Cabinet
- Automatic Fill Valve
- 45°-70° F Operational Temperature Range
- Casters standard on units up to 15 Tons
- R-407C Refrigerant
- 10' Power Cord



1. Stainless steel water tank
2. Heavy duty non-ferrous pump
3. High / low system pressure gauges
4. Main power switch
5. Pump pressure gauge
6. Copeland scroll compressor(s) for super high efficiency and low noise



7. Refrigerant tank positioned for efficiency
8. Expansion valve for accurate adjustment of R-407C refrigerant
9. Condenser features quick heat transfer and heat radiation
10. Tube-in-shell evaporator ensures efficient cooling
11. Powder coated frame

IMS Item #		Shini #	Ton*	Compressor HP	Pump HP	Flow Rate (GPM) [†]	Tank Size (gal)	In/Out NPT	Dimensions			Weight (LBS)	Price	
230/60/3	460/60/3								H	W	D		230V	460V
149601	149602	SIC-AC-3	3	3	1	7.2	11	1"	59"	30"	51"	400	\$6,780	\$6,279
149603	149604	SIC-AC-5	5	5	1	12	11	1"	59"	30"	51"	500	\$7,217	\$6,682
149605	149606	SIC-AC-8	8	8	1.5	19.2	16	1-1/2"	59"	30"	63"	850	\$10,182	\$9,428
149607	149608	SIC-AC-10	10	10	1.5	24	30	1-1/2"	59"	36"	63"	880	\$10,728	\$9,934
149609	149610	SIC-AC-15	15	15	2	36	30	2"	63"	36"	69"	1300	\$16,402	\$15,187
149611	149612	SIC-AC-20	20	2 x 10	3	48	40	2"	79"	40"	110"	2310	\$23,332	\$21,604
149613	149614	SIC-AC-30	30	2 x 15	5	72	70	2-1/2"	87"	51"	110"	2680	\$31,979	\$29,609
149615	149616	SIC-AC-40	40	2 x 20	5	96	70	2-1/2"	88"	58"	154"	3300	\$43,015	\$39,830

*Tonnage rated @ 50° F fluid leaving temperature with 90° F ambient air

[†] Gallons per minute @ 40 psi

Inquire about Water Cooled Chillers

Worldwide electrical safety standards available (CE, UL, CSA, JIS etc.) — Inquire



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Recommended Chiller Accessories

SMARTFLOW® Manifolds & IMS® Manifolds (pages 524-535)



Flow Regulators

(pages 507-509)



FireSleeve Hose Insulation

(page 580)



Water Hose & Accessories (pages 570-577)



Water Fittings (pages 544-565)



Ethylene & Propylene Glycol

(pages 735-736)



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Gaylord Dumpers

Material Mixers,
Tumblers, Drums
& Accessories

Gaylord Tilters,
Hopper Loaders,
Hoppers & Accessories

Material Drying Ovens,
Dryers, Desiccant &
Accessories

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Controllers, Chillers
& Fluids

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Systems

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& Separators

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Accessories & Services

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