

**GEM Orion Machinery (P) Ltd.**

*An Indo Japan Joint Venture Company*

## Refrigeration Industrial Chillers

Max Series: 10 TR to 30 TR



Mini Series: 1 TR to 7.5 TR



- » Compact - occupies minimum space
- » High pressure pump for reliable operation
- » Environment friendly R407C refrigerant used
- » Built in closed tank for thermal mass operation
- » Microprocessor control
- » Energy efficient fans
- » Water cooled condenser (optional)

Capacity: 1 TR to 30 TR • Temperature: 5° to 20° C • Flow Rate 10 to 400 lpm

# PRODUCT FEATURES

**1 WIDE OPERATING RANGE**  
Outlet temperature between 10° to 20°C

**2 BUILT IN WATER TANK**  
Stainless Steel Tank for Max Series & FRP Tank for Mini Series

**8 PLC BASED CONTROL PANEL**  
with Switch gear components as per IEC / Co-ordination Chart

**3 BUILT IN PUMP**  
High Pressure & High Volume Handling

**7 ENVIRONMENT FRIENDLY**  
R407C Refrigerant



Max Series: 10 TR to 30 TR

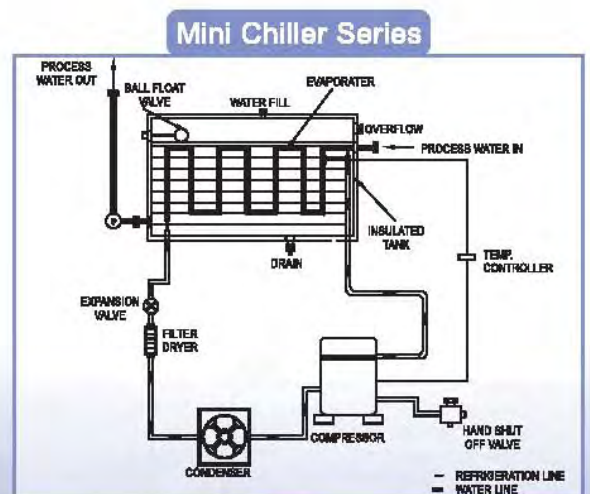
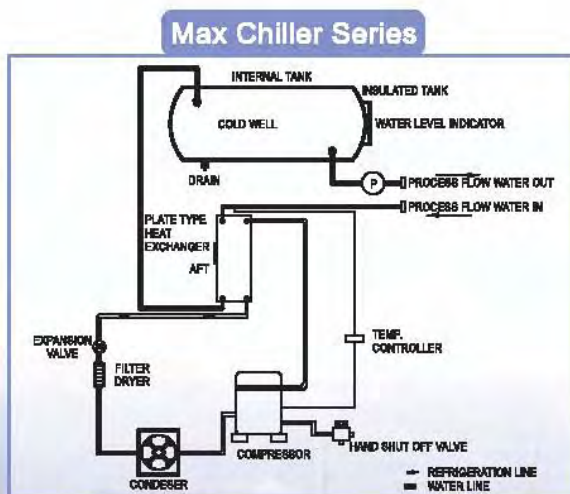


Mini Series: 1 TR to 7.5 TR

**4 STURDY FRAME**  
with Polyester based Powder Coated Finish

**5 MAX SERIES with BRAZED PLATE HEAT EXCHANGER** made of Stainless Steel (AISI 316) Compact Design

**6 MINI SERIES built with UNIQUE CO-EX HEAT EXCHANGER** made of Copper / Non Fouling, Non Corrosive

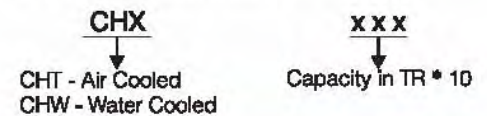


Chiller Specification Sheet		Base Model	Capacity		Head Load $\phi$		Refrigeration Compressor		Water Pump		Cooling Fan		Power Supply*	Water Tank	In / Out Connection	
			TR	kcal/h	kW	Type	Absorbed Power kW	Flow rate lpm	Absorbed power kW#	Qty.	Size mm	Power W			Material	Capacity Litres
Chiller Mini Series	Air Cooled	CHT 010N	1	4300	5	Recip	1.7	12	0.37	1	300	110	230/50/1	FRP	35	¾" & 1"
		CHT 020N	2	6000	7	Recip	2	30	0.75	1	450	240	415/50/3		50	1"
		CHT 030N	3	9400	11	Recip	3	30	0.75	1	450	240	415/50/3		50	1"
		CHT 050N	5	15400	18	Scroll	5	90	1.2	2	450	240	415/50/3		150	1½" & 1"
		CHT 075N	7.5	24000	28	Scroll	7.5	90	1.2	3	450	240	415/50/3		300	1½" & 1"
	Water Cooled	CHW 050N	5	17200	20	Scroll	4	90	1-2	Cooling water flow rate 60 lpm @32-33°C, 2-3 bar		415/50/3	150		1½" & 1"	
CHW 075N		7.5	27500	32	Scroll	6	90	1-2	Cooling water flow rate 80 lpm @32-33°C, 2-3 bar		415/50/3	300	1½" & 1"			

Chiller Max Series	Air Cooled	CHT 100N	10	35200	41	Scroll	10.3	90	1.2	4	450	240	415/50/3	SS304	300	2"
		CHT 150N	15	44700	52	Scroll	12.3	200	2.2	6	450	240	415/50/3		300	2"
		CHT 200N	20	73100	85	Scroll	21	200	2.2	8	450	240	415/50/3		300	2"
		CHT 300N	30	89600	104	Scroll	27.6	400	4	2	1000	240	415/50/3		300	2"
	Water Cooled	CHW 100N	10	41300	48	Scroll	8-4	90	1-2	Cooling water flow rate 120 lpm @32-33°C, 2-3 bar		415/50/3	300		2"	
		CHW 150N	15	49000	57	Scroll	10	200	2-2	Cooling water flow rate 180 lpm @32-33°C, 2-3 bar		415/50/3	300		2"	
		CHW 200N	20	80800	94	Scroll	17	200	2-2	Cooling water flow rate 240 lpm @32-33°C, 2-3 bar		415/50/3	300		2"	
		CHW 300N	30	89800	104	Scroll	27-6	400	4	Cooling water flow rate 240 lpm @32-33°C, 2-3 bar		415/50/3	300		2"	

- $\phi$  - Capacity delivered at ambient of 40° & water outlet temperature of 15° with 5% variation.
- # - Power consumed at rated condition.
- \* - Power supply, 210-250V,50Hz for single phase (230V rated voltage) 380-440v, 50Hz for three phase (415v rated voltage).

#### Model Nomenclature :



## SIZING CONVERSION FACTORS:

### Operating condition

	Ideal	Range
Water Outlet Temperature	15° C	5° to 20° C
Ambient Temperature	40° C	30° to 45° C
Refrigerant Used	R407C	
Water Inlet Pressure	4 bar (g)	3 - 5 bar (g)

### Ambient Temperature : (C1)

Ambient Temperature, °C	30	35	40	45
Conversion Factor	1.12	1.08	1	0.9

### Water Outlet temperature: (C2)

Water Outlet Temperature, °C	5	10	15	20	25
Conversion Factor	0.85	0.8	1	1.15	1.3

### Chiller Model Selection

Consider a case with the following condition

Flow rate	: 90 lpm
Inlet Temperature	: 15° C
Outlet Temperature	: 10° C
Ambient Temperature	: 45° C
Heat Load	= $mC_p\Delta T$
	= 90 x 60 x 1 x 5
	= 27000 kcal/hr

Conversion Factor Which is	C1 = 0.9
	C2 = 0.8
Heat Load for chiller selection	Q = 27000/(C1 x C2)
	Q = 27000/(0.9 x 0.8)
	Q = 37500 kcal/hr

From the above calculation, Heat load is 37500 kcal/hr, so we need to select CHT 150N.

**Flow rate** : 1 m<sup>3</sup>/hr = 16.67 lpm

**Temperature** : °C to °F = 1°C x (9/5)+32  
°F to °C = (1°F-32) x 5/9

**Heat load** : 1 kW = 860 kCal/hr  
1 kW = 3412.14 Btu/hr  
1 TR = 12000 Btu/hr (or) Approx 3000 kCal/hr (or) 3.51 kW

## SHIPPING DATA

Base Model	Machine Dimensions, mm			Net Weight, kg
	Length A	Width B	Height C	
CHT 010	650	490	840	175
CHT 020	900	600	980	200
CHT 030	900	600	980	250
CHT 050	1100	800	1160	370
CHT 075	1650	800	1160	500
CHT 100	1400	1200	1680	600
CHT 150	1800	1200	1910	900
CHT 200	2600	1200	1910	1200
CHT 300	2600	1200	1910	2500



\* For Larger Capacities, It is recommended to use multiple units in parallel. Please contact factory for details.

## TYPICAL APPLICATION

Chemical Industry  
 Food & Beverage Industry  
 Glass Industry  
 Pharmaceutical Industry  
 Plastic Industry

Distilleries / Breweries  
 Health Care / Hospitals  
 Metal Spraying  
 Oil Cooler  
 Oncology Machine  
 Printing Process  
 PET - Stretch Blow Moulding  
 Process Chilling  
 Textile Processing  
 Welding Machine

Medical  
 Machine Tool  
 Laser Cutting  
 Packaging  
 Brewery  
 Anodising  
 Induction Heating  
 Rubber  
 Plastic Extension  
 Gas Cooling  
 Hydraulic Power Pack  
 Fibre Laser  
 and many more

## SALES & CUSTOMER CARE



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This catalogue contains product specifications as on June 2017.

• Actual product colors may vary slightly from the pictures.

• The structure or specifications of products contained in this catalogue are subject to change without prior notice.