

ENGINEERING DATA

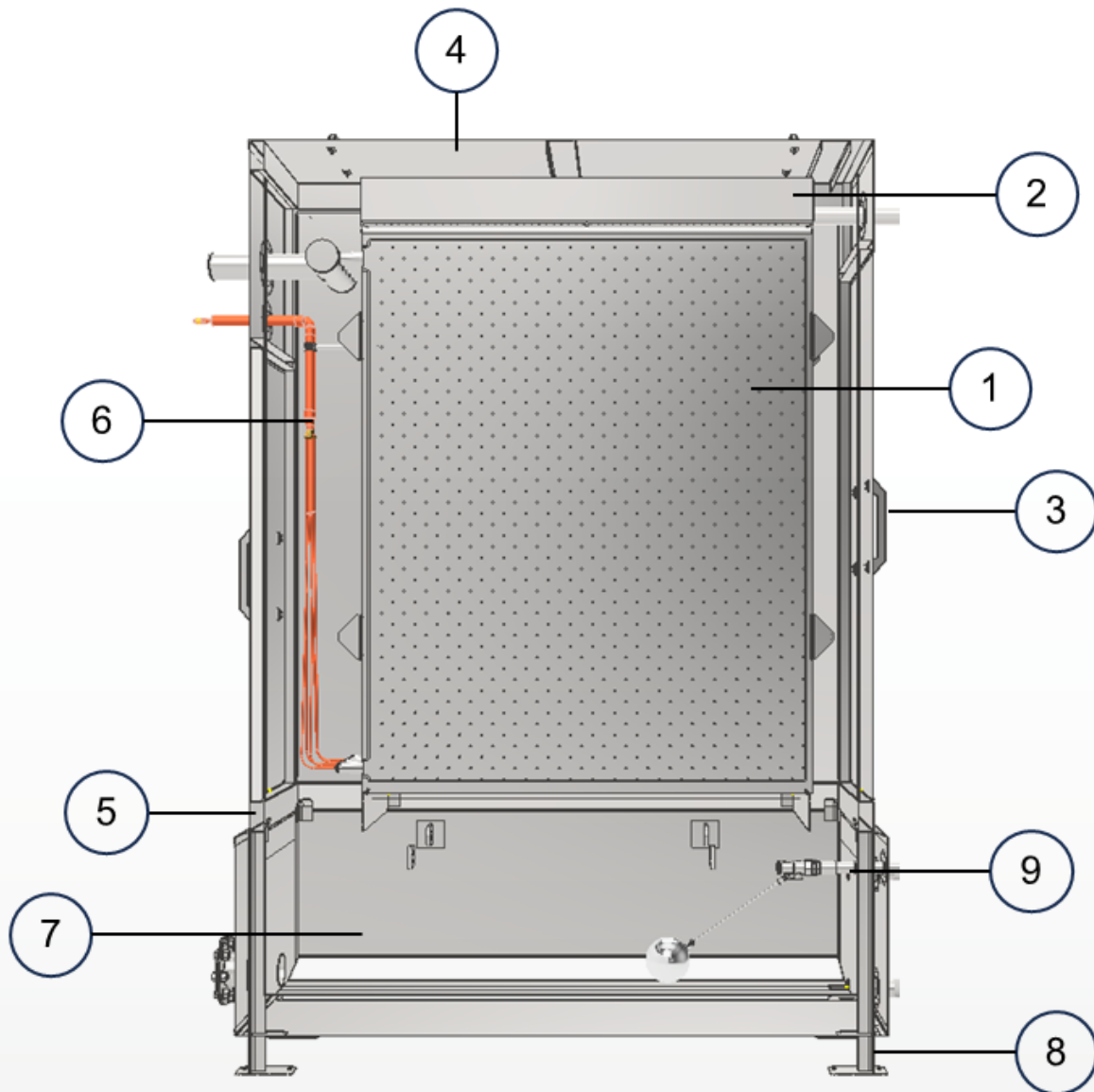
for falling film chiller

Model Riple plate FR3



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Specification



No.	Detail	Material	Remark
1	Evaporator plate	Stainless steel 304	
2	Upper tray	Stainless steel 304	
3	Cover	Body : Stainless steel 304	
4	Top Cover	Body : Stainless steel 304	
5	Structure	Stainless steel 304	
6	Nozzle Distributor	Braze and copper	For DX system
7	Water tank	Body : Stainless steel 304 Insulation : Polyurethane (PU)	Additional
8	Leg	Stainless steel 304	
9	Float switch	Stainless steel 304	

Model selection method

Selection procedure

- Determine total Refrigeration load (kcal/hr)

$$\text{Total Refrigeration Load(kcal/hr)} = \text{Water Flow rate (m}^3\text{/hr)} \times 1000 \times [\text{Temperature of water inlet- Temperature of water outlet}] (\text{°C})$$
- Select the model whose operation and refrigerant used.
- Select the model whose Total Refrigeration Load is not greater than value in the table.

Selection Example

Water Flow rate(m ³ /hr)	:	2
Temperature of water inlet(°C)	:	30
Temperature of water outlet(°C)	:	2
Refrigerant	:	R404a
Operation	:	dx (dry expansion)
Total Refrigeration Load	=	2 x 1000 x (30 – 2)
	=	56,000 kcal/hr
	Or =	65.1 kW

From table 1, dx operation and R404a are selected.

Total Refrigeration Load 65.1 kW and select model FR3-1.

Remark : The model selection for other refrigerant, please contact HEATAWAY Representative.

DX Operation

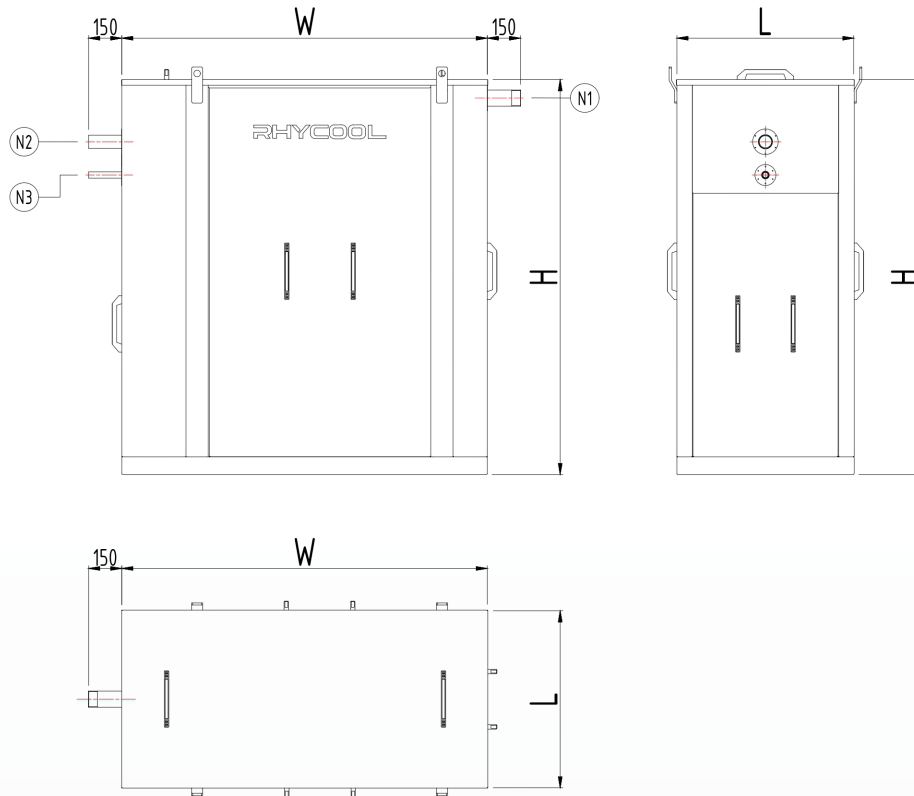


Table 1 : Total refrigeration load, Dimension and Weight of dx operation

Refrigerant	Model	Cooling cap (kW)	Overall Dimension(mm)			Weight (kg)				Container size
			W	L	H	Shipping	Empty	Operating	Refrigerant	
R404A	FR3-1	88	1650	500	1835	610	610	670	40	20 ft
	FR3-2	150	1650	800	1835	920	920	1020	70	20 ft
	FR3-3	224	1650	1100	1835	1270	1270	1420	105	20 ft

Remark : Nominal capacity is base on operating condition : Evaporating temperature -4 °C, Condensing temperature 40 °C and Wet bulb temperature 24 °C, Temperature water inlet 30°C and outlet 2°C

Table 2 : Pipe Connection of dx operation

Description	Mark	Connecting Type	DX		
			FR3-1	FR3-2	FR3-3
Water Inlet (NB pipe)	N1	Tread-NPT	1-1/2" x 1	2" x 1	2" x 2
Gas Suction Outlet (NB pipe)	N2	Welded	2-1/2" x 1	2-1/2" x 2	2-1/2" x 2
Liquid Inlet (CU tube)	N3	Welded	1-1/8" x 1	1-1/8" x 2	1-3/8" x 2

Flooded Operation

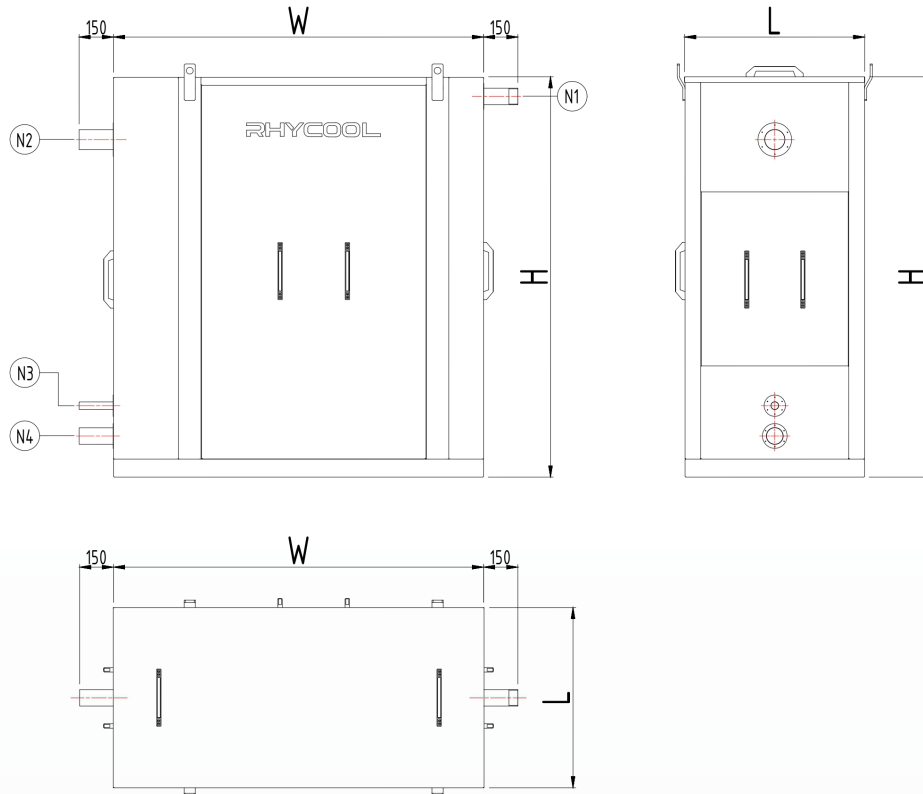


Table 3 : Total refrigeration load, Dimension and Weight of Flooded Operation

Refrigerant	Model	Cooling cap (kW)	Overall			Weight (kg)				Container size
			Dimension(mm)			Shipping	Empty	Operating	Refrigerant	
			W	L	H					
R404A	FR3-1	205	1650	500	1835	620	620	740	85	20 ft
	FR3-2	355	1650	800	1835	930	930	1130	155	20 ft
	FR3-3	531	1650	1100	1835	1300	1300	1590	230	20 ft
	FR3-4	713	1650	1400	1835	1640	1640	2030	300	20 ft
	FR3-5	902	1650	1750	1835	2100	2100	2620	385	20 ft
R717	FR3-1	228	1650	500	1835	620	620	700	50	20 ft
	FR3-2	391	1650	800	1835	930	930	1070	90	20 ft
	FR3-3	586	1650	1100	1835	1300	1300	1500	130	20 ft
	FR3-4	785	1650	1400	1835	1640	1640	1910	170	20 ft
	FR3-5	1058	1650	1750	1835	2100	2100	2460	220	20 ft

Remark : Nominal capacity is base on operating condition : Evaporating temperature -4 °C, Condensing temperature 40 °C and Wet bulb temperature 24 °C, Temperature water inlet 30°C and outlet 2°C

Table 4 : Pipe Connection of Flooded Operation

Description	Mark	Connecting Type	FF				
			FR3-1	FR3-2	FR3-3	FR3-4	FR3-5
Water Inlet (NB pipe)	N1	Tread-NPT	2" x 1	3" x 1	2-1/2" x 2	3" x 2	3" x 2
Gas Suction Outlet (NB pipe)	N2	Welded	3" x 1	3" x 2	4" x 2	4" x 2	5" x 2
Liquid Inlet (NB pipe)	N3	Welded	1-1/2" x 1	1-1/2" x 2	1-1/2" x 2	2" x 2	2" x 2
Liquid Return (NB pipe)	N4	Welded	2-1/2" x 1	2-1/2" x 2	3" x 2	3" x 2	3" x 2

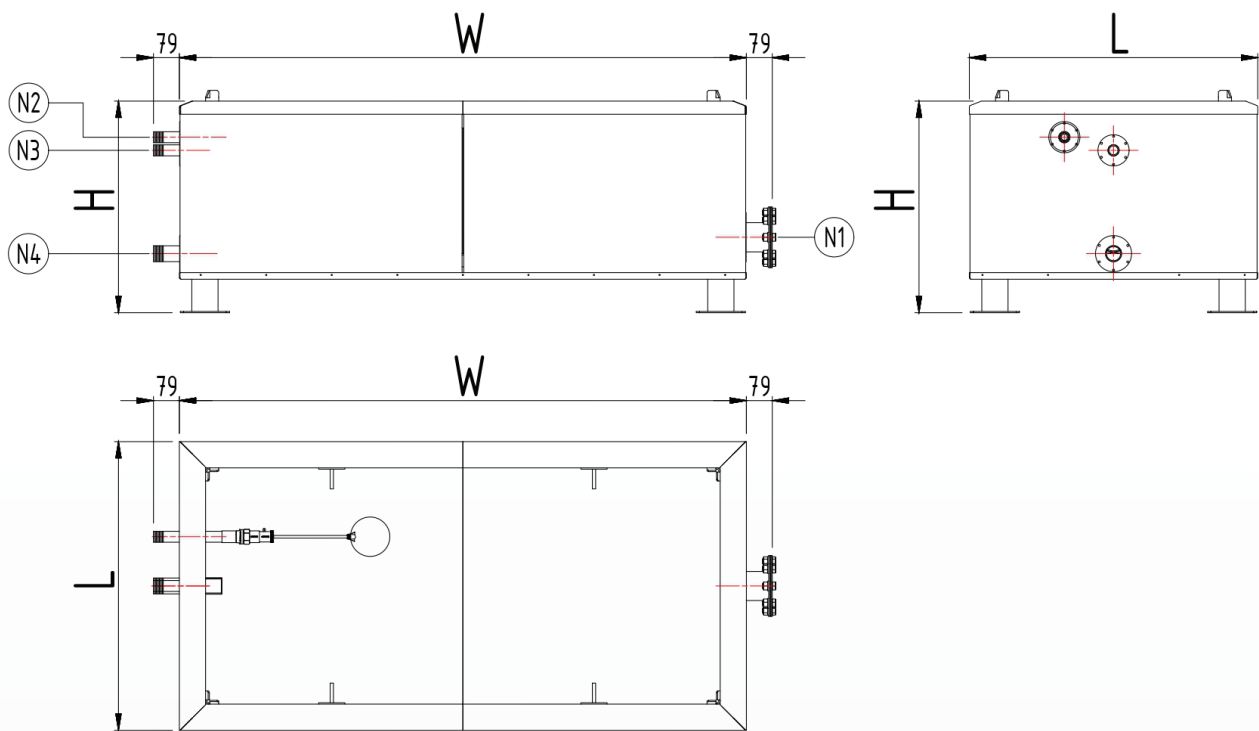


Table 5 : Capacity ,Dimension and Weight of Water Sump Tank

Model	Overall			Weight (kg)			Water Volume (liter)
	Dimension(mm)			Shipping	Empty	Operating	
	W	L	H				
WT-1	1730	580	645	150	150	350	200
WT-2	1730	880	645	170	170	520	350
WT-3	1730	1180	645	200	200	690	490
WT-4	1730	1480	645	230	230	870	640
WT-5	1730	1830	645	260	260	1070	810

Table 6 : Pipe Connection of Water Sump Tank

Description	Mark	Connecting Type	FF				
			FR3-1	FR3-2	FR3-3	FR3-4	FR3-5
Water Outlet (NB pipe)	N1	Flanged	3" x 1	3" x 1	3" x 1	4" x 1	4" x 1
Make up Water (NB pipe)	N2	Tread-NPT	1" x 1	1" x 1	1" x 1	1" x 1	1" x 1
Over flow (NB pipe)	N3	Tread-NPT	1" x 1	1" x 1	1" x 1	1" x 1	1" x 1
Drain (NB pipe)	N4	Tread-NPT	1-1/2" x 1	1-1/2" x 1	1-1/2" x 1	1-1/2" x 1	1-1/2" x 1

RHYCOOL

ENGINEERING DATA for falling film chiller

Model Riple plate FR3

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