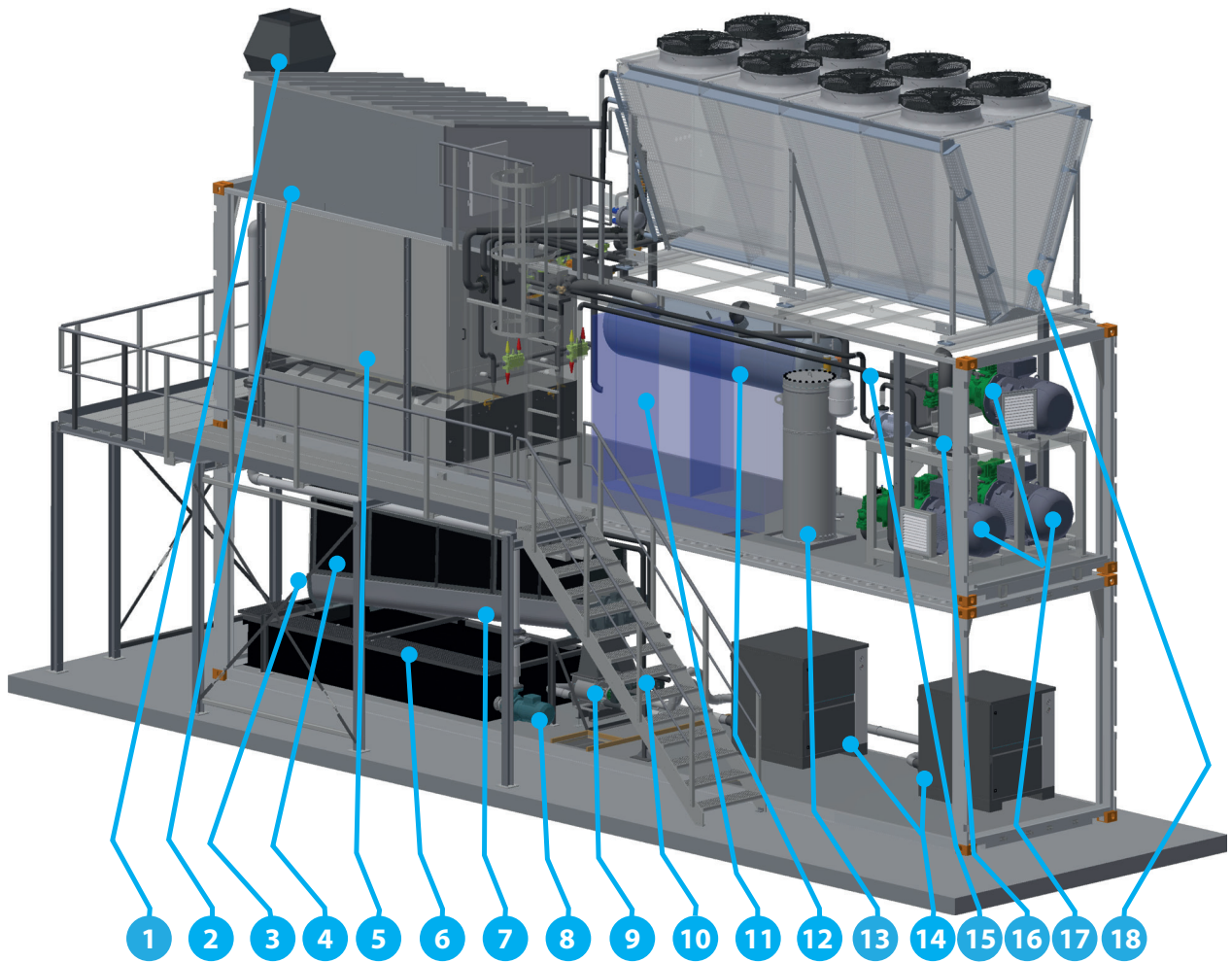


General description

This plant is a cooling plant for production of plate ice (artificial snow). The cooling plant is designed as compression refrigeration system. All components of the cooling plant are installed in or on a sea freight container as a functional unit. The sea freight container is the refrigerator machine room. This containerized cooling plant is a mobile unit and can be operated at different installation locations.

Overview



Note: Assembly positions may differ.

Position	Description
1	Deflector hood
2	Housing above ice makers with room (container) ventilation
3	Ice outlet (from blowers; (behind the water collection basin, see position 6))
4	Hopper
5	Ice maker with falling tray
6	Water collection tray
7	Discharge screw with rotary valves (2x)
8	Water pump
9	Rotary valve
10	Heat recovery optional (hidden)
11	Control cabinet
12	Liquid separator
13	Oil separator
14	Blower units (2x)
15	Ammonia gas warning (not illustrated)
16	Oil cooler
17	Compressors (3x)
18	Air cooled condenser

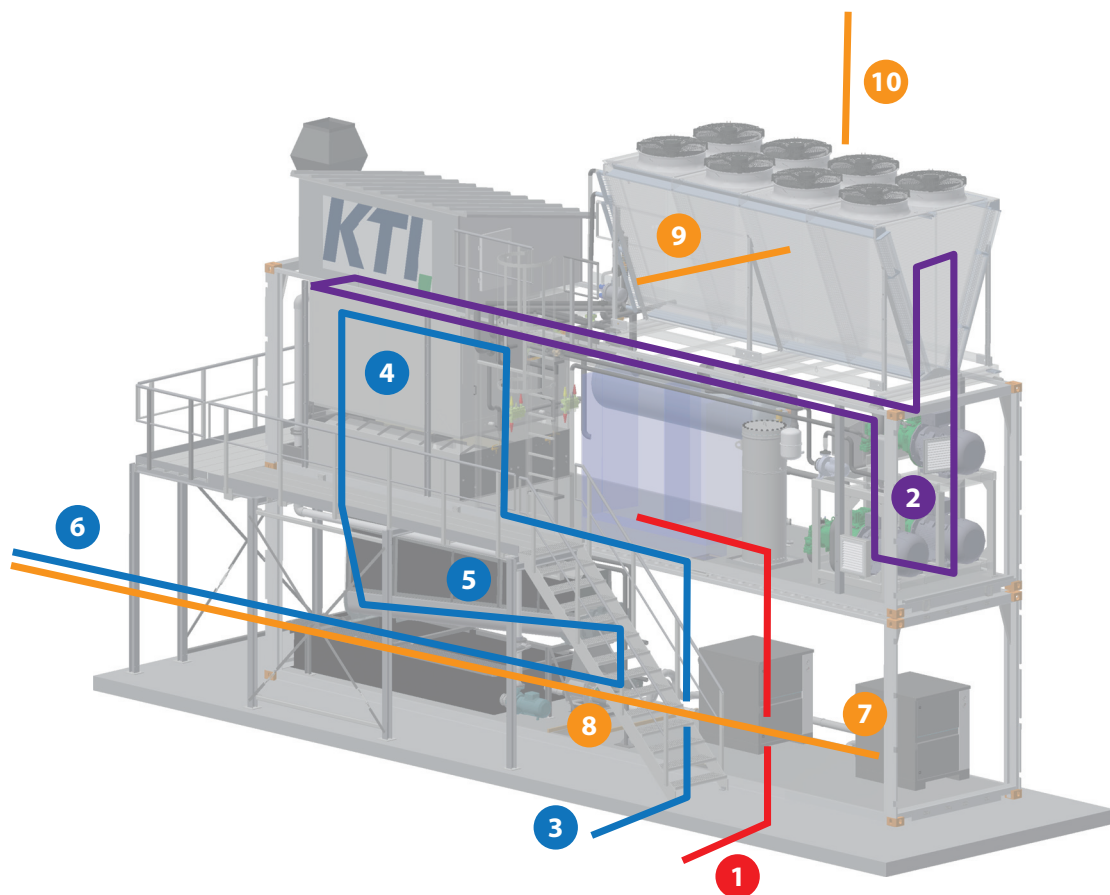
Operating principle

The plate ice plant works with capacity regulated compressors. The control of the compressors is done suction pressure dependent.

The operation of the plate ice plant is controlled by a PLC control system in conjunction with pressure transmitter, flow rate monitor, maximum level limiter, temperature sensors, etc.

The oil supply of the screw compressor is done from the oil separator as well as from the oil management system of the screw compressor.

Energy flow



Note: The drawing of the energy flow is exemplarily drawn.

Position	Description
1	Electrical power to control cabinet
2	Refrigeration circuit
3	Water supply
4	Ice making
5	Ice distribution through delivery screw
6	Ice blower outlet
7	Blower units
8	Rotary valve adding the ice to the air stream
9	Air flow inlets
10	Air flow ventilation outlets

Technical Data

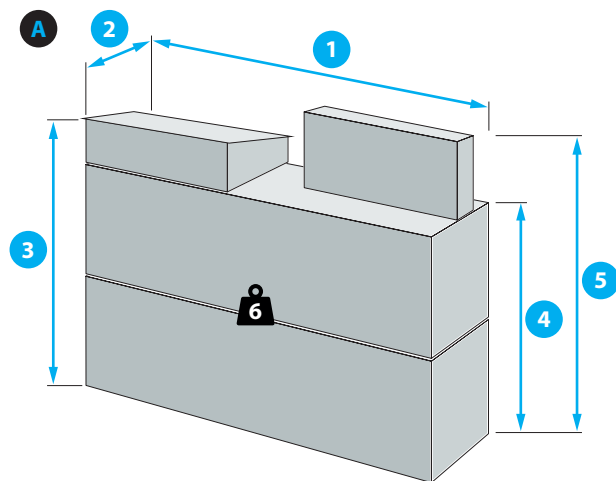
Section	Data
Specifications	
Nominal ice production at the design point	178 t/d
Reduced ice production in less favorable environmental conditions	152 t/d
Evaporating temperature	-12 °C
Ice thickness	4 - 7 mm
Ice temperature, ice property	0 °C, wet
Condensing temperature	34 °C
Refrigerating capacity	810 kW
Power supply	400V-3Ph/N/PE-50Hz
Design point	
Ambient temperature	15 °C
Water inlet temperature	5 °C
Geodetic altitude	1000 m
Snow conveying range (width/height)	150 / 50 m
Sound pressure level at a distance of 10 metres from the container boundary	≤ 72 dB(A)
Maximum operating range	
Ambient temperature	-5 °C ... 20 °C
Water inlet temperature	5 °C ... 20 °C
Geodetic altitude	2000 m
Power demand	
Electrical nominal apparent power consumption	345 kVA
Nominal electrical power consumption	287 kW
Nominal electrical current	499 A
Maximum electric apparent power consumption	523 kVA
Maximum electrical power consumption	449 kW
Maximal electrical current	768 A
Water demand	
Water demand for ice production	7,45 m³/h
Water demand for ice production	2,07 l/s
Water pressure during operation; constant at inlet of container	3 ... 5 bar
Relative energy demand at the design point	38,7 kWh/t
Relative energy demand at the design point	17,6 kWh/m³
Connections	
Electrical connection terminals	2 x 50-240 mm² per phase
Data connection	Ethernet
Water supply	1-1/4" - PN16
Water drainage	1", 1/2"
Blowing line	2 x DN100, max. 900 mbar

Weight	
Empty weight	31.100 kg
Amount of refrigerant R717	approx. 500 kg
Amount of water	9.000 kg
Amount of ethylene glycole	approx. 90 kg
Operation weight	approx. 40.690 kg
Dimensions	
Total dimensions LxWxH*	13.780 x 4.262 x 8.647 mm
Transport dimensions	3 x 40 ft HC Container

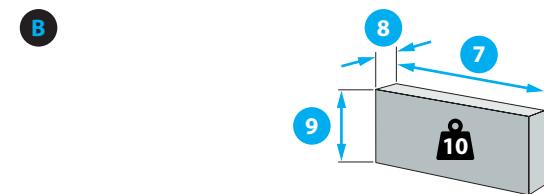
*Overall dimensions include:

- 2 x 40 ft HC containers
- Air-cooled condenser
- Stairs & platforms

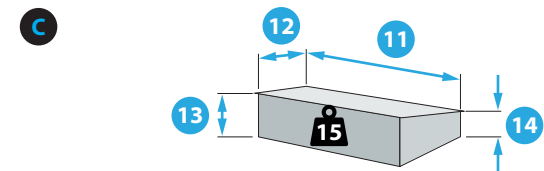
Measurements and weights



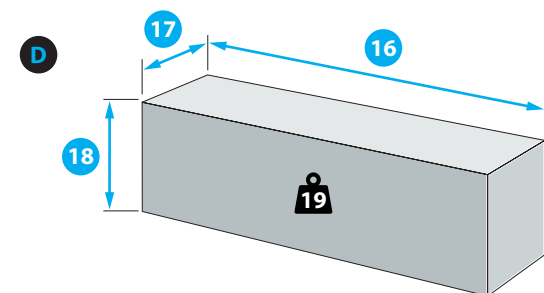
[A] Total			
Number		Data	
1	Length	12192 mm	40 ft
2	Width	2438 mm	8 ft
3	Height (incl. Penthouse)	7236 mm	23.7 ft
4	Height (Container)	5820 mm	19 ft
5	Height (total)	8647 mm	28.4 ft
6	Net weight (excl. stairs/platforms)	31.100 kg	68564 lbs
Refrigerant		approx. 500 kg	1102 lbs
Water		9000 kg	19841 lbs
Ethylene glycole		90 kg	199 lbs



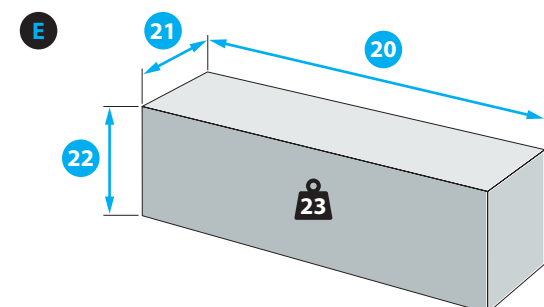
[B] Air cooled condenser			
Number		Data	
7	Length	5800 mm	19.03 ft
8	Width	2400 mm	7.87 ft
9	Height	2730 mm	8.96 ft
10	Net weight incl. base frame	3200 kg	7055 lbs



[C] Penthouse			
Number		Data	
11	Length	3404 mm	11.2 ft
12	Width	2402 mm	7.9 ft
13	Height max.	1416 mm	4.7 ft
14	Height min.	973 mm	3.2 ft
15	Net weight	500 kg	1103 lbs



[D] Refrigeration container			
Number		Data	
16	Length	12192 mm	40 ft
17	Width	2438 mm	8 ft
18	Height	2896 mm	9.5 ft
19	Net weight	18500 kg	40786 lbs



[E] Delivery container			
Number		Data	
20	Length	12192 mm	40 ft
21	Width	2438 mm	8 ft
22	Height	2896 mm	9.5 ft
23	Net weight	8900 kg	19622 lbs