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Zaman Machineries Ltd.

www.zamanmachineries.com

NRT Series - Round Type Cooling Tower

Model Description

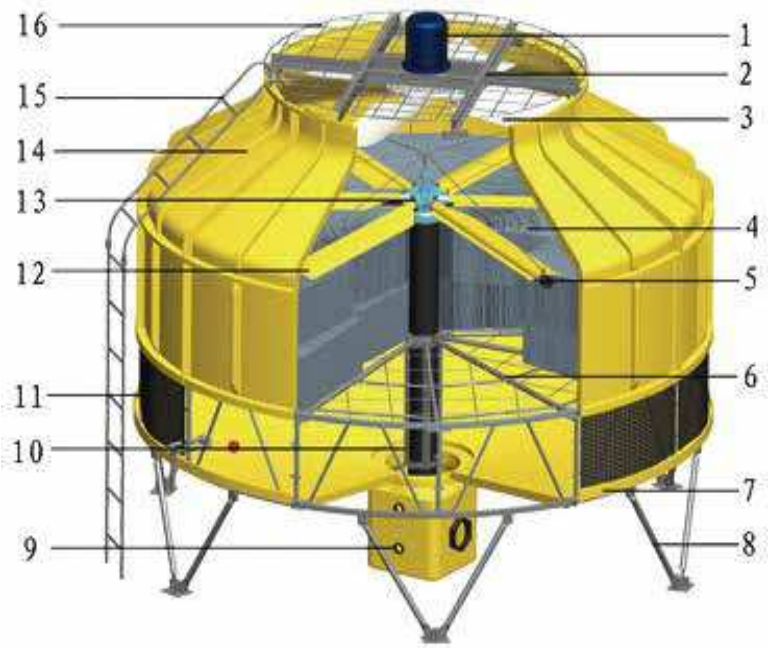
NRT - 000

counter flow round type cooling tower

cooling capacity

- High efficieny, save energy to the largest extent
- Fit with various environment changes in differnt industries
- Better solved the problem that environment changes affect of the cooling tower
- Matched equipment running normally
- Completely comply with national standards

Structure



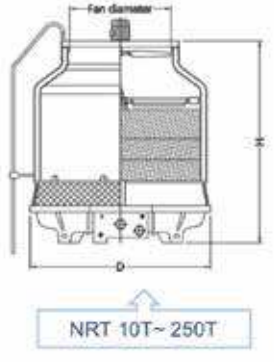
1. Motor (TEFC)
2. Motor support
3. Fan
4. Infill
5. Distribution pipe
6. Infill support
7. Water basin
8. Tower support
9. Suction tank
10. Pipe position
11. Air inlet support
12. Drift eliminator
13. Sprinkler head
14. Casing
15. Ladder
16. Fan Guard

Optional Accessories

- Noise reduction upgrade
- Vibration isolator & rubber mat
- High- temperature upgrade
- Anti- Freeze heater
- Stainless steel framework / bolts and nuts (304/316)

TECHNICAL DATA FOR NRT SERIES COOLING TOWER

Item / Model	Water flow (m^3/h)	Dimension (mm)		Fan		Air Flow (cmm)	Water Pressure (Kpa)	Weight (kg)		Noise dB(A)
		Diameter	Height	Diameter (mm)	Motor (Kw)			Wet	Dry	
NRT-8	6.2	945	1380	525	0.18	70	12	42	108	53.0
NRT-10	7.8	945	1530	600	0.18	85	14	46	190	53.5
NRT-15	11.7	1195	1415	600	0.37	140	12	54	290	53.5
NRT-20	15.6	1195	1590	730	.0.55	160	16	67	300	53.5
NRT-25	19.5	1400	1820	730	0.75	200	16	98	500	54.0
NRT-30	23.4	1650	1705	730	0.75	230	15	116	530	54.0
NRT-40	31.2	1650	1775	890	1.5	280	16	130	550	54.0
NRT-50	39.2	1830	1835	890	1.5	330	16	190	975	54.0
NRT-60	46.8	2145	1955	1150	1.5	420	17	240	1250	54.5
NRT-80	62.6	2145	2035	1150	1.5	450	18	260	1280	55.0
NRT-100	78.1	2900	2370	1410	2.2	700	17	500	1690	55.0
NRT-125	97.5	2900	2555	1410	2.2	830	19	540	1640	56.0
NRT-150	117	2900	2555	1410	2.2	950	22	580	1680	56.5
NRT-175	136.8	3310	2165	1750	4	1150	22	860	1960	56.5
NRT-200	156.2	3310	2165	1750	4	1250	23	880	1980	57.0
NRT-225	175.5	4120	3530	2100	5.5	1500	24	1050	2270	57.0
NRT-250	195.1	4120	3530	2100	5.5	1750	26	1080	2800	58.0
NRT-300	234	4730	3680	2400	7.5	2000	24	1760	3930	59.0
NRT-350	273.2	4730	3680	2400	7.5	2200	26	1800	3790	60.0
NRT-1400	312.1	5600	3840	2745	11	2400	27	2840	5740	61.0
NRT-500	392.4	5600	3840	2745	15	2600	28	2900	5800	61.0
NRT-600	458	6600	4470	3400	15	3750	32	3950	9350	61.5
NRT-700	547.2	6600	4470	3400	18.5	3750	33	4050	9450	62.0
NRT-800	626..4	7600	2720	3700	22	5000	32	4700	11900	62.5
NRT-1000	781.2	7600	4720	3700	22	5400	33	4900	12100	63.0



NRT 10T~ 250T

NRT 300T~ 1000T

Design Conditions

Entrance temp. t_1= 37°C

Leaving temp. t_2= 32°C

Wet bulb temp. t_{WB}= 28°C

Dry bulb temp. t_{DB}= 31.5°C

Atmospheric pressure

P_0= 9.94 x 10^4 Pa

Capacity (TR)	10	20	30	40	50	60	80	100	125	150	175	200	250	300	350	400	500
Intel (mm)	40	40	76	76	76	76	100	100	125	150	150	150	200	200	200	200	250
Outlet (mm)	40	40	76	76	76	76	100	100	125	150	150	150	200	200	200	200	250
Overflow (mm)	19	19	19	19	19	19	19	25	25	25	25	25	40	40	50	50	50
Drain (mm)	19	19	19	19	19	19	19	25	25	25	25	25	40	40	50	50	50
Float Valve (mm)	12	12	19	19	19	19	19	19	19	25	25	25	40	40	40	40	40
Makeup (mm)	19	19	19	19	19	19	19	19	19	19	19	19	40	40	50	50	50

Note: The above specifications are subjected to change according to the requirement, brand, availability and other variables

NST Series - Rectangle Type Cross Flow Cooling Tower

Model Description

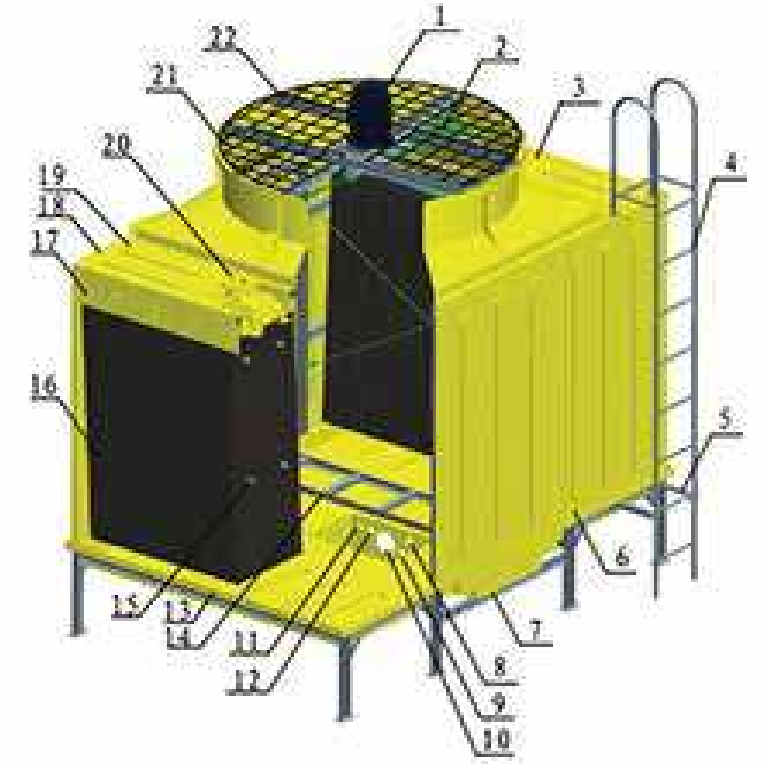
NST - 000

cross flow rectangle type cooling tower

water flow

- Space saving, lightweight structures
- good corrosion resistance
- Convenient combination and easy maintenance
- Energy saving, low Noise

Structure



1. Motor
2. Fan
3. Fan stack
4. Ladder
5. Ladder support
6. Casing
7. Tower support
8. Overflow
9. Drain
10. Water outlet
11. Quick feed
12. Auto feed
13. Water basin
14. Access way
15. Infill support
16. Infill
17. Wind shield
18. Distribution basin
19. Distribution basin cover
20. Water distribution
21. Fan guard
22. Motor support

Optional Accessories

- Noise reduction upgrade
- Handrail & safety caged ladder
- Vibration isolator & Rubber mat
- High- temperature upgrade
- Anti- Freeze heater
- Stainless steel framework / bolts and nuts (304/316)

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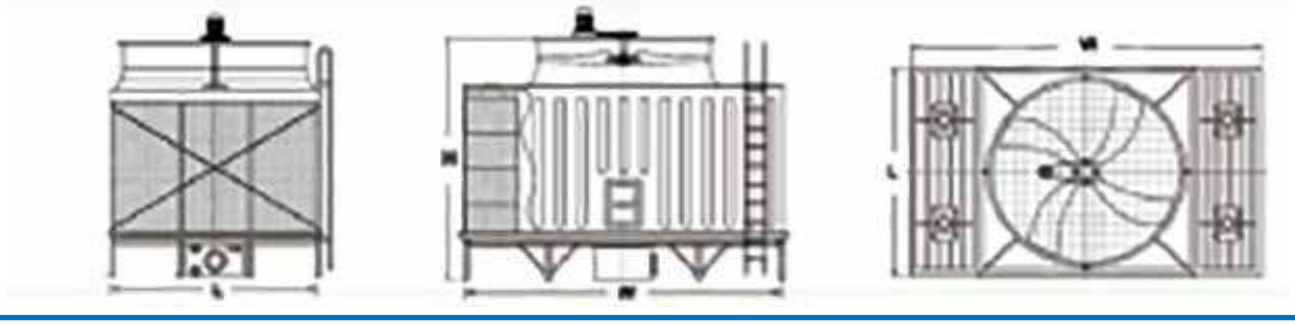
TECHNICAL DATA FOR NST SERIES COOLING TOWER

Item / Model	Water flow (m^3/h)	Dimension (mm)			Fan		Water Pressure (Kpa)	Weight (Kg)	
		Length	Width	Height	Diameter (mm)	Motor (Kw)		Dry	Wet
NST-50	50	1450	2700	2720	1200	1.1	32	460	1010
NST-60	60	1450	2700	3260	1200	1.1	34	550	1450
NST-80	80	1600	2820	3700	1500	2.2	36	650	1830
NST-100	100	1980	3200	3700	1500	4	36	860	2260
NST-150	125	2320	3600	3700	1800	4	36	1080	2830
NST-150	150	2600	3800	3700	2100	5.5	38	1180	3550
NST-175	175	2930	3800	3700	2100	5.5	38	1300	3810
NST-200	200	3040	4300	3700	2400	7.5	38	1600	4020
NST-225	225	2950	5080	4100	2400	7.5	40	1710	4150
NST-250	250	3000	5300	4100	2400	7.5	40	2380	5280
NST-300	300	3250	5550	4100	2850	11	40	2580	5650
NST-350	350	3500	5800	4100	2850	11	40	2860	6270
NST-400	400	3750	6050	4250	3200	15	42	3250	6880
NST-450	450	4000	6300	4250	3200	15	42	3660	7350
NST-500	500	4000	6300	4850	3200	18.5	47	4260	8500
NST-600	600	4500	6800	4850	3400	18.5	47	4680	9360
NST-700	700	4500	6800	5500	3700	22	53	5100	10250
NST-800	800	5000	7300	5500	4050	30	53	6100	12300
NST-900	900	5500	7800	5500	4250	30	53	6880	14560
NST-1000	1000	6000	8300	5500	4550	30	53	7660	16800



DESIGN CONDITIONS

Entrance temp. $t_1 = 37^oC$ Wet bulb temp. $t_{WB} = 28^oC$

Leaving temp. $t_2 = 32^oC$ Dry bulb temp. $t_{DB} = 31.5^oC$ Atmospheric pressure $P_o = 9.94 \times 10^4 Pa$

Cross Flow Infill



Counter Flow Infill




Cooling Tower Fill Principles of Operation

The application of pp film fill is to cooling hot waste. The fill is sheet type, so water flowing have much more surface area. hot water will be cooled quickly. This is the reason people use film fill proverbially. The principles of operation is:

Cooling tower fill makes hot water have much more surface area with sheet and air and the medium of tremendously extended film fill, so that hot water is cooled quickly. After be cooled the water is flow in a water container from which it is pumped again to cooling other hot water,and the warm air leaving the fill and releasing from the above of the cooling towers, and like this Continuously cooling air from bottom and release warm air from above to keep cooling tower cooling hot water continuously.

The waste heat produced in industrial production or refrigeration process is generally driven away by cooling water. The cooling tower functions as heat exchange between the cooling water carrying waste heat and air in the tower.

What is the purpose of fill in a cooling tower?

The purpose of fill in a cooling tower is to cool water to make full use of water resources, reduce the load of urban tap water supply network, and reduce the operating cost, cooling water is treated by cooling tower and recycled.

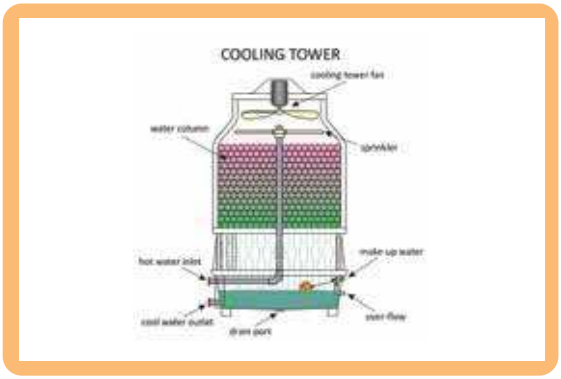
Matters needing attention when replacing the cooling tower packing.

▲ The waveforms between the monolithic and the monolithic must be diagonally staggered so that they have good thermal resistance.

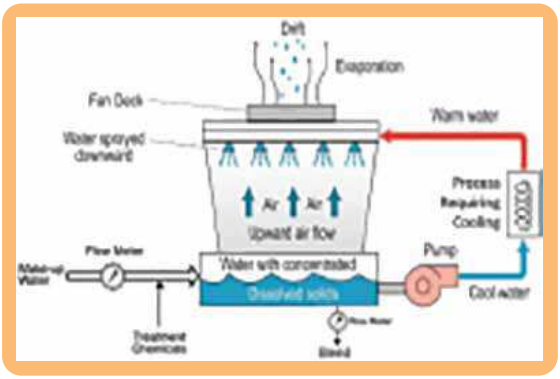
▲ The cuboidal packing assembly unit is most suitable for matching with the square tower and with the circumference of the circular cooling tower. A gap will be formed, and it needs to be filled with a different number of single sheets according to the size of the gap.

▲ Once the plug is blocked, it is not easy to clean. When the jam is serious, it needs to be replaced as a whole and it will increase the cost

Induced Draft Counter Flow Cooling Tower



Counter Flow Cooling Tower Working Process



Cross Flow Cooling Tower Working Process

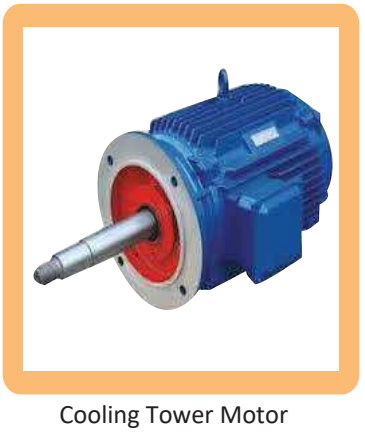
Cooling Tower Accessories

Cooling Tower Sprinkler Head

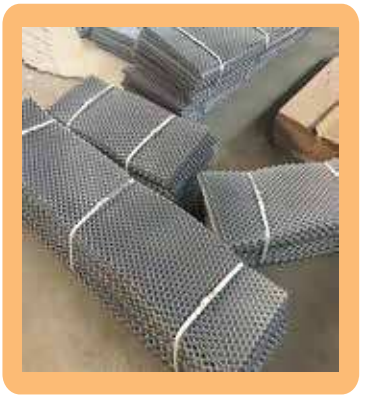
Splash Ber

Drive System

Cooling Tower Fan



Cooling Tower Motor



Cooling Tower Air Inlet Louver

Cooling Tower Spray Nozzle

Cooling Tower Associated Products

Heat Exchanger Plate & Gasket

Industrial Centrifugal Pump

Water Treatment Softner Plant

Industrial Vapor Compression Chiller

Air Cooled Chiller

Water Cooled Chiller

Product: Air Cooled & Water Cooled Chiller

*Capacity: 1.5 TR to 200 TR
*Imported as well as locally assembled
*Compressor: American, European, Japanese and Malaysian
*Compressor Brand: Carrier, Bitzer, Danfoss, Daikin or Equvalent
*Customized product with short lead time
*All accessories are available at any instant
*Any service work is availble
*All associated products are available
*Package work can be done

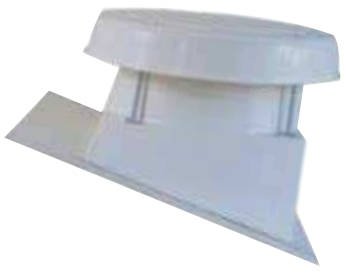
Specification of Chiller

MODEL	Capacity (BTUH)	Water Flow (l/min)	Compressor Power (kW)	Total Power input (kW)	Refrigerant	Water in Dia (mm)	Water out Dia (mm)
MCH-1.5	18000	15	1	2	R22/R407c	25	25
MCH-02	24000	20	1.5	3		25	25
MCH-03	36000	30	2.2	4		25	25
MCH-04	48000	40	3	4		25	25
MCH-05	60000	50	3.6	5		25	25
MCH-06	72000	60	4	7		38	38
MCH-7.5	84000	70	6	10		38	38
MCH-10	120000	101	7.5	12		38	38
MCH-12	144000	121	9.5	12		38	38
MCH-15	180000	151	12	16		38	38
MCH-17	204000	171	13.5	18		38	38
MCH-20	240000	202	16	22		50	50
MCH-25	300000	252	18	25		50	50
MCH-30	360000	303	22	28		50	50
MCH-35	420000	353	28	35		50	50
MCH-40	480000	404	32	40		75	75
MCH-50	600000	505	40	48		75	75
MCH-60	720000	606	45	54		75	75
MCH-70	840000	707	56	65		75	75
MCH-80	960000	808	64	74		75	75
MCH-100	1200000	1010	80	88		75	75
MCH-120	1440000	1212	96	105		100	100
MCH-130	1560000	1313	104	114		100	100
MCH-150	1800000	1515	120	130		10	10
MCH-180	2160000	1818	144	154		10	10
MCH-200	2400000	2020	160	170		100	100

Note: The above specifications are subjected to change according to the requirement, brand, availability and other variables

ROOF MOUNTED EXHAUST FAN

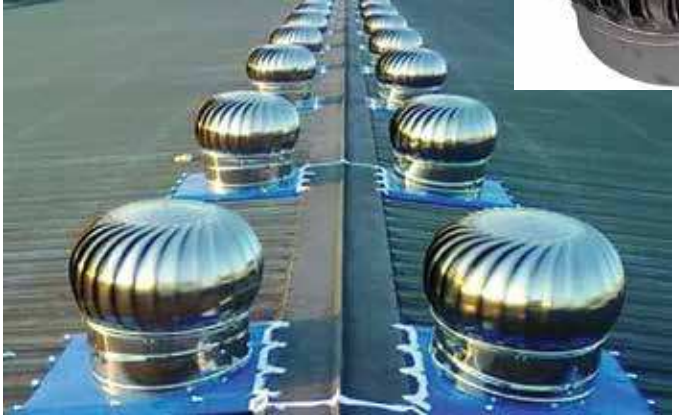
In case a wall mounted negative pressure vention system is not applicable, then roof mounted system is epecially designed for roof mounted application.


MODEL	48	36	60-3A	54-3A	1380
BODY SIZE	1950x950x750 mm	1200x1520x930 mm	1620x1620x920 mm	1460x1460x600 mm	1380x1380x1050 mm
BLADE SIZE	48 mm	36 Inch	52 Inch	48 Inch	50 Inch
BODY MATERIAL	FRP	FRP	FRP	FRP	Galvanized Steel
BLADE MATERIAL	Aluminum Alloy SMC	Aluminum Alloy SMC	Aluminum Alloy SMC	Aluminum Alloy SMC	Stainless Steel
CAPACITY	46500 M3/Hour	17000 M3/Hour	59000 M3/Hour	34000 M3/Hour	48000 M3/Hour
ROUND SPEED	630RPM	800 RPM	630 RPM	500 RPM	1400 RPM
MOTOR SPEED	630 RPM	800 RPM	630 RPM	500 RPM	1400 RPM
NOISE	<=70 (db)	<=70 (db)	<=70 (db)	<=70 (db)	<=70 (db)
INPUT POWER	1.5Kw, 3PH 380 Volt, 500Hz	0.57Kw, 3PH 380 Volt, 500Hz	1.57Kw, 3PH 380 Volt, 500Hz	1.1Kw, 3PH 380 Volt, 500Hz	1.1Kw, 3PH 380 Volt, 500Hz
IWEIGHT	91 Kg	60 Kg	85 Kg	52.6 Kg	95 Kg

WIND TURBINE FAN

Roof mounted turbine (natural Draught Fan) depends upon tge natural force of wing and temperature deference to activate the system by causing warm air in the room to rise and exit at the ceiling and enter fresh air via lower opening in the wall. This fan drive by lateral wide force without electrical power and no operation cost.

Model	BN-600	BN-500
Material	Color Coated Stainless Steel Auminum	Color Coated Stainless Steel Auminum
Outer Dia (mm)	680	580
Stack Height (mm)	420	350
Capacity	2600	2300

AIR CHANGE RECOMMENED FOR WIND TURBINE FAN

Using Place	Air Change/Hour
Textile Factory (Dyeing Finishing)	20 -30
Utility Unit (Boiler, Generator Room)	30 -40
Sub-station Room	10 -30
Printing nad Packaging Room	10 - 20
Bakery	10 -15

Industrial Centrifugal Pump



Industrial Multistage Centrifugal Pump



Industrial Chemical Dosing Pump




Cooling Tower Water Treatment Chemicals

Cooling Tower Water Treatment Chemicals :

Feed Water Made By UK

- **Coolguard - 580**
  (Work As Scale & Corrosion Inhibitor for Cooling Tower)
- **Feedbrom - 320**
  (Oxidizing Biocide for Cooling Tower)
- **Biocide No - 490**
  (Non-Oxidizing Biocide for Cooling Tower)
- **Bromgard - 660**
  (Scale & Corrosion Inhibitor for Chiller)
- **Descaling - 240**
  (Heat Exchanger Plate for Descaling)
- **Nalcool - 2000**
  (Engine Coolent)

Boiler Water Treatment Chemicals

Boiler Water Treatment Chemicals :

- **Corroban - 650**
  (Scale & Corrosion Inhibitor for Boiler)
- **A Mine - 730**
  (Scale Control)
- **Descaling - 890**
  (Boiler Compound Descaling)
- **Descaling - 750**
  (Chiller Compound Descaling)

Water Treatment Plants Spears

Water Treatment Plants Spears :

- All Types of Resin
- Manganese Dioxide
- Activated Carbon
- Brim Media
- Green Sand
- ETP Roots Blower
- Fine Bubble Diffusers
- Tube Pac Media
- Multiport Valve
- FRP Vessel.
- All Types of Laboratories Instruments.
- Country of Orgin : USA / China / India.

ZML
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