



MAKE COOLING GREAT AGAIN
创造冷却价值



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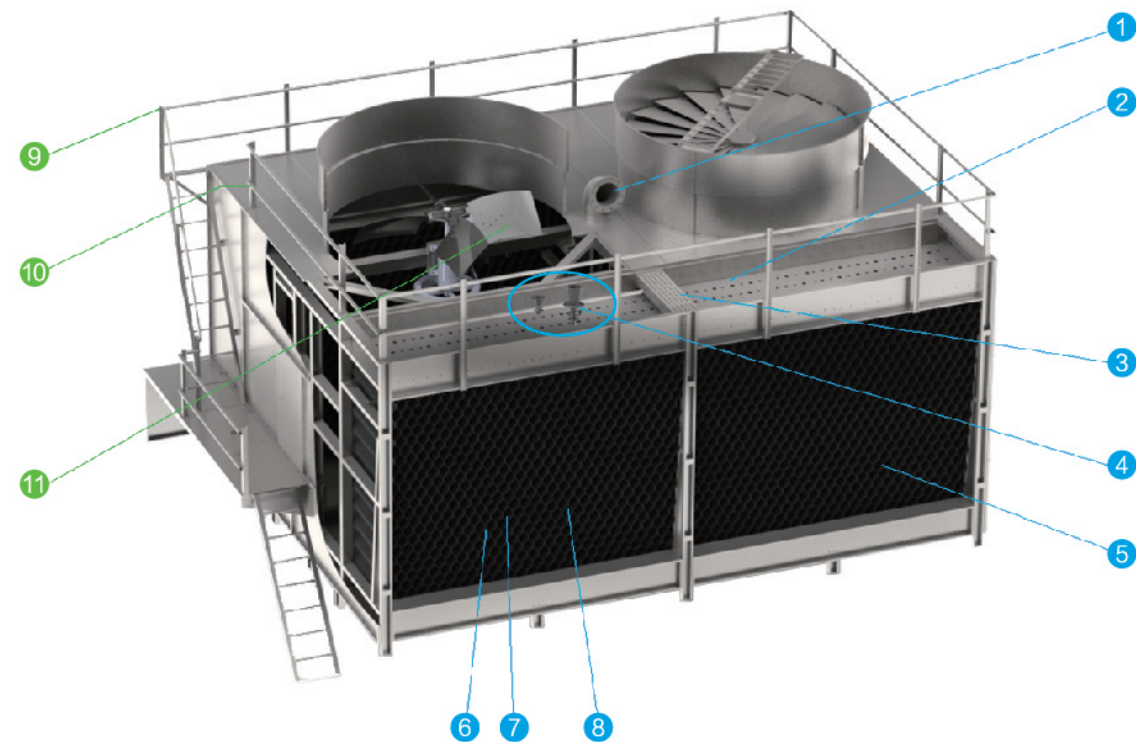
全工况制冷技术

All Condition Efficient Refrigeration Technology

Auto-balance full-filmed Cooling Tower

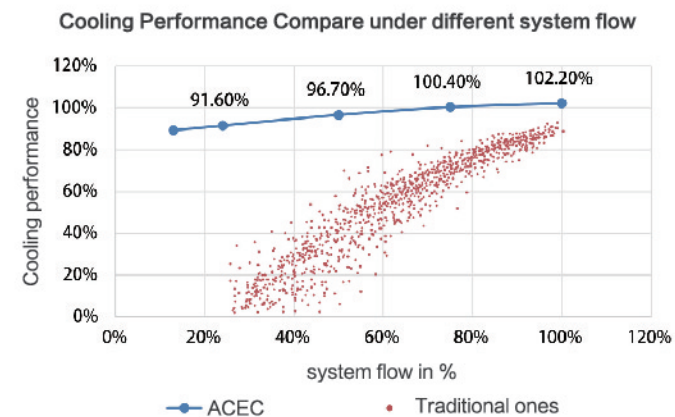
With the many patent technology, ACEC auto-balance full-filmed cooling tower developed the innovation self-balance water system, which solved the problem of inlet/outlet water imbalance of cooling tower. Cooling efficiency increased significantly.

- ♦ Precise sheet metal structure;
- ♦ Cooling water can adjust automatically according to the load of the end machine;
- ♦ Linked canal water plates/water collecting plates insures the uniform water distribution under different load;
- ♦ Two size eddy guiding nozzles realize the full-film of fill, and good cooling performance;
- ♦ Simplified pipe arrangement, valve is not needed anymore;
- ♦ Realize frequency conversion of cooling pump.



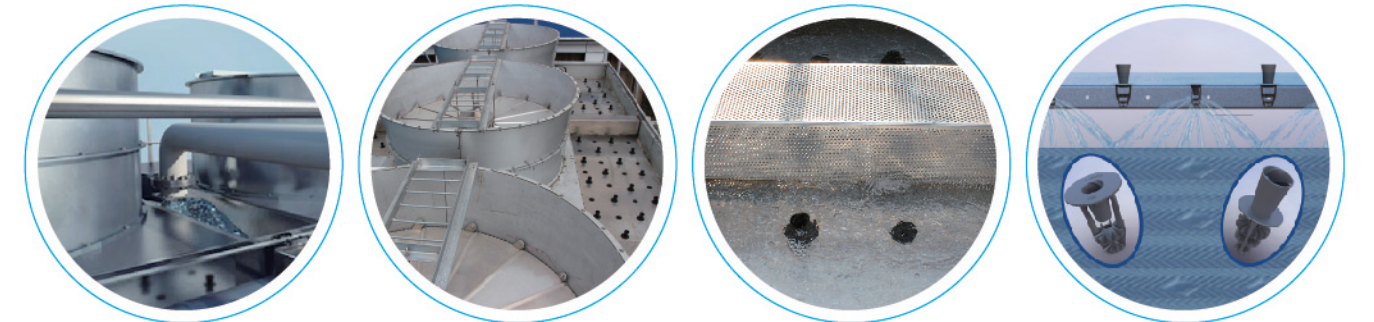
Technical Advantage

- ♦ solve the problem of water imbalance of traditional cooling tower when the system flow varied;
- ♦ uniformed film on filler, full-film can be realized when the system flow is over 15%;
- ♦ segmental cooling performance reach 330%–105%



Optimized design for excellent performance

self-balance water system



- 1 Inlet between tower units, for water balance of both sides
- 2 Linked water plates, for water balance of tower units
- 3 Inlet water filter, for stable water flow and avoid nozzle block
- 4 Two size eddy guiding nozzles, for uniform film on filler
 Δlarger spry range, 120% – 200% of the traditional ones
 Δoptimized arrangement of the nozzles, insures the effective water spry and uniform film on filler even when the system flow is low.
- 5 High quality filler, hanging fixed, collect water at both sides
- 6 Linked water collection plates, centralized outlet water
- 7 Centralized big float valve, accurate water level control
- 8 2nd filter – filter before pump is not needed, energy consumption of pump is lowered

Stable tower structure



- 9 Safety stairs and handrail is standard
- 10 Cover on water plate, more operation space on tower and avoid water plant
- 11 International high efficient motor and fan, for lower noise

Self-reliance rectifier check valve

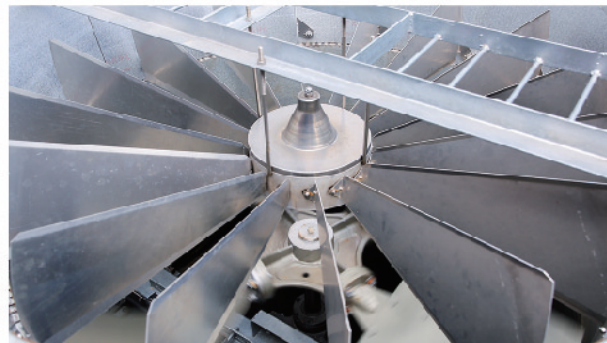
ACEC cooling tower is designed as linked chamber.

Self-reliance rectifier check valve can be adapted to each fan, and can automatic switch on/off according to the fan, which result in the linked chamber of the tower units with optimized wind flow, and the wind pressure and speed are increased at the same time.

Effective filler usages of cooling tower according to the demands of system heat load is realized. Through adjusting number of fan units, the system can operate with high efficiency and energy saving.

◆◆ Technical Performance:

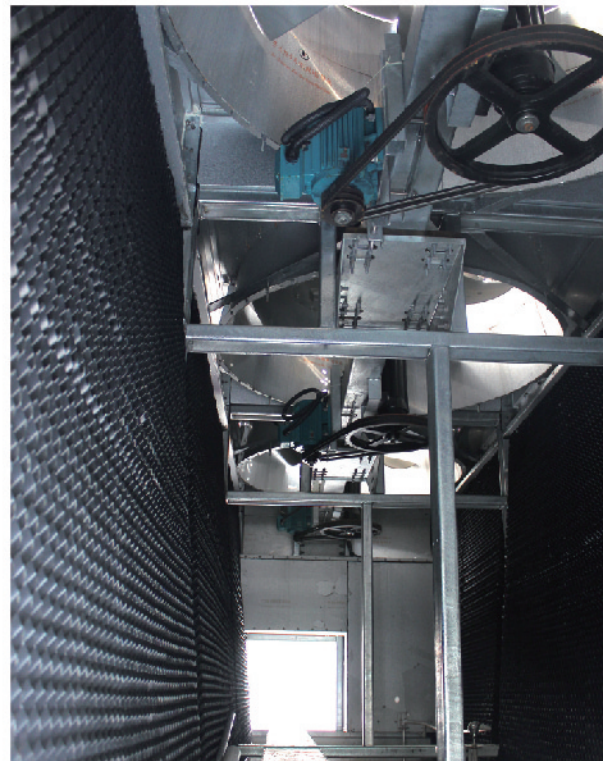
- ◆ The fans of valve are running in the same angle and track, to insure the optimized wind flow;
- ◆ The valve are switched on when the fans switched on;
- ◆ The valve are switched off when the fans switched off, to avoid heat back;
- ◆ No matter how many fans are in operation, all the filler can be fully used for heat transfer to achieve higher cooling efficiency;
- ◆ Fans can be as backup to each other, and the system are more stable;
- ◆ Patented valve technology, precise design and machining;
- ◆ The fans of valve are in aluminum-magnesium alloy, corrosion preventive and long life



Valve on: optimized wind flow

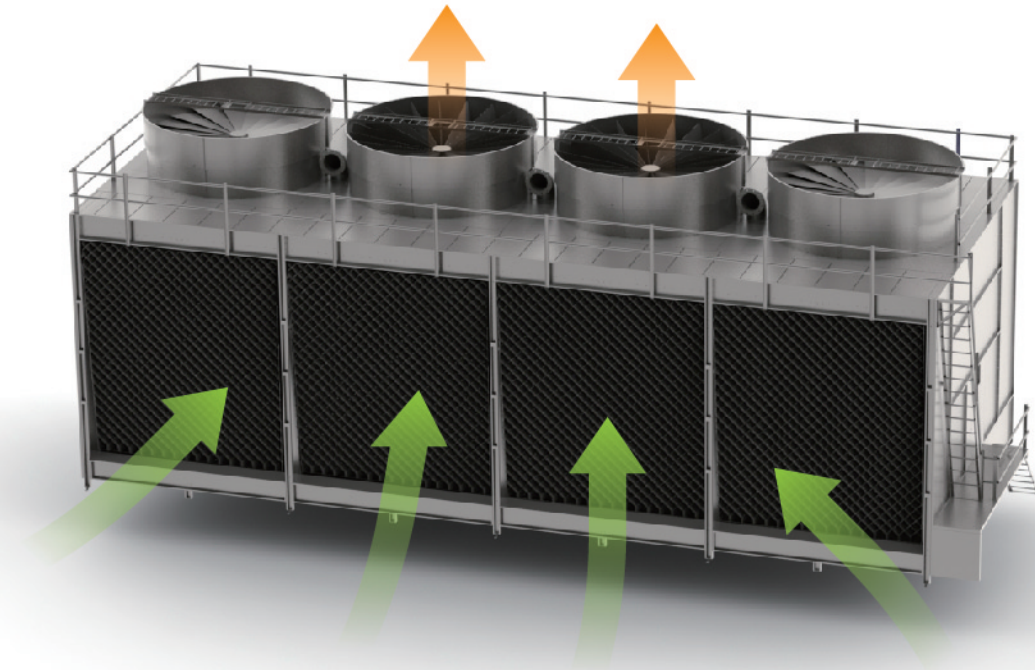


Valve off: avoid heat back

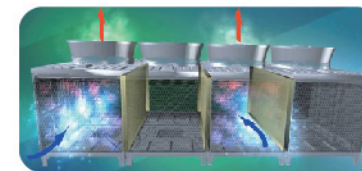


Linked tower chamber

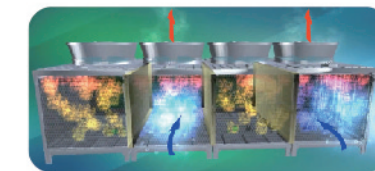
ACEC cooling tower units, all the filler can be used when part of the fans are on



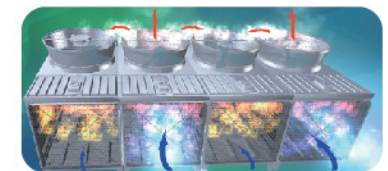
Wind flow of traditional cooling tower



wind flow and water flow one by one



Linked water flow, separate wind flow



Linked water and wind flow

◆◆ Technology Advantage:

- ◆ Closed tower, avoid sunlight, and outdoor fog, dust as well as water plant
- ◆ Reduce the work for water treatment
- ◆ Avoid heat back
- ◆ 10 years maintenance free even in severe environment
- ◆ Nearly no air drag is measured when air valve is running
- ◆ Air volume increased 3.5–18%, when fan partly running;
- ◆ The deviation of each fans is lower than 13.4–3.3%, when more than 20% fans are running
- ◆ Adjust range of fans are larger than the traditional ones.



the vortexing and heat return of tradition tower



ACEC tower with valve: straight wind, no heat return

Technical Data

Parameter of AC serials



型号 Model No.	名义流量 Nominal Flow Rate	传动部分 Transmission Part		外形尺寸Dimensions				进水管 Inlet Diameter	塔体扬程 Head of Delivery	重量Weight	
		风机直径 Fan Diameter	电机功率 Fan Motor Power	长	宽	高				自重 Shipping	运行重量 Operating
						L	W				
				m³/h	φ mm	kw	mm				
AC-100T	100	1600	3	2150	3980	3210	4410	150	3.7	1200	4722
AC-125T	125	1600	5.5	2150	3980	3210	4410	150	3.7	1200	4722
AC-150T	150	2000	5.5	2600	4820	3210	4410	200	3.7	1900	7540
AC-175T	175	2000	7.5	2600	4820	3210	4410	200	3.7	1900	7540
AC-200T	200	2300	7.5	2880	5070	3210	4410	200	3.7	2100	8489
AC-225T	225	2300	11	2880	5070	3210	4410	200	3.7	2100	8489
AC-250T	250	2600	7.5	3360	5570	3210	4410	250	3.7	2700	10669
AC-300T	300	2600	11	3360	5570	3910	5110	250	4.4	3200	11169
AC-350T	350	2600	15	3360	5570	3910	5110	250	4.4	3200	11169
AC-400T	400	3050	15	3680	6160	3910	5110	300	4.4	3800	13148
AC-437T	437	3800	7.5	4480	6552	4710	5910	300	4.7	5000	10600
AC-450T	450	3050	15	3680	6160	4710	5910	300	5.3	4500	13848
AC-496T	496	3800	11	4480	6552	4710	5910	300	4.7	5000	10600
AC-500T	500	3050	18.5	3680	6160	4710	5910	300	5.3	4500	13848
AC-550T	550	3800	15	4480	6552	4710	5910	300	4.7	5000	10600
AC-590T	590	3800	18.5	4480	6552	4710	5910	300	4.7	5000	10600
AC-600T	600	4200	15	5200	7002	4895	6095	350	5.8	6457	12110
AC-625T	625	3800	22	4480	6552	4710	5910	300	4.7	5000	10600
AC-643T	643	4200	18.5	5200	7002	4895	6095	350	5.8	6725	12250
AC-682T	682	4200	22	5200	7002	4895	6095	350	5.8	6738	12300
AC-693T	693	3800	30	4480	6552	4710	5910	300	4.7	5000	10600
AC-700T	700	4200	30	5200	7002	4895	6095	350	5.8	6754	12347
AC-756T	756	4200	30	5200	7002	4895	6095	350	5.8	6780	12600
AC-800T	800	4700	22	6280	7502	5095	6295	400	6.1	7597	15344
AC-834T	834	5000	11	6280	8312	5510	6710	400	5.5	8650	18650
AC-900T	900	4700	30	6280	7502	5095	6295	400	6.1	7662	15396
AC-925T	925	5000	15	6280	8312	5510	6710	400	5.5	8700	18700
AC-992T	992	5000	18.5	6280	8312	5510	6710	400	5.5	8750	18750
AC-1000T	1000	4700	37	6280	7502	5095	6295	450	6.3	7662	15396
AC-1115T	1115	5500	18.5	6900	8842	5910	7110	450	5.9	10850	22950
AC-1051T	1051	5000	22	6280	8312	5510	6710	400	5.5	8880	18880
AC-1182T	1182	5500	22	6900	8842	5910	7110	450	5.9	10950	23050
AC-1166T	1166	5000	30	6280	8312	5510	6710	400	5.5	8970	18970
AC-1250T	1250	5000	37	6280	8312	5510	6710	400	5.5	8980	18980
AC-1310T	1310	5500	30	6900	8842	5910	7110	450	5.9	11060	23160
AC-1334T	1334	5000	45	6280	8312	5510	6710	400	5.5	9050	19050
AC-1405T	1405	5500	37	6900	8842	5910	7110	450	5.9	11200	23300
AC-1427T	1427	5000	55	6280	8312	5510	6710	400	5.5	9100	19100
AC-1500T	1500	5500	45	6900	8842	5910	7110	450	5.9	11500	23600
AC-1604T	1604	5500	55	6900	8842	5910	7110	450	5.9	11760	23860
AC-1778T	1778	5500	75	6900	8842	5910	7110	450	5.9	11860	23960
AC-1890T	1890	5500	90	6900	8842	5910	7110	450	5.9	11950	24050

*for the L, W, h1/2, please take the drawing on P8 as reference

Design environment :

Inlet temperature T1=37℃; Outlet temperature T2=32℃; Wet bulb WBT=28℃; Air pressure P=99400Pa

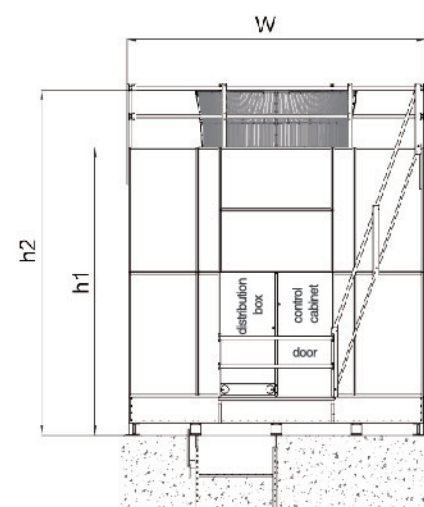
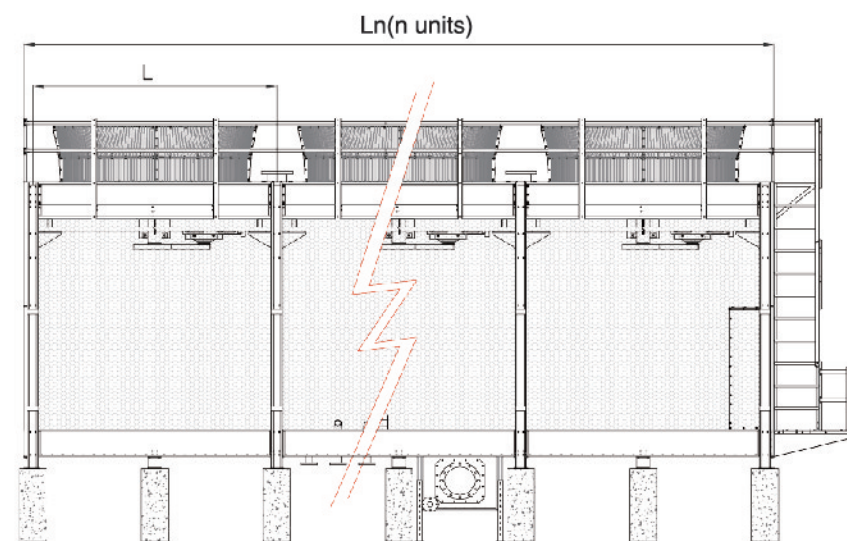
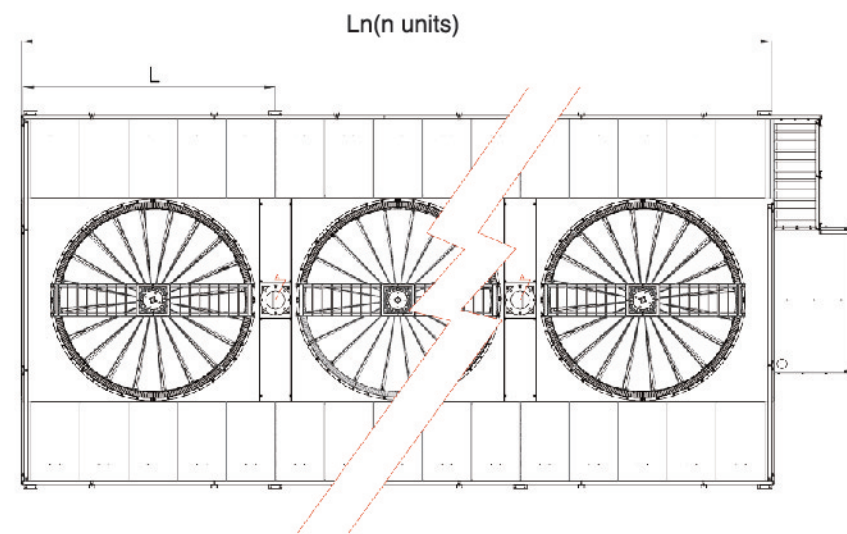
Selection Mode:

1. The total flow of cooling system Q should be determined by the accumulation of all the equipment to be cooled;
2. The minimum heat loading and adjust range should be determined by the application and energy-saving operation requirements, then select the model tower unit design; (number of units N, $3 \leq N \leq 10$)
3. According to the set-up environment, model of tower unit Q1, number of tower units N, number of tower groups G;
(When $N > 10$, separate into 2 groups; $N > 20$, separate into 3 groups...)
4. According to the over capacity principle, $Q1 \times N > Q$, over capacity $\geq 10\%$;
5. When $G > 1$, electric switch valve should be equipped to each main pipe;
6. To insure smooth system operation, A pressure pump should be added to the supply pipe, if the pressure for cooling water supply is low;
7. Pressure pump with control is an optional components, should be noted before order.

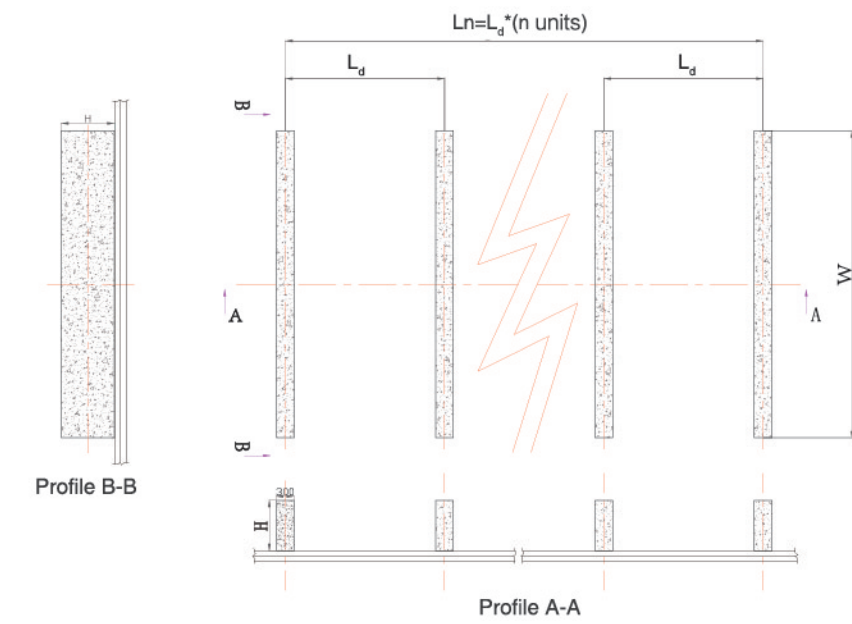
Example:

Take a system with total flow of 2000m³/h as an example, you can choose 8 sets AC-250T (250m³/h) units, or 4 sets AC-500T(500m³/h), if space is limited.

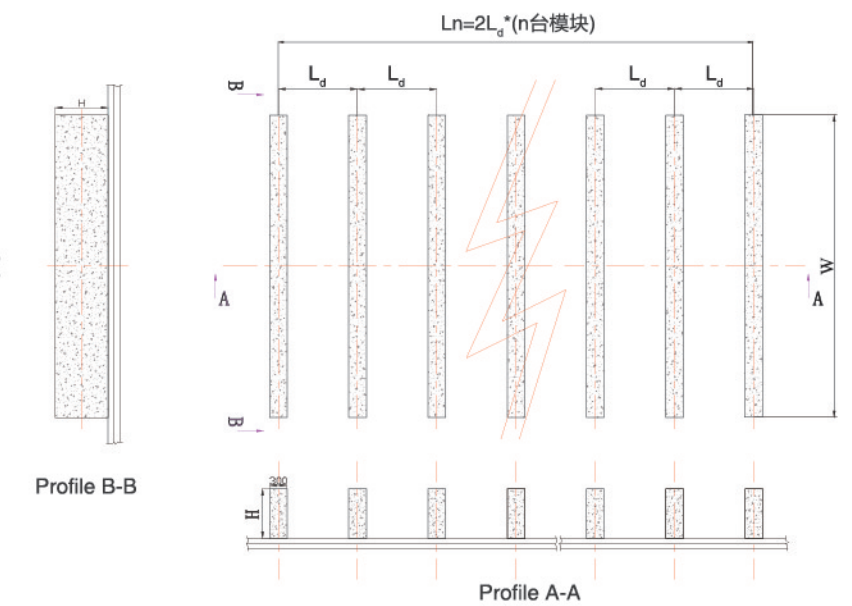
Dimensional/piping drawing



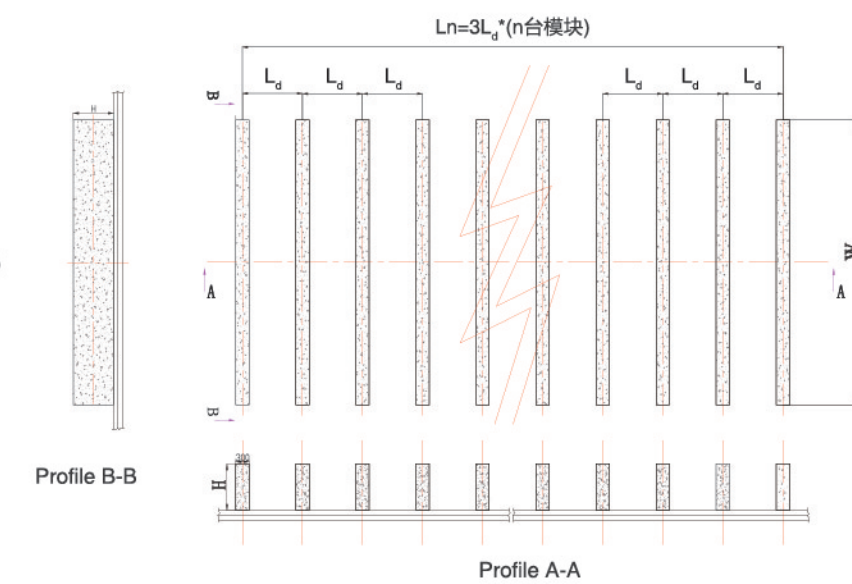
Graphic 1

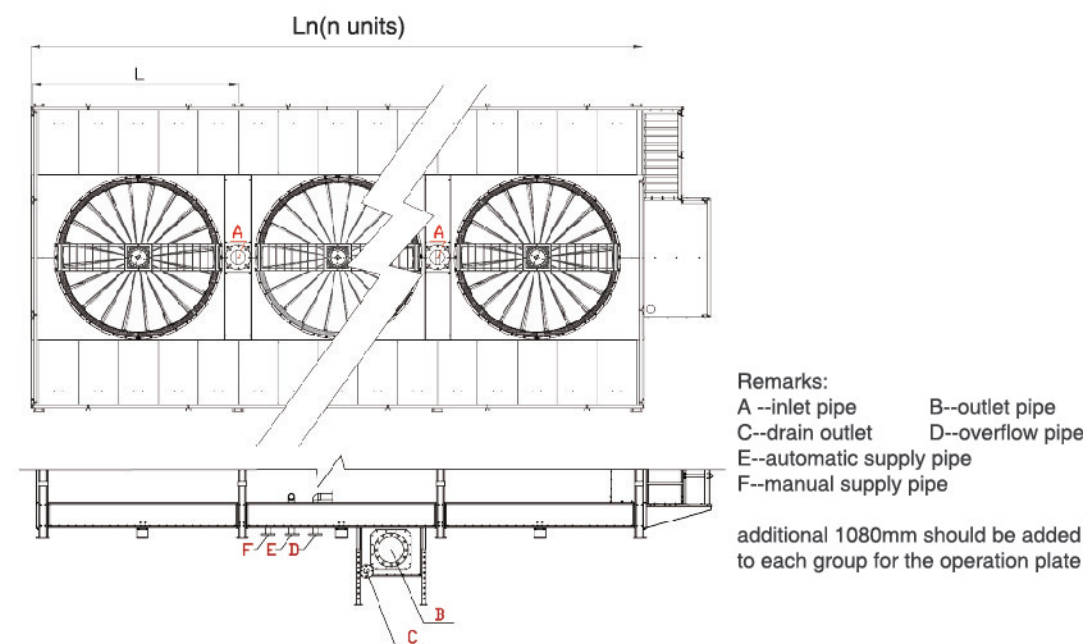


Graphic 2



Graphic 3





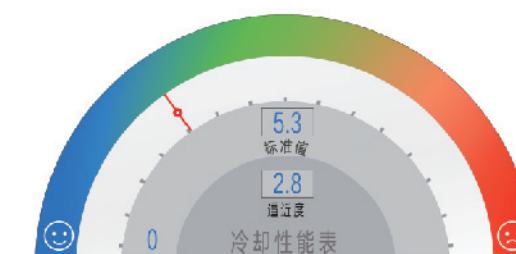
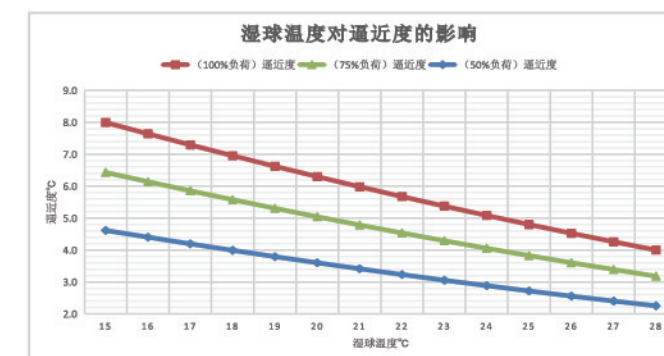
Foundation parameter of AC serials

Model	Width(mm)	Length(mm)	Height(mm)	Reference
	$W \geq \text{tower} + 300\text{mm}$	Ld	Ln	H
AC-100T/AC-125T	4280	2150	$2150 \cdot n$	Graphic 1
AC-150T/AC-175T	5120	2600	$2600 \cdot n$	
AC-200T/AC-225T	5370	2880	$2880 \cdot n$	
AC-250T/AC-300T/AC-350T	5870	3360	$1680 \cdot 2n$	Graphic 2
AC-400T/AC-450T/AC-500T	6460	3680	$1840 \cdot 2n$	
AC-437T/AC-496T/AC-550T/ AC-590T/AC-625T/AC-693T	6850	4480	$2240 \cdot 2n$	
AC-600T/AC-700T/AC-643T/ AC-682T/AC-756T	7300	5200	$2600 \cdot 2n$	
AC-800T/AC-900T/AC-1000T	7800	6280	$2093 \cdot 3n$	Graphic 3
AC-834T/AC-925T/AC-992T/ AC-1051T/AC-1166T/AC-1250T/ AC-1334T/AC-1427T	8610	6280	$2093 \cdot 3n$	
AC-1115T/AC-1182T/AC-1310T/ AC-1405T/AC-1500T/AC-1604T/ AC-1778T/AC-1890T	9140	6900	$2300 \cdot 3n$	

Performance

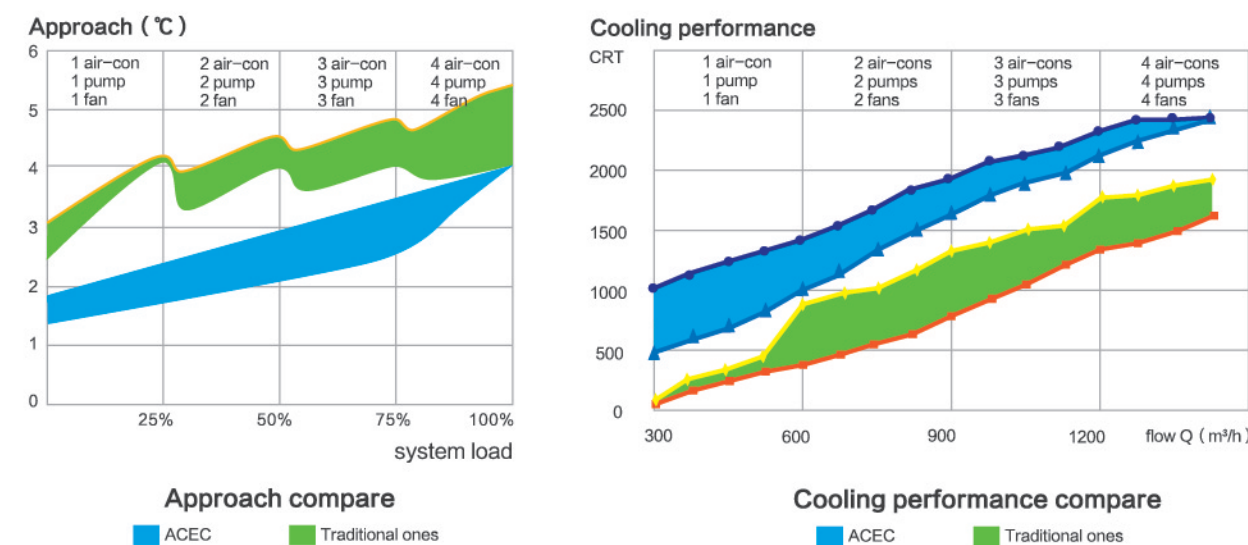
The actual cooling performance and approach of the ACEC tower, as well as the performance evaluation based on environment can be displayed automatically.

The relationship of approach to wet bulb of ACEC tower under different system flow is as below:



actual cooling performance and approach are displayed to evaluate the performance

Example: 4 air-cons, with 4 cooling towers and 4 pumps, the performance of ACEC towers and traditional towers under different system flow are as below:



Conclusion: Compare with the traditional units, under system load of 25%~80%

- Cooling performance increased **13%~157%**;
- COP of the whole system increased over **10%~35%**;
- Return of investment at around **2 years** (according to system load and operation time)