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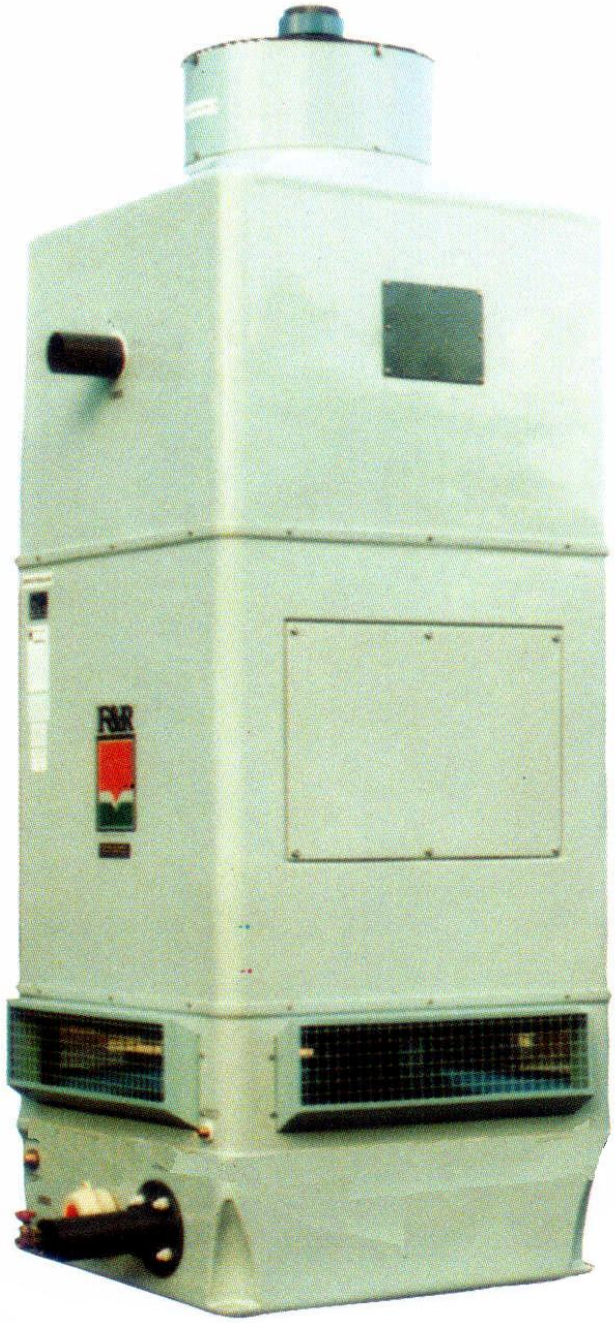
Products



EVAPORATIVE COOLING TOWERS

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OPERATING PRINCIPLE

The purpose of a cooling tower is to extract heat from water on a continuous basis. To achieve this aim, water is spread in an even film over a large surface area achieved with a modern design of packing. A draught of air of relatively low humidity is passed over the wetted film in a contra direction. The water is then cooled by means of:

(a) latent heat of evaporation
(b) conduction of heat to the cold air.

Air is drawn in at the bottom of the tower and passed up through the packing to be discharged via the axial fan. Water is distributed over the packing where cooling takes place and is collected in the reservoir ready for recirculation.

To achieve this end a cooling tower consists of three main items:

1. **Top Section:** containing axial fan assembly; spray eliminators; water distribution system; inspection cover.
2. **Middle Section:** containing packing; support arrangement.
3. **Sump Section:** containing water sump ball valve; pump suction filter; drain valve; overflow.
   Optional Extras: closed circuit cooling coils; fan silencers; local isolators; pump sets; chemical dosing system; electrical control panels.

DESIGN FEATURES

The WT range of cooling towers have a GRP shell which will withstand arduous working conditions and not corrode.
All nine models utilise an induced draught counter flow design which is considered the most efficient design in cooling tower technology. All components have been selected and designed to ensure maximum protection against corrosion without compromising efficiency or low energy consumption.

- *GRP housing*
- *Vertical air discharge*
- *Low energy consumption*
- *No corrosion problems*
- *Lightweight construction*
- *Minimal floor area*
- *Easy maintenance*
- *Optional colours*

GRP CONSTRUCTION

Casing and sump moulded in GRP with self-coloured gelcoat finish, resulting in lightweight, long life and maintenance free finish. Standard sump accessories include stainless steel strainer and brass make-up valve with plastic float. Stainless steel and nylon fasteners ensure a corrosion free structure.

AXIAL PROPELLER FAN

Vertical discharge slow speed axial type fans manufactured in non-corrosive material are close coupled to weatherproof motors, with support frames in galvanised steel.

ELIMINATORS

PVC eliminators of high efficiency design.

PACKING

PVC vacuum moulded corrugated design arranged in cross diagonal formation resistant to acidity and alkalinity of circulating water.

WATER DISTRIBUTION SYSTEM

Non-clogging spray nozzles, ensuring even distribution of water flow over packing.

WT SERIES – INDUCED DRAUGHT

Model WT	000	00	01	02	03	04	05	06	07

EXTRACTION DUTIES

EWT 28	Duty kW	45	69	92	147	220	303	385	622	918
LWT 23	Flow m³/hr	7.8	11.9	15.8	25.3	37.9	52.2	66.3	107	158
EWT 30	Duty kW	55	85	113	181	272	375	476	767	1133
LWT 25	Flow m³/hr	9.6	14.7	19.5	31.3	46.8	64.5	81.9	132	195
EWT 32	Duty kW	69	105	140	225	337	464	587	953	1400
LWT 27	Flow m³/hr	11.9	18.2	24.2	38.7	58	79.8	101	164	241

MECHANICAL AND ELECTRICAL SPECIFICATION

Minimum flow m³/hr	4	6	8	12	18	25	32	51	75
Maximum flow m³/hr	12	19	25	40	60	80	105	165	245
No. of fans	1	2	1	1	1	1	1	1	1
Fan kW – each	0.75	0.75	0.75	1.1	1.5	2.2	4.0	7.5	11
Weight – dry kg	40	70	150	210	230	410	510	770	1020
Weight – operating kg	150	234	400	620	900	1230	1600	3870	5520
Length mm	820	1120	1040	1290	1560	1810	2060	2560	3060
Width mm	820	820	1040	1290	1560	1810	2060	2560	3060
Height mm	1840	1840	2810	2885	2920	2930	3060	3960	3960
Immersion heater kW	1	1	3	3	3	3	3	6	6
Fan motor start current (each)	11	11	11	14	20	31	55	129	146
Fan motor FLC (each)	2.1	2.1	2.1	3.4	4.3	5.7	9.2	17.9	26
Heater current per phase - per heater	4.2	4.2	12.5	12.5	12.5	12.5	12.5	8.4	8.4
Noise level at 3 metres	65	66	68	68	70	71	72	77	72

MOTOR DATA
D.O.L. – all models .415V-3-50Hz
Speeds 000-01 = 1400 rpm
02-04 = 930 rpm
05-06 = 720 rpm

Unit shipped in two sections requiring on-site assembly.

HEATER DATA
1.3kW = 240V-1-50Hz
6kW = 415V-3-50Hz

COOLING TOWERS AND LEGIONNAIRES' DISEASE

Legionnaires' Disease is an uncommon but serious form of pneumonia and, although rare, all users of cooling equipment should take the necessary steps to prevent the risk of outbreaks, thus safeguarding the health of their employees and the general public.
It is vital that cooling towers are sited so that discharge air does not enter open windows or intakes to ventilation equipment. Regular maintenance must be carried out and users should contact F&R Products or a health and safety officer for advice. If it is discovered that you have not taken reasonable precautions to ensure that your equipment does not prevent a health risk you may be prosecuted.

RECOMMENDED MAINTENANCE SCHEDULE

The table shown below illustrates the main elements of a maintenance schedule for the proper control of a cooling water system. Those items which are essential for the prevention of the multiplication and spread of legionnella are in the shaded area.

NB. Before work begins:

1. Ensure that pumps, fans etc. are electrically isolated.
2. If the tower has been closed down or if it has not been the subject of a regular maintenance programme, then refer to the Cleaning and Disinfection section in the Tower Maintenance Guide (available from F&R Products).

Description of Service	Start Up	Weekly	Monthly	Every Six Months	Shut-down	Annually
Inspect general condition of unit	●	●			●	
Clean debris from unit	●		●		●	
Inspect sump – clean and flush if required	●			●		
Clean sump strainer	●		●			
Check and adjust sump water level and make-up	●		●			
Inspect heat transfer section for fouling	●		●			
Inspect water distribution	●		●			
Check drift eliminators	●	●				
Check water quality against guidelines	●	●				
Check chemical feed equipment	●	●				
Check and adjust bleed rate	●	●				
Check pan heaters and accessories			●			
Drain pump and piping					●	
Inspect protective finish						●
Check fans for rotation without obstruction	●					
Check fan and pump motors for proper rotation	●					
Check unit for unusual noise/vibration	●	●				
Check motor(s) voltage and current	●			●		
Lubricate fan shaft bearings	●			●	●	
Check and service fan drive system	●		●			
Clean sump drift, packing				●		

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