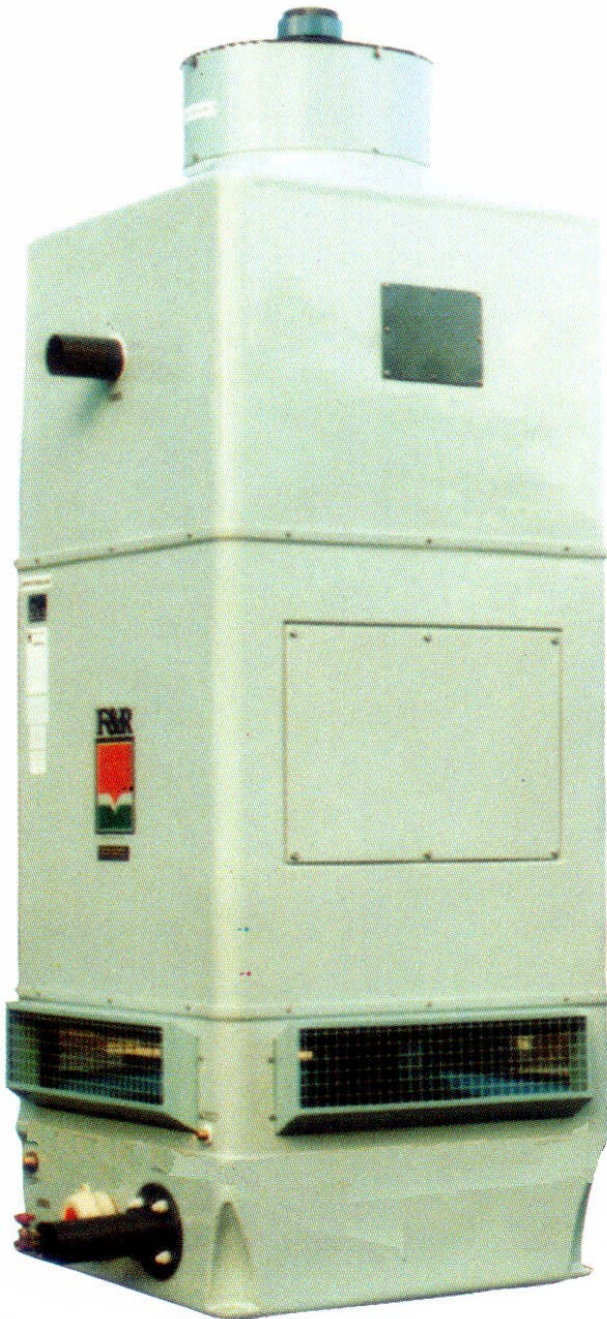




Products



**EVAPORATIVE  
COOLING TOWERS**

# EVAPORATIVE COOLING TOWERS

## 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.

## 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.

## 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*

## 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
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## EXTRACTION DUTIES

EWT 28	Duty kW	45	69	92	147	220	303	385	622	918
LWT 23	Flow m <sup>3</sup> /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 m <sup>3</sup> /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 m <sup>3</sup> /hr	11.9	18.2	24.2	38.7	58	79.8	101	164	241

## MECHANICAL AND ELECTRICAL SPECIFICATION

Minimum flow m <sup>3</sup> /hr	4	6	8	12	18	25	32	51	75
Maximum flow m <sup>3</sup> /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 legionella 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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