1958 VDA-DF Series

Lakeside's first cooling tower built under license.

Cross Flow

> Site Erected

- Mining Industry and Gas Fields
- Process Cooling
- Steel and High Grade Coke Manufacture
- Aluminium Smelter Plants
- Petrochemical Industries
- Customer R & D Applications

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Tower design incorporates new principle of operation and modern heat exchange medium.

Counterflow

> Induced Draft
> Site Erected

- Power Generation
- Petrochemical Industries
- Bore Water Cooling
- Desalination Plants
- Aluminium and Steel Mills
- Air Conditioning (commercial and industrial)

1989 MA Series

OH&S and Energy Conservation dictated the principles of this design.

Counterflow

> Induced Draft
> Modular
> Fully Assembled or Site Erected

- Air Conditioning
- Power Generation
- Agriculture
  – Dairy Industry
  – Hydroponics
  – Wine Production
  – Aquaculture
- General Industry
- Special Applications

MEMBER

In 1958 **LAKESIDE COOLING TOWERS** was established and our first tower, the **VDA-DF Series**, a cross flow design cooling tower, was built in Melbourne, Australia.

By the 1970's Lakeside had evolved and introduced its own unique counterflow design cooling tower, the **WM Series**. The ongoing innovation undertaken by Lakeside has meant that this model, suited for special applications, has benefited from many technological advances of the past 35 years.

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And our research continues……

LAKESIDE
COOLING TOWERS
(AUSTRALASIA) PTY LTD
ABN 40 054 793 216

ESTABLISHED 1958

MATERIALS OF CONSTRUCTION

Materials of Construction	MA Series	WM Series	VDA-DF Series
Framework	Hot dipped galvanised steel work (optional: stainless)	Pinus Radiata	Pinus Radiata
Foundation Frame	Durgal steel (where included)	Pinus Radiata	Pinus Radiata
Motor Mount / Mechanical Equipment Support	Welded structural steel, hot dipped galvanising – (optional: stainless)	Welded structural steel, hot dipped galvanising	Welded structural steel, hot dipped galvanising
Wall Panels	FRP	Fibreglass (10oz – corrugated}	Fibreglass (10oz – corrugated}
Air Inlet Windows/Louvers	uPVC honeycomb grille – (optional: polypropylene) in stainless steel frame	Fibreglass (10oz – corrugated)	Fibreglass (10oz – corrugated)
Fan Deck	FRP	Pinus Radiata	Pinus Radiata
Fan Cylinder	FRP	Fibreglass	Fibreglass
Fan Guard	Galvanised steel mesh – (optional: stainless)	N/A	N/A
Fill	PVC – (optional: polypropylene)	PVC – (optional: polypropylene)	Treated timber – (optional: PVC or polypropylene)
Drift Eliminator	PVC – UV stabalised, triple pass, cellular	PVC – UV stabalised, triple pass, cellular	
Hardware	304 stainless steel	304 stainless steel	304 stainless steel
Water Basin	FRP – where supplied	Concrete – by others	Concrete – by others
Hot Water Basin – Sides & Ends Difusion Deck	N/A	Pinus Radiata	Pinus Radiata
Hot Water Basin – Floor	N/A	20mm plywood – type "A" Bond	20mm plywood – type "A" Bond
Ladders & Handrails	Optional	Hot dipped galvanised steel	Hot dipped galvanised steel
Motor	IP56 – minimum rating	IP56 – minimum rating	IP56 – minimum rating
Fan Blades	PPG	PPG / Aluminimum / FRP	PPG / Aluminimum / FRP
Fan Hub	Aluminium	Aluminium	Aluminium

INSTALLATION

Depending on location, Lakeside's range of cooling towers offers a number of installation options.

MA Series

Pre-assembled

These FRP modular towers from the MA6 through to the MA36 can be transported to site, in fully or partially assembled form (depending on size). Once the tower is in position, a lifting device will be required for complete tower locationing or installation of the motor and fan assembly.

Site assembly

Modular construction enables this tower to be containerized in knock down form, for site assembly.

WM & VDA-DF

These site assembled cooling towers are suited to all locations. Timber is a key construction component, consequently they are heavier, require more manhandling,longer installation and more expensive to transport.

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ESTABLISHED 1958

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cutting edge technology at work

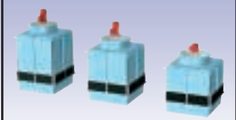
To select appropriate Cooling Tower, identify design, wet bulb temperature and the triangulate against design flow rate. Selection (based on standard air conditioning duties of 5.5°_t)

SEE EXAMPLE BELOW.

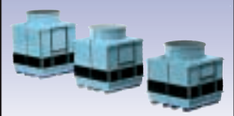
MA6

MA9

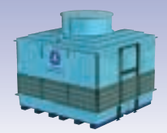
MA12



MA18



MA24



MA30

MA36

MA40

MA50

	MA6/3	MA6/6	MA6/9	MA9/3	MA9/6	MA9/9	MA12/3	MA12/6	MA12/9	MA18/3	MA18/6	MA18/9	MA24/3	MA24/6	MA24/9	MA30/3	MA30/6	MA30/9	MA36/3	MA36/6	MA36/9	MA40/3	MA40/6	MA40/9	MA50/3	MA50/4	MA50/9
WET BULB TEMPERATURES																											
21° — Max. Kw	58			127			230			645			920			1450			2073			2580			4030		
22° — Max. Kw	52			115			207			472			840			1313			1888			2350			3640		
23° — Max. Kw	46			104			190			426			760			1175			1704			2096			3293		
24° — Max. Kw		52			121			213			484			852			1360			1934			2418			3754	
25° — Max. Kw		46			104			184			420			760			1174			1704			2095			3258	
26° — Max. Kw		40			92			161			368			645			1013			1439			1769			2809	
27° — Max. Kw		42			98			173			380			679			1082			1543			1888			2970	
28° — Max. Kw		40			92			161			357			645			1313			1450			1785			2786	
29° — Max. Kw		42			98			173			380			679			1059			1520			1877			2994	
30° — Max. Kw		46			104			178			403			714			1105			1612			2003			3109	
31° — Max. Kw	52			115			207			460			829			1290			1842			2303			3592		
32° — Max. Kw		51			115			195			460			806			1255			1796			2303			3477	
WATER FLOW RATE:																											
Litres / second: min. to max.		1 - 3			3 - 7			6 - 12			11 - 24			24 - 48			43 - 75			67 - 80			95 -133			120-175	
Tons of Refrigeration		20			39			65		180	137		262	242		412	387		589	550		734	687		1145	1067	

Flowrate[1] _ x Temperature Range[2] x Specific Heat of Water[3] = kW of Heat Rejection[4]. EXAMPLE: 17.5 l /s[1] x 5.5° _t[2] x 4.187[3] = 403[4] (Illustrated by YELLOW row / column)

SPECIFICATIONS	MA6/3	MA6/6	MA6/9	MA9/3	MA9/6	MA9/9	MA12/3	MA12/6	MA12/9	MA18/3	MA18/6	MA18/9	MA24/3	MA24/6	MA24/9	MA30/3	MA30/6	MA30/9	MA36/3	MA36/6	MA36/9	MA40/3	MA40/6	MA40/9	MA50/3	MA50/4	MA50/9
DIMENSIONS:																											
Footprint: Length x Width (mm)	760	760	760	1090	1090	1090	1380	1380	1380	1980	1980	1980	2561	2561	2561	3180	3180	3180	3760	3760	3760	4200	4200	4200	5200	5200	5200
Height (mm)	1770	2070	2370	1770	2070	2370	2270	2570	2870	2410	2710	3010	2850	3150	3450	3085	3385	3685	3300	3600	3900	3900	4200	4500	4700	5000	5300
INSTALLATION:																											
Distance: End & Side Wall (mm)	500	500	500	500	500	500	1000	1000	1000	1000	1000	1000	1000	1000	1000	1200	1200	1200	1200	1200	1200	1500	1500	1500	1500	1500	1500
Operating Weight (kg)	205	210	215	395	400	405	670	680	690	2080	2100	2120	3130	3250	3370	4360	4600	4840	6290	6550	6810	9725	9725	10165	13920	14600	15280
Shipping Weight (kg)	45	50	55	75	80	85	90	100	110	660	680	700	680	800	920	760	1000	1240	1090	1350	1630	2085	2525	2965	2650	3330	4010
Basic Volume (litres)	160	160	160	320	320	320	580	580	580	1300	1300	1300	2300	2300	2300	3600	3600	3600	5200	5200	5200	6400	6400	6400	10000	10000	10000
ELECTRICAL																											
Motor (kw)	0.37	0.37	0.55	0.55	0.55	0.75	1.1	1.1	1.5	2.2	2.2	3.0	4–15	4–15	4–15	7.5–22	7.5–22	7.5–22	15–30	15–30	15–30	30–45	30–45	30–45	30–75	30–75	30–75
RPM	960	960	960	930	930	930	930	930	930	950	950	950	730	730	730	730	730	730	730	730	730	735	735	735	177	177	177
Phase	1 / 3	1 / 3	1 / 3	1 / 3	1 / 3	1 / 3	1 / 3	1 / 3	1 / 3	1 / 3	1 / 3	1 / 3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Pole	4 / 6	4 / 6	4 / 6	4 / 6	4 / 6	4 / 6	4 / 6	4 / 6	4 / 6	6	6	6	8	8	8	8	8	8	8	8	8	8	8	8	4 (VFD)	4 (VFD)	4 (VFD)
Fans Dimension (mm)	500	500	500	810	810	810	810	810	810	1200	1200	1200	1200/1800			1800	1800	1800	1800	1800	1800	1800	1800	1800	3000	3000	3000
Sound Pressure Level re IPa, dB(A) @ Hz	33	33	33	37–34	37–34	37–34	50–55	50–55	50–55	41–43	41–43	41–43	55	55	55	53–58	53–58	53–58	63	63	63	59	59	59	61	61	61

These figures are only idicative — final selection must be completed by Lakeside (representative). Blank cells indicate industrial duties / applications

The figures presented in these tables are for HVAC applications and are only indicative - final selections for cooling towers must be completed by a Lakeside representative. Cells in the table without data refer to non-HVAC applications.

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ESTABLISHED 1958

Victoria University – Melbourne

Model: MA30
Duty: 35°C / 29.5° / 22°
Application: HVAC
Material: Fibreglass
Installation: December 2002
Replacement Reasons
Energy efficiency maintenance and serviceability
Occupational Health and Safety requirement
Mechanical superiority (direct VFD)

National Foods Ltd – Melbourne

Model: MA18/3S
Duty: 37°C / 32° / 27°
Application: Specialized Milk Products
Custom construction material
Body: 304 Stainless; Fan deck/cylinder: FRP
Installation: March 2003
Replacement Reasons
Energy efficiency maintenance and serviceability
Occupational Health and Safety requirement
Mechanical superiority (direct VFD)

Dubal – Dubai, U.A.E.

Model: MA40/9
Duty: 58°C / 38° / 33°
Application: Cast House Smelting
Custom construction material
Frame work: HDG; Panels and fan deck/cylinder: FRP
Installation: April 2002
Replacement Reasons
Energy efficiency, maintenance and serviceability
Occupational Health and Safety requirement
Mechanical superiority (direct VFD)

Goodyear Tyres – Melbourne

Model: MA 24/9
Duty: 35°C / 29.5° / 22°
Frame Work: HDG; panels & fan/deck cylinder; FRP
Application: Rubber components manufacture
Installation: December 2003
Replacement Reasons
Energy efficiency maintenance and serviceability
Occupational Health and Safety requirement
Mechanical superiority (direct VFD)

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