

> The Revolutionary Development in Cooling Tower Technology Just Got Better!

aqua-cool

Advanced Fibreglass Technology

AFT - A Series Cooling Towers



With Exclusive:

- > Aqua-Seal™ and Aqua-Clean™ technology
- > 10 Year Warranty on FRP components
- > 3 Year Warranty on motors

Designed and built in Australia to conform with the requirements of AS/NZS 3666



Member Cooling Technology Institute



Advanced Technology Design

Aqua-Cool Towers and Evapco are dedicated to applying their experience and resources to the advancement of cooling tower technology. The AFT-A Series range of cooling towers is a reflection of this commitment.

Applying Aqua-Cool Towers proven thermal design capabilities and unique engineering and production skills in composite construction has led to the development of the AFT-A Series range of cooling towers. The AFT includes the smaller direct drive units from 177 kW to 830 kW and the larger belt drive units from 745 kW to 2700 kW.

The AFT-A Series is a heavy-duty cooling tower which saves space, blends easily with architectural designs and offers low operating costs. The AFT-A Series incorporates durable construction with an ease of serviceability not before seen in cooling tower design. This has been made possible with the exclusive *Aqua-Sea™* panel design system and *Aqua-Clean™* basin design both developed in house by Aqua-Cool Towers Pty Ltd.

AFT-A units utilise an induced draft, counterflow design: making these *the most efficient design cooling towers with minimum footprint*. All major components, axial fans, inlet louvres, motors and wet deck fill have been selected to ensure maximum efficiency with low energy consumption. The AFT-A is designed for air conditioning and industrial water cooling applications. All components and materials were selected and tested for demanding industrial service, thus assuring the cooling tower user of long equipment life.

Features And Benefits

- > Rigid panels with lighter weight makes site assembly

faster and easier. Less assembly time means lower installed costs.

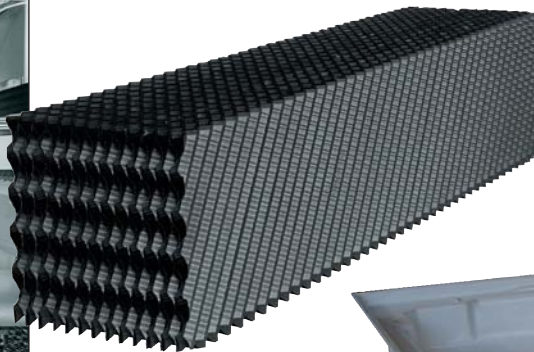
- > The unique panel design helps prevent water leakage between the panels and makes temporary removal and replacement of access panels a simple process. This ease of removal and replacement of the access panels further reduces maintenance costs.
- > The smooth moulded interior presents an exceptionally easy-to-clean surface. Gel coated surfaces have been approved by the FDA for contact with food. Aqua-Cool Towers believes that the use of flow coated interior surfaces increases the risk of biological contamination by providing a relatively “rough” surface which allows slime and other biofilms to adhere more easily than on the gel coated finish.
- > Glass reinforcements used in the construction of the AFT A Series towers comply with ISO 2797 or DIN 61855. Resins comply with ISO 2559. Having certification to both *Lloyds* and *Det Norske Veritas* ensures the quality and life of our cooling towers’ long equipment life and reliable operation.

The thermal performance of each unit is backed by a full written guarantee.

These features allow us at Aqua-Cool Towers to offer a 10 year warranty on FRP components and a three year warranty on the motors.



The water distribution system is made of Class E PVC pipe and ABS plastic water diffusers.



The fill is specially designed to induce highly turbulent mixing of air and water for superior heat transfer.



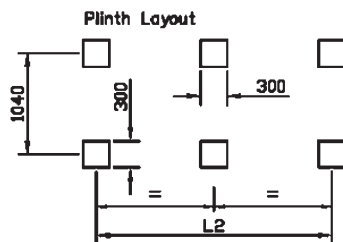
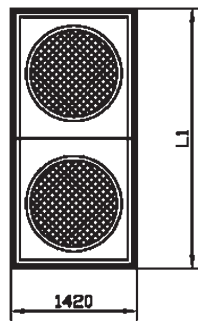
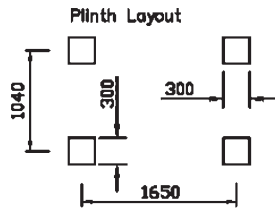
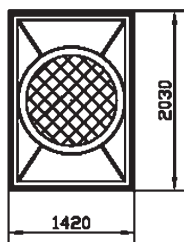
The Aqua-Clean™ basin and smaller plan area requirements allow less water to be held in the unit during normal operation

Engineering Data

AFT 4-66A to 8-918A

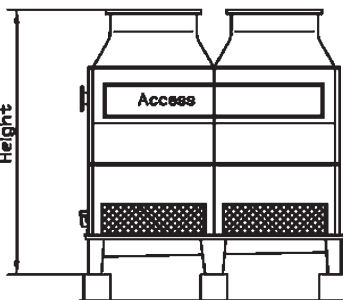
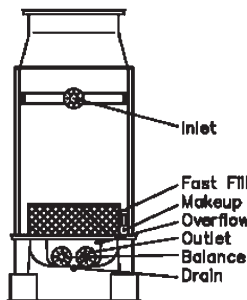
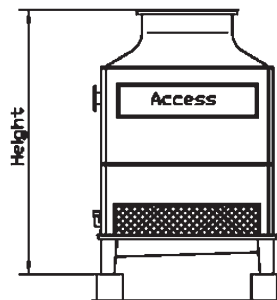
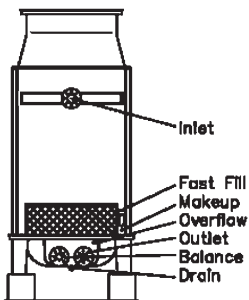
AFT Model	Shipping Weight kg	Operating Weight kg	Fan Motor kW	Height Overall mm	Length Overall, L1 mm	Length L2 mm	Inlet NB mm	Outlet NB mm	Drain NB mm	Overflow NB mm	Makeup Size mm
4-66A	345	855	2.2	2721	2030	1650	100	100	50	50	25
4-76A	375	885	2.2	3136	2030	1650	100	100	50	50	25
4-86A	357	862	4	2721	2030	1650	100	100	50	50	25
4-96A	387	897	4	3136	2030	1650	100	100	50	50	25
4-59A	513	1248	(2)1.5	2721	2945	2565	100	100	50	50	25
4-69A	543	1278	(2)1.5	3136	2945	2565	100	100	50	50	25
4-79A	555	1295	(2)2.2	2721	2945	2565	100	100	50	50	25
4-89A	555	1295	(2)2.2	3136	2945	2565	100	100	50	50	25
4-99A	585	1325	(2)2.2	3136	2945	2565	100	100	50	50	25
4-612A	678	1648	(2)2.2	2721	3935	3555	150	150	50	50	25
4-712A	705	1675	(2)2.2	3136	3935	3555	150	150	50	50	25
4-812A	717	1692	(2)4	3136	3935	3555	150	150	50	50	25
4-912A	744	1719	(2)4	3136	3935	3555	150	150	50	50	25
8-49A	978	2193	7.5	3800	2963	2543	200	200	50	50	25
8-59A	999	2214	7.5	3800	2963	2543	200	200	50	50	25
8-69A	990	2205	11	3800	2963	2543	200	200	50	50	25
8-79A	1014	2234	11	3800	2963	2543	200	200	50	50	25
8-89A	1137	2532	11	3800	2963	2543	200	200	50	50	25
8-99A	1143	2358	15	3800	2963	2543	200	200	50	50	25
8-412A	1353	3043	11	3800	3878	3458	200	200	50	50	25
8-512A	1218	2853	15	3800	3878	3458	200	200	50	50	25
8-612A	1395	3085	11	3800	3878	3458	200	200	50	50	25
8-712A	1411	3100	15	3800	3878	3458	200	200	50	50	25
8-812A	1434	3125	15	3800	3878	3458	200	200	50	50	25
8-912A	1450	3250	18.5	3800	3878	3458	200	200	50	50	25
8-318A	1803	4283	(2)5.5	3800	5730	-	250	250	50	50	40
8-418A	1734	4214	(2)7.5	3800	5730	-	250	250	50	50	40
8-518A	1818	4298	(2)7.5	3800	5730	-	250	250	50	50	40
8-618A	1866	4351	(2)7.5	3800	5730	-	250	250	50	50	40
8-718A	1848	4328	(2)11	3800	5730	-	250	250	50	50	40
8-818A	1908	4388	(2)15	3800	5730	-	250	250	50	50	40
8-918A	2121	4601	(2)15	3800	5730	-	250	250	50	50	40

Engineering Dimensions



AFT 4-66 to 4-96
All Models are Direct Drive

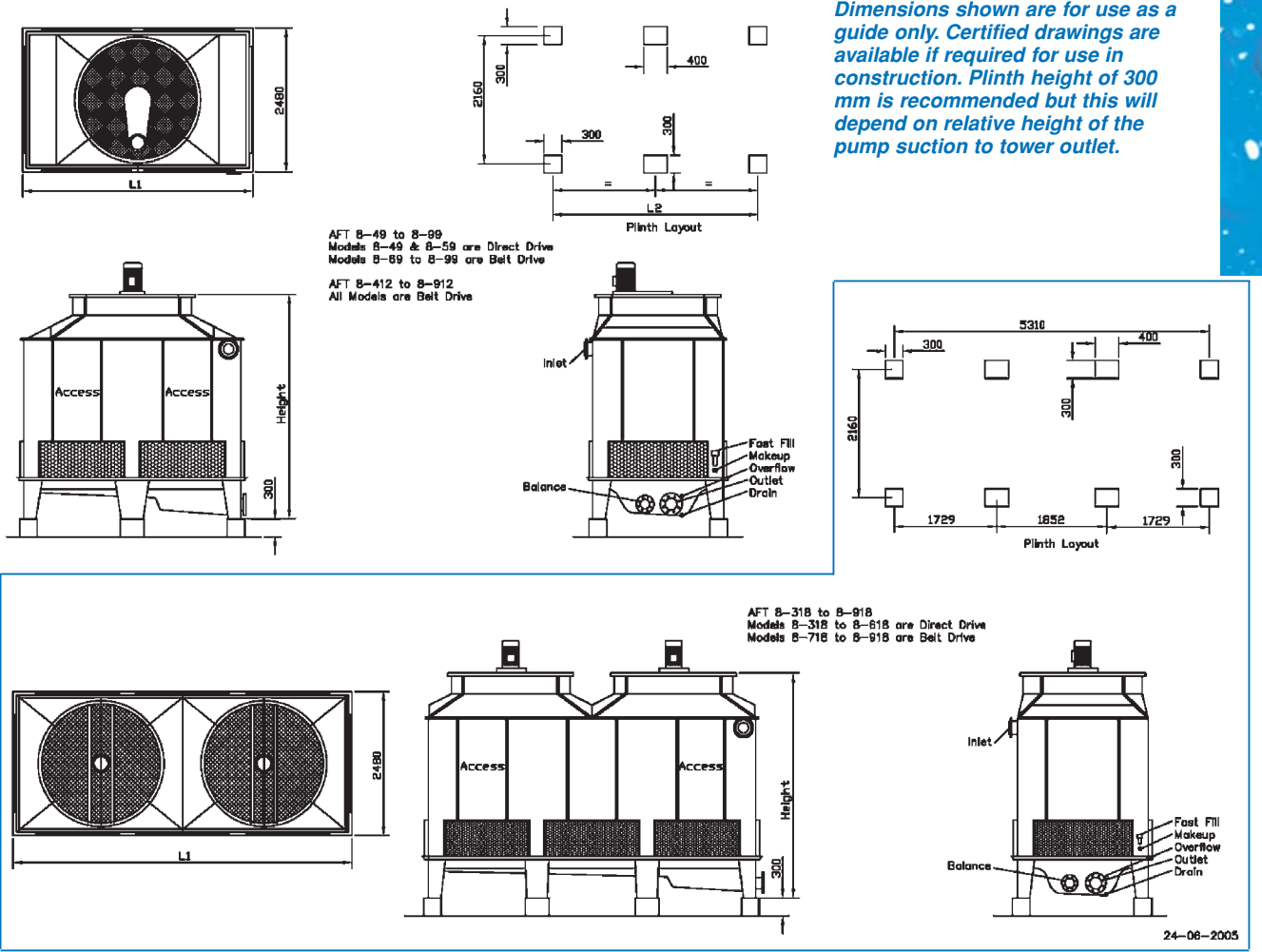
AFT 4-59 to 4-912
All Models are Direct Drive



Dimensions shown are for use as a guide only. Certified drawings are available if required for use in construction. Plinth height of 300 mm is recommended but this will depend on relative height of the pump suction to tower outlet.

Engineering Dimensions

Dimensions shown are for use as a guide only. Certified drawings are available if required for use in construction. Plinth height of 300 mm is recommended but this will depend on relative height of the pump suction to tower outlet.



Sound Sensitive Applications Solutions

AFT-A Series cooling towers are available with four equipment options to reduce the overall sound generated from the side or top of the tower. Each option provides various levels of sound reduction and can be used in combination to provide the lowest sound level. Consult your Aqua Cool Towers' representative for more details.

Super Low Sound Fan

9 – 15 dB(A) Reduction versus Standard Fan. The Aqua-Cool Super Low Sound Fan utilises a very wide chord blade design available for sound sensitive applications where the lowest sound levels are desired. The fan is a hollow core heavy duty FRP construction utilising a forward swept blade design. The Super Low Sound is capable of reducing the unit sound pressure levels 9 dB(A) to 15 dB(A), depending on specific unit selection and measurement location. The fans are high efficiency axial propeller type, developed specifically for Aqua Cool Towers Pty Ltd.

Note: the Super Low Noise Fan is available on 2.4 M wide AFT-A cooling towers, AFTW closed circuit coolers and AFTC evaporative condensers.

Low Sound Fan

4 – 7 dB(A) reduction. The Low Sound Fan offered by Aqua Cool Towers is available as a wide chord aluminium or FRP blade design

available for sound sensitive applications where low sound levels are required. The Low Sound Fan is capable of reducing the unit sound pressure levels 4 dB(A) to 7dB(A), depending on specific unit selection and measurement locations. The fans are high efficiency axial propeller type and designed specifically for Aqua Cool Towers Pty Ltd.

AFT Fan Discharge Sound Attenuation

Up to 10 dB(A) reduction. The AFT-A Discharge Attenuation offered by Aqua-Cool Towers is an additional option available to further reduce the sound level of the unit. The attenuator can be used with the standard AFT-A fan or in combination with the Low Sound Fan option.

The discharge attenuator is a factory assembled straight sided discharge hood design to reduce the overall discharge sound levels at full fan speed 5 dB(A) to 10 dB(A), depending on specific unit and measurement locations. It is constructed of Z600 galvanised steel as standard (option available for type 304 S/S) and includes insulated walls and a low pressure drop baffling system that is acoustically lined with high density fibreglass. The discharge attenuation is self supported by the unit and is shipped loose to be mounted in the field. The discharge attenuators will have a minimal impact on thermal performance (0% - 2% derate depending on specific unit selection).

Sound Sensitive Applications Solutions

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AFT Water Silencer

Up to 7 dB(A) reduction. The water silencer option is available for all AFT-A models and is located in the falling water area of the cold water basin. The water silencer will reduce the high frequency sound associated with falling water and is capable of reducing overall sound levels 4 dB(A) to 7 dB(A) measured at 1.5 metres from the side or ends of the units. The water silencers reduce overall sound levels 9 dB(A) to

12 dB(A) (depending on water loadings and louvre height) measured 1.5 metres from the side or end of the unit when water is circulated with fans off.

The water silencers are constructed of lightweight PVC sections and can be easily removed for access to the basin area.

Cooling Tower Selection Data

Temperature																				Fan Motor kW	
Hot Water °C	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	38.0	38.0	38.0	38.0	38.0		
Cold Water °C	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	30.0	31.0	32.0	33.0	33.0	
Wet Bulb °C	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0	25.5	26.0	27.0	27.0	27.0	27.0	28.0	
Flow Rate l/s																					
AFT4-66A	20.9	20.3	19.7	19.1	18.5	17.8	17.2	16.5	15.8	15.1	14.4	13.6	12.8	12.0	11.2	8.6	11.2	14.3	18.5		16.6
AFT4-76A	21.8	21.2	20.6	20.1	19.5	18.8	18.2	17.5	16.8	16.1	15.4	14.6	13.9	13.1	12.2	9.6	12.2	15.4	19.5	17.7	2.2
AFT4-86A	24.0	23.3	22.6	21.9	21.2	20.5	19.7	19.0	18.1	17.3	16.5	15.6	14.7	13.8	12.8	9.9	12.8	16.4	21.2	19.0	4.0
AFT4-96A	25.5	24.8	24.2	23.5	22.8	22.0	21.3	20.5	19.7	18.9	18.0	17.1	16.2	15.2	14.2	11.2	14.3	18.0	22.9	20.7	4.0
AFT4-59A	30.6	29.9	29.0	28.1	27.2	26.3	25.3	24.3	23.3	22.3	21.2	20.1	18.9	17.7	16.5	12.7	16.5	21.1	27.2	24.5	(2)1.5
AFT4-69A	31.3	30.5	29.7	28.9	28.0	27.1	26.2	25.2	24.2	23.2	22.2	21.1	20.0	18.8	17.5	13.9	17.6	22.2	28.1	25.5	(2)1.5
AFT4-79A	34.5	33.6	32.6	31.6	30.6	29.5	28.4	27.3	26.2	25.0	23.8	22.5	21.2	19.9	18.5	14.3	18.5	23.7	30.5	27.5	(2)2.2
AFT4-89A	35.3	34.4	33.4	32.4	31.5	30.4	29.3	28.2	27.1	25.9	24.7	23.5	22.2	20.8	19.4	15.1	19.4	24.7	31.5	28.5	(2)2.2
AFT4-99A	35.9	35.0	34.0	33.1	32.1	31.0	30.0	28.9	27.8	26.6	25.4	24.2	22.8	21.5	20.1	15.8	20.2	25.4	32.2	29.2	(2)2.2
AFT4-612A	41.8	40.7	39.5	38.3	37.1	35.8	34.4	33.1	31.7	30.3	28.8	27.3	25.7	24.1	22.4	17.3	22.4	28.8	37.0	33.4	(2)2.2
AFT4-712A	43.9	42.8	41.6	40.5	39.2	37.9	36.6	35.3	33.9	32.5	31.0	29.5	27.9	26.3	24.5	19.3	24.6	31.0	39.4	35.7	(2)2.2
AFT4-812A	50.3	48.9	47.5	46.0	44.5	42.9	41.3	39.8	38.0	36.3	34.5	32.7	30.8	28.8	26.8	20.6	26.8	34.4	44.4	39.9	(2)4
AFT4-912A	50.3	48.9	47.6	46.2	44.8	43.3	41.9	40.3	38.7	37.1	35.4	33.6	31.8	29.9	27.9	22.0	28.1	35.4	45.0	40.8	(2)4
AFT8-49A	66.0	64.3	62.5	60.7	58.8	56.9	54.9	52.9	50.8	48.6	46.3	44.0	41.5	39.1	36.4	28.4	36.5	46.3	58.8	53.3	7.5
AFT8-59A	66.9	65.2	63.5	61.7	59.9	57.9	56.0	54.0	51.9	49.8	47.6	45.2	42.8	40.3	37.7	29.7	37.8	47.6	60.1	54.6	7.5
AFT8-69A	73.9	71.9	70.0	67.9	65.8	63.7	61.4	59.1	56.8	54.3	51.8	49.2	46.5	43.7	40.7	31.7	40.7	51.7	65.8	59.6	11.0
AFT8-79A	75.0	73.1	71.2	69.1	67.1	64.9	62.7	60.5	58.1	55.7	53.2	50.6	47.9	45.1	42.1	33.2	42.3	53.2	67.4	61.1	11.0
AFT8-89A	75.6	73.8	72.0	70.0	68.0	65.9	63.9	61.6	59.4	57.1	54.6	52.1	49.4	46.7	43.7	35.1	44.1	54.8	68.5	62.6	11.0
AFT8-99A	83.1	81.0	79.0	76.9	74.7	72.4	70.1	67.7	65.2	62.6	59.9	57.1	54.2	51.2	48.0	38.4	48.3	60.1	75.2	68.7	15.0
AFT8-412A	88.5	86.2	83.9	81.5	79.1	76.5	73.8	71.3	68.4	65.6	62.6	59.5	56.3	53.1	49.6	39.1	49.8	62.6	79.4	72.1	11.0
AFT8-512A	92.2	89.6	87.1	84.4	81.6	78.9	75.9	73.0	69.9	66.8	63.5	60.2	56.7	53.1	49.3	38.0	49.3	63.3	81.5	73.4	15.0
AFT8-612A	89.6	87.4	85.2	82.9	80.5	78.0	75.6	72.9	70.2	67.5	64.6	61.5	58.4	55.2	51.7	41.5	52.1	64.7	81.1	74.0	11.0
AFT8-712A	97.0	94.5	92.0	89.3	86.7	83.9	81.0	78.1	75.0	71.8	68.6	65.2	61.7	58.0	54.1	42.6	54.3	68.6	86.9	78.9	15.0
AFT8-812A	98.4	96.0	93.6	91.0	88.4	85.7	83.0	80.0	77.1	74.0	70.9	67.5	64.1	60.5	56.7	45.4	57.1	71.1	89.0	81.3	15.0
AFT8-912A	104.8	102.3	99.7	97.0	94.2	91.3	88.3	85.3	82.1	78.9	75.5	71.9	68.2	64.4	60.3	48.3	60.7	75.7	94.9	86.5	18.5
AFT8-318A	120.1	117.1	113.9	110.7	107.4	103.9	100.4	96.9	93.1	89.3	85.2	81.0	76.7	72.3	67.6	53.4	67.9	85.2	107.9	97.9	(2)5.5
AFT8-418A	125.9	122.4	119.0	115.4	111.6	107.9	103.9	99.8	95.7	91.4	87.0	82.5	77.7	72.8	67.7	52.3	67.7	86.8	111.4	100.4	(2)7.5
AFT8-518A	129.6	126.3	122.7	119.1	115.4	111.7	107.7	103.8	99.6	95.3	90.8	86.2	81.5	76.6	71.3	55.8	71.5	90.8	115.6	104.6	(2)7.5
AFT8-618A	131.7	128.4	124.9	121.3	117.8	113.9	110.0	106.2	102.0	97.8	93.4	88.8	84.0	79.1	73.9	58.4	74.3	93.4	118.3	107.4	(2)7.5
AFT8-718A	145.2	141.4	137.6	133.4	129.2	125.1	120.5	116.0	111.4	106.6	101.6	96.4	91.1	85.6	79.7	62.2	79.8	101.6	129.4	117.0	(2)11.0
AFT8-818A	162.1	157.9	153.6	149.2	144.8	140.0	135.2	130.5	125.3	120.1	114.6	108.9	103.0	97.0	90.5	71.2	90.9	114.6	145.1	131.7	(2)15.0
AFT8-918A	163.9	159.9	155.8	151.7	147.3	142.8	138.2	133.5	128.4	123.4	118.0	112.5	106.8	100.8	94.4	75.6	95.1	118.4	148.4	135.3	(2)15.0

Cooling Tower Specifications

A. GENERAL: Cooling Tower Specification

Furnish and install as shown on plans ____ off Aqua-Cool Towers' AFT A Series Model ____ Cooling Tower. Each unit shall have a capacity of ____ kW Total Heat Rejection, operating at ____ l/sec water flow each from an entering water temperature at ____ °C at an entering wet bulb temperature of ____ °C.

B. UNIT CONSTRUCTION

The unit shall be manufactured from fibreglass reinforced polyester, with all interior surfaces, including fan cylinder, basin and casing having a moulded gel coat finish to ensure ease of cleaning.

All glass reinforcements used in the construction of the cooling towers will comply with ISO 2797 or DIN 61855 and ISO 2559 and must have both Lloyds and Det Norski Veritas certification. The laminating resins will have been tested by a local authority, for certification by Lloyds.

The cold water basin will have been designed specifically for use with sidestream filtration system and have dedicated points for fitment of sweeper jets. The basin shall be graded to the drain as per the requirements of AS/NZS 3666.1.

The casing panel design will provide quick and easy access for maintenance.

All water connections shall be fibreglass or PVC. Exterior surface only will have surfaces flow coated with UV-stabilised material.

The tower will be supported on legs moulded from fibreglass without the need for metal fittings or supports. The fill shall be of cross-fluted design to provide maximum surface area and minimal air pressure drop. The fill shall be in glued packs to allow easy removal. The PVC material must comply with the Cooling Tower Institute (CTI) STD 136.

C. HEAT TRANSFER SECTION

Water Distribution System: Each inlet shall deliver water to the distribution systems by means of a transverse header

pipe with longitudinal pipe laterals and low pressure plastic spray nozzles.

Drift Eliminators: Drift Eliminators shall be designed utilising a series of sinusoidal-shaped blades. Eliminators shall be installed in easy to clean and handle modules limiting drift to less than 0.002% in compliance with AS4180.1. Eliminator blades shall be secured in end-caps to help prevent distortion and located in a horizontal position.

D. MECHANICAL EQUIPMENT

Fan: Fans shall be multi-blade axial flow with variable or fixed pitch manufactured from aluminium, fibreglass or polypropylene. Fan shall be direct or belt driven.

Mechanical Support: The mechanical support equipment shall be of heavy gauge steel construction and shall be hot dipped galvanised, after fabrication and designed to maintain alignment of rotating parts.

The mechanical support shall be installed at top of the fan cylinder. Easily removable fan guards shall be fitted and shall be a minimum of 4 mm mesh.

Motor: Electric motor shall be to IP56 D Standard totally enclosed, tropic-proofed construction, designed specifically for cooling tower application.

E. INLET LOUVRES

Inlet louvres shall be vacuum formed from PVC to CTI STD 136, designed to prevent splash-out and help inhibit sunlight entry to the unit interior. Air-inlet louvres shall be of two pass configuration installed at 90 degrees, removable and be located in PVC or optional stainless steel frames.

F. TOWER CONFIGURATION

Tower shall be a counter flow design so as to minimise sunlight entry into interior wetted area. Access to the water basin will be available from all four sides.

G. ACCESSORIES

Access ladders and platforms shall be to AS1657, supplied to suit installation.



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