

TECHNICAL SPECIFICATION OF WORKING COOLING TOWERS

Project Description:		Adding one cooling tower to the current working two cooling towers (1+2) of anode rodding water circulation station
Location & Ambient Data	City	LAMERD
	Humidity (%)	10 -63
	Lowest design relative humidity (%):	1
	Highest design relative humidity (%):	100
	Altitude (m)	420
	Min. (design) Temperature (°C):	-2.8
	Max. (design) Temperature (°C):	49.8
	Max. Temperature of metal surface under sunlight (°C):	80
	Annual average temperature (°C):	27.6
	Outdoor design dry-bulb temperature at summer (°C):	48.2
	Outdoor design dry-bulb temperature at winter (°C):	-2.8
	Outdoor design wet-bulb temperature at winter (°C):	35
	Outdoor design temperature for winter ventilation (°C):	14.7
	Outdoor design temperature for winter Air conditioning (°C):	10.5
	Outdoor design temperature for summer ventilation (°C):	46
	Outdoor design temperature for summer Air conditioning (°C):	26
	Outdoor design daily average temperature for summer Air conditioning (°C):	38.7
	Max annual accumulated rainfall (mm):	309.3
	Max Daily accumulated rainfall (mm) :	87.6
	Max Hourly rainfall (mm) :	35
	Consecutive rainfall days (days) :	2.2
	Consecutive Max.rainfall (mm) :	54.5
Operating Conditions	Annual average barometric (mbar):	963.8
	Average barometric in winter (mbar):	971.3
	Average barometric in summer (mbar):	952.8
	No of thunderstorm days (Annually, days) :	14.3
	No of sand (dust) storm days (Annually, days) :	23.5
	Dew point temperature (in winter, °C):	9
	Dew point temperature (in summer, °C):	20
	Earthquake Zone (According to Iranian Seismic code 2800 or UBC-97)	3 (Base acceleration 0.3g)
	Wind direction:	North-west to South-East
	Max wind speed (km/h):	101
	Average annual wind Speed (km/h):	16
	Type	CLOSED CIRCUIT EVAPORATIVE, INDUCED DRAFT, COUNTER
	Thermal Capacity (kW)	4200
Structural Detail	Air Volume (m ³ /h)	120,000
	Water Flow Rate (m ³ /h)	180
	Hot (Inlet) Water Temperature (°C)	< 60 °C
	Cold (Outlet) Water Temperature (°C)	< 40 °C
	Hot (Inlet) Water Pressure (MPa)	> 0.15
	Cold (Outlet) Water Pressure (MPa)	> 0.10
	Number of Cells (Cells)	By Vendor
	Fans Per Cell (Sets)	By Vendor
Material of Structure	Total Number of Fans (Sets)	By Vendor
	Cell Dimensions - L × W × H (mm)	By Vendor
	Fan Stack Height (mm)	By Vendor
	Inside Basin Dimension (mm)	By Vendor
	Net Weight (kg)	By Vendor
	Operating Weight (kg)	By Vendor
	Casing	FRP
	Coil	STAINLESS STEEL 316
Fan Stack	Cold Water Basin	By Vendor
	Louver support	By Vendor
	Louver	By Vendor
	Distributor Pipe	By Vendor
	Distributor Pipe Support	SS400
	Deck	By Vendor
	Fan Stack	By Vendor
	Nozzle	NON-CLOGGING P.E
	Drift Eliminator	HIGH QUALITY PVC

Mechanical Equipment	Ladder	By Vendor	
	Bolts, Nuts & Washers	SS304	
	Mechanical Equipment Support	By Vendor	
	Foundation	CONCRETE	
Mechanical Equipment	Fans	Type	Axial
		Drive Type	DIRECT DRIVEN
		Operating Temperature (°C)	< 60
		Diameter (mm)	By Vendor
		Number of Blades (ea)	By Vendor
		Fan blade profile	By Vendor
		Blade Material	By Vendor
		Hub (Boss) Material	By Vendor
	Fan Motor	By Vendor	
Mechanical Equipment	Pump	Pump Type	CENTRIFUGAL PUMPS
		Capacity (m3/h)	180
		Head (m)	5
		Inlet Size (NPS)	By Vendor
		Outlet Size (NPS)	By Vendor
		Casing Material	CAST IRON
		Shaft Material	STAINLESS STEEL 304
		Impeller Material	STAINLESS STEEL 304
	Pump Motor	Maximum Pressure	By Vendor
		Vendor	By Vendor
		Power (kW)	By Vendor
		Voltage (V)	By Vendor
		NEMA Insulation Class	CLASS F
		Frequency (Hz)	By Vendor
		Degree of Protection	IP55
		Speed (r/min)	By Vendor
Features & Options	Corrosion Resistant		
	Sealed Bearings		