

**Annexure-1 - Data Sheet - To be filled by the Vendor**

| <b>Sr. No.</b>    | <b>Description</b>   | <b>Required - System Parameters</b>   | <b>Offered - System Parameters</b> |
|-------------------|--|---|------------------------------------|
| 1                 | Type of Chiller  | Air Cooled Water Chiller  |                                    |
| 2                 | Make & Model Name/Number of Chiller  |   |                                    |
| 3                 | Required actual Cooling Capacity in TR @42°C ambient temperature and 7/12°C Chilled Water In/Out | <b>"Total actual cooling capacity of Air conditioner = 51TR at 42 degree Celsius ambient temperature with AHU capacity 54 TR with additional standby capacity. Number of chillers 2 (working) + 1 (standby) or 3 (working) + 1 (standby) of Same Capacity ( All the offered Chillers should be same capacity in TR)".</b> |                                    |
| 4                 | Rated Power Input per chiller  | Below 20 Kw   |                                    |
| 5                 | EER Btu/h / W  | Minimum 11  |                                    |
| 6                 | COP @ 100%   | Minimum 3.2   |                                    |
| 7                 | Power Supply   | 390-420V /3N/50 Hz  |                                    |
| 8                 | Refrigerant  | R410A / R134a / or equivalent approved CFC Free   |                                    |
| 9                 | Factory Pre-Charge   | Yes   |                                    |
| 10                | Water Flow   | not less than 10.3 m <sup>3</sup> /hr   |                                    |
| 11                | Water Pressure Drop  | Not more than 55 kPa  |                                    |
| 12                | Noise Level at 1 Mtr distance  | shall not exceed 66 dBA at 1 mtr.   |                                    |
| <b>Evaporator</b> |  |   |                                    |
| 1                 | Type   | Brazed Plate Heat Exchanger (Shell & tube heat exchanger can be accepted if it fits in the available space constraints)   |                                    |
| 2                 | Material   | Stainless Steel   |                                    |
| 3                 | Chilled Water Flow   | not less than 10.3 m <sup>3</sup> /hr   |                                    |
| <b>Condenser</b>  |  |   |                                    |

|   |                                |  |  |
|---|--------------------------------|--|--|
| 1 | Condenser Type / Tube Material | Inner Groove Type / Copper                         |  |
| 2 | Fins Material                  | Aluminum   |  |
| 3 | No of Rows                     | Minimum 3  |  |
| 4 | FPI                            | 12 to 16   |  |
| 5 | Fins Area                      | Please mention As per<br>Manufacturers requirement |  |

|                      |                                    |   |  |
|----------------------|------------------------------------|---|--|
| 6                    | Condenser Heat Exchange Area       | Please mention as per Manufacturers requirement |  |
| 7                    | No. Of Tubes                       | Please mention as per Manufacturers requirement |  |
| <b>Condenser Fan</b> |                                    |   |  |
| 1                    | Type / Drive                       | Broad Wheel Axial Fan with Low Noise            |  |
| 2                    | Quantity                           | 2   |  |
| 3                    | Blade Material                     | Galvanized Steel                                |  |
| 4                    | Motor Poles                        | 6   |  |
| 5                    | Air Volume                         | Please mention as per Manufacturers requirement |  |
| 6                    | Fan Motor W                        | Below 950                                       |  |
| 7                    | Fan Speed H/L RPM                  | 750/470   |  |
| <b>Compressor</b>    |                                    |   |  |
| 1                    | Type                               | High Efficient Hermatic Scroll                  |  |
| 2                    | Quantity per Chiller               | 2   |  |
| 3                    | Each Compressor Capacity           | TR  |  |
| 4                    | Compressor speed                   | RPM   |  |
| 5                    | IP/Insulation Grade                | IPX4/F  |  |
| 6                    | Flow Control                       | EXV   |  |
| 7                    | No of Refrigerant Circuits         | 2   |  |
| 8                    | <b>In built Protection Devices</b> | High Pressure Switch                            |  |
| 9                    |                                    | Low Pressure Switch                             |  |
| 10                   |                                    | Thermal Proctector                              |  |
| 11                   |                                    | Overload Protector                              |  |
| 12                   |                                    | Phase Sequencer                                 |  |

|              |   |  |  |
|--------------|---|--|--|
| 13           | <b>External Wired Controller -</b>              | Chiller OEM make Common wired controller for all 3 Chillers by looping in common communication cable |  |
| 14           | Remote Operation                                | Remote Operation should be possible  |  |
| 15           | Dimensions in MM (LXWXH)                        |  |  |
| 16           | Weight (Kg)                                     |  |  |
| <b>Pumps</b> |   |  |  |
| 1            | Make  | Please mention   |  |
| 2            | Type  | Please mention   |  |
| 3            | Model   | Please mention   |  |
| 4            | Type of fluid handled                           | Please mention   |  |
| 5            | General Arrangement and Foundation Drawings     | Kindly Attach  |  |
| 6            | Overall Size (including base frame) - L x D x H | mm x mm x mm   |  |
| 7            | Total Operating Weight                          | Kgs.   |  |
| 8            | Duty Condition Selected - flow rate / head      | USGPM/ MTRS  |  |
| 9            | Pump inlet / outlet connection dia              | mm /mm   |  |
| 10           | Efficiency                                      | %  |  |
| 11           | Pump performance curve and noise data           | Attach   |  |
| 12           | Impeller dia                                    | mm   |  |
| 13           | NPSH available                                  | Meters   |  |
| 14           | Power Absorbed                                  | KW   |  |
| 15           | Impeller dia                                    | mm   |  |
| 16           | NPSH available                                  | Meters   |  |
| 17           | Max impeller dia available for selected model   | mm   |  |

|            |                                   |                  |  |
|------------|-----------------------------------|------------------|--|
| 18         | Recommended motor KW              | KW               |  |
| 19         | Selected Motor KW                 | KW               |  |
| 20         | Motor Make                        |                  |  |
| 21         | Motor Type                        | TEFC / Sq.Cage   |  |
| 22         | Motor Protection                  |                  |  |
| 23         | Class of Insulation               |                  |  |
| 24         | Electrical Characteristics        |                  |  |
| 25         | Starting Current                  | amps             |  |
| 26         | Full Load Current (Amps)          | amps             |  |
| 27         | Motor Speed RPM                   | rpm              |  |
| 28         | Method of Starting                | DOL / Star-delta |  |
| 29         | Starter manufacturer              |                  |  |
| 30         | Material of Construction for PUMP |                  |  |
| 31         | Casing                            |                  |  |
| 32         | Impeller                          |                  |  |
| 33         | Shaft                             |                  |  |
| 34         | Shaft Sleeve                      |                  |  |
| 35         | Gland Sealing                     |                  |  |
| 36         | Accessories included:             |                  |  |
| <b>AHU</b> |                                   |                  |  |
| 1          | Make                              |                  |  |
| 2          | Type                              |                  |  |
| 3          | Model                             |                  |  |
| 4          | Schematic & Dimensional Drawings  | Kindly Attach    |  |
| 5          | AHU Size L x D x H                | mm x mm x mm     |  |

|    |  |                                 |  |
|----|--|---------------------------------|--|
| 6  | Operating Weight                         | kgs.                            |  |
| 7  | Type of Vibration isolators              | Spring                          |  |
| 8  | Material of Construction of Components   | Frame work / Casing             |  |
| 9  | Inner sheet casing thickness             | mm                              |  |
| 10 | Outer sheet casing                       | mm                              |  |
| 11 | Thermal break                            | Provided/ Not Provided          |  |
| 12 | Insulation Material, Thickness & Density | Rockwool / mm / Kg/m3           |  |
| 13 | Drain pan material, gauge, insulation    | SS (inside) / GI (outside) / G/ |  |
| 14 | Make of fan                              |                                 |  |
| 15 | Type of fan                              | Backward curved EC/Aerofoil     |  |
| 16 | Size and Dia of Fans                     | mm                              |  |
| 17 | No. of Fans / AHU                        | Nos.                            |  |
| 18 | Operating CFM & Range of CFM             | CFM                             |  |
| 19 | Fan Selection for Total Static Pressure  | mm of w.c.                      |  |
| 20 | Fan RPM                                  | RPM                             |  |
| 21 | Fan Efficiency                           | %                               |  |
| 22 | Fan Performance and Noise Curves         | Attach                          |  |
| 23 | AHU Outlet Velocity                      | FPM                             |  |

|    |  |                   |  |
|----|--|-------------------|--|
| 24 | Type of Bearing                          |                   |  |
| 25 | Noise Level at 1Mtr from AHU             | dBa               |  |
| 26 | Fan IKW                                  | KW                |  |
| 27 | Recommended motor KW                     | KW                |  |
| 28 | Motor Make                               | SIEMENS/ABB       |  |
| 29 | Motor Type                               | TEFC / Sq.Cage    |  |
| 30 | Motor Efficiency                         | IE3               |  |
| 31 | Class of Insulation                      | F                 |  |
| 32 | Electrical Characteristics               |                   |  |
| 33 | Starting Current                         | amps              |  |
| 34 | Full Load Current (Amps)                 | amps              |  |
| 35 | Motor Speed RPM                          | rpm               |  |
| 36 | Method of Starting                       | DOL / Star-delta  |  |
| 37 | Starter manufacturer                     | L&T/ Siemens      |  |
| 38 | Water inlet / outlet temp to / from coil | Deg C             |  |
| 39 | Coil ADP                                 | Deg C             |  |
| 40 | Coil capacity, TH                        | Btu/hr            |  |
| 41 | Coil capacity, SH                        | Btu/hr            |  |
| 42 | Coil capacity, LH                        | Btu/hr            |  |
| 43 | Coil Area, No. of Rows deep, Fin Spacing | Sq.Ft./ Nos / FPI |  |

|                                   |  |                               |  |
|-----------------------------------|--|-------------------------------|--|
| 44                                | Coil Face Velocity Air side  | ≤ 500 fpm                     |  |
| 45                                | Coil Flow Rate   | USGPM                         |  |
| 46                                | Air pressure drop across coil  | mm of w.c.                    |  |
| 47                                | Water pressure drop across coil  | mm of w.c.                    |  |
| 48                                | Material of tubes / fins   | Cu. / Al.                     |  |
| 49                                | Dia. of tubes / gauge of tubes   |                               |  |
| 50                                | Pre Filters Type, Face Areas   | SQM                           |  |
| 51                                | Filters Ratings: Prefilter Efficiency                                      | 90% down to 10 microns (G4)   |  |
| 52                                | Filters Ratings: FineFilter Efficiency                                     | 99.9 % down to 5 microns (F9) |  |
| 53                                | Filter make  |                               |  |
| 54                                | Conforming Standards   |                               |  |
| 55                                | Microprocessor Controller  |                               |  |
| 56                                | CFM  |                               |  |
| <b>Electrical Work :</b>          |  |                               |  |
| 1                                 | Panel Manufacturer/Make  |                               |  |
| 2                                 | Name of Electrical Contractor  |                               |  |
| 3                                 | Electrical Contractor's Licence No. and Validity Period/Date (Attach Copy) |                               |  |
| 4                                 | IP   |                               |  |
| <b>Evaporating Cooling System</b> |  |                               |  |
| 1                                 | Make   |                               |  |



|    |  |                                   |  |
|----|--|-----------------------------------|--|
| 2  | Type                                     |                                   |  |
| 3  | Model                                    |                                   |  |
| 4  | Schematic & Dimensional Drawings         | Kindly Attach                     |  |
| 5  | Unit Size L x D x H                      | mm x mm x mm                      |  |
| 6  | Operating Weight                         | kgs.                              |  |
| 7  | Type of Vibration isolators              |                                   |  |
| 8  | Material of Construction of Components   | Frame work / Casing               |  |
| 9  | Inner sheet casing thickness             | mm                                |  |
| 10 | Outer sheet casing                       | mm                                |  |
| 11 | Insulation Material, Thickness & Density | Rockwool / mm / Kg/m <sup>3</sup> |  |
| 12 | Make of fan                              |                                   |  |
| 13 | Type of fan                              | Backward curved/Aerofoil          |  |
| 14 | Size and Dia of Fans                     | mm                                |  |
| 15 | No. of Fans / Unit                       | Nos.                              |  |
| 16 | Operating CFM & Range of CFM             | CFM                               |  |
| 17 | Fan Selection for Total Static Pressure  | mm of w.c.                        |  |
| 18 | Fan RPM                                  | RPM                               |  |
| 19 | Fan Efficiency                           | %                                 |  |
| 20 | Fan Performance and Noise Curves         | Attach                            |  |
| 21 | Unit Outlet Velocity                     | FPM                               |  |
| 22 | Type of Bearing                          |                                   |  |
| 23 | Noise Level at 1Mtr from Unit            | dBA                               |  |
| 24 | Fan IKW                                  | KW                                |  |

|    |  |                               |  |
|----|--|-------------------------------|--|
| 25 | Recommended motor KW   | KW                            |  |
| 26 | Motor Make   | SIEMENS/ABB                   |  |
| 27 | Motor Type   | TEFC / Sq.Cage                |  |
| 28 | Motor Efficiency   | IE3                           |  |
| 29 | Class of Insulation  | F                             |  |
|    | <b>Electrical Characteristics :</b>                                  |                               |  |
| 30 | Starting Current   | amps                          |  |
| 31 | Full Load Current (Amps)   | amps                          |  |
| 32 | Motor Speed RPM  | rpm                           |  |
| 33 | Method of Starting   | DOL / Star-delta              |  |
| 34 | Starter manufacturer   | L&T/ Siemens                  |  |
| 35 | Water inlet / outlet temp to / from Unit                             | Deg C                         |  |
| 36 | Air pressure drop across adiabatic heat exchanger section            | mm of w.c.                    |  |
| 37 | Air pressure drop across sensible heat exchanger section             | mm of w.c.                    |  |
| 38 | Adiabatic heat exchanger details                                     |                               |  |
| 39 | Sensible heat exchanger details                                      |                               |  |
| 40 | Water Sump construction details                                      |                               |  |
| 41 | Pre Filters Type, Face Areas   | SQM                           |  |
| 42 | Filters Ratings: Prefilter Efficiency                                | 90% down to 10 microns (G4)   |  |
| 43 | Filters Ratings: FineFilter Efficiency                               | 99.9 % down to 5 microns (F9) |  |
| 44 | Filter make  |                               |  |
| 45 | Temperature Sensors, Relative Humidity Sensors & Water Level Sensors | Provided                      |  |
| 46 | Water Re-circulation Pump details                                    |                               |  |